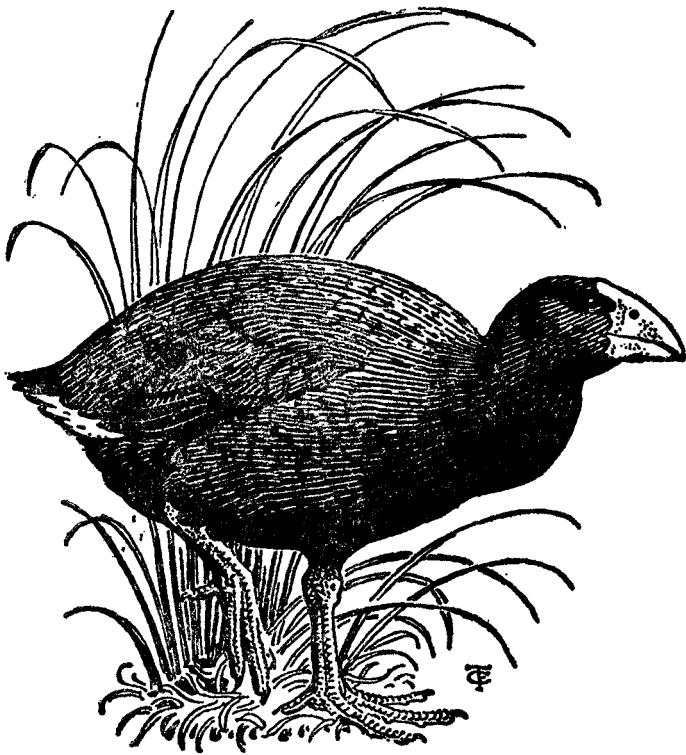


# NOTORNIS

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## NOTES ON SEA BIRDS BETWEEN NEW ZEALAND AND THE BOUNTY ISLANDS

By C. M. VOOREN

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Wellington*

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### ABSTRACT

The distribution and abundance of the sea bird species seen during a cruise between New Zealand and the Bounty Islands in December 1970 are described. The field characters of White-capped Mollmawk and Salvin's Mollmawk are discussed. Cape Pigeons and Salvin's Mollmawks were very abundant around their breeding site on the Bounty Islands, but were scarce elsewhere. White-capped Mollmawks were numerous on the Pukaki Rise. White-chinned Petrels were common towards the southern end of the study area (lat. 50° S). The white feathering at the base of the mandible could not be seen in these birds in the field. The Subtropical Convergence, which occurred about lat. 44° S, was a definite southern boundary of the distribution of Buller's Shearwater and the Flesh-footed Shearwater.

### INTRODUCTION

In December 1970 I was a guest on board the 3,210 ton research vessel *Kaiyo Maru* of the Japan Fishery Agency, Tokyo. The vessel left Wellington on 5 December 1970 and arrived at Lyttelton on 29 December 1970. Most of the cruise was spent in waters within the 500 m isobath on the Bounty Platform and the Pukaki Rise, with minor activities on the Chatham Rise and off Banks Peninsula (Fig. 1). I made sea bird observations on 16 out of the 23 full days at sea. The time spent watching sea birds varied from day to day, but was usually between one and two hours, the duration of individual watches ranging between 10 and 60 minutes. The sea surface temperature measured at the ship's cooling water intake was recorded with each sea bird watch. As a result of the ship's programme the data amount to clusters of observations on the Bounty Platform and the Pukaki Rise and scattered observations for other places.

The names used in this paper for the parts of the Mollmawk bill are taken from Serventy *et al.* (1972:61).

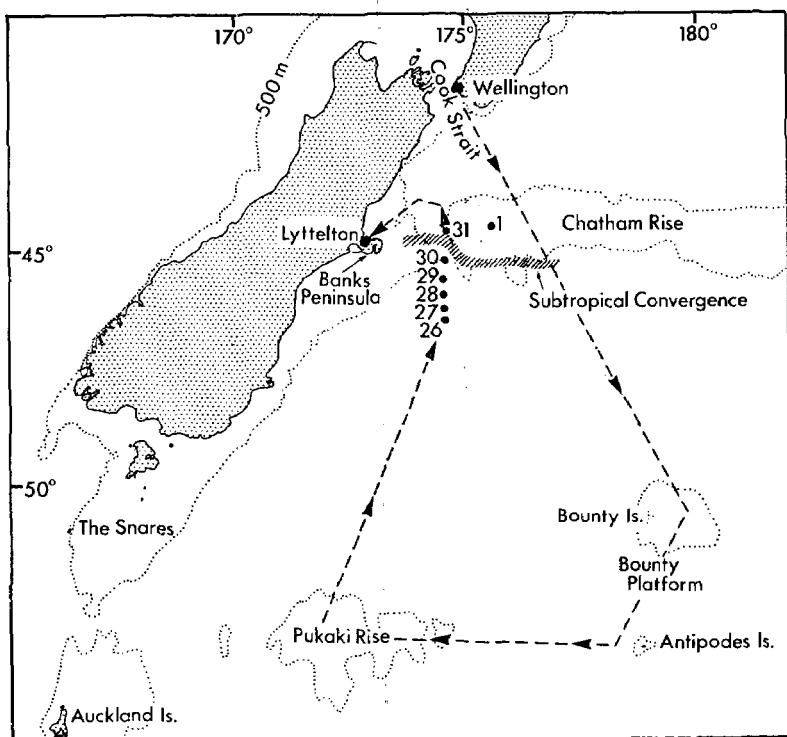


FIGURE 1 — The study area (after Lawrence 1967), with the Subtropical Convergence (after Nasu & Morita 1973), the generalised cruise track (broken lines), and some sea bird observation stations. The 500 m isobath is indicated by the dotted line.

#### OBSERVATIONS ON THE BOUNTY PLATFORM AND THE PUKAKI RISE

The species observed in these areas were given an index of abundance based on the order of magnitude of the numbers seen during a daily watch of about two hours:

- Scarce — 1-10 birds.
- Common — 10-100 birds.
- Abundant — more than 100 birds.

In addition to unidentified prions and terns, 16 species were seen, of which 14 were Procellariidae (Table 1).

The great abundance of the Cape Pigeon on the Bounty Platform contrasted strongly with its scarcity elsewhere. The Bounty Islands are one of the breeding stations of this species, and the distribution

TABLE 1. Sea birds observed on the Bounty Platform (12-16 December 1970, sea surface temperature between 7.1 and 9.8 C) and the Pukaki Rise (18-25 December, sea surface temperature between 8.1 and 10.7 C).

Abundance indices : - not recorded; o scarce; x common; xx abundant		Bounty Platform	Pukaki Rise
Royal Albatross	<i>Diomedea epomophora</i>	-	x
Wandering Albatross	<i>Diomedea exulans</i>	x	o
Black-browed Mollymawk	<i>Diomedea melanophris</i>	o	o
Grey-headed Mollymawk	<i>Diomedea chrysostoma</i>	-	o
White-capped Mollymawk	<i>Diomedea cauta cauta</i>	o	xx
Salvin's Mollymawk	<i>Diomedea cauta salvini</i>	xx	x
Light-mantled Sooty Albatross	<i>Phoebastria palpebrata</i>	o	o
Giant Petrel	<i>Macronectes giganteus</i>	o	-
Cape Pigeon	<i>Daption capensis</i>	xx	o
White-headed Petrel	<i>Pterodroma lessoni</i>	-	o
Mottled Petrel	<i>Pterodroma inexpectata</i>	-	x
White-chinned Petrel	<i>Procellaria aequinoctialis</i>	o	x
Sooty Shearwater	<i>Puffinus griseus</i>	x	o
Wilson's Storm Petrel	<i>Oceanites oceanicus</i>	x	o
Southern Skua	<i>Stercorarius skua lombergi</i>	o	o
Southern Black-backed Gull	<i>Larus dominicanus</i>	o	-
Prion	<i>Pachyptila</i> sp.	xx	-
Tern	<i>Sterna</i> sp.	o	-

of the birds indicated that in summer they concentrate near the breeding islands. This confirms observations by Ozawa *et al.* (1964) and explains the decrease of the numbers of this bird in the waters near New Zealand in spring (Vooren 1972).

Although several descriptions of the subspecies *cauta* and *salvini* of *Diomedea cauta* have been published (for instance Murphy 1930, 1936), identification of these birds at sea remains difficult, especially of the immature forms. A dark mandibular nail (unguis) has been stressed as the outstanding feature of both immature and mature Salvin's Mollymawks (J. A. Bartle pers. comm.) and can be easily seen in these birds once it is looked for (Figs 2a, b). However, the immatures of *Diomedea c. cauta* also show this feature (Simpson 1972, R. A. Falla pers. comm. 1973). It was absent in the breeding males and females of this subspecies collected during the 1972/73 Auckland Islands expedition (F. C. Kinsky unpublished data). Hence, the birds shown in Figs 3a and 4 are immatures and Fig. 3b a mature specimen of *Diomedea c. cauta*. In very young birds of this subspecies the head and neck down to shoulders and breast are an even light grey (Simpson 1972), and these parts become gradually lighter with age, so that the amount of grey on head and neck cannot be used to distinguish these juveniles from mature *Diomedea c. salvini*. But Simpson's description and photograph indicate that in the grey-headed young *Diomedea c. cauta* both the maxillary unguis and the mandibular unguis are very dark in colour, while in the adult *Diomedea c. salvini* the maxillary unguis is pale yellow (Fig. 2b).

If the two subspecies are seen together then the body size can be a guide in the identification, *Diomedea c. cauta* being noticeably larger. A comparison of Figs 2b and 3a suggests that this subspecies may also have a longer and heavier bill relative to the size of its head, but measurements on a few museum skins did not confirm this. The bill of *Diomedea c. cauta* did not appear to be deeper relative to its length compared with *Diomedea c. salvini*, and if the inter-orbital width is proportional to skull size, then the bill of the former subspecies is not longer relative to skull size (Table 2).

Falla (pers. comm. 1973) has also stated that *Diomedea c. cauta* has less dark colouring on the tip of the underwing than *Diomedea c. salvini*, and a comparison of Figs 2a and 4 confirms this. Examination of museum skins showed that this difference is due to the fact that the inner webs of the primaries are white in *Diomedea c. cauta* except for grey colouration at the very tip, while in *Diomedea c. salvini* they are entirely dark grey.



FIGURE 2a — Salvin's Mollymawk, *Diomedea cauta salvini*, mature plumage, Pukaki Rise, 22 December 1970.

Photo: A. Coakley



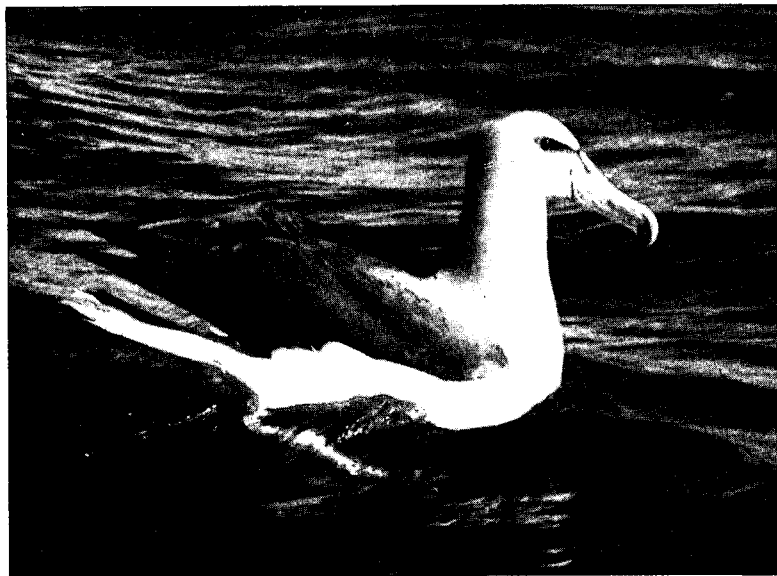


FIGURE 2b — Salvin's Mollymawk, *Diomedea cauta salvini*, mature plumage, off Gisborne, east coast of the North Island, May 1954.

Photo: M. K. McKenzie

TABLE 2. Some measurements on skins of *Diomedea cauta cauta* and *Diomedea cauta salvini*, present in the National Museum, Wellington. The specimen numbers are those under which the skins are listed in the catalogue of the museum. The interorbital width in the distance between the upper edges of the eye sockets, measured across the top of the head. 'Bill' measurements refer to the closed bill as a whole, with mandible and maxilla pressed together. Bill depth (tip) was measured just behind the maxillary unguis, and bill depth (base) just behind the nostrils. The 'middle' of the bill was located by eye, about half way between tip and base. All measurements are in mm.

	<i>Diomedea cauta cauta</i>						<i>Diomedea cauta salvini</i>					
	Female			Male			Female			Male		
Specimen No.	17383	17385	17283	17386	17282	17387	15522	1311	16415	13714	17384	16414
Interorbital width	50.8	64.7	63.0	62.0	68.0	64.5	53.6	52.3	52.7	61.8	63.2	57.0
Culmen length	123.3	130.0	127.3	133.8	136.7	135.0	121.7	128.2	121.4	125.8	132.1	132.8
Bill depth (tip)	29.5	28.9	27.9	32.5	29.9	30.8	29.4	27.0	28.4	29.5	29.6	29.3
Bill depth (middle)	30.9	31.9	31.5	33.8	34.5	33.0	30.4	28.3	30.1	31.4	32.3	31.2
Bill depth (base)	44.8	48.6	48.4	47.2	52.3	47.4	41.0	45.8	44.4	45.0	42.9	43.8
Bill width (middle)	16.4	18.4	19.1	19.6	18.8	18.4	16.0	14.0	17.0	16.0	18.0	18.5
Interorbital width/ culmen length	0.41	0.50	0.49	0.46	0.50	0.48	0.44	0.41	0.43	0.49	0.48	0.43
Bill depth (base)/ culmen length	0.36	0.37	0.38	0.35	0.38	0.35	0.34	0.36	0.37	0.36	0.32	0.33



FIGURE 3a — White-capped Mollymawk, *Diomedea cauta cauta*, immature, off the west coast of the South Island, March/April 1973.

Photo: P. E. Roberts



FIGURE 3b — White-capped Mollymawk, *Diomedea cauta cauta*, mature, off the west coast of the South Island, March/April 1973.

Photo: P. E. Roberts

The mollymawks seen around the Bounty Islands during the *Kaiyo Maru* cruise were mostly of the type shown in Fig. 2 and were identified as mature *Diomedea c. salvini*. These birds occurred there in immense numbers, and were obviously concentrating in the vicinity of their breeding site. Further westwards, on the Pukaki Rise, they were largely replaced by a mixture of mature and immature *Diomedea c. cauta*.

The White-chinned Petrel was, after *Diomedea c. cauta*, the commonest bird on the Pukaki Rise, although its abundance may have been over-estimated as a result of its tendency to follow the ship. White feathering on the chin, one of the key features of this species, was especially looked for, but was never seen in any of the birds. The distinguishing field characteristics were: overall dark colour, large size and heavy build, and heavy-yellowish or light-greenish horn-coloured bill. At a distance the species could at times



FIGURE 4 — White-capped Mollymawk, *Diomedea cauta cauta*, immature. Pukaki Rise, 22 December 1970.

Photo: A. Coakley



FIGURE 5 — White-chinned Petrel, *Procellaria aequinoctialis*. The under-surface of the primaries appears light on this photograph owing to reflected light, but it is in fact black. Pukaki Rise, 22 December 1970.

Photo: A. Coakley

be mistaken for the Giant Petrel. At close quarters the black markings on the bill (rims of nostrils, upper culminicorn, mandibular groove) and the black legs and feet could be seen (Fig. 5). The birds were also seen 100 km west of the Antipodes Islands and 100 km east of Banks Peninsula, so they occurred over a wide area, but especially near the southern edge of the cruising area (lat. 50° S) at surface temperatures between 8.1 and 10.7°C. This result is at variance with summer sea bird logs between New Zealand and the Ross Sea published by Dell (1960) and Darby (1970), who did not record the species at all or saw it only between Wellington and lat. 46° S, but Watson *et al.* (1971) list the species as common along ship's tracks between New Zealand and lat. 50° S.

## BIRDS AROUND THE SUBTROPICAL CONVERGENCE

The Subtropical Convergence (abbreviated as STC) occurred to the east of Banks Peninsula (Fig. 1) and was crossed twice, once on the way south and once while returning to Lyttelton. The sea bird observation stations around the STC are shown in Fig. 1. The sea surface temperatures recorded at these stations illustrate the occurrence of the STC (Table 3). Buller's Shearwaters and Flesh-footed Shearwaters were the commonest birds at station 1. During the series of stations 26-31, Buller's Shearwaters suddenly became common at station 28 and were seen at all the following stations. Flesh-footed Shearwaters appeared at station 30 and were the commonest species there and at station 31. Dell (1960) and Darby (1970) did not mention the Flesh-footed Shearwater, but recorded Buller's Shearwater also only north of Banks Peninsula. In summer the STC apparently coincides with a distinct southern boundary of the distribution of Buller's Shearwater and Flesh-footed Shearwater. The White-chinned Petrel was uncommon as far north as the STC, but not entirely absent; two birds were seen at station 31.

Buller's Shearwater breeds in summer at the Poor Knights Islands, about 1,000 km north of the part of the STC visited by *Kaiyo Maru*. Manx Shearwaters, *Puffinus puffinus*, breeding at Skokholm in the British Isles are known to forage in the Bay of Biscay, 500 to 1,000 km away from their breeding grounds (Lockley 1969). Therefore, it is possible that Buller's Shearwaters seen at the STC are at the same time engaged in the breeding cycle at the Poor Knights Islands.

TABLE 3. Sea surface temperatures recorded at the cooling water intake of the research vessel *Kaiyo Maru* around the Subtropical Convergence (stations also shown in Fig. 1).

Station	Date	POSITION		Sea Surface Temperature (°C)
		Latitude (S)	Longitude (E)	
1	7/12/70	42° 23.4'	175° 29.7'	15.6
26	27/12/70	44° 52.5'	174° 30.0'	12.4
27	27/12/70	44° 43.0'	174° 30.0'	13.4
28	27/12/70	44° 30.0'	174° 30.0'	13.6
29	27/12/70	44° 20.0'	174° 30.0'	14.8
30	27/12/70	44° 00.0'	174° 30.0'	16.0
31	27/12/70	43° 33.0'	174° 28.5'	17.0

## ACKNOWLEDGMENTS

I am grateful to the Japan Fishery Agency for the opportunity of taking part in the cruise and to Mr A. Coakley, who was also a guest on board and who took the colour transparencies from which Figs 2a, 4 and 5 were taken. Figure 2b is from a photograph by Miss M. K. McKenzie, and Figs 3a and 3b are from colour transparencies by Mr P. E. Roberts. I also thank Sir Robert Falla and Messrs J. A. Bartle and P. C. Harper for reading the manuscript and providing useful comments, and Mr F. C. Kinsky for giving me the opportunity to examine specimens in the National Museum in Wellington.

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# PLUMAGES OF VARIABLE OYSTERCATCHERS

By R. H. D. STIDOLPH

Observations on the plumage of Variable Oystercatchers (*Haematopus unicolor*) on the east, south and west coasts of the Wellington district north to the Rangitikei River mouth in the west and to the Hawkes Bay boundary in the east show, based on records over the past 42 years, that black birds are much more dominant in the Wairarapa East Coast than on the Manawatu West Coast. Moreover, an analysis of the plumages of 50 birds of intermediate form shows that just over half are almost black and only 13 almost pied.

The Wairarapa East and South Coasts are largely rocky with restricted shingle or sandy beaches whereas the West Coast in the area from Paekakariki to the Rangitikei River mouth is sandy without any rocks.

Classified as black, intermediate and pied, the figures are:

## WAIRARAPA EAST COAST (Flat Point to Mataikona)

1931 - 1973	Black	Intermediate	Pied
Flat Point	11	1	0
Riversdale	21	5	1
Orui	1	1	0
Whakataki	14	0	0
Mataikona	7	1	0
Totals	54	8	1

## WAIRARAPA SOUTH COAST (Palliser Bay)

1931 - 1973	Black	Intermediate	Pied
Cape Palliser	2	1	[2 undetermined]
Onoke Spit	6	0	0
Totals	8	1	[0]

## MANAWATU WEST COAST (Waikanae to Rangitikei River)

1931 - 1973	Black	Intermediate	Pied
Waikanae	4	0	0
Waikawa	3	3	4
Ohau	36	12	1
Hokio	1	1	0
Manawatu	29	35	5
Rangitikei	1	1	1
Totals	74	52	11



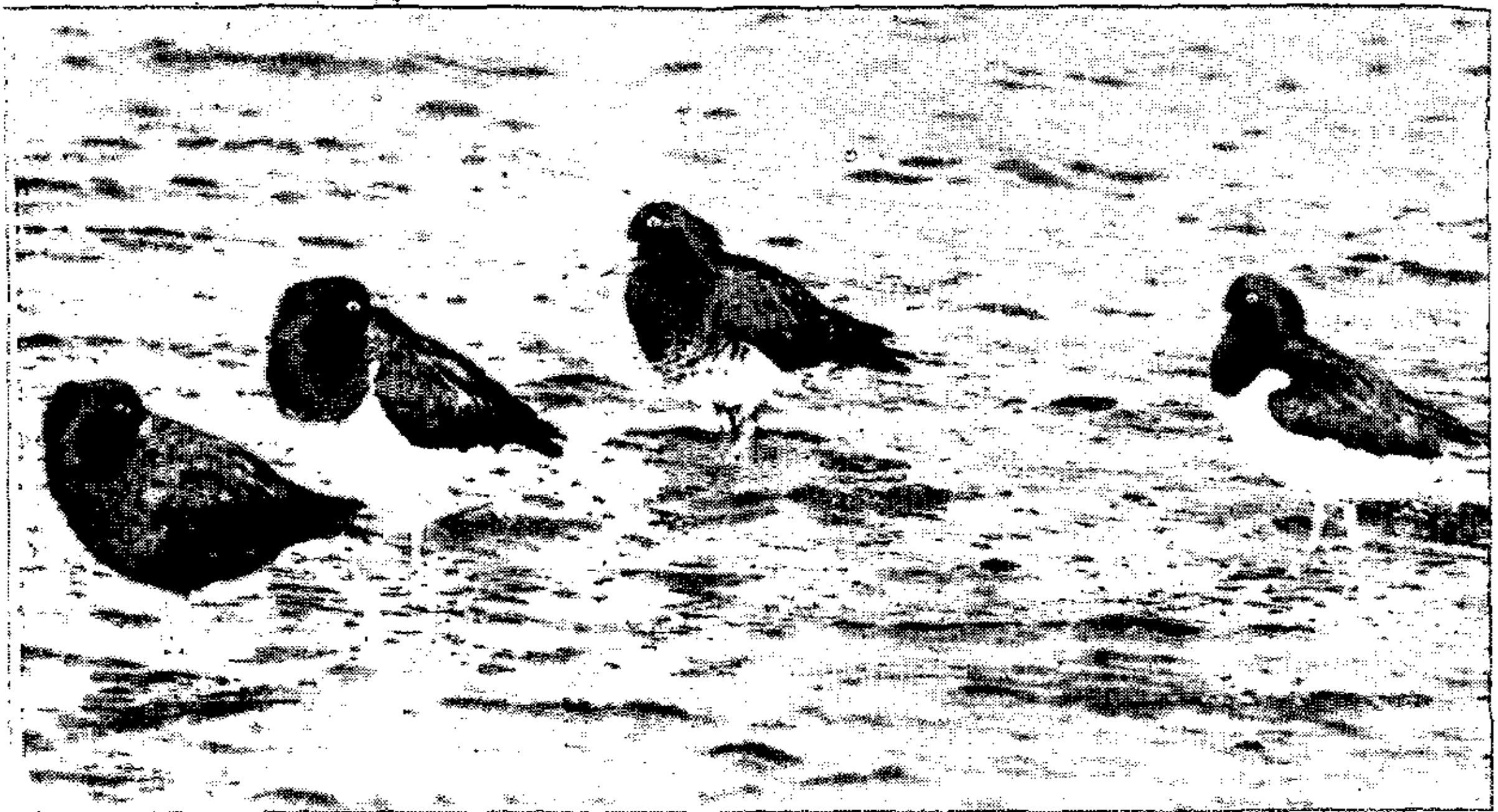


FIGURE 1 — Oystercatchers at Paremata, Wellington west coast, 23 July 1973, showing plumage differences between Variable and South Island Pied Oystercatchers (often colloquially referred to as "SIPO"). From left, black form of Variable (*Haematopus unicolor unicolor*), SIPO (*H. ostralegus finschi*), pied form of Variable (*H. unicolor reischeki*) with smudgy breast line, and SIPO. Note the clear line of demarcation on breast of SIPO and the white "shoulders."

Photo: S. Pownceby



FIGURE 2 — Part of a flock of 31 SIPO with a black Variable. Note the conspicuous white "shoulders" in both side and front views of the SIPO.

Photo: S. Pownceby.



An analysis of 50 birds of intermediate plumage from all areas shows 26 almost black, 11 others far more black than pied, 2 well pied on breast but with black rumps and 11 more pied than black. Details are:

ALMOST BLACK (all with black rump)

Few white feathers on vent — 3

Whitish lower breast and vent — 9

Traces of white on wing in flight — 14

MORE BLACK THAN PIED

Very narrow or narrow wing stripe and white or whitish on vent, black rump — 10

Fairly wide wing stripe, whitish rump — 1

Well pied on breast, narrow wing stripe but with black rump — 2

ALMOST PIED (all with restricted or ill-defined white rump)

Few white feathers on breasts, narrow wing stripe — 1

More white on breast, narrow wing stripe — 3

More or less pied, ill-defined white rump — 7

I am indebted to Mr S. Pownceby for the accompanying photographs of oystercatchers (Figs 1 and 2).

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# A TRANSECT DIAGRAM FOR OCEANIC BIRDS RECORDED BETWEEN McMURDO SOUND, ANTARCTICA, AND NEW ZEALAND, FEBRUARY - MARCH 1973

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At the conclusion of a summer season appointment by the DSIR (Antarctic Division) to the New Zealand Antarctic Research Programme 1972-73 I was fortunate to make the return passage in the United States Coast Guard Icebreaker *Northwind*. The ship departed from McMurdo (77°51'S) at 1145 on 23 February and arrived at Lyttleton (43°33'S) at 0830 on 4 March, the passage time including an eight hour mail stop at Campbell Island (52°31'S) on 1 March. Although the distribution of southern oceanic seabirds has been very well documented over many years for the period December to February, the late departure of the *Northwind* (due to an icebreaking commitment in McMurdo Sound) on this occasion provided an opportunity to record seabirds unusually late in the season.

Bird observations were carried out from the ship's bridge for periods of one hour at intervals throughout the day (one hour at the cruising speed of 15 knots corresponds to  $\frac{1}{4}^{\circ}$  of latitude) and the number of individuals of each species seen plotted diagrammatically against latitude to produce a transect diagram (see Fig. 1). A key to the species shown in Fig. 1 is given in Table 1, and a summary of the distribution and density peaks of other species recorded is given in Table 2.

A	Antarctic Skua	<i>Stercorarius skua maccormicki</i>
B	Snow Petrel	<i>Pagodroma nivea</i>
C	Light-mantled Sooty Albatross	<i>Phoebastria palpebrata</i>
D	Antarctic Petrel	<i>Thalassoica antarctica</i>
E	Mottled Petrel	<i>Pterodroma inexpectata</i>
F	Black-browed Mollymawk	<i>Diomedea melanophris</i>
G	White-headed Petrel	<i>Pterodroma lessoni</i>
H	Antarctic Prion	<i>Pachyptila desolata</i>
I	Sooty Shearwater	<i>Puffinus griseus</i>
J	White-chinned Petrel	<i>Procellaria aequinoctialis</i>

Table 1. Key to the species shown in the Transect Diagram, Fig. 1

The type of transect diagram shown in Fig. 1 may be more familiar to plant ecologists than to ornithologists, but nevertheless it may usefully be applied to depict density and distribution of birds recorded on sea passages in which changes in direction are small in relation to distance travelled, and may therefore be ignored.

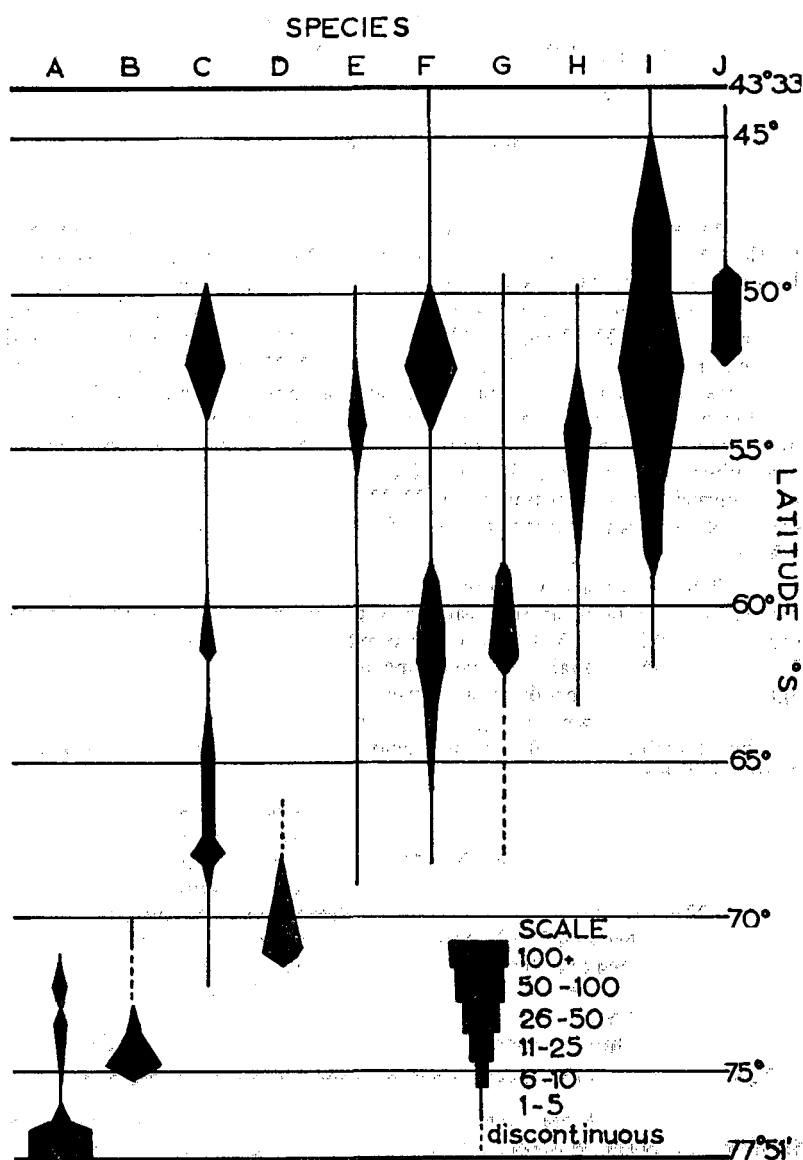


FIGURE1 — A transect diagram for certain seabird species recorded between McMurdo Sound (77°51'S) and New Zealand (43°33'S), 1973. See text for explanation and Table 1 for key to species.

Species	Latitude first seen	Latitude last seen	Latitude of peak density
Emperor Penguin ( <u>Aptenodytes forsteri</u> )	77°51'S	77°45'S	77°51'S (50)
Giant Petrel ( <u>Macronectes giganteus</u> )	74°00'S	43°33'S	44°00'S (30) Discontinuous
Wilson's Storm Petrel ( <u>Oceanites oceanicus</u> )	72°20'S	59°00'S	Even (3)
Cape Pigeon ( <u>Daption capensis</u> )	68°25'S	43°33'S	66°30' (50) Discontinuous
Silver-grey Fulmar ( <u>Fulmarus glacialisoides</u> )	67°05'S	66°00'S	Even (4)
Grey-headed Mollymawk ( <u>Diomedea chrysostoma</u> )	66°30'S	49°20'S	Individuals Discontinuous
Royal Albatross ( <u>Diomedea regia</u> )	63°40'S	48°25'S	52°30'S (100)
Wandering Albatross ( <u>Diomedea exulans</u> )	59°10'S	43°33'S	44°35'S (30) Discontinuous
Diving Petrel ( <u>Pelecanoides urinatrix</u> )	57°30'S	52°30'S	54°30'S (8).
Grey Petrel ( <u>Procellaria cineria</u> )	56°00'S	54°30'S	Individuals
Black-bellied Storm Petrel ( <u>Fregetta tropica</u> )	52°30'S	48°15'S	Individuals
Shy Mollymawk ( <u>Diomedea cauta</u> )	49°50'S	43°33'S	Individuals
Buller's Shearwater ( <u>Puffinus bulleri</u> )	45°50'S	43°33'S	Even (2)
Flesh-footed Shearwater ( <u>Puffinus carneipes</u> )	45°40'S	43°33'S	44°00'S (15)

Table 2. Summary of seabirds recorded McMurdo - New Zealand not included in Figure 1. Figures in brackets in last column represent numbers of individuals seen per hour at latitude of peak density.

Observations from a directly North-South passage lend themselves particularly well to this type of presentation, but "diagonal" passages (e.g. from New Zealand to Panama) could receive the same treatment providing coordinates of starting point and destination are indicated. The transect diagram affords a semi-quantitative visual assessment of the zonation of species, and their densities at the time of observation; Fig. 1 shows, in particular, the increase in density of several species at latitude 53°-52°S, in Campbell Island waters. The date at any point on the transect may be determined by interpolation from the base lines, assuming, of course, uniform cruising speed.

A transect diagram of this kind for birds differs from one for plants in an important way — the densities of birds may alter significantly during the time taken to cross the transect, and the zone of one species may have altered in relation to another near the Southern part of the transect while recordings are still being made in the North. Confidence in interpretation will be increased, however, by combining the records from a number of passages.

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# BIRDS OF THE SOLANDER ISLANDS

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## ABSTRACT

Bird observations made during seven days (26-28 January 1973, 30 January-3 February 1973) spent on the Solander Islands are recorded. Twenty-four species were found on the Solanders including 5 species not previously recorded there.

## INTRODUCTION

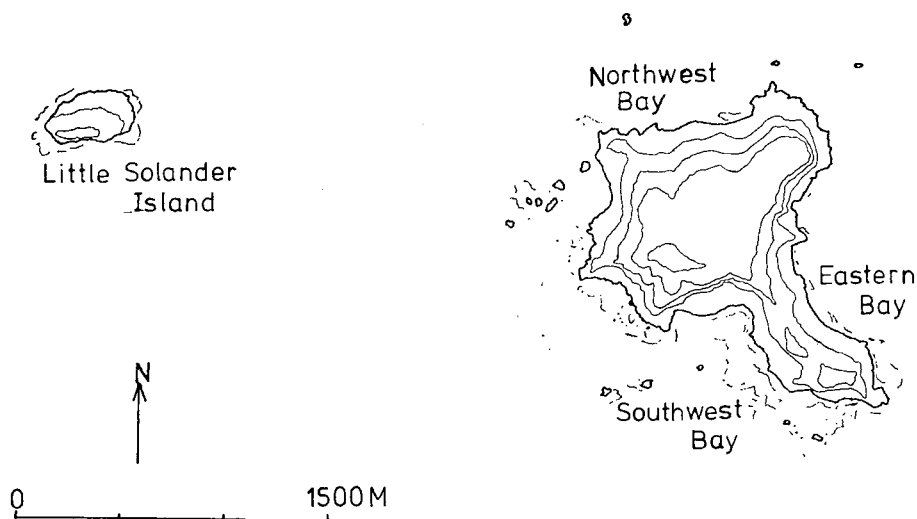
The Solander Islands lie in the western entrance to Foveaux Strait, some 52 km south of Puysegur Point and 63 km west of Stewart Island. Since their discovery by Captain Cook on 11 March 1770 they have had a well-deserved reputation for inhospitality and visitors have been infrequent. Sealers worked the Solanders in the early 1800's and more recently in 1946. During the last few years crayfishermen have fished around the islands.

The Solander Islands are erosional remnants of a former volcano. The larger of the two islands, Big Solander, is roughly triangular, 335 m high, and slopes steeply from a fairly flat top. The shoreline consists of boulder beaches which are occupied by several thousand fur seals (*Arctocephalus forsteri*). The Eastern Bay, where most visitors have landed, has scrubby bush, mainly *Olearia* sp., *Blechnum* fern and *Hebe elliptica*, clinging to the near-vertical slopes. At the gently sloping bases of these cliffs are small areas of scrub greatly disturbed by seals. Northwest and Southwest Bays have fern and tussock slopes, with scrub only in the valleys well above sea level, and provide easier access to the top of the island. Little Solander Island, about 180 m high, has a steep coastline but is almost rounded on top. The vegetation is similar to that on the western slopes of the main island.

Scientific visits have been infrequent. Mr E. F. Stead spent an hour ashore in 1933, and Dr (now Sir Robert) Falla landed on 9 December 1947 with Dr R. C. Murphy and others, and on 20 July 1948 he made short visits to both islands. Dr H. J. Harrington and Dr B. L. Wood of the New Zealand Geological Survey briefly visited the main island on 16 February 1957.

Falla (1948) recorded the birds seen on his visits and Harrington and Wood (1958) described the geology of the islands and included a map showing topographical features, reprinted in part here.

Although I spent a total of seven days at the Solanders the prime aim of this visit was a study of the Fur Seal population, leaving less time than desired for ornithological activities. I left Halfmoon Bay, Stewart Island, on 25 January 1973 on F.V. *Helena* (skipper Owen Eriksson), arrived at the Solanders in stormy conditions and was unable to go ashore until the next day. I spent two nights



### SOLANDER ISLANDS

FIGURE 1 — Map of the Solander Islands showing localities mentioned in the text. Contours at 250 foot intervals. Based on a geological map by Harrington and Wood (1958).

camped at Eastern Bay and left the island on 28 January, but due to heavy seas was unable to take off equipment. On 30 January I returned to the Solanders, again on the *Helena*, and spent that day circumnavigating both islands before going ashore at Eastern Bay that evening. On 31 January I was landed at Southwest Bay and returned to camp over the razorback ridge (150 m high) separating this from Eastern Bay. I spent 1-2 February at Eastern Bay and was uplifted on 3 February and returned to Halfmoon Bay.

### RECORDS

Southern Blue Penguin (*Eudyptula m. minor*)

This species has not been seen previously but on this trip I collected bones from the cave at Eastern Bay.

Fiordland Crested Penguin (*Eudyptes p. pachyrhynchus*)

Fiordland Crested Penguins were found moulting along the boulder beaches in both Eastern and Southwest Bays and at least 20 were in the cave at Eastern Bay. Birds were found at all stages of moult, but in most moult appeared to be well advanced. No chicks were seen.

Snares Crested Penguin (*Eudyptes p. atratus*)

One was seen by Falla in December 1947 and I saw one in premoult fat at Southwest Bay on 31 January 1973.

### Bullers Mollymawk (*Diomedea bulleri*)

Bullers Mollymawks were found nesting over most of both islands from 15 m to at least 150 m above sea level. At Eastern Bay nests were on small ledges well hidden in the scrub. On Southwest Bay and Little Solander Island nesting birds were more conspicuous on the steep fern and tussock slopes. Nests were scattered except on the razorback ridge between Eastern and Southwest Bays where nests were very close together.

Many birds were incubating eggs, but on some nests a lone bird was present while at others pairs were courting. Most of the eggs were still clean and tinged with pink, and the adults were easily disturbed, indicating the eggs were recently laid. Thus, it appears that egg laying occurs here at about the same time as at the Snares Islands where eggs are laid in January-February. Bullers Mollymawks at the Chatham Islands lay their eggs in October-November (Falla *et al.* 1970).

Early in the evening of 26 January a group of about 15 Bullers Mollymawks with several Southern Blackbacked Gulls, Australian Gannets, White-fronted Terns and a single Sooty Shearwater were seen over a school of silvery herring-like fish. The mollymawks were making shallow dives and were the only birds actually seen taking fish.

### Other Albatrosses

A few Shy (*Diomedea c. cauta*) and Salvins (*D. c. salvini*) Mollymawks were seen offshore when approaching or leaving the Solanders, and a lone Wandering (*D. exulans*) or Royal (*D. epomophora*) Albatross was seen on 28 January 1973.

### Giant Petrel (*Macronectes giganteus*)

Giant Petrels were seen offshore in small numbers and three were seen on a pebble beach at Southwest Bay when I went ashore there at 0700 hr on 31 January. The open tussock slopes of the Southwest and Northwest Bays and Little Solander Island appear suitable for this species to nest. However, I saw no signs of breeding on the parts of Southwest Bay I visited.

### Snares Cape Pigeon (*Daption capensis australis*)

Falla (1948) saw adult Cape Pigeons cruising along the cliffs of Little Solander Island in December 1947 and suggested this species may breed there. On 30 January 1973 I spent over an hour close to Little Solander Island inspecting the cliffs but did not see any sign of these birds ashore. However, at the Snares Islands, little adult activity was observed on the breeding grounds in late January 1971 and the chances of observing chicks on nests from a boat are slight. The western and southern cliffs of Little Solander Island have numerous ledges and crevices similar to those used by Cape Pigeons at the Snares. These cliffs appear suitable for Cape Pigeons to nest on and it is hoped subsequent parties will be able to confirm this. Cape Pigeons were seen offshore on most days but never in large numbers.



### Prions

No prions were seen on this visit, but Fairy Prion (*Pachyptila turtur*) bones and other prion bones were collected from the cave at Eastern Bay. Falla observed Broad-billed Prions (*P. v. vittata*) offshore on 9 July 1948 and found Fairy Prion bones in skua or hawk middens on Little Solander Island.

### Sooty Shearwater (*Puffinus griseus*)

Up to several hundred Sooty Shearwaters were seen offshore most mornings and evenings, and a few birds heard overhead just after dusk. Burrows were found scattered throughout the gently sloping scrub at Eastern Bay, particularly under fern bases. In one burrow that I inspected on 26 January a chick and adult were heard within it and fresh eggshell was found.

### Subantarctic Little Shearwater (*Puffinus assimilis elegans*)

On Falla's visit a possible sighting of a Subantarctic Little Shearwater was made on 11 December 1947 and skeletal material collected. I collected further skeletal material on the Eastern Bay boulder beach.

### Mottled Petrel (*Pterodroma inexpectata*?)

*Pterodroma* petrels were heard overhead each night about 2200 hours. The calls heard were "ti ti ti", often prefixed by "graaw", and sometimes followed by a more hysterical "tee tee tee". This bird is most likely to be the Mottled Petrel which breeds nearby on some of the islands around Stewart Island, or could less likely be Cooks Petrel (*P. cooki*) which is a much rarer bird found breeding only on Little Barrier, Great Barrier and Codfish Islands (OSNZ 1970).

### Southern Diving Petrel (*Pelecanoides urinatrix chathamensis*)

Skeletal material was found at Southwest Bay and in the cave at Eastern Bay but no live birds were seen. Falla found this to be the principal burrowing petrel on Little Solander Island in 1948.

### Australian Gannet (*Sula bassana serrator*)

Falla confirmed the presence of breeding Australian Gannets on Little Solander Island in 1948 when he found a small colony of about 20 nests in a small gully. I was unable to land on this island, but from the boat I located two groups of nesting gannets. One group of 19 or 20 birds (18 nests) was on a steeply sloping rock face about 10 m above sea level, and the second group of 20-30 birds in a clearing on an exposed ridge about 70 m above sea level. The nests of the lower group consisted of crude piles of dried tussock. Most nests were in two loose groups spread along a ledge on the rock slope, and at one end gannets nested alongside Buller's Mollymawks. The top group could not be accurately counted as it appeared to extend down into a gully. This is probably the colony that Falla found. The gannet population of Little Solander Island appears to have at least doubled since 1948. Gannets were commonly seen offshore and they are notable seabirds in Southern Fiordland.

**Blue Shag (*Stictocarbo punctatus steadi*)**

The only shags I saw were two Blue Shags on the north-eastern point of Big Solander Island on 26 January 1973.

**Stewart Island Weka (*Gallirallus australis scotti*)**

The Stewart Island Weka was introduced to Big Solander Island by sealers for food. It is now common, but I saw many birds that were very thin though apparently healthy. On 1 February a possible fledgling was seen following an adult, and next day the "hunched-up, feathers ruffled" display typical of wekas was observed.

**Variable Oystercatcher (*Haematopus unicolor*)**

Several pairs were seen at Eastern Bay and 5-6 birds on the Southwest Bay boulder beach, where they may breed. The piping display was observed on 1 February. This is a new Solander Island record.

**Southern Black-backed Gull (*Larus dominicanus*)**

This species is common at the Solanders but the only sign of breeding was two chicks seen at Southwest Bay on 30 January. One was downy with the primaries just appearing and the other chick was almost fully fledged.

**Red-billed Gull (*Larus novaehollandiae scopulinus*)**

Although it appears to be less numerous than the Black-backed Gull, three small Red-billed Gull colonies were found along Eastern Bay. These colonies were on areas of broken-down cliffs above the seal colony. Several nearly-fledged young were seen.

**White-fronted Tern (*Sterna striata*)**

They were commonly seen offshore and on coastal rocks in flocks of up to 26. Several young of the current season were observed but no nests were found.

**Yellow-crowned Parakeet (*Cyanoramphus a. auriceps*)**

Parakeets were observed frequently and appeared to be *auriceps* as reported by Falla (1948).

**Hedge Sparrow (*Prunella modularis occidentalis*)**

Hedge Sparrows were uncommon and I made only one definite sighting.

**Grey Warbler (*Gerygone i. igata*)**

One of the most impressive features of the Solander Island bird life was the abundance of Grey Warblers. On some days the songs of these and Bellbirds were almost unending.

**Yellow-breasted Tit (*Petroica m. macrocephala*)**

Tits were seen in all the areas of scrub that I visited.

**Blackbird (*Turdus m. merula*)**

This species is uncommon, and like most island Blackbirds they are very shy.

**Bellbird (*Anthornis m. melanura*)**

These birds were very common at Eastern Bay.

## DISCUSSION

Species reported by Falla (1948) and not seen on my visit are Subantarctic Little Shearwater, prions, Reef Heron (*Egretta s. sacra*), Australasian Harrier (*Circus approximans gouldi*), Southern Skua (*Stercorarius skua lonnbergi*), Fantail (*Rhipidura f. fuliginosa*), and Silvereye (*Zosterops l. lateralis*). Of these I found skeletal material of prions and Subantarctic Little Shearwater, and presumably the heron and hawk were transitory. The apparent absence of Southern Skua, Fantails and Silvereyes is surprising although Falla indicates none of these was common.

Excluding birds seen offshore, the new species recorded on my visit are Southern Blue Penguin (skeletal material only), Giant Petrel, a possible record of the Mottled Petrel, Blue Shag and Variable Oystercatcher. Of these the Mottled Petrel and the Variable Oystercatcher are probably breeding at the Solanders.

It would be interesting to visit the tussock slopes of the western bays of Big Solander Island, and from there gain access to the top of the Island. These areas are as yet virtually unknown. There are bird bones washed into the cave at Eastern Bay and further collecting here could reveal information on the former fauna. Little Solander has only been visited briefly by Falla and must have species as yet unrecorded at the Solanders.

## ACKNOWLEDGEMENTS

I wish to thank Owen Eriksson, skipper of F.V. *Helena*, for transport to the Solanders, and his crew for their support and interest during my visit. R. J. Scarlett, Canterbury Museum, identified all the bones collected and retains these in the museum collections. This visit was made while financed by a grant from the Ministry of Agriculture and Fisheries for Fur Seal research. I am grateful to Dr D. S. Horning Jr and Dr M. C. Crawley for their review of the manuscript.

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# DETERMINATION OF THE SEX AND AGE OF STARLINGS IN CANTERBURY, NEW ZEALAND

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## ABSTRACT

The reliability of sexing and ageing Starlings in Canterbury from plumage characters was examined. Males were sexed without error and females almost so (98.7%). Birds in adult plumage were classified as first year or older, and all of known age fell into the correct group.

## INTRODUCTION

The determination of sex and age is problematical for many bird species, and the Starling *Sturnus vulgaris* L. is no exception. Sex has been determined most accurately for this species by Parks (1962) and Schwab & Marsh (1967), who used a combination of the iris and mandibular rami colours; the latter authors being correct for 97.6% and 97.7% of males and females respectively. Age has been determined by Bullough (1942), Kessel (1951), and Davis (1959) from the length of the iridescent portion on the lower throat hackles of birds in adult plumage, two age classes being recognizable; birds of less than 12 months old, and those older. Both methods were used and critically examined by the author for Starlings in Canterbury, as a prerequisite for a concomitant study of the species' feeding ecology.

Approximately 40 birds were shot each month between April 1969 and March 1970. Carcasses were examined on the day of collection as the colour of some organs faded rapidly with refrigeration. Additional information was gathered from breeding birds taken live at nest sites.

Each carcass was checked for the colour of its irides, mandibular rami and general plumage, and the extent of its throat hackle feather iridescence. Predictions of both age and sex were checked using birds of known age and by autoptic studies of gonads and the bursa Fabricii; the latter a bulbous lymphoid sac opening into the upper cloaca. For hackle iridescence, four of the longest most attenuate hackles present on the birds' forethroat were plucked from each Starling, and the iridescent portion of each (minus the white tip) measured to the nearest millimetre, using a stereoscopic microscope. Iridescence means calculated for each bird were analysed by the use of Harding's (1949) method of polymodal frequency distribution analysis as revised by Cassie (1950), and linear transformations obtained for the component groups of the size frequency distributions present. Such analyses permitted a ready detection of overlapping data for these component groups, the point of inflexion in each bimodal frequency distribution corresponding to the low point of a frequency diagram.

## RESULTS

*Determination of sex*

Eye colour in adult Starlings was dimorphic (Table 1). In females the iris was edged by a broad band which ranged in colour from light lemon to deep orange, and enabled ready identification in 96% of females examined. Conversely, most males (67.3%) possessed a uniform deep-liver-coloured iris. The remaining birds of both sexes possessed irides peripherally marked by a narrow faint yellow band, and determination of sex was difficult. All birds attained adult eye colour characteristics by the end of their first moult and retained them thereafter.

Bill colour was also dimorphic (Table 1) but varied seasonally. Birds of either sex had uniformly dark bills in mid and late summer (January-March), which changed to a bright lemon-yellow in early winter (April-May) over a period of 4 to 6 weeks (Table 2). Concurrently, the rami of the lower mandible turned blue to blue-black in all males examined and light pink in 97% of all females; the remaining females (two) had bills which were entirely lemon-yellow.

Table 1. THE RELIABILITY OF SECONDARY SEX CHARACTERISTICS IN

## STARLINGS OF ADULT PLUMAGE

	Males		Females	
	No. examined	Percent composition	No. examined	Percent composition
Iris colour				
Identification positive	76	67.3	72	96.0
Character indecisive	37	32.7	3	4.0
Bill ramus colour				
Identification positive	113	100.0	73	97.3
Character indecisive	Nil	Nil	2	2.7
Both characters combined				
* Identification positive	113	100.0	74	98.7

Note - \* Ignores single indistinct character of any pair

*Determination of age*

Young Starlings retained a dull grey-brown plumage for approximately 12 weeks following fledging (Table 2) and had grey eyes and grey-black bills, the latter at first edged with bright yellow wattles. They moulted between January and the end of March, and

Table 2. SEASONAL VARIATION IN AGE AND SECONDARY  
SEX CHARACTERISTICS

Age/Sex character	Month of Collection											
	J	F	M	A	M	J	J	A	S	O	N	D
Juvenile plumage present		1	15	7	-	-	-	-	-	-	-	12
Bursa Fabricii present		1	15	6	-	-	-	-	-	-	-	12
Adult bill colour												
(a) Wholly black		17	15	18	35	10	1	-	-	-	-	2
(b) Intermediate but without secondary sex character		-	-	-	12	9	6	-	-	-	-	5
(c) Wholly yellow with secondary sex character present		-	-	-	-	4	41	35	39	36	37	12
No. of Starlings		18	30	25	47	23	48	35	39	36	37	12

attained a typical dark spangled adult plumage indistinguishable from that of older birds. Autoptic studies revealed that this moult was concomitant with the regression of the bursa Fabricii (Table 2).

In adult Starlings of either sex the length of the iridescent portion of hackle feathers was bimodally distributed (Fig. 1); the two component groups within each sex representing birds of less than 12 months of age and those older. Males and females respectively had mean iridescence values of  $9.0 \pm 0.18$  (= S.E) and  $5.6 \pm 0.05$  mm in the shorter hackle group, and  $14.3 \pm 0.12$  and  $9.5 \pm 0.13$  mm in the longer hackle group. Numbers in the first group were low, due largely to young birds in adult plumage being present in the population for little more than half of their first year.

The overlapping flanks of the frequency distributions of each component group within each sex were separated out (Table 3), thus dividing each sex into three possible classes. Starlings with iridescence values of 6-7 mm in females and 10-12 mm in males were considered to be of indefinite age (Group B, see Table 3) and the remainder of each component group fell into either group A or group C (Table 3). Proportionately more females than males fell into the indefinite category, as the two component groups of females were compacted into a smaller range.

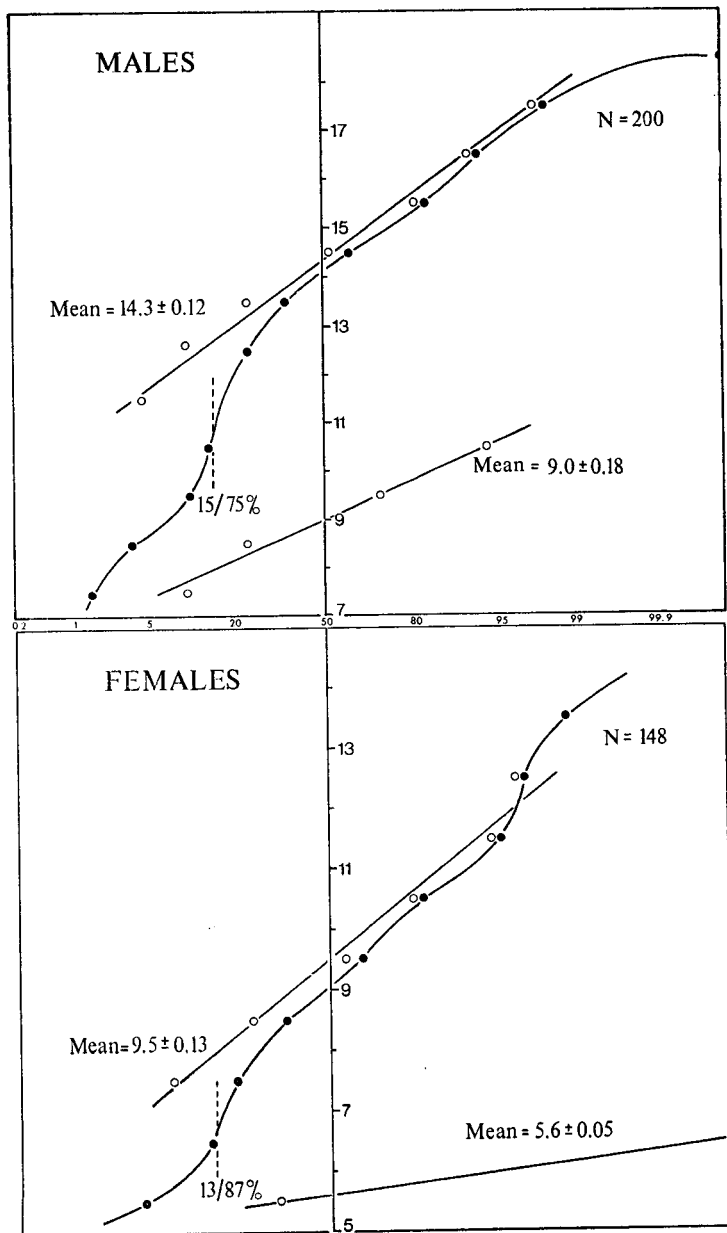


FIGURE 1 — The determination of the parameters of overlapping normally distributed component groups, indicated by hackle feather measurements (the Y coordinate). The X coordinate shows probability values. The second inflexion in the curve plotted for females has been ignored, as it concerns less than 5% of birds measured.

Table 3. THE COMPONENT GROUPS WITHIN THE SIZE FREQUENCY  
DISTRIBUTIONS OF HACKLE FEATHER IRIDESCENCE

Size Class	Females			Males		
	N	Percent Occurrence	Group Limits (mm)	N	Percent Occurrence	Group Limits (mm)
Group A	8	5.4	<6	22	11.0	<10
Group B	22	14.9	6-7	26	12.9	10-12
Group C	118	79.7	>7	153	76.1	>12

Groups A and B of both sexes included a few individuals less than 12 months old with adult or partially adult plumage and a distinct bursa Fabricii. Conversely, the hackle iridescence of 92 adults recaptured while breeding for the second year, and therefore at least two years old, all fell into group C. Likewise, two birds banded as nestlings and trapped two years later had hackles within the group C range.

### CONCLUSIONS

Starlings can be sexed by the sexually dimorphic iris and mandibular rami colours. Iris colour is a less reliable criterion, especially for males (67% accuracy), than the colour of the bill rami (100% accuracy), but the latter can be used only from May to December. By using a combination, and ignoring single indistinct characters, the criteria distinguish males without error and females almost so (98.7%).

Following the moult of a distinctive juvenile plumage, all Starlings are superficially alike. However, the length of the iridescent portion of the lower throat hackles varies with age. Length frequency distributions of hackle iridescence show two groups within either sex representing birds in their first year, and those older. Using this criterion, the ages of a small proportion of Starlings (13% of males, 15% of females) cannot be determined, but all birds of known age fall into the correct group. Iridescence values show a partial separation with sex, but measurements for first year males and older females overlap, thus the character is unreliable for sex determination.

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# GENETICS OF PLUMAGE VARIABILITY IN THE VARIABLE OYSTERCATCHER (*Haematopus unicolor*)

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## ABSTRACT

The Variable Oystercatcher (*Haematopus unicolor*), which has melanistic, pied and intermediate phases, was studied in the field in New Zealand from 1969 to 1972 inclusive. Parents and their progeny were colour-banded, and the development of plumage with age was checked for non-genetic variation. The parent-offspring data can be most simply explained by a genetic model involving a major gene (W) whose dominance is modified only in the heterozygous condition. In the model, the pied condition is homozygous dominant (WW), the melanistic condition is homozygous recessive (ww), and all intermediate-plumaged birds are heterozygous Ww. The wide range of plumage variability in the intermediate phase seems most likely explained by the action of polygenic modifiers acting cumulatively at a number of loci, and specifically on the Ww genotype. Gene frequencies and genotype frequencies are in Hardy-Weinberg equilibrium, indicating that selection does not operate against the heterozygote to form an isolating mechanism between the homozygous pied and melanistic phases. The three phenotypes are therefore best considered as colour phases of one species, *H. unicolor*.

## INTRODUCTION

Oystercatchers are dimorphic through much of their world range, being either pied or wholly black. The melanistic forms have been particularly troublesome to taxonomists (see Stresemann 1927) especially since they do not often occur sympatrically with pied forms. Thus the acid test of interbreeding of these forms (and the consequent evaluation of genic differences that it permits) is rarely available for systematic studies. Black and pied forms are sympatric and interbreed in only three known locations; *Haematopus bachmani* (black) and *H. palliatus palliatus* (pied) interbreed in the Gulf of California (Bancroft 1927), *H. ater* (black) and *H. palliatus durnfordi* (pied) in Golfo San Jose, Argentina (Jehl *et al.* 1973), and *H. unicolor* (black and pied) in New Zealand (Buller 1888). Interbreeding of pied and black phases of *H. unicolor* was first suspected by Buller (1873), and later Rothschild (1899) considered an intermediate-plumaged bird from such crosses sufficiently distinctive to warrant full species rank *reischeki*. The systematic confusion which followed this move (see Falla 1939; Oliver 1955; Falla *et al.* 1966) has resulted from a lack of knowledge of the interbreeding and inheritance of the colour phases.

In New Zealand, crosses of black and pied phases of *H. unicolor* produce progeny of extremely variable plumage, and it was this variability that led to the coining of the vernacular (R. B. Sibson, pers. comm.). The purpose of this paper is to describe this plumage variability and to give a broad outline of its inheritance as a step towards clarifying systematic relationships of the colour phases.

### METHODS AND MATERIALS

Wintering birds were trapped by projecting a cannon-net over roosting flocks, and breeding birds were trapped at the nest using an automatic drop-trap (Baker in press) set over the eggs. Because Northland is the only part of New Zealand in which all colour phases are well represented (Baker 1973), most trapping was concentrated there. Sampling localities and sample details are listed in Table 1. Trapping was carried out over the period 1969 to 1971 inclusive. Each of the trapped birds was colour-banded, and photographs were taken of the alar bar on the wing, the ventral plumage, and the rump patch of all pied and intermediate phase birds (see Fig. 3).

Inheritance of colour phases was studied by examining broods from various parentages. Data were gathered on 57 such broods involving a total of 108 chicks. Progeny phenotypes were recorded at hatching, as black chicks have brown bellies, pied chicks have white bellies, and intermediate chicks have a mixture of brown and white down on the belly (see Figs. 1 & 2). This primary classification

Table 1. Samples of Variable Oystercatchers used in this study.

Locality	Latitude (°S) and Longitude (°E)		Date	N
Te Werahi Bay	34° 27'	172° 41'	Jan. 1971	4
Ninety Mile Beach	34° 30'	172° 40'	Jan. 1971	10
Great Exhibition Bay	34° 38'	173° 03'	Jan. 1971	4
Kowhai Beach, Houhora	34° 46'	173° 09'	Jan. 1971	4
Rangaunu Bay	34° 50'	173° 12'	Jan. 1971	2
Takou Bay	35° 06'	173° 56'	Jan. 1970	2
Waipu Beach	36° 00'	174° 28'	Jan. 1970	8
Waipu Beach	36° 00'	174° 28'	May 1970	27
Waipu Beach	36° 00'	174° 28'	Jan. 1970	2
Waipu Beach	36° 00'	174° 28'	May 1971	9
Somes Island	41° 16'	174° 51'	Nov. 1970	4
Kaikoura Peninsula	42° 24'	173° 41'	Dec. 1969	2
Jackson Bay	43° 58'	168° 40'	Dec. 1970	2
Total				80

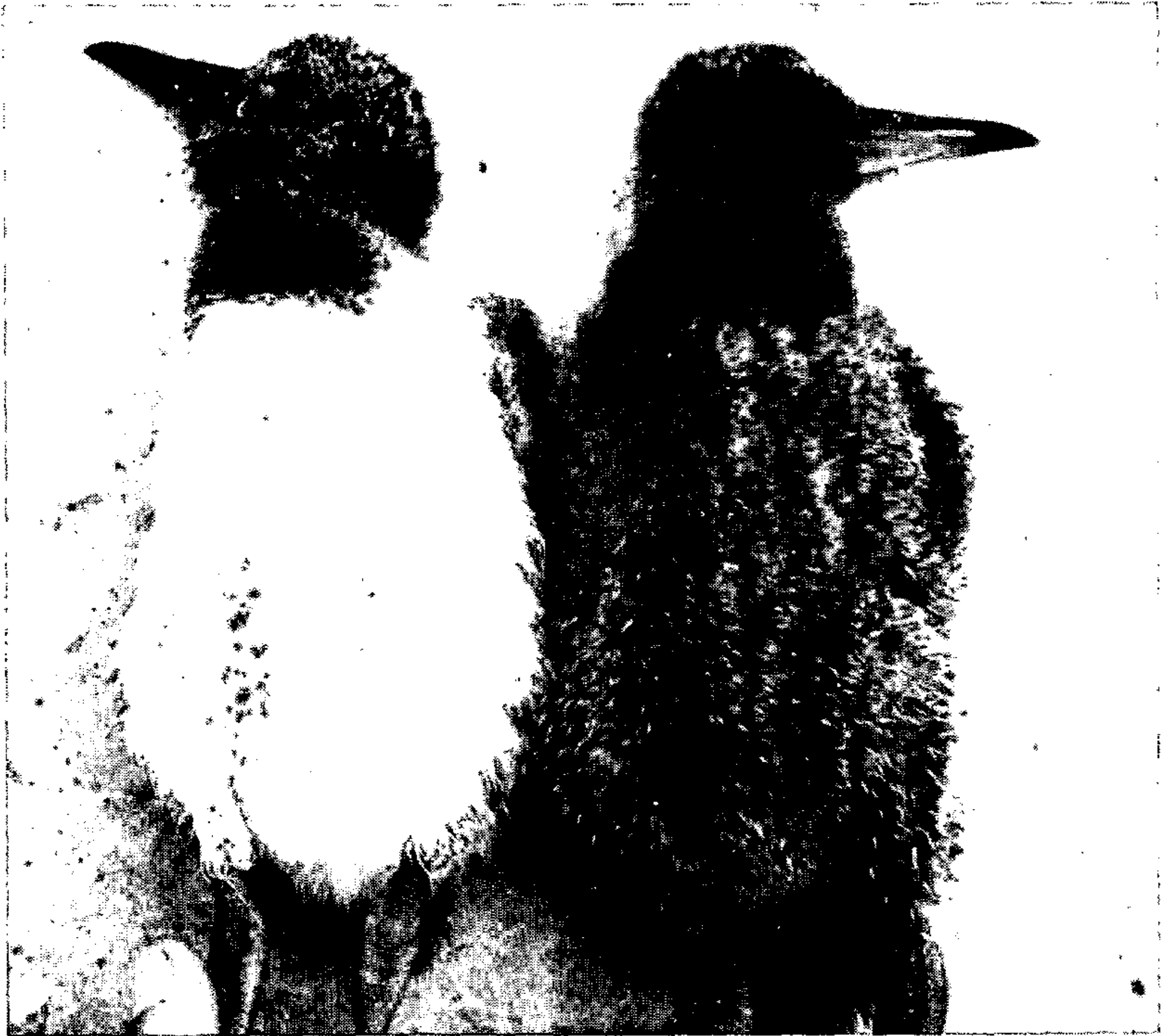


FIGURE 1 — Pied and black phase Variable Oystercatcher chicks aged about 14 days.

is only approximate, however, as there is no detectable difference between the downy plumages of black and very black intermediate chicks, and also between pied and very pied intermediates. The degree of intermediacy in the plumage of the intermediate phase birds cannot be gauged until the chicks have gained their juvenile feathers at the age of approximately six weeks. I have been able to follow only 12 juveniles through to their second year plumage, but in all cases there was no detectable change in plumage variability with age.

The frequencies of the colour phases in Northland were recorded in the 1969-1970 and 1970-1971 breeding seasons, though the major part of the Northland census was accomplished with the aid of personnel of the OSNZ Northland field trip in January 1971.

## RESULTS

### *Plumage variability:*

It has been tacitly assumed in the past that plumage variation between the extremes of pied and black is continuous, as for example in the statement of Oliver (1955): "There is no fixed pattern, every



FIGURE 2 — Intermediate phase Variable Oystercatcher chicks aged about 21 days. Note the dark down amongst the white of the undersurface.

individual being differently marked.” The range of plumage variation in breast, rump and alar bar patterns of birds captured during this study is shown in Figure 3. Although these patterns do not include all those evident in live-trapped or museum specimens, they do cover the observed range of variation with the exception of some very pied individuals. In the extreme condition, pied birds are similar to the South Island Pied Oystercatcher (*H. o. finschi*), with white areas in front of wing, and a white rump patch extending up onto the back in a bright wedge. I have observed two of these birds, and



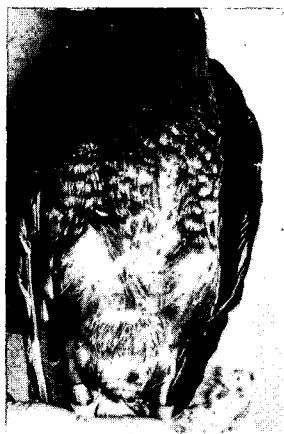
FIGURE 3 — Variation in the plumage patterns of the breast, alar bar on the wing, and rump patch of Variable Oystercatcher, ranging from pied (1) to black (10) phases. See text for explanation of numbers.

3

4



5



6



7





8



9



10



one was recently reported from D'Urville Island (Mrs Marion Lane, pers. comm.). The corresponding loss of white parts in the breast, rump and alar bar patterns from pied through to black indicates that there is effective linkage between the genes controlling these traits. To facilitate the description of plumage variability in sections beyond, the phenotypes in Figure 3 were classified as follows: pied (1), very pied intermediate (2 & 3), pied intermediate (4), intermediate (5 & 6), black intermediate (7 & 8), very black intermediate (9), and black (10). All the phenotypes from 2 through to 9 can be referred to collectively as the "intermediate phase."

*Inheritance of plumage variability: Parent-offspring data:*

Parent-offspring data can be most easily presented initially by lumping all parti-coloured phenotypes under the intermediate phase, and thus dealing with only three colour phases as in Table 2. The most noticeable feature of these data is that the extremes of black and pied both breed true. Although the sample sizes are small for these phenotypes, similar findings have been reported previously by Oliver (1955). It therefore seems likely that black and pied phases are homozygous for the genes controlling plumage variability. The parental cross of black and pied phases produced only intermediate phase offspring, though it is noteworthy that six of the 16 chicks were near the pied end of the intermediate phase. The  $F_1$  cross of intermediate by intermediate yielded  $F_2$  progeny of all three phenotypes, showing that the genes involved had segregated and recombined independently in a typical Mendelian manner. Again, it is noteworthy that there is a large representation of pied phenotypes. The backcross of black and intermediate phases produced only black and intermediate progeny, and the other backcross of pied and intermediate produced only intermediate and pied progeny.

*Genetic model:*

Quite clearly then, these data can be simply explained by two autosomal allelic genes at a single genetic locus, with black and pied being homozygous and the intermediate phase being heterozygous. This hypothesis can be tested using the Hardy-Weinberg Law of population genetics. Where three phenotypes (WW, Ww and ww) are distinguishable, the maximum likelihood estimate of the frequency (p) of W is given by

$$p = \frac{2a + b}{2N}$$

where a = the number of homozygous WW individuals, b = the number of heterozygous Ww individuals, and N = the total sample size (see Li 1955: 12). Using the data of Table 2 for the mating combinations,

$$p = \frac{40 + 56}{228} = 0.421$$

$$\text{and } q = 1 - p = 0.579$$

Table 2. Parent-offspring data for the Variable Oystercatcher

Mating Combination	Inferred Genotype	N	Progeny		
			Black (ww)	Intermediate (Ww)	Pied (WW)
Black x black	ww x ww	10	20	-	-
Black x intermediate	ww x Ww	11	6	14	-
Intermediate x intermediate	Ww x Ww	20	6	16	14
Intermediate x pied	Ww x WW	5	-	5	3
Pied x pied	WW x WW	4	-	-	7
Pied x black	WW x ww	7	-	17	-
			32	52	26
Totals		57		108	

The observed phenotypes in the progeny and those expected from Hardy-Weinberg proportions are shown in Table 3. The lack of significance of the  $X^2$  values attests to the agreement of observed and expected numbers, and supports the hypothesis that the three colour phases are controlled by two autosomal allelic genes.

Unfortunately, it is not possible to elucidate dominance relations of the two alleles from these data because of the phenotypic variability in the heterozygote, and so the data in Table 2 were subdivided further to provide critical information on the inheritance of this variability (see Table 4).

Table 3. Observed and expected frequencies of 108 offspring phenotypes assuming Hardy-Weinberg equilibrium where  $p = 0.421$  and  $q = 0.579$ .

Phenotype	Genotype	H/W proportions	Observed frequency	Expected frequency	$X^2$ -value	P
Pied	WW	$p^2$	26	19.1	1.83	$0.5 > p > 0.1$
Intermediate	Ww	$2pq$	52	52.7	0.01	$p < 0.9$
Black	ww	$q^2$	32	36.2	0.55	$0.5 > p > 0.1$

Table 4. Additive effects of "piedness" in parent-offspring data.

N	Mating Combination	Phenotypes of intermediate phase offspring				
		very black	black	intermediate	pied	very pied
4	Black x very black intermediate	+	+			
2	Very black intermediate x very black intermediate	+	+	+		
3	Black intermediate x black intermediate		+	+	+	
6	Intermediate x intermediate			+	+	•
3	Pied intermediate x pied intermediate				+	+
2	Very pied intermediate x very pied intermediate					+

It is apparent from this analysis that as the amount of "piedness" in the mating phenotypes increases then so does the amount of "piedness" increase in the progeny phenotypes. Moreover, this effect seems to be additive, so that the "pied" allele becomes increasingly dominant over the "black" allele on progression from a black intermediate through to a pied intermediate. Thus it is reasonable to assume that in the intermediate (Ww) phase the dominance of W is influenced by additive genic effects at other loci. Genes which control the phenotypic expression of a heterozygote by altering dominance relations of the major genes are referred to as specific modifiers, specific in the sense that they modify only the heterozygote (Sinnott *et al.* 1950). If the modifiers were present as a polygenic complex of say five genes, then the intermediate phenotypes might be represented as in Table 5. Thus the modifiers would act additively in determining the degree of dominance of the major gene W, as is common in these polygenic systems (Sinnott *et al. op cit.*). The intermediate phenotypes could therefore range between the extremes of black or pied, even though they all had the same basic genotype for the major gene. The actual number of modifiers involved in controlling dominance is likely to be greater than five, since there are more phenotypes discernable than are listed in the simplistic example above.

Table 5. Hypothetical model of the action of modifier genes on the major gene for colour phase.

Phenotype	Condition at major locus	Condition at modifier loci
Black	ww	no action irrespective of condition
Very black intermediate	Ww	M <sub>1</sub>
Black intermediate	Ww	M <sub>1</sub> M <sub>2</sub>
Intermediate	Ww	M <sub>1</sub> M <sub>2</sub> M <sub>3</sub>
Pied intermediate	Ww	M <sub>1</sub> M <sub>2</sub> M <sub>3</sub> M <sub>4</sub>
Very pied intermediate	Ww	K <sub>1</sub> M <sub>2</sub> M <sub>3</sub> M <sub>4</sub> M <sub>5</sub>
Pied	WW	no action irrespective of condition

#### *Implications of genetic equilibrium:*

The maintenance of genetic equilibrium in successive generations of *H. unicolor* as indicated by the Hardy-Weinberg proportions in the offspring has several important implications for an interpretation of interbreeding of the colour phases in this species. Hardy-Weinberg equilibrium conditions are as follows: the breeding population must be large; the population must mate at random; and, mutation, selection

Table 6. Relative frequencies of the three colour phases of the Variable Oystercatcher in Northland.

	Phenotype		
	Black	Intermediate	Pied
Numbers in Northland	258	267	179
		704	
Per cent occurrence	36.7	37.9	25.4
		100.0	

and migration must be absent or have reached their own equilibria. Are these conditions really met for the *H. unicolor* data above, or are they merely fortuitous accidents of sampling design?

The Northland population of *H. unicolor* probably involves at least 200 pairs; I have observed 101 pairs in less than half the known Northland breeding range. A breeding population of this size would seem to be large enough to preclude deviations from equilibrium due to sampling error. Whether or not the colour phases breed at random can be ascertained by comparing observed mating frequencies with those expected on the basis of the relative frequencies of the colour phases in Northland. The relative frequencies of the three colour phases in Northland are shown in Table 6. Although there is almost certainly some misclassification of phenotypes in this table (with very black intermediates being classified as black and very pied hybrids being classified as pied) resulting in an under-representation of the intermediate phenotype, it is doubtful whether this source of error would effect significantly phenotype frequencies in view of the large overall sample size. Observed and expected frequencies of 101 Northland mating combinations, the phenotypes of which were determined

Table 7. Observed and expected frequencies of 101 mating combinations in Northland.

Mating combination	Observed frequency	Expected frequency assuming random mating	X <sup>2</sup> -value	P
Black x black	17	13	1.23	0.5 > p > 0.1
Pied x pied	7	7	0.00	p > 0.975
Pied x black	14	18	0.89	0.5 > p > 0.1
Intermediate x intermediate	22	15	3.27	0.1 > p > 0.05
Black x intermediate	24	28	0.57	0.5 > p > 0.1
Pied x intermediate	17	20	0.45	0.9 > p > 0.5

by careful inspection by the author, are shown in Table 7. Expected frequencies were calculated (using the data of Table 6) as follows: the mating frequency of WW crosses is given by:

$$\text{WW } (\delta \delta) \times \text{WW } (\text{♀ ♀}) = (179/704) \times (179/704) \\ = 0.065$$

For 101 pairs we would expect  $101 \times 0.065$  pied matings i.e. approximately 7 pairs. None of the differences between observed and expected frequencies are significant, indicating that mating is random with respect to colour phase. Variable Oystercatchers are non-migratory (Oliver 1955; Falla *et al.* 1966), and once they form pairs they tend to localize in an area and occupy the same territory from year to year. Evidence for selection and mutation is lacking too (Baker 1972), so it can be concluded that conditions under which the Hardy-Weinberg law applies are fully met.

## DISCUSSION

The parent-offspring data are in agreement with the hypothesis that plumage colour phases are controlled primarily by two autosomal allelic genes, with the dominance relations of the pied and black alleles in the heterozygote being modified by genes at other loci. However, some previously published parent-offspring data apparently do not conform to this hypothesis, the most notable exception being that recorded by Buller (1888) in which two pied chicks were seen following two black adults. It is not clear from Buller's account whether the black adults were actually the parents of these chicks, and it is also possible that one or both of these adults may have been very black hybrids. During the 1970 OSNZ Northland field trip I received a report from several ornithologists in the party that two black adults had a brood of one black and one pied chick. On investigating this personally I found that both parents had tiny amounts of white near the vent, and thus were very black intermediates. With this mating combination pied and black chicks are to be expected. Other instances in which "pied" chicks are reported from black  $\times$  intermediate matings (e.g. Falla 1939; Brathwaite 1950) may also be due to misclassification of parental or offspring phenotypes. The only other explanation of these data is that the modifiers can produce black and pied birds at the phenotypic extremes of the basic Ww genotype. If this were so then two pied parents could produce black offspring (which has never been recorded) and two black parents could produce pied offspring (only one unsubstantiated report).

Where major effects such as black versus white or black versus pied are involved, the genetic mechanism involved is usually simple and involves very few major genes, usually a pair (see Southern 1945; O'Donald & Davis 1959; Cooke & Gooch 1968; Munro *et al.* 1968; Caughley 1969; Berry & Davis 1970; Shaughnessy 1970; and Craig 1972). However, in these cited cases, the colour phases are sharply discontinuous and are referred to as polymorphism. Polymorphism has been defined precisely by Mayr (1963: 670) as "the simultaneous

occurrence of several *discontinuous* phenotypes or genes in a population, with the frequency of the rarest type higher than can be maintained by recurrent mutation." Since the variation in intermediate phase phenotypes of *H. unicolor* ranges between the extremes of black and pied (thereby giving a continuous span of phenotypes), the use of polymorphism (OSNZ 1970) to describe this variability may be unwise. Continuous variation is usually indicative of an underlying polygenic system of genetic control, where a series of genes each with minor and cumulative effects are involved (Mather 1949). In *H. unicolor* the variation seems to be restricted to the genotype heterozygous for the major gene, and is most easily explained by modifiers acting specifically on the genotype heterozygous for the major gene (Dunn 1937).

The existence of Hardy-Weinberg equilibrium in gene frequencies and genotype frequencies of the three colour phases has taxonomic implications. If the heterozygous intermediate colour phase was of lower fitness than the two homozygous phases, then disequilibrium would ensue and the heterozygote would drop to a very low frequency. Thus the extremes of black and pied would be effectively reproductively isolated, which would require the recognition of these two phases as semispecies as suggested by Oliver (1955), and they should be accorded full species rank (Short 1969). The occurrence of equilibrium proportions of the intermediate phase genotype in the Variable Oystercatcher argues against such an interpretation, and therefore it must be concluded that the three phenotypes are best considered as colour phases of one species (*H. unicolor*), as is advocated by the Checklist Committee (OSNZ 1970).

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## CLASSIFIED SUMMARISED NOTES

Compiled by A. T. EDGAR

Selected extracts from notes supplied to the Recording Scheme during 1972/3. This series includes observations by Dr J. A. Fowler during a voyage on U.S. Coast Guard icebreaker from McMurdo Sound to New Zealand in February/March 1973; references have been abbreviated in the text to "McMurdo-NZ" (see also article in this issue of *Notornis*).

A correction to *Notornis* 19:357 appears under Black-billed Gull.

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E. & O. E.

### NORTH ISLAND KIWI (*Apteryx australis mantelli*)

Waitangi Forest, June 73, one wandered across the road from a young pine plantation and was bitten when it approached too close to a farm dog-kennel (ATE). East of Whangarei, 2/8/73, nest burrow with two eggs in the dead material at the base of a clump of pampas grass, in an area of fern and eupatorium 200 yards from bush

(CSK, RSC). Heard in bush near Papakura, May 72, and around Opoutere Mar/Apr 74 (BB). Gisborne-East Coast, Oct 73, one seen crossing the road by night near the summit of the Whareratas (AB).

**STEWART ISLAND KIWI** (*A. a. lawryi*)

Nov 71, Doughboy and Mason Bays, birds seen at night feeding on the beach along high water mark; one daylight record, 0800 hrs, SW arm of Paterson Inlet (JAF).

**EMPEROR PENGUIN** (*Aptenodytes forsteri*)

McMurdo Sound, c. 30 gathering on ice floes 23/2/73 (JAF).

**YELLOW-EYED PENGUIN** (*Megadyptes antipodes*)

One in Lyttelton Harbour 28/10/72 (GJW); rare at Akaroa (PC); Ashburton, 15/3/73, a young bird on a farm 4 miles from the sea, lively, plump and tame; attached itself to me after being photographed, and was taken back to the coast (ML). Hinahina Cove, Catlins, last week of August 71, 61 came ashore 1700-1745 hrs; some had come in earlier and others still coming in when I left (DC). Stewart Island, common on north coast of Bench Island, c. 25 near camp site evening of 20/11/71 (GJW).

**ADELIE PENGUIN** (*Pygoscelis adeliae*)

McMurdo Sound, single juvenile present 23/2/73 (JAF).

**BLUE PENGUIN** (*Eudyptula minor*)

Far North, c. 2000 birds dead on east and west coast beaches, August 73 (D. E. Crockett). Bench Islands, Stewart Island, night of 20/11/71, over 50 near camp site on north coast (GJW).

**ROCKHOPPER PENGUIN** (*Eudyptes cristatus*)

Otago Peninsula 17/2/72, one in part moult, confirmed by Sir Robert Falla (AW).

**FIORDLAND CRESTED PENGUIN** (*E. p. pachyrhynchus*)

Moulting birds Otago Peninsula mid-Feb 72 (AW) and two presumed moulting at Nuggets 3/3/73 (GH). Acker's Point, Stewart Island, Nov 71, one seen and heard at the entrance to a presumed breeding cavern (JAF).

**SNARES CRESTED PENGUIN** (*E. p. atratus*)

Single birds seen at Tautuku Peninsula, Otago, on 28/2/72, and at Breaksea Group, Stewart Island, on 2/2/72 (GJW).

**ERECT CRESTED PENGUIN** (*E. p. sclateri*)

Whangarei Heads, Feb 73, an immature bird in its full moult; ate sandhoppers and occasionally fished at high tide; not troubled by dogs but worried by visitors; two local children caught sprats for it and guarded it over a busy weekend (LWD).

Reports of moulting birds from various localities on Otago coast Feb-Apr 72 (AW, DC, RJP). One ashore on Big Bungaree beach, Stewart Island, 24/4/72 (GJW).

**SOUTHERN CRESTED GREBE** (*Podiceps cristatus*)

Nelson, Lake Daniels, Richard Jenkins saw one 1/1/73; DVZ confirms occasionally seen on this lake. Lake Clearwater, Rangitata valley, pair feeding half grown young on 26/4/71 (FH).

**N.Z. DABCHICK** (*P. rufopectus*)

Poutu, Lake Kanono, 7/4/73, 28 (RAF). Muriwai Lakes, Feb 73, 67 (SMR). Kohekohe, South Pahia Lake, 28/10/72, two seen, display observed (MED). Rotorua, Sea Scout Hall to Sulphur Point,

7/5/72, 35 (RWJ). Manawatu, Lake Horowhenua, 6 on 27/3/73, last sighting was in July 72; 14/7/73, two pairs; one pair displaying, heads held high and waving in a snake-like manner, side by side; this appeared to be the end of the ceremony, of which I did not see the beginning (EBJ). Marton sewage pond, 7/4/73, 19 (HAR, IGA). Waikanae, one Jan-Mar 73 (JAF). Carterton sewage ponds, 6/7/71, one, the first recorded here; Lake Domain near Featherston, one on 9/8/71, the first seen here in many years' observation (RHDS). Masterton sewage ponds, 11/3/73, 25 (BDH, RHDS); 7/4/73, 35, some in juvenile plumage (RHDS); 29/4/73, 40 (BDH); 2/5/73, 34 (RHDS).

#### AUSTRALIAN LITTLE GREBE (*P. novaehollandiae*)

Farm pond near Dargaville, a pair stayed from August to October 72; first discovered by Patrick Miller, subsequently watched and photographed by various observers (CDC). Lake Okareka, one present Feb/March 73 (Press report, RMW). See *Notornis* 20 (3) for further details.

#### WANDERING ALBATROSS (*Diomedea exulans*)

Immature close inshore at Wairoa mouth, Hawke's Bay, 10/1/72 (AB). McMurdo-NZ, first sighting at 59°S on 27/2/73 and intermittently thereafter till NZ coast when numbers built up to 50 plus together (JAF).

#### GREY-HEADED MOLLYMAWK (*D. chrysostoma*)

McMurdo-NZ, first sighting 66°S, 25/2/73; intermittently thereafter till 49°S (JAF).

#### BULLER'S MOLLYMAWK (*D. bulleri*)

One came down in a Dunedin street 13/6/72; released off Taiaroa Head. Immature found dead at Earnsclough near Alexandra, 80 miles from sea, 9/9/73 (AW).

#### *Diomedea* sp.

Voyage Wellington-Lyttleton, 1/1/73, hourly counts gave a total of 14 *D. exulans*, 2 *D. melanophris*, 4 *D. chrysostoma*. Voyage Lyttleton-Wellington, 2/6/73, hourly counts gave a total of 97 *D. exulans* plus many in Cook Strait, not counted because of failing light; one *D. cauta cauta* and one *D. bulleri* (JRJ). Fiordland coast between Doubtful Sound and Preservation Inlet, 14-16/4/73, 7 *D. epomophora*, dozens of *D. bulleri* and 7 *D. cauta cauta* (DGM).

#### LIGHT-MANTLED SOOTY ALBATROSS (*Phoebastria palpebrata*)

One came down in Anzac Avenue, Dunedin, 15/6/72; the same bird was recovered in Raglan four days later (AW). McMurdo-NZ, first sighting at 72°S on 24/2/73 and continuously thereafter till 50°S, reaching peaks of 25 together at 68°S and at 52°S (JAF).

#### GIANT PETREL (*Macronectes giganteus*)

A white phase bird at Ngauranga, Wellington, 19-21/9/72 (HLS). Voyage Wellington-Lyttleton, 1/1/73, hourly counts total 88, 20 of these by Barrett's Reef and 30 off Godley Head; Lyttleton-Wellington, 2/6/73, 57, 30 of these off Hurunui mouth (JRJ). Doubtful Sound-Chalky Inlet, 14-16/4/73, 3 (DGM). Effluent outlet of Ocean Beach Freezing Works, Invercargill, 26/5/73, 210 (MLB). McMurdo-NZ, first sighting at 74°S on 24/2/73 and intermittently in small numbers thereafter to NZ coast (JAF).

**ANTARCTIC FULMAR (*Fulmarus glacialisoides*)**

Far North beaches, Sept 73, 16 (D. E. Crockett). Muriwai beach, 9/9/73, 4 (SMR). Wellington West coast Sept 73, 13 (JAF). Three storm wrecked on Manawatu coast Oct-Nov 72 (HAR, IGA). Cook Strait, one sighted from Picton ferry, 21/7/73 (HLS). McMurdo-NZ, first sighting at 67°S on 25/2/73 and thereafter in small numbers only as far as 66°S (JAF).

**ANTARCTIC PETREL (*Thalassoica antarctica*)**

McMurdo-NZ, c. 50 off Cape Adare, 71°30'S, and continuously in reducing numbers till last bird sighted at 66°30'S (JAF). Oreti Beach, Southland, 13/10/73, one corpse (MLB).

**CAPE PIGEON (*Daption capensis*)**

Bay of Islands, 18/9/72, 8 seen off Cape Brett (D. E. Calvert), Wellington-Lyttelton, 1/1/73, one off Pegasus Bay; Lyttelton-Wellington, 2/6/73, 89 (JRJ). 14/4/73, 4 between Doubtful and Breaksea Sounds; 16/4/73, several hundred Chalky Inlet-Dusky Sound (DGM). McMurdo-NZ, first sighting at 68°S on 25/2/73, peak of 50 at 66°S, thereafter in small numbers to NZ coast (JAF).

**SNOW PETREL (*Pagodroma nivea*)**

Feb 73, observed more or less continuously from McMurdo to 71°S wherever there was extensive freshly frozen brash ice; maximum of c. 75 at 75°S; last few birds observed in open ocean (JAF).

**GREY-FACED PETREL (*Pterodroma macroptera*)**

Bay of Islands, islet off Moturoa, 26/4/73, birds coming in from 1830 hours, uttering squeaky notes "kik-kik-kik," "kee-ik," and "kee-ik kukke-ik"; a quiet "si-si-si" note from birds on the ground and an occasional rather muffled "oo-ii" (D. E. Calvert, ATE). Fresh burrows on Motuarohia, 9/7/72 (GW). Manukau Heads, juvenile with down found below lighthouse, 14/9/72; scattered burrows on this west coast may be of this species (MED). Bay of Plenty, Ohope west end, on a point, c. 10 occupied burrows on 20/8/73 (RMW).

**WHITE-HEADED PETREL (*P. lessoni*)**

Exhausted bird on Papakura lawn 10/5/73 (BB). McMurdo-NZ, first sighting 68°S on 25/2/73, continuously in fair numbers (15 together at 62°S) to 49°S (JAF).

**MOTTLED PETREL (*P. inexpectata*)**

Dusky Sound, largest of Shag Islands, 14/4/73, many burrows, feathers at burrow entrances, one addled and one broken egg (DGM). McMurdo-NZ, first sighting at 69°S on 25/2/73, continuously in small numbers till 50°S (JAF).

**KERGUELEN PETREL (*P. brevirostris*)**

Sept 73, unprecedented number storm-wrecked; 34 on Northland beaches (D. E. Crockett), 21 on Muriwai beach (SMR), 26 on Wellington beaches; total recoveries probably at least 100 (PR). Oreti Beach, Southland, 13/10/73, one corpse (MLB).

**GOULD'S PETREL (*P. leucoptera*)**

One alive at Titahi Bay, 4/5/73, handed to National Museum (JAF).

**BLUE PETREL (*Halobaena caerulea*)**

July 73, seven dead on Northland east coast beaches (D. E. Crockett). 7 on Muriwai beach, 9/9/73 (SMR). Wellington West

coast, Sept 73, 10 (JAF). 6/8/73, one ashore alive Otago Harbour, banded and released Taiaroa Head (AW).

**ANTARCTIC PRION** (*Pachyptila desolata*)

A specimen of Auckland Island Prion (*P. d. alter*) found in Lower Hutt Valley March 73, handed to National Museum. McMurdo-NZ, first sighting at 64°S on 26/2/73 and in fair numbers, up to 20, to 50°S (JAF).

**FAIRY PRION** (*P. turtur*)

Stewart Island, Nov 71, no burrows located but living birds caught at night with a torch and remains of cat-killed(?) victims scattered around Acker's Point headland (JAF).

**GREY PETREL** (*Procellaria cinerea*)

Lake Ellesmere, Taumutu, one picked up on 3/1/73, confirmed by R. Scarlett (RJP). McMurdo-NZ, small numbers sighted on 28/3/73 between 56°S and 55°S (JAF).

**WHITE-CHINNED PETREL** (*P. aequinoctalis*)

McMurdo-NZ, first sighting, 1/3/73, at 52°30'S, c. 25, off Campbell Island, thereafter in small numbers to NZ coast (JAF).

**FLESH-FOOTED SHEARWATER** (*Puffinus carneipes*)

Bay of Islands, Black-backed Gulls and Flesh-footed Shearwaters gather round the launch for fish guts; sometimes when a gull rises from the water with a length of gut a shearwater will zoom up from behind and take the gut from the gull. Two shearwaters were tugging at a herring thrown from the boat, one by the head and one by the tail; a gannet flying fast and low over the water came between them and took the disputed herring (D. E. Calvert). About ten off Otago coast 3/3/73, increasing to several hundred north to Cook Strait (JAF).

**SOOTY SHEARWATER** (*P. griseus*)

Manawatu estuary, 27/12/72, large numbers passing north, estimated 1,000 from 0700-0800 hrs (J & MM). Doubtful Sound-Breaksea Sound, 14/4/73, several thousand (DGM). Nuggets, 3/3/73, a large flock from the south seethed around an area half a mile north of the lighthouse and streamed back southwards, passing between the outer stacks (GH). McMurdo-NZ, sighted at 62°S on 26/2/72, increasing to several hundreds off Campbell Island and in smaller numbers to N.Z. coast (JAF).

**SHORT-TAILED SHEARWATER** (*P. tenuirostris*)

A bird picked up on Wellington West coast in May 73 had a very white underwing and could have been mistaken for *griseus* if the head had been damaged (PR).

**FLUTTERING SHEARWATER** (*P. gavia*)

Bay of Islands, 16/6/73, 3-4,000 between Moturoa and Motuaroa (D. E. Calvert).

**ALLIED SHEARWATER** (*P. assimilis*)

Over 100 storm-wrecked on Northland east coast bays after storms in July 73 (D. E. Crockett).

**WILSON'S STORM PETREL** (*Oceanites oceanicus*)

McMurdo-NZ, small numbers (1-2) seen continuously from 72°S on 24/2/73 to 59°S (JAF).

**GREY-BACKED STORM PETREL** (*Garrodia nereis*)

One killed by hitting a ferris wheel at Alexandra Blossom Festival, Sept 73 (AW).

**WHITE-FACED STORM PETREL** (*Pelagodroma marina*)

Chathams, 8/11/72, thousands landed on a fishing vessel anchored off SE Island and many laid eggs on board that night (GJW).

**BLACK-BELLIED STORM PETREL** (*Fregetta tropica*)

McMurdo-NZ, seen in small numbers (1-2) between 52°30'S on 1/3/73 and 48°S (JAF).

**DIVING PETREL** (*Pelecanoides urinatrix*)

McMurdo-NZ, seen in fair numbers (5-10) between 59°S on 27/2/73 and 52°30'S (JAF).

**AUSTRALIAN GANNET** (*Sula bassana*)

9/10/72, shortly after high tide, three diving about a mile upstream from the mouth of Hutt River, which was relatively clean after a weekend (CAF). Fiordland coast, Apr 73, 7 sighted between Breaksea Sound and Preservation Inlet (DGM). Nuggets, 3/3/73, c. 10, on outermost stack, probably one or two juveniles (GH). Seldom seen around Stewart Island; Feb 72, one off East Cape, one in Paterson Inlet (GJW).

**BROWN BOOBY** (*S. leucogaster*)

Bay of Islands, one on 23/10/72 (D. E. Calvert).

**BLACK SHAG** (*Phalacrocorax carbo*)

Firth of Thames, 1972/3, summer count 90, winter count 168, but over 500 at Miranda in April 73 (HRMcK); Opoutere, usually 2-3, but 11 in April 73 (BB). Hawke's Bay, Whakaki lagoon, 31/3/73, 78 (AB); Westshore, 7/4/73, 53 (NBM). Otago, Taieri Gorge, evening flight, June 1966, up to 19; May-June 1970, up to 38 (GAG).

**PIED SHAG** (*P. varius*)

Bay of Islands, Tangetu colony, 12/10/71, 49 nests in two pohutukawas (D. E. Calvert); Kerikeri, seasonal lake, young birds left nests in old maimai Feb 72; nests in a tall wattle and in tall manuka on lake fringe, May-July; mixed colony, *varius* and *melanoleucos*, in manuka fringe Nov-Dec 72 (ATE). Tutakaka, 29/8/72, c. 50, with about 10 Little Shags, large young in nests (MED). Auckland, Panmure Bridge colony dwindling, 3 nests and 25 birds on 27/5/73; Orakei Basin colony increasing, 60-70 birds and at least 15-20 nests in July 73; new colony started Nov 72, School Creek, Lucerne Road, Remuera, 3 nests, 5 chicks reared; another nest being built March 73 (SMR). Waikato, Lake Rotokauri, one seen 24/6/73 (DW). Waikanae, singles on 27/5/73 (MLF) and 4/6/73 (CAF); a rare bird in this region. Occasional at Akaroa (PC); two at sea north of Godley Head 2/6/73 (JR). Fiordland coast, 5 between Breaksea Sound and Preservation Inlet, April 73 (DGM).

**LITTLE BLACK SHAG** (*P. sulcirostris*)

Waitangi, Bay of Islands, 30 on 16/7/72, dives timed at 3-11 seconds (GW). Auckland, Orakei Basin, winter numbers fluctuate from 12-200, peak in first week of May (SMR); Helen's Bay, 7/7/72, 200 flying east at half tide. Waiuku Peninsula, 117 on reef at mouth of Taiheke River at high tide on 3/7/72 and probably the same group at Pollok Spit on 4/7/72 (MED). Hawke's Bay, Westshore, 43 on 7/4/73 (NBM). Wanganui, Virginia Lake, only 1-4, May-July 72 (MFO'S). Manawatu, 12 at estuary 20/5/72 J & MM), 12 at Lake Horowhenua, 29/6/72 (EBJ). Several at Lake Heaton, one at Marton sewage pond, April 73 (IGA). Waikanae, 4 on 4/6/73 (CAF).

Wellington Harbour, 19 on 28/5/73, still present in July; probably the largest flock recorded here (JAF).

**LITTLE SHAG** (*P. melanoleucos*)

Pied phase birds with white patches on wing coverts at Kerikeri and Kaimaumau, May and June 72 (ATE). Auckland, new colony established Aug-Sept 72 near Orakei Bridge in pohutukawa trees, 13 nests with chicks and sitting birds on 16/10/72 (SMR). Opoutere Sept 69, 21 birds working a shoal and over-flying as do Little Blacks (BB). Hawke's Bay, Westshore, 7/4/73, Little Pied 4, White-fronted 47 (NBM). Peninsula side of Otago Harbour, 28/10/72, pied phase 10, white-throated adults or young in black plumage 110 (GH).

**STEWART ISLAND SHAG** (*Leucocarbo carunculatus chalconotus*)

Dead birds, Waitaki mouth, bronze phase, one in June, two in July 72; one pied phase near Cape Wanbrow (IAMCV). Islet off Shag Point, up to 10, both phases, 25/6/72 (GJW). Taiaroa colony 1971, building early June, first egg 17th July (AW). Nuggets 3/3/73, two pied, six bronze; behaviour of two suggested parent and chick (GH).

**CHATHAM ISLAND SHAG** (*L. c. onslowi*)

Colony near Cape Fournier, 20/11/72, 40-45 nests, 78 adults, one juvenile, c. 50 chicks, some quite large; some birds apparently still incubating. Brood size 1-3, most 2-3 chicks (GJW).

**SPOTTED SHAG** (*Stictocarbo punctatus*)

Hauraki Gulf, 19/11/72, c. 2,000 round Tarakihi, etc., hundreds in Ponui Passage. Firth of Thames, Tarata Point, 5/7/73, 330 (HRMcK). One at Wanganui, 27/5/72 (MFO'S), one at Waikanae 4/6/73 (CAF). Wellington Harbour, Feb-Oct 72, maximum 10 on 18/8/72 (J & MM). Nuggets, 3/3/73, 200 plus, many in immature plumage, one bird feeding two large downy young (GH).

**BLUE SHAG** (*S. p. steadi*)

Stewart Island; Bench Island, several nesting colonies on cliffs of south coast; eggs laid in many nests and one attempt at copulation observed 11/11/71 (GJW). Jensen's Bay, a few nests 24/8/72, 50 (no eggs), 1/9/72, when birds fully crested; 26/10/72, 100 plus nests, of which seven inspected, six with two and one with a single egg. 13/2/73, 15 birds on cliff at the nesting site (Mrs Peggy Wilson).

**LESSER FRIGATE BIRD** (*Fregata ariel*)

Hauraki Gulf, 7/1/73, two birds chasing White-fronted Terns; white patches clearly visible under wings of one bird (JAB).

**WHITE-FACED HERON** (*Ardea novaehollandiae*)

Raoul Island, one present 9/3/73 till 3/4/73. A dead bird on the beach 23/4/73. Another arrived on 7/5/73, seen daily until July, feeding with hens and pigs; mid-July, two birds seen flying together over the sea (CSK). Awanui Harbour, c. 100 in 1970, c. 200 in 1973 winter (MH). Mangonui, 5/3/73, two birds hunting crickets in long grass; watching position was semi-erect, neck vertical as far as the kink, basal part of neck pulsating; slow steps forward, body and neck lowered, quick stab into grass, cricket captured and swallowed. Kerikeri Inlet, 14/4/72, 65 (ATE). Waitangi, 24/8/72, 25 (GW). Waiotira, first appeared 1961; 1/5/73, 30 (TGL). Manukau Harbour winter counts 1972 and 1973, 368 and 388; Firth of Thames summer counts 1971 and 1972, 152 and 208 (HRMcK); 63 on a



paddock, Thames airfield, 1973 (WFC). Te Aroha, May 73, 14 (G. Hunt); Kawhia, June 73, 23 (DW). Tauranga, Tanner's Point, 23/4/73, 30 flying from mudflats to roost in pine trees (JFC). 15/7/72, c. 70 in a paddock 5 miles north of Opotiki, and c. 80 in a paddock two miles further north (AB). Hawke's Bay, Westshore, 7/4/73, 39 (NBM). Canterbury, Lake Wainono, 4/2/73, 70; New Year 73, singles at Godley mouth, Macauley River and Tasman valley; Ashburton south branch 9/12/72, 3 about exotic plantation (RJP). Breeding Lakes Heron and Clearwater 1972 (ML). West Wanaka, Ewing's Bay, 26/6/71, flock of 33 feeding on sheep pasture — the biggest flock I have seen in Central Otago; West Matukituki Valley 10/3/73, two immatures at 2800 ft a.s.l. (PC). Middlesmarch, 11/11/72, nest 20 ft in large crack willow among rookery trees, one young bird which spent half an hour in vertical position while we were around (GH). Outram, 27/7/71, 26 in a paddock (GAG). Port Molyneux, 24/2/73, 27; Lake Tuakitoto north end, 24/2/73, 50 (RJP). Nugget Point, 3/3/73, 2; Takahopa estuary, 19/1/73, 4 (GH). Chathams, one on S.E. Island 6/11/72 (GJW).

#### WHITE HERON (*Egretta alba*)

Rangaunu Bay, May-July 73, up to 10 birds; Houhora, one in May 73 (MH, RHM, ATE). Kaipara, one at Paratai, Jan 73 (RSC), one at Tikinui, July 73 (BC); 7 at Jordan's 16/9/73 (RBS). Pollen Island, Te Atatu, one on 28/9/72 (MED); one at Karaka 9/9/72 (HRMcK). Waikato River, 3-4 birds 4-7 miles upstream from mouth, winter 73 (RCB, PS). Kawhia Harbour, 19/5/72, one (TAB); Lake Waikare, 9/7/72, 11 (BB); 15/10/72, 12, plus 2 at Lake Kimihia, seen by F. V. Thompson; Clevedon lower river, one in winter, same bird on 19/2/73 (HRMcK). Miranda, one, 15/10/72-10/12/72, two on 29/10/72; one in June and July 73 (HRMcK, BB, WFC). Ohiwa Harbour, one on 19/8/73 (RMW). Hawke's Bay, 13/5/72, 4 at Ahuriri (KVT); 30/9/72, 2 at Westshore (BB); 25/4/73, one at Ahuriri, one at Anderson Park, Napier (KVT). One at Lake Pau-tahanui 6/5/72; Foxton "loop," one 29/3/72-4/11/72 (J & MM); Lake Horowhenua, one May-July 73 (EBJ). Marlborough, one at Lake Elterwater, 19/3/73 (JAT); 4 at Lower Opawa River, 19/5/73 (ES). Westport, single birds on 23/8/72 (RJP) and 12/5/73 (JJ). Upper Lake Heron Station, two for about two weeks in Sept 70, three for about two weeks in Sept 72 (per JRI). Merton, late July 72, one with plumes (MG); one throughout summer 72/73 and perhaps the same bird at Hawkesbury lagoon (GH et al). Winter 71, one at Wanaka (JA). Lower Leith Valley 21/8/71, two birds, the larger with scapular plumes and small upstanding feathers on the head, yellow bill, face yellow above and blue green below eye, legs grey; the smaller had no plumes and a smaller area of facial skin, but the same pattern (GH); June 71, two white herons wheeling slowly round at 3-400 ft above University, harried by Black-backed Gulls (RFG). Titri, Dec 72, 2 (GH); Otanemomo, 14/4/73, one (WTP); Tetford, 3/4/73 onwards, one in pond in front of Training School (DC).

#### LITTLE EGRET (*E. garzetta*)

One at Mangere 29/4/73 (SMR). Maioro, Waiuku, one on 23/6/72 and on 3/8/72, with a Cattle Egret (HRMcK). Waikato estuary, one on 28/6/72; Lake Waikare 9/7/72, one with White Herons (BB) and a probable sighting by F. V. Thompson on 15/10/72 (HRMcK).

Hawke's Bay, Westshore, one on 13/5/72, 2 on 25/6/72 (KVT); 30/9/72, 2, one with plumes; stirred water with back and forth motion, wading deeply while feeding (BB); two still present on 3/2/73 but only one seen on 7/4/73 (KVT). Hutt River, 28/3/73, one with an aberrant pale creamy yellow lower mandible (JAF). Saltwater creek near Ashley River, one on 19/8/72; Waikouaiti, one on 9/2/73 and 18/3/73 (RJP). Merton, one late July 72 (MG); apparently present through summer, nuptial plumes noted 14/1/73 (GAG). Titiri, one in Dec 72 (GH). Catlins Lake, 31/12/72, one with plumes (DC).

#### REEF HERON (*E. sacra*)

Northland, 1973, reports from Waipu (TGL), Oakura and Mokau (RAF). Wattle Bay, Manukau Heads; Graham's Beach; Te Toro Point, two on a launch, all 1972 (MED). Waiuku and Waikato Heads, 1973 (HRMcK); Port Waikato, 20/5/71, 3 (BB); Kawhia, May 73 (LT); Maraetai (2), Kawakawa Bay, Kaiaua, Taramaire, Orongo, 1973 (HRMcK); Opoutere, 3 on 27/1/73 (BB); Tanner's Point, Tauranga, 8/1/73, two, one feeding in a shallow channel; a third bird flew in and appeared to chase the feeding bird; they circled twice, then flew off, flying much faster than usual (JFC); Little Waihi, 1972 (RWJ). Rangitikei estuary, March 72 (J & MM). Akaroa, Dec 72 (PC). Otago, Shag Point, 26/6/72, 3 (GJW); Aramoana, Feb 73, flying at 100 ft above flats (RJP); False Island, March 73 (DC).

#### CATTLE EGRET (*Bubulcus ibis*)

Far north, June 73, two reports, each of a single bird, at Waipapakauri and later at Kaitia (RHM); unconfirmed press report of three birds at Waipapakauri a few days later. South Kaipara Head, one, 23-26 May 73 (MAW). Waiuku, one on 3/8/72, no colour (HRMcK). Lake Wahi, 23/2/73, 3 (PH). Rotorua, Owata, 24/5/73, 3 in a paddock feeding on crickets and worms, when not feeding adopted a hunched position; yellowish orange bills, grey-green legs and feet (MW, JMN). Manawatu, 29/7/72, one which had been on a farm 6 miles west of Palmerston North for some months seen feeding on worms, 17 in a minute (HAR); two seen at Baines first seen on 19/5/73 (EJC) and on nearby farms in the following week; possibly the same two reported from Lake Horowhenua, 27/6/73; three on 7 & 14/7/73 (EBJ). Akura, Masterton, 19/4/73, one, joined later by another; feeding among cows, preening in a ditch, and flying about 400 yards to perch in a willow tree; both birds left the following day (RHDS, MD). Lower Opawa River, Blenheim, two on 19/5/73 (ES); Kaikoura, 8-28/6/73, two in suburban area associating with dairy herds (JAC). Southland, Woodend, 11/11/72, one in breeding plumage, 2 in eclipse 9/6/73 (MLB). May 1973, 2 at Lillburn Valley, one at Wallacetown, 2 at Kapuka, near Waituna Lagoon. Regular sightings of a single bird about Borstal farm through winter 73; one, probably the same bird, found dead at West Plains 7/8/73, alleged to have been killed by Black-backed Gulls which had been chasing it the previous day (RRS).

#### AUSTRALIAN BITTERN (*Botaurus stellaris*)

Mangamuka, 27/5/72, a dark bird crouched near some rushes in a raupo fringed paddock at 0900 hrs; from time to time it extended its neck forwards and downwards and remained still in this position

for some minutes, after which it relaxed and retracted its neck. At just before dusk the same evening the bird was in exactly the same place (ATE). Waipu, 11/5/72, pair circling over their territory calling (TGL). Muriwai Lakes, 1969 count of 7 was made in bad weather conditions; count in Feb '73, 34 (SMR). Awhitu Peninsula, 28/10/72, one booming; at first head held low near the ground and brought back towards the body as the boom is uttered; the pumping action decreases in speed as the calls become louder and louder (MED). Lower Waikato River, 26/6/72, one eating a 9 inch eel (BB). Tauranga Harbour, Tanner's Point, 22/4/73, two flushed from saltmarsh circled several times over the edge of the mudflats then flew at 40 ft to Matakana Island 2½ miles away (JFC). Lake Beamish, 7/4/73, a bittern flew low over a group of four Paradise ducks which pursued it, protesting; the bittern flew on and landed 200 yards away and the ducks returned, only to fly right away when a harrier flew high overhead a few minutes later (IGA). Gladfield swamps, Taieri Plain, 7/8/72, one in full view on short grass (GH).

#### GLOSSY IBIS (*Plegadis falcinellus*)

Mahia, Mangawhi Lagoon, 19 & 26/11/72, one (GF). Manawatu, Lake Pukepuke, one present for about a month prior to sighting of 4 by J. Craig on 7/3/73 (IGA). Nelson Waimea River estuary, three on 14/10/72 and observed at intervals over the following weeks (FHB).

#### ROYAL SPOONBILL (*Platalea leucorodia*)

Bay of Islands, Waitangi area, one present most of May 73 (GW). Auckland, Mangere, two on 12 & 21/2/73, one on 29/4/73 (SMR). East Coast, one at Waipu River estuary, spring 73 (AB). Hawke's Bay, Ahuriri, 1972, May, 4, June, 6 (KVT); Sept, 2 (BB). 1973, April, 4 (KVT); July, 6 (BB). Manawatu estuary, 1972, recorded in every month except November, maximum 39 on 26/3/72 (J & MM); EBJ saw one in November and one in December 72. 1973, 20 Jan, 17 (IGA); 13 Feb, 12 plus (EBJ); 28 April, 33 (IGA); 19 July, 21 (EBJ). Probable sighting of 3 at Hutt River mouth 15/6/73 (JAF). Motueka, 1972/3 season, 12 on a sandbank (BRK). Westport, lagoon opposite wharf, one on 22/12/72, 5 on 7/1/73, 3 on 8-13/1/73 (JJ). Lakeside, Lake Ellesmere, one on 18/1/73 (RJP). Lake head, Lake Wanaka, 21-23/10/72, one, first record for this area (PC). Kaikorai stream estuary near Waldronville, four present 3-11/1/73. All four had crests; one pair observed to stand facing each other and cross bills, then dip them in the water and preen each other (GAG). Southland, Lake Waituna, 5/1/73, one; 4/2/73, 7 seen by Dr Lloyd Franklin; April 73, 6 seen by A. Shand (MLB, RRS).

#### MUTE SWAN (*Cygnus olor*)

Hawke's Bay, Lake Te Pohue, 18/7/73, 3 (BB). Saltwater Creek near Ashley River, Canterbury, two on 19/8/72 (RJP).

#### BLACK SWAN (*C. atratus*)

Poutu Lake Kanono, 7/4/73, 23 (RAF). Muriwai Lakes count Feb 73, 25 (SMR). Kaiaua shingle pools, 1973, 4, a new area record (PF). Southland population 1972/3, c. 800; not more than 70 young reared in 1973 (RRS).

CANADA GOOSE (*Branta canadensis*)

Poutu, March & April 73, 3 (MJB, RAF). Wairoa, H.B., Whakamahi Lagoon, nest, 4 eggs, washed out by heavy seas, 2/12/72 (GF). Lake Te Pohue, 18/7/73, 4 (BB). East Clive, 17/11/70, 2 (KVT). Otaki, Sept 73, one (PG). Wairarapa, Flat Point, June 73, 3 (PG). Wairau Lagoon, Blenheim, one May/June 73 (ES). Hooper's Inlet, 19/9/71, one with 3 black swans (JAM). Southland, regular population of 70-80 birds in Waituna Lagoon area; small regular breeding here and in northern Southland (RRS).

PARADISE DUCK (*Tadorna variegata*)

Ahipara, two near creek mouth on beach, 27/7/73 (HAF). Bay of Islands, Lake Owhareiti, large winter flocks of several hundred birds (MC). One at Onehunga, 1/7/73 (HRMcK). Manawatu, Lake Horowhenua, seldom seen but visits in winter; 12/8/72, 25 (EBJ). Marlborough, Ward district, increased numbers Jan-May 72, c. 250 on pasture near house on one occasion (JAT). Clarence River, Cloudy Peak Station, 5/5/73, feeding on briar berries, droppings very conspicuous (JR). Near Lake Heron, Canterbury, 16/11/72, nest in a rabbit burrow above a fall of earth from a terrace bordering the Smite River; recently scraped sand and clay outside the burrow which was lined with grass and feathers and contained six eggs (ML). Southland population expanding under tight restrictions, breeding range extending; average brood at flying stage 6.2 per pair in 1972/3 (RRS).

MALLARD (*Anas platyrhynchos*)

Raoul Island, April 73, two drakes on Blue Lake, one on Tui Lake (V. Duckett) and three drakes on Blue Lake in May & July 73 seen by J. Ireland (CSK). Westshore, H.B., 7/4/73, 1819; no grey duck recorded (NBM). Ashburton, a mixture of grey, mallard and domestic ducks from the adjoining domain invades a property each year about mid-April to feed on acorns, of which only the ripe ones are eaten; the invasion lasts about 3 weeks till the acorns are finished (ML). Southland, a very large and increasing population, estimated in summer 1973 at 1.6 million; estimated shooting season kill 132,000; average brood reared to flying stage 1972/3, 8.1 (RRS).

GREY DUCK (*A. superciliosa*)

Adult (perhaps hybrid) with 16 ducklings a few days old at Waitangi 8/9/72 (GW). 2,000 grey and mallard ducks died at Mangere in 1971/2 season; in Nov 72 botulism again appeared among the ducks and to March 73 3-400 died, including 20 Grey Teal in January. Feb-March 73, the disease reappeared at Albany drainage ponds (SMR). Makarora River, Oct 72, 97 in 9 miles, mostly at the head of Lake Wanaka (PC). Southland population small and declining, now regular only in coastal regions and more remote back country areas (RRS).

GREY TEAL (*A. gibberifrons*)

Pakaraka, Bay of Islands, one shot in May 72 (CSK). Poutu, Lake Kanono, April 73, 21 (RAF). Westshore, H.B., 10 on 7/4/73 (NBM), 70 on South Pond, Ahuriri, 25/4/73 (KVT). Whakaki Lagoon, 31/3/73 c. 700 — a large concentration of a bird comparatively rare in N.Z. a few years ago (AB). Manawatu, Lake Horowhenua, 7 on 6/5/72 (EBJ). Lake Elterwater, 44 in April 72, 7 on 25/3/73 (JAT). Otago, John Cheyne reports that numbers seem to be down on last year; drought may have scattered the birds

to other districts so this is little indication of the national total (GH). Southland, numbers fluctuate; maximum flocks, mainly on lagoons in Gorge Road area, about 100. Regular breeding in Queenstown lakes district, only odd brood reports from elsewhere in Southland (RRS).

**BROWN TEAL** (*A. aucklandica chlorotis*)

Waerenga, 1972 season, a pair hatched 4 ducklings on one of my dams but lost them, I think owing to a persistent harrier. The pair then left (MPD). Southland, one recovered from a duck shooter's bag in Awarua swamp, May 1972 (RRS). Stewart Island, Nov 71, a pair with three chicks near Oban was the only record during three weeks' intensive search. There has obviously been a dramatic decline in the last few years (JAF).

**N.Z. SHOVELER** (*A. rhynchotis variegata*)

Muriwai Lakes, Feb 73, 14 (SMR). Manukau Harbour census 26/11/72, 3; Firth of Thames, 5/7/73, 7 (HRMcK), 23/6/73, 8 (WFC). Hawke's Bay, Westshore, 7/4/73, 137 (NBM), 18/7/73, c. 10 (BB). Lake Horowhenua, June 1972, numbers built up from c. 60 on 3rd to c. 300 on 24th; 30/8/72, c. 40. 1973, only two seen Jan-March, then c. 40 on 31st March; 18/5/73, certainly 300, probably more. Occasional sightings of white breasted birds which may be Northern Shovelers in some stage of moult (EBJ). Southland, breeding in small numbers over a wide area; average brood per pair to flying stage about 5; banding returns from as far north as Waikato River mouth (RRS).

**BLUE DUCK** (*Hymenolaimus malacorhynchus*)

1972/3 season, breeding reported from Wharekopae and Waikohu rivers, in two cases the nests being under woolsheds; Wildlife officers counted 9 birds on the Hopuruahine; GF noted a family party of 6 on the Waingakia River in November and there were two families in half a mile of Ruakituri River in January, one of nine and the other of unknown number, tucked in well under boulders in the heat of the day. Aniwanuiwa Bridge, Waikaremoana, pair with sub-adult 1/11/72, pair 30/1/73 (AB). A pair reported in North branch, Routeburn, Jan 73; a pair reported in Ngatau tributary of the Okuru, S. Westland, May 73 (PC).

**N.Z. SCAUP** (*Aythya novaeseelandiae*)

Poutu, Lake Kanono 7/4/73, 325 (RAF). Muriwai Lakes, Feb 73, 15 (SMR). Wanganui, Virginia Lake, one on 20/5/72 (MFO'S). Manawatu, one at Lake Pukepuke 1971, two at Lake Kaikokopu, April 73 (WP), 2 at Lake Horowhenua, May 73 (EBJ). WP believes that the population explosion at Lake Mangamahoe, near New Plymouth, where numbers have risen from 95 in 1971 to about 1,000 in 1973, may be responsible for more frequent sightings on Manawatu coastal lakes (IGA). Nelson, Lake Rotoiti, one at north end, 29/4/72 (PJ); West Coast, Arnold River, one by bridge on 24/4/73 (JAC).

**HARRIER** (*Circus approximans*)

Opoutere, Aug 71, one repeatedly harried a Little Shag as it fed at full tide in deep water; the shag submerged each time and the Harrier eventually perched on mangrove. March 73, one hovered over mangrove on exposed mudflat, dived three times into a tree; a Banded Rail was seen to streak for safer cover, which it reached.

unharméd (BB). Makarora River, 21/10/72, 11 in 9 miles above Lake Wanaka (PC). Waimatuku mouth, 1/5/73, mild autumn morning; nine birds, some of them young, cavorting, spinning, hovering and gliding above the sandhills, pouncing on each other among the lupins; moved along 500 yards of sandhills in 10 minutes; no carrion found in the area. Similar display on 26/5/73 by 6 birds over a hill between Greenhills and Ocean Beach (MLB).

#### N.Z. FALCON (*Falco novaezeelandiae*)

Waikato, heard at Oparau, June 73 (LT); Kararariki, 23/6/73, one in second growth, chased by a Tui; both birds later perched in a tree, the Falcon about 30 ft from ground level; it stayed on this perch for 10 minutes and allowed 5 observers to walk round under the tree before it flew (JFC). Kawerau, 22/9/73, one stooped at domestic pigeons (RMW). Gisborne suburb, a male and a female seen on separate days in April 73 and a male in Oct 73 (AB). Lower Hutt, Woburn area, one, 10 & 21/4/72; Orongorongo Valley, one on 29/7/72 (J & MM). Bush behind Day's Bay, one, Sept 73 (JLK). Kaikoura, 6 miles north-west of town, feeding on native pigeon, 3/7/72; one reported near Mt. Clear 27/3/73 (JAC). Dog Hill, Ward, one in hill country, June 72 (JAT). Mt. Robert, Paddy's Hut, one, 28/1/72 (PI). May 1972, one developed a taste for domestic fowl at Mt. Aspiring Station; eating a Yellowhammer, Lake Hawea; taking a Sparrow out of a haystack, Wanaka (PC). Probable sighting, 2/4/72, on Taieri Plain near Outram, two-thirds Harrier size, swept back wings, not shy; flew down and took something from stubble then flew back to blue gums (GAG); at least three pairs breed within 20 miles of the sighting (GC); Southland, rarely seen now; many old breeding territories vacant in 1972/3 season; two sightings at Lake Hakapoua, March 73; breeding at Lake Manapouri, Dec 72 (RRS). One at Joe's Bay, Stewart Island, 1/9/72 (MLB).

#### CHUKOR (*Alectoris chukar*)

Flaxbourne River, Ward, 28/3/73, 15-20 (JAT). Banks Peninsula, on higher tussocky tops, Dec 72 (PC). Cass River, in matagouri scrub on lower hill slopes, 29/12/72 (RJP).

#### BROWN QUAIL (*Synoicus ypsiliphorus*)

Takanini, 26/4/73, pair with 7 tiny chicks (AJG). Waiuku South, Aka Aka, one on roadside, 26/10/72 (MED).

#### CALIFORNIAN QUAIL (*Lophortyx californica*)

Kerikeri, very young chicks as late as 16/3/73 (ATE). Waiuku, began calling late July 72 (MED). Papakura, 2/2/70, nest in scoria bank screened by fern, straw screening added; cock bird seen at nest, hen present each day; 15 eggs, all hatched. 1972, autumn coveys dust bathing, cocks often lie with one wing spread; young birds jumped one after another, like a Rugby line-out, for a low-flying butterfly (BB).

#### PHEASANT (*Phasianus colchicus*)

Papakura, several breed in tamarillo orchard, often choosing to nest at the base of tree trunks; seen to eat acorns and feijoa (BB). Hamilton, alarm calls heard at 2315 and 2230 hours, May and June 73 (JFC).

**BANDED RAIL (*Rallus philippensis*)**

Ruakaka estuary, summer 1970/1, pair with 3 chicks near tidal river; 11/1/72, two near Pohuenui River, north of Waipu (TGL). Pollen Island (Auckland), one on 23/5/73 (SMR). Clevedon, by tidal creek, two broods of 4 and 6,  $\frac{3}{4}$ -grown, in an area where rats have been poisoned; 1973, at launch landing, where rats are plentiful, two broods, one and two chicks (GKMck). Opoutere, often swim across creek, families swim in line with a parent at each end. Pair with 4 fluffy young near boat ramp, 23/10/72; two adults each feeding a chick, 26/1/72. One feeding over *Zostera*, perhaps getting water snails, stretched its neck at intervals apparently to swallow (BB). Ohiwa Harbour, 24/12/72, two adults and two juveniles, tame, feeding on mud pools alongside main road at low tide (RMW).

**WEKA (*Gallirallus australis*)**

Waiotira-Arara road (south of Whangarei), locals remember as late as 1960 (TGL). Wekas (ex King's College) breeding well on the golf course about the headwaters of the Tamaki (RBS). Wekas illegally liberated in Mount Maunganui area (RMW). Opoutere, 3/3/73, one feeding in a tidal creek with Pukeko and Banded Rail; not previously recorded here (BB). D'Urville Island, 12/2/73, a wild pig rooting through small scrub and rough grass was followed by six wekas picking at its leavings; the pig slowed down, allowing the wekas to catch up and suddenly grabbed one which it killed and ate (ML).

**MARSH CRAKE (*Porzana pusilla*)**

Anderson Park, Napier, 14/4/73, 2 (NBM). Nelson, Waimea River estuary, two watched for 30 minutes on 31/3/73, five seen on a later occasion (FHB).

**SPOTLESS CRAKE (*P. tabuensis*)**

Jan 73, one seen feeding among drift material at the edge of the Matau branch near Kaitangata (GH).

**PUKEKO (*Porphyrio porphyrio*)**

Waerenga, 24/11/72, nest with ten eggs, six of one kind of marking, four with another kind of marking; probably the product of two birds (MPD).

**AUSTRALIAN COOT (*Fulica atra*)**

Lake Okareka, 4/3/73, c. 60 (RMW); Lake Rotoiti, 6 seen by C. Goodger, 6/5/72; Lake Rotoma, my first sighting, 1/7/72 (RWJ); 2 on 29/7/72 (WB); 50 in Merge Lodge Tearooms area, 27/7/73 (RMW). Lake Tutira, 22/10/72, 50 (MFO'S). Manawatu, one still present on Hokowhitu Lagoon, 30/12/72 (IGA). Wanganui, Westmere Lake, 1/4/72, 9; 13/1/73, five, a pair with three small young (MFO'S). Lake Clearwater, two on 25/11/72 (ML); Lake Emma, one found dead, apparently shot, on 9/5/73 (JSA); Upper Lake Heron Station, report of coots near homestead, 20/12/72 (JRI). Lake Hayes, March 73, 8 (RMW).

**SOUTH ISLAND PIED OYSTERCATCHER**

(*Haematopus ostralegus finschi*)

Manukau Harbour counts Nov 72, 5069; 1/7/73, 12,562; one albino. Firth of Thames counts Oct 72, 570; 3/6/73, 3,781. Waikato Heads, 10/6/73, 76 (HRMck). Nelson, Lake Rotoiti, 21/10/72, pair near nest at south end of lake (PJ). Outram, first birds arrived on

farm, 27/7/71; 16/12/71, 31 on a flooded paddock, an unusually large flock for the time of year. Nov 72, taking freshwater mussels (*Hyridella menziesii*) from shallow water in Taieri River (GAG). Frequently take cockles (*Chione stutchburyi*) on saltwater mudflats; Merton-Karitane estuary, 16/1/73, 142; Tahakopa estuary 19/1/73, 180, the most I have seen on the high tide roost in three years (GH.)

#### VARIABLE OYSTERCATCHER (*H. unicolor*)

Whangaparaoa Peninsula, May 73, 4; not seen previously in this area (S. Chamberlin). Manukau Harbour, Orua Bay, 21/9/72, 19 on beach, reported by E. Buckley; an old resident (W. Rutherford) has not seen them here before. Waikato Heads, 10/6/73, 16 black, 16 intermediate (HRMcK). Maioro Island, Waikato River mouth, 15/2/72, two black pairs each with a lightly pied flying young, an intermediate pair with an intermediate young (RCB). 21/2/73, same area, two black pairs each with an intermediate flying young (HRMcK). Pauanui, 26/11/72, 3 black breeding pairs (S. Chambers). Opoutere, breeding, usual population 18 (BB). Tauranga Harbour, opposite Tanner's Point, 22/4/73, 13 spread over 200 yards, 10 black, 3 pied (JFC). Muriwai Lagoon, Gisborne, Jan/Feb 73, 2 blacks and 2 juveniles; flock of eight blacks at Waipaoa River mouth and at Muriwai Lagoon, October 73 (AB). Strand Park, Wellington, 10/11/72, 13, with two *finschi* (MLF). Taieri mouth, 20/11/71, 19 with 5 *finschi* at surface water pond in paddock; heavy rain and storms may have affected breeding of *unicolor* (GAG). Kaka Point, 11/6/72, 36 blacks feeding around the edges of a flooded area; a week later 28 at the same place (DC). Preservation Inlet, 17/7/73, flock of 107 blacks; groups of 30-40 not uncommon (AW).

#### SPUR-WINGED PLOVER (*Lobibyx novaehollandiae*)

East Cape area, Huiarua Station, Mata River, two probable sightings two miles apart on successive days, May 73 (AB) and a sighting of one at Waiapu estuary the following spring (JH). Manawatu, 2 near Lake Pukepuke, Sept 71; breeding reported 1971/2 season (WP); 5 at Rangitikei estuary 28/3/72 (J & MM), 5 near Pukepuke, Aug 72 (IGA). Nelson, Lake Rotoiti, a pair on 12/12/71, 4 on 11/11/72 (PJ). Bainham, Collingwood, successful nesting and reared one chick, 11/12/72 (FGS). Reefton, pair, 24/8/72 (RJP). Marlborough, Lower Wairau, Aug 71, one; report of possible breeding (RNH); Wairau-Opawa confluence, May 73, several; more heard after dusk (ES). West Coast, Ngahere, 15/12/72, 2 adults and 2 juveniles (R. J. Jackson, NZFS); Rotomanu, April 71, 2 seen by Mrs O. Newton (JRJ); common in paddocks near Fox Glacier, Aug 72, also some at Okarito (GJW). Magdalen Flats, Boyle River, seen by Mr Roberts, NZFS, 1972 (JRJ). Nov 72, breeding at several localities round Lake Ellesmere (GAT); 3 at Rakaia Huts, 7/6/73 (Mrs M. Buchanan). 1971 sightings at Washdyke Lagoon, Pareora, south of St. Andrews and south of Otaio, in each case two birds or a pair; 1971-73, a series of sightings at Lake Wainono, 28 on 20/8/73 (RJP). One near Lake Clearwater, 23/9/70; near Lake Emma, 25/9/71, two, distraction display; north branch, Hinds River later in 1971, 2 adults with 2 chicks; October 72, two pairs nesting on North Hinds River bed, one pair on banks of South branch, Ashburton River, two pairs at Hakatere Station, Lake Roundabout area; a pair at the entrance to Rangitata Gorge, from the plains side.



Report of birds at Lake Heron; two with a well-grown young at Maori Lakes. 1973, March-May, 5 at the mouth of Smite River, behind Lake Heron; 9 at Gawler Downs (Hinds River, north branch); 6 in Monalto swamp; five at Maori Lakes, 9 in the area between Lake Emma and the road. Catchment Board workers report more birds at Rangitata Gorge and upper South Ashburton River (ML). Nov 72, Lake Tekapo, 2 adults, 3 juveniles; Dec 72, Tasman Valley 3, Tasman River mouth, one; Cass delta, one; Swan Lagoon, Lake Ohau, 4; tarn on Benmore Station at Ohau turnoff, 4 (RJP). July 72, quite a number around Tasman River, Lake Benmore, Upper Tangiwai River (JAA). Hakataramea Valley, Sept 71, 10, a nest with 4 eggs (RJP). Makarora Valley, 9 miles above Lake Wanaka, 1966, 21; 1972, 48; 1973, over 70 vicinity Makarora. Ewing's Bay, W. Wanaka, July 73, counted 232. estimated c. 300. Hunter Valley, Sept 71, 32, increasing. Matukituki Valley, Oct 71, 45 birds, mostly with young. Alexandra basin, counted 93, estimated over 100, June 73 (PC). Waitaki Valley, Sept 71, 2-4 birds seen at Duntroon, Strachans, Otematata (RIP). Moa Flat, Heriot, increasing May 72 (HWH). 1972 sightings at Shag River, Pukeuri, 1971 sightings at Karitane, Hooper's Inlet, Taieri, Waiholo. Waitahuna and Beaumont, 1973 sightings Clydesdale and Toko mouth (WTP). Riverside road, Outram, 44 on a water-logged paddock. 27/7/71; 35 in a recently flooded paddock on 16/12/71 was an unusually large flock for this time of year (GAG). Ram Island, Berwick. 1971, becoming increasingly numerous in boggy paddocks adjoining the main marsh (HS). Inchclutha, 25-35 birds opposite Lakeside road, Jan 72 (CW). 24/2/73, 7 at Lake Tuakitoto, north end; 8 at Port Molyneux (RJP). South of Owaka township, 5/3/73, 21 wheeling and calling in a flock. April 71, resident around Takahopa township, 5 on a flat paddock; 3 at Purekireki (GH).

#### PACIFIC GOLDEN PLOVER (*Pluvialis dominica fulva*)

Maximum numbers recorded 1972/3 season, Paua, c. 300, Feb (ATE); Manukau, 118, Nov; Firth of Thames, 24, Oct (HRMcK); Whangapoua Beach, Great Barrier, Jan, 21 (AJG); Onoutere, Oct, one, my first record here (BB); Maketu, Jan, 14 (JHS); Kaituna, Dec, 6 (RWJ); Muriwai Lagoon, Gisborne, Jan, 14 (AB); Hawke's Bay, Ahuriri, Jan, 23 (KVT); Manawatu, Jan, 21 (IGA); Lake Wairarapa, Feb, 2 (BDH, MLF); Lake Wainono, Nov, 2; Lake Ellesmere, Dec, 70 (RJP). Invercargill estuary, 74 on 11/11/72, 96 on 18/2/73 (MLB). 1/7/73, 3 at Manukau (HRMcK); 18/7/73, 10 at Karikari Bay (MH).

#### NEW ZEALAND DOTTEREL (*Charadrius obscurus*)

No new localities recorded this season; winter flock in Kerikeri Inlet, 20 in 1968, has been steady at 34-36 birds in 1970-73 (ATE). Port Ohope Spit, flock of 42 on 6/8/73 (RMW).

#### BANDED DOTTEREL (*C. bicinctus*)

Rangitikei River near Tangimoana, 300 plus on 28/1/72; Manawatu estuary, c. 100 on 6/5/72 (I & MM). Makarora Valley, 21/10/72, nest found with four eggs (PC).

#### MONGOLIAN DOTTEREL (*C. mongolus*)

Manawatu, Hokio Beach, 7/2/73, three birds, described in detail to HRMcK who agrees probably *mongolus* partly into summer plumage (EBJ). Kerikeri Inlet, 4/3/73, two, running about on a shell bank among N.Z. Dotterel; smoky brown breast band on one bird almost complete and faintly tinged rufous (ATE).

LARGE SAND DOTTEREL (*C. leschenaulti*)

Taramaire, Firth of Thames, one in Oct 72 and Jan 73 (HRMcK, WFC).

BLACK-FRONTED DOTTEREL (*C. melanops*)

Hawke's Bay, 1972 survey shows increase in numbers since 1967; has spread further on main rivers, now also on Esk River (IGA); Westshore, 7/4/73, 6 (NBM). In Oct 67 16 birds were counted on Manawatu River between Dannevirke Rifle Range and Hopelands Bridge. In 1972 there were 32 on this section, 9 Hopelands Bridge-Ngawaparua, 12 Ngawaparua-Ballance, 20 Ashhurst-Fitzherbert; two near Longburn, one on Mangahao River, total 76. J. Andrews found a nest at Longburn 1971/2 season; K. Cook later saw a group of 12 near Tiakitahuna. B. McConkey reported 12 at Himatangi Beach in Sept 72, on the sand basin behind the fore-dune. In some areas the Banded Dotterel population has decreased since 1967 — e.g. Dannevirke-Ngawaparua, 68 in 1967, 27 in 1972; whether this decline is directly related to the increase in *melanops* is at present unknown. A group of 12-15 spent three days, 12-14th March 73, on the lawn at Centennial Lagoon, Palmerston North, just after rains had brought an end to the drought (IGA). Hokio Beach, 3-4, apparently immature, first seen 28/6/73, present till 1/8/73 (EBJ). Wairarapa, a preliminary survey of Ruamahanga, Waingawa, Tauherinikau and part of Huangarua rivers in Nov 72 gave a count of over 50 birds and a pair with 3 eggs (MLF). A total of 78 were counted in 1972 Nov/Déc (IGA). A winter survey on 8/7/73 recorded as follows:— Greytown ponds, 10 plus; vicinity Waiohine mouth, 5; Waingawa works pond area, 9; Gladstone Bridge north, nil; south, 10-12; Huangarua River, 44; Lower Tauherinikau (late July), 5; total 85. Birds other than those on ponds (after Ruamahanga floods) were in pairs in the usual muddy places (BDH). Southland, Makarewa River near Wallacetown, Jan 73, one seen by R. Bond (RRS).

WRYBILL (*Anarhynchus frontalis*)

Paua, 6/5/73, 41 (ATE). Manukau, 1/7/73, 765; Firth of Thames 3/6/73, 4,007 (HRMcK). Aotea Harbour, one on 17/2/73 (DW). Muriwai Lagoon, Gisborne, Feb 73, a tight group of 31, the most ever recorded here; report of many little birds, obviously wrybills, on an ocean beach where I first saw wrybill in 1909; apparently must be on a flyway. Whakaki Lagoon, 31/3/73, 9 (AB). Westshore, H.B., 5 on 7/4/73 (NBM). Rangitikei estuary 22/10/72, 20; Manawatu estuary, seen Feb-May and Aug-Oct 72, maximum 25 on 22/10/72 (J & MM). Waikanae River mouth 29/7/73, two in breeding plumage (CAF).

LONG-BILLED CURLEW (*Numenius madagascariensis*)

1972/3 season, Paua, 4, Dec-Jan, 2 in April (ATE). Waipu, Jan, one (TGL). Aotea Harbour, Feb, one (DW). Firth of Thames, Oct, 17 (HRMcK). Maketu, Sept, one (RWJ). Manawatu estuary, Nov, one (EBJ). Southland, Lake Waituna, Jan, 7 (MLB).

ASIATIC WHIMBREL (*N. phaeopus variegatus*)

1972/3 season, Paua, one Dec, one April (ATE); Kawhia, 19/8/73, 2 (JHS).

AMERICAN WHIMBREL (*N. p. hudsonicus*)

Lake Waituna, 5/1/73, one, no pale rump (MLB).

BRISTLE-THIGHED CURLEW (*N. tahitiensis*)

Kermadec Islands, Sept 72; one dead, dried up and partly disintegrated, probably female, found on North Meyer; a live bird, probably male, seen and photographed at the edge of Crater Lake, Raoul; both records by C. R. Veitch (FCK).

ASIATIC BLACK-TAILED GODWIT (*Limosa limosa*)

Lake Ellesmere, Greenpark, 25/11/72, one; black tail, white rump and underwing well seen (RJP).

HUDSONIAN GODWIT (*L. haemasticta*)

Ocean Beach, Whangarei, 28/11/72, one with 100 Bar-tailed Godwits; flew to join 10 Pied Stilts and later flew again to join the Godwits. Underwing, rump and tail well seen (PM). Firth of Thames, one, very red, 8/4/70 (HRMcK). Manawatu estuary, one on 20/1/73 (IGA).

EASTERN BAR-TAILED GODWIT (*L. lapponica*)

1972/3 season, Paua, maximum 3,000, Dec (ATE). Manukau, Nov, 13,343; July, 3,563. Firth of Thames, Oct, 14,050; June, 1,362 (HRMcK). Whangapoua, Jan, 300 (WFC). Oputere, Jan, 1,000 (BB). Aotea Harbour, Feb, 700 (DW). Maketu, Jan, 500 (JHS). Shellbank near Bowentown, Apr, 500 (JFC). Muriwai Lagoon, Gisborne, Feb, 97; Whakaki Lagoon, March, 101 (AB). Westshore, H.B., summer 3-400, April c. 150 (KVT). Wanganui estuary, Oct, 32 (MFO'S). Rangitikei estuary, Dec, 50; Manawatu estuary, Dec, 450 (J & MM), March, 420 (IGA). Lake Wairarapa, south of Tauherenikau outlet, Feb, 14 (BDH). Lake Pauatahanui, Nov, 17 (J & MM). A few at different parts of Petone Beach and Hutt River mouth, Nov-Dec (MLF, J & MM). West Coast, 3 at Karamea estuary 20/8/72 (RJP). Kaikoura, The Point, Oct-Nov, 7 (JAC). Aramoana, Feb, 535 (RJP). Ewings Bay, West Lake Wanaka, 22/10/72, four in a swampy field with 44 South Island Pied Oystercatchers (PC). At 1600 hours on 18/3/73, the day before full moon, very high tide, overcast sky with little wind, 50 godwits circled and flew in a wide sweep across Warrington Beach and ten minutes later were  $\frac{1}{2}$  mile off the headland, flying north in V formation, gaining height to about 700 ft; the group continued on course, twice breaking up into a cloud and rearranging to a V, until they disappeared against the hill. This was apparently the start of northward migration as we saw no return (RFG). Invercargill estuary, the main body of godwits arrived on night 26/27th Sept 72, in calm weather; they stayed for about 4 days resting and feeding in Mr Jennings' coastal paddocks. Heavy rain on 29th Sept; gale on 30th Sept at 1530 hrs; a flock of 600 South Island Pied Oystercatchers and 40 godwits came in from Awarua Bay. The oystercatchers flew on to the estuary but the 40 godwits dropped like stones to a sheltered coastal paddock where other godwits were already feeding. In another paddock  $\frac{1}{2}$  mile away there were 580 godwits and 150 turnstones, presumably new arrivals, very restless. The actions of the godwits were similar to pre-migration turmoil; repeated aerobic displays, swarms of birds soaring and plummeting in all directions with high-pitched calling, and this at the height of the gale when all other birds were flying low; when they landed they fed non-stop, jostling and twittering. The following morning high tide was at 0845 hrs; cold and showery, still windy but no gale; a total of 2,250 godwits were on the paddocks,

in three groups, most of them resting, close packed, breasts to wind and head tucked in. In contrast to the previous day there was little jostling or excitement; when disturbed, birds flew short distances at low altitude, dropped to ground and adopted a rest position; no preening seen, but much bill cleaning by wiping on breast feathers. Between 1000 and 1015 hours the turnstones and 300 godwits flew to the shoreline. At 1400 hours there was major sheep movement in the paddocks, and all the remaining birds moved to the shoreline and were not seen again in the paddocks for the following 2 weeks (MLB).

#### GREENSHANK (*Tringa nebularia*)

Sightings of single birds at Lake Waiono, 2/1/73, and at Lake Ellesmere, Taumutu 13/1/72 and Cooper's Lagoon 18/1/73 (RJP).

#### SIBERIAN TATTLER (*T. brevipes*)

Paua, one in Dec 72 and Feb 73 (ATE). Westshore, H.B., one present from mid-Jan till 25/4/73 (NBM, KVT). Manawatu estuary, 2/1/73, one (IGA). Aramoana, one in June 72 (RJP).

TATTLER sp. unid.

Kidd's, Manukau, 3 on 29/3/73 (JU). Group of 18 reported by GF on a papa reef at Oraka Beach, Mahia Peninsula, 26/11/72 (AB). Kaikoura, The Point, 2 on 11/5/73; Ure River, one below bridge 10/11/72 (JAC, JAT).

#### TEREK SANDPIPER (*Xenus cinereus*)

Kidd's, Manukau, one on 24/9/72, evidently newly arrived; washed repeatedly and was chived by godwits and turnstones. Single sightings in Jan, Feb, March and on 4/5/73 (HRMcK). Firth of Thames, one on 14/10/72, two on 29/10/72, 3, 12/11/72-20/1/73, 6 on 29/1, 5 on 24/2, 4 on 7/4, one on 3/6/73 (HRMcK, WFC). Westshore, H.B., 3/3/73-25/4/73, one (KVT). Manawatu estuary, one 28/12/72, 20/1/73, 22/3/73 (J & MM, IGA, EBJ).

#### TURNSTONE (*Arenaria interpres*)

1972/3 season; Paua, 400 Dec, 600 Feb/March, 300 April, 2 on 6/5/73 (ATE). Waipu, 5 on 9/9/72, singles Jan and March '73 (TGL). Manukau, Nov 256, Feb and April 300, 1/7/73 45 (HRMcK). Firth of Thames, 20/8/72, 9; 30/9/72, 50; Dec 80, Jan 144, April 80; 3/6/73, 5; 21/7/73, 7 (HRMcK, WFC). Whakaki Lagoon 31/3/73, 5 (AB). Ngaruroro estuary, 16/12/72, 6 (KVT). Single birds at Rangitikei estuary, March and at Manawatu estuary Nov/Dec 72 (J & MM).

#### *Gallinago* sp.

A snipe seen on three occasions at a small lagoon on Waitohu stream, Otaki, Nov 72 (PCB). Cooper's Lagoon, Lake Ellesmere, two snipe seen on several occasions in Jan 73 (RJP). Both these records probably refer to Japanese Snipe, *G. hardwicki*.

#### KNOT (*Calidris canutus*)

1972/3 season: Paua, 2,000 in Dec, only small numbers thereafter (ATE). Manukau, Nov, 3,622; Feb/March c. 5,000; 1/7/73, 361. Firth of Thames, 16/7/72, c. 450; Oct 5,900; 3/6/73, 108. Tairua, Coromandel, many hundreds reported early March 73 by G. Burnside (HRMcK). One at Rangitikei estuary 28/3/72. Manawatu estuary, 20 on 18/3/72, recorded on 5/8/72, 21 on 4/11/72

(J & MM), 33 on 8/3/73 (EBJ). First record for Wellington region, Oct 72 (MLF). 25 on east shore, Lake Wairarapa, 25/2/73 (BDH). Lake Ellesmere, 26 at Greenpark, Nov 72; 4 at Kaituna, Jan 73. Lake Wainono, 10 in Nov 72 (RJP).

#### GREAT KNOT (*C. tenuirostris*)

Firth of Thames, 30/9/72, one being chased in the air by a godwit; one seen Feb 73 by Mrs Fooks, and one on 11/3/73 (HRMcK).

#### SHARP-TAILED SANDPIPER (*C. acuminata*)

1972/3 season: Paua, 26 in Dec, 44 in Feb, 5 on 6/5/73 (ATE). Manukau, Nov, 11; March, 10. Firth of Thames, Oct, 3 (HRMcK); Jan/Feb, 10 (WFC). Maketu, Jan, 7 (JHS). Muriwai Lagoon, Gisborne, Feb, 5; Whakaki Lagoon, March, one (AB). Ahuriri, H.B., 5 in Jan, 16 in Feb (KVT). Manawatu estuary, Dec, 14 (J & MM), Jan, 7 (IGA). Westport, 25/1/73, 5 (SMR). Lake Ellesmere, Greenpark, Nov, 8, Jan, 11 (RJP). Invercargill estuary, Nov, 4, Feb, 8; Lake Waituna, Jan, 4 (MLB).

#### PECTORAL SANDPIPER (*C. melanotos*)

1972/3 season: Firth of Thames, one in Jan/Feb (WFC, HRMcK). Ahuriri, H.B., Jan, 2; April, one in breeding plumage (KVT). Manawatu estuary, 20/1/73, 7, with Sharp-tailed Sandpipers, Terek and Golden Plover. When approached the Sharp-tails flew off and the Pectoral bunched up together; distinctive breast markings and horn-brown bill with darker tip confirmed on all seven before they flew. Bunching together by species when closely stalked may probably be helpful for identification of these two sandpipers (IGA). Lake Ellesmere, one, Nov (RJP). Washdyke Lagoon, Feb, one (PC). Southland, one at Lake Waituna, Jan; Waimatuku mouth, Feb, 3; 11 March, 4 seen by P. Muller; 18 March, one, very tame (MLB).

#### BAIRD'S SANDPIPER (*C. bairdi*)

Firth of Thames, one on 29/10/72 (HRMcK).

#### CURLEW SANDPIPER (*C. ferruginea*)

1972/3 season: Paua, Dec, 8; March, 12; 8/5/73, 3. Kerikeri Inlet, one 30th Sept-3rd Oct, on shellbank (ATE). Firth of Thames, 20/8/72, one red, one pale; Oct, 10; Dec, 14; Jan/Feb, 15; 17/4/73, 8 (HRMcK, WFC). One at Muriwai Lagoon Jan, 3 at Whakaki Lagoon 31/3/73 (AB). Ahuriri, H.B., April 73, one, later two, in breeding plumage (KVT). Blenheim, Wairau lagoons, seven on 24/12/72 and on 7/1/73 (JAC, ES). Lake Wainono, Nov, 5; Lake Ellesmere, Kaitorete Spit, Dec, 21, one part red; one on 13/1/73 (RJP). Southland, Lake Waituna, one on 5/1/73 (MLB).

#### WESTERN SANDPIPER (*C. mauri*)

Firth of Thames 29/10/72, one (HRMcK).

#### RED-NECKED STINT (*C. ruficollis*)

1972/3 season: Paua, 14 in Dec, 30-40 Apr, 17 on 6/5/73 (ATE). Manukau, 29/3/73, 16 (JU); April, 10; May, 8; 1/7/73, 13 (HRMcK). Firth of Thames, 16/7/72, 3; Oct, 10 (HRMcK); Jan, 20 (WFC); Feb, 21; April, 13; 3/6/73, 2 (HRMcK). Maketu, Jan, 3 (JHS). Muriwai Lagoon, Jan, 5; Whakaki Lagoon, March, 2 (AB). Ahuriri, H.B., 4 in Jan and April (KVT). Rangitikei estuary, Dec, 16; Manawatu estuary, Dec, 3 (J & MM). Lake Wainono, Nov, 3; Lake Ellesmere, 10/12/72, 15 at Kaitorete Spit, 23 at Greenpark; 16/12/73, 25 at Kaitorete Spit; 13/1/73, 20 at Greenpark (RJP). Invercargill estuary, 11/11/72, 32; Lake Waituna, 5/1/73, 7 (MLB).

**SANDERLING** (*C. alba*)

Possible sighting at Karaka 29/3/73 (JU). Lake Waituna, one on 5/1/73 (MLB).

**PIED STILT** (*Himantopus himantopus*)

Southland, a small colony established near Matakura, birds on nests 28/7/72; a pair with 2 eggs near Winton 3/8/72 (RRS). Brydone, 4/9/72, six pairs, three on nests, one with young chicks (MLB).

**SOUTHERN SKUA** (*Stercorarius skua lonnbergi*)

Hauraki Gulf off Ponui, 7/1/73, one well seen at close range (JAB). Wharekawa coast, 16/12/72, two chasing White-fronted Terns (MEMCK). Wellington coastline, April 73, one with broken wings (JAF). Gilbert Islands, Breaksea Sound, one chasing a Gannet on 5/12/71. Common on islands near Halfmoon Bay, Stewart Island; one in Leask Bay 23/3/72 (GJW).

**ANTARCTIC SKUA** (*S. s. maccormicki*)

Dargaville Beach, Oct 72, one picked up dead, in fresh condition. Identification confirmed Nat. Mus. (DEC). Taumutu, Lake Ellesmere, 9/12/72, one; identification confirmed by Sir Robert Falla (RJP). Observed continuously from McMurdo Sound (100 on 23/2/73) to 71°30'S off Cape Adare. Vanda Station, Wright Valley (Dry Valley Region), c. 30 miles inland, first bird appeared on 8/2/73, maximum number seen together, seven (JAF).

**POMARINE SKUA** (*S. pomarinus*)

Hauraki Gulf off Ponui, 7/1/73, one, light phase; twisted tail feathers seen (JAB). Manawatu estuary, 31/3/72, immature; well defined whitish area on rump as well as base of primaries (J & MM).

**ARCTIC SKUA** (*S. parasiticus*)

Bay of Islands, two birds on 20/5/72; 5 on 11/12/72, many sightings in Jan-April 73 (D. E. Calvert); one close inshore, Kerikeri Inlet, chasing a Red-billed Gull, 1/5/73 (ATE); one chasing a tern near Waitangi 8/5/73 (GW); two in Mangonui Inlet 17/5/73, two on 14th & 16th June 73, one on 10/8/73 (D. E. Calvert). Two off Mahia Peninsula, Jan 73 (GF). Manawatu estuary, two Feb/March, one Dec 72 (J & MM). Wellington Harbour, one on 27/4/73 (JAF). Washdyke Lagoon 2/2/73, two chasing terns (PC). Lake Wainono, 1-3 seen Jan-March 73; Waitaki mouth, 4 on 18/3/73 (RJP).

**BLACK-BILLED GULL** (*Larus bulleri*)

*Correction:* Notornis 19, p. 357, under Black-billed Gull, delete the last sentence "Waikanae . . . (JAF)."

Firth of Thames, Miranda, 3/12/72, 22 birds, 11 nests (BB); 27/12/72, 26 plus 6 small young; most of the nests had been washed out by a big tide (HRMCK). Muriwai Lagoon, Jan 73, 52; Whakaki Lagoon, 31/3/73, 1,500 plus; a great increase, to the apparent exclusion of Red-billed Gull (AB). 1/4/73, 10 on a sewage pond near Masterton may be the first inland record for Wairarapa (MLF). 23/4/73, 31 at Waikawa estuary, 20 at Ohau estuary, no Red-billed Gulls seen (BDH). Noticed in fair numbers of recent years in upper reaches of Manawatu River; on 18/11/72 S. Quin and H. Elder found a colony on a shingle bed near Woodville, 30 nests, most with two eggs; 30 chicks on 16/12/72 (IGA). 50 at Manawatu estuary 18/1/73; absent from Lake Horowhenua from June 72 till Jan 73; 14 on

3/2/73 (EBJ). Lake Wainono, 8/11/72, c. 900, c. 100 nests, eggs and some chicks (RJP). Waitaki River mouth, 2/2/73, est. 12,000 in colonies on islands for  $\frac{3}{4}$  mile above mouth (PC). Southland, successful breeding season in 1972/3 after washouts in early spring; March rains prevented the expected high mortality associated with large numbers of newly fledged birds and dry conditions (RRS). Stewart Island, Nov 71, up to 10 feeding with Red-billed Gulls in a freshwater stream flowing into Mason Bay (JAF).

#### BLACK-FRONTED TERN (*Chlidonias hybrida*)

Hawke's Bay coast, each winter varying numbers spend about three months along the coastline, particularly at E. Clive; biggest number counted, over 50 in 1967 (KVT). Manawatu estuary, single immatures Jan, March, and April 72 (J & MM); one in Feb 73 (IGA). First autumn reports Waikanae, 6/5/72, 6; 28/4/73, 2; Pukerua Bay 15/4/72; 28 on 30/6/73, last birds seen on 29/7/73 (CAF, JAF).

#### WHITE-WINGED BLACK TERN (*C. leucoptera*)

Firth of Thames, one 29/10/72, one 3/6/73, in colour (HRMcK). Maketu, Jan 73, one (JHS). Muriwai Lagoon, one 21/11/72 (AB). Westshore, H.B., 2/1/72, 4 (MFO'S). Manawatu estuary, one Feb, March, May 72 (J & MM). One at Grey River mouth 30/9/72 (JAF). Canterbury Bight, 3/3/73, one 10 miles offshore following wake of icebreaker (JAF). Opihi River mouth, 1/2/73, one in almost full breeding dress, one in winter plumage (PC). Cass River, 29/12/72, one in breeding plumage; fourth season on the river (RJP).

#### GULL-BILLED TERN (*Gelochelidon nilotica*)

Arawhata River mouth, South Westland, one on 20/1/73 (MLB).

#### CASPIAN TERN (*Hydroprogne caspia*)

Paua, Feb 73, 19 on paddock. Kerikeri Inlet shellbank roost, maximum count this season, 38 in July 72. 90 Mile Beach, April 72, 6 (ATE). Kaipara South Head, successful 1972/3 season, 92 chicks banded (MAW). Manukau, 26/11/72, 86; 1/7/73, 152. Firth of Thames, 29/10/72, 80; 3/6/73, 103 (HRMcK). Waikato Heads, 10/6/73, 25 (HRMcK); 8/7/73, 20 plus; Aotea Harbour 17/2/73, one; Raglan, 3/6/73, 2; Lake Waikare, 15/7/73, 2 (DW). Bledisloe Beach 22/9/72, 4 (RWJ). Opoutere, usually 2 (BB). Rotorua, Silica flats-Travel Lodge, May 72, 5; Oct 72, 4 (RWJ). Westshore, H.B., 7/4/73, 24 (NBM). Manawatu estuary, 20/1/73, 16 (IGA). Waikanae 28/4/73, 12 (JAF). Aug 72, 2 at Karamea, one at Westport (RJP). Lake Ellesmere, Kaituna, breeding pair Dec 72 at Black-backed gull colony; 4 on 18/1/73. Lake Wainono, Feb 73, 7; Washdyke, Aug 72, 3; Opihi mouth, Aug 72, 4. Ahuriri mouth, Dec 72, 2 adults, flying young; Godley mouth, Jan 73, 2 adults, one juvenile; Cass delta, Dec 72, one; South Branch, Ashburton River, Dec 72, two adults near Black-backed Gull colony, apparently not breeding (RJP). Nesting reported Dec 72, Smite River (JRI). Katiki Beach, Aug 72, one (RJP); Karitane estuary Jan 73, one (GH). Aramoana Feb 73, adult and juvenile (RJP). Hopkins River above Lake Ohau, 2 adults Oct 71 (PC). Invercargill estuary, 11/11/72, 56 nests, seven with newly hatched chicks; colony disturbed by photographers etc. and many dead chicks or rolled eggs on 9/12/72 (MLB).

#### FAIRY TERN (*Sterna nereis*)

Waipu estuary, 1971, Sept, 4; 1972, Jan, 8; March, 3; Sept and Dec, 1 (TGL).

LITTLE TERN (*S. albigrons*)

Paua, 1973, 3 in Feb, 2 in March (ATE). Waitangi, Oct 72, two (GW). Waipu estuary, Sept 71, 3 (TGL). Hokianga North Head, Nov 72, one with 120 *striata* (AMM). Manukau, November 72, 2 (HRMcK). Firth of Thames, 1972, June, 3; Sept, 2; Oct, 28; Nov, 10; Dec, 7; 1973, Jan, 5; March, 3; April, 17; June 23 (HRMcK, WFC, BB). Maketu, Jan 73, 2 (JHS). Manawatu estuary, single birds Nov/Dec 72, Jan-April 73 (IGA, EBJ, J & MM).

WHITE-FRONTED TERN (*S. striata*)

90 Mile Beach, 1972, April 600, May 200 (ATE). Firth of Thames, Taramaire colony 12/11/72, 150 birds, 12 with one and one with two eggs; Limeworks colony 3/12/72, 300 birds, 50% with eggs, one c/3 (BB). Gough Bay, Banks Peninsula, 15/1/72, nesting on reef used as a roost for years. Stack north of Fox River mouth, 5/1/72, 8 nests visible; 12 mile Greymouth, at least 50 nests on flat topped south stack (JRJ). Puketeraki, near Karitane, 21/11/71, 50-60 round offshore stack, some nests visible, some bringing fish; also one pair of Red-billed Gulls (GH).

SOOTY TERN (*S. fuscata*)

Kawhia, freshly dead bird found late Dec 72 (FCK).

GREY TERNLET (*Procelsterna cerulea albivitta*)

1973 Jan, one off Cavallis; Feb, 6 off Cape Breet (MAW). Patua, Whangarei, 3 storm-wrecked on beach after easterly winds (Mrs P. Smith). 29/1/73-5/2/73, during the final stage of a circumnavigation of N.Z. in yacht "Ketiga," one or two birds sighted each day, first sighting 39°15'S 179°23'E (about 70 miles offshore from Mahia Peninsula) appears to be the most southerly record for a Grey Ternlet; other sightings were between a point well to seaward of East Cape and a point east of Cape Brett. Mostly the birds appeared to come from a shorewards direction and other returned in the evening; they seemed fascinated by the yacht, often almost alighting on the masthead; some days one or two birds visited the yacht several times and sometimes stayed in the vicinity for over an hour (GSC).

N.Z. PIGEON (*Hemiphaga novaeseelandiae*)

Little Barrier, Dec 72, feeding on clover and puriri (ATE). Great Barrier, Jan 73, plentiful, feeding on nikau berries (AJG). Clevedon garden, March 73, puriri and holly berries; April, holly and guava, then guava only; May, karamu berries (HRMcK). July 72, on kowhai trees in busy built up areas at Hastings (KVT) and Heretaunga (HAR). McLennan Valley, Otago, 19/8/71, J. Peterson reports a nestling, nearly full grown, wings still in sheaths. Jan 72, Dunedin plantation surrounded by paddocks, report of a nest with two nestlings nearly ready to fly (GH).

MALAY SPOTTED DOVE (*Streptopelia chinensis*)

1973, sightings at Puhinui-Weymouth, Whitford and around Clevedon (HRMcK).

WHITE COCKATOO (*Cacatua galerita*)

South Auckland, Oct/Nov 72, Wairamarama 7, off Ponganui road 6, Kaawa flats 23 (HRMcK).

N.I. KAKA (*Nestor meridionalis septentrionalis*)

Parau Bay, Whangarei Heads, June 73, three birds near wharf for an hour or two (CWD). Mareretu forest, Waipu, Jan 73, one



at 1,000 ft (TGL). Great Barrier, Shoal Bay, Nov/Dec 71, 40-50, very noisy, especially in pohutukawas (BB). Mangatarata, Waitakaruru, April 73, one in garden, first record here (SC). Hastings, one arrived second week of June 72 and stayed for 3 weeks in one of two orchards  $\frac{1}{4}$  mile from the city boundary, with frequent flights away to the south-east. Fed mainly on pears left on the tree, also pulling off and eating leaf buds of apple tree (KVT, JL).

#### S.I. KAKA (*N. m. meridionalis*)

Kaka damage to pine trees, Golden Downs and Tawhai State Forests. *Pinus sylvestris*, *P. canariensis*, *P. nigra* and *P. radiata* have all been affected; damage consists of internodal bark stripping, in some cases the tops have died owing to ringbarking. Dead poisoned *P. nigra* in an area surrounding *P. sylvestris* have been shredded by kaka searching for huhu and other larvae (per RWJ). Stewart Island, North Arm, Paterson Inlet, nest in a hollow Kamahi tree, 1.75 m. above ground, bird incubating two eggs 1/12/71; 10/2/72, two chicks which had lost their down, plumage similar to adult (GJW).

#### EASTERN ROSELLA (*Platycercus eximius*)

Common in bush areas, Waipu and Waiotira, 1973 (TGL). South Auckland, single sightings Aug 72 at Kohekohe and Awhitu Central (MED). Redhill, Papakura, May 73, on cotoneaster; one chivied by Tui (BB). Small numbers at Moumoukai (EStP), fairly common at head of Ness Valley (HRMcK). Aramiro (SW of Hamilton), Jan 73, flock of 10 in a shelter belt near farmhouse, feeding on pears and on a paddock; 2 at Karakariki June 73 (JFC). Becoming more widely distributed in suburban areas round Wellington; recorded at entrance to Rimutaka Forest Park Sept 73 (JAF).

#### RED-CROWNED PARAKEET (*Cyanoramphus novaezelandiae*)

Commonly seen on Bunker Islets, Stewart Island on several visits between Nov 71 and Jan 73 (GJW).

#### YELLOW-CROWNED PARAKEET (*C. auriceps*)

Numbers seem to be increasing in Matukituki and Routeburn Valley beech forests, 1973. In late summer and early autumn an unusual irruption away from the mountain forests, after an exceptionally dry spell for several weeks. 3 up Cardrona Valley, Jan; Wanaka, 3 in late Feb, 5 on 12 March, and one on 22 July; Clyde, 5 on 28th Feb, stayed several days; 2 on 27th May (PC). Arrowtown, April 73, in silver beech trees around the suburbs (SS). Eglinton Valley, Jan 71, over 30 in a beech tree (TAB).

#### SHINING CUCKOO (*Chalcites lucidus*)

1972 early records from Rabbit Island, off Mt. Maunganui, Bay of Plenty, 1 Sept (JHS), Onerahi, Whangarei, seen and heard by Mrs McQueen 9 Sept (HRMcK). Rotorua, 14 Sept (RWJ). Waitakaruru 15 Sept (SC). Head of Lake Wanaka, 21/10/72, four birds in a radius of 100 yards, allowed close approach, probably just arrived (PC). Juvenile at Taupo 23/4/73 (JHS). Tamaterau, Whangarei Heads, 29/1/73, three young cuckoos in a puriri tree, keeping close together, sometimes perching almost touching each other on a branch; seen being fed by grey warblers at 1830 hrs; a fantail seemed to be accompanying but not actually feeding them (CWD). Days Bay, Wellington, first call, 30/9/72 (EWD).

**LONG-TAILED CUCKOO** (*Eudynamis taitensis*)

Calls heard from a bird flying north over Waipu 27/1/72 (TGL); one at Lake Ngatu, north of Awanui, 8/4/73 (HAF).

**MOREPORK** (*Ninox noveaeelandiae*)

In wooded areas at Akaroa, Dec 72; Little Owls are reported in some northern bays on the peninsula (PC).

**N.Z. KINGFISHER** (*Halcyon sancta*)

30 counted round Waitangi River estuary, Bay of Islands, 21/8/72 (GW). Otago, near Makarora tourist centre, one on 21/10/72, had been present since Feb; the first recorded here. One present March-Oct 72 in the vicinity of Clutha River between Earnsclough and Alexandra, only the second known from this area. Naseby Forest, one, apparently juvenile, seen on 20/4/72 by Mrs Shaw (PC).

**KOOKABURRA** (*Dacelo gigas*)

Oct 72, Press report of sightings of one at Purua, 25 miles northwest of Whangarei; seen at Ōnerahi on 28th Oct by W. Stacey, but did not stay (ATE).

**AUSTRALIAN TREE MARTIN** (*Hydrochelidon nigricans*)

A reliable report from R. Walls of a flock of 5 in mid-June 72 and 2 in mid-July at Waitaki mouth (IAMcV). Lake Waituna, Jan 73, a bird with white rump and no long outer tail feathers seen by Dr Lloyd Franklin (MLB).

**WELCOME SWALLOW** (*Hirundo neoxena*)

Raoul Island, 1973, 3-6 birds during March, later 10 after a small hurricane; 11 in May, 13 on 1/7/73 (J. Ireland per CSK). Kerikeri, April 73, late evening, 300 over a lake (ATE); Waiotira-Paparoa, autumn and winter flocks of 30-50 (TGL). Feb 73, 52 over Muriwai Lakes. Dec 72, nests at East Tamaki road under a culvert, in a garage at Maraetai Drive (SMR). One at Orakei Bridge, Remuera, March 73 (GE). Oct 73, spreading well into Auckland suburbs, reports of new nesting sites (SMR). Great Barrier, 9/1/72, 3 at Whangapoua estuary, one at Mabey's Creek (AJG). Karaka, Urquhart's Dam, 14/7/72, 300 (DAU); Otau, one by house at 1,800 ft a.s.l., Oct 72 (EWB). Hunua Range, Mangatawhiri Dam, April/May 73, up to 4 (EStP); Aka Aka, nest, Oct 72 (MED). NE slopes of Pirongia, Aug 73, 3 (DW); pair at Tuakau township Nov 72 (TAB); recorded at Hamilton throughout April-July 73 (DW). Opoutere, breeds under farm bridges (BB). Well established at Gisborne 1972/3, breeding in vicinity and at Tolaga Bay; seen at East Cape; 9 at Whakaki Lagoon March 73 (AB). Increasing in Manawatu (HAR); report of 100-150 birds on wires at Hokio Beach, Mrs Gebbie, June 73 (EBJ). 2 at Silverstream June 72 (J & MM), 5 at Hutt-Wakatikei confluence May 73 (HLS). Wairarapa, many sightings over lakes and ponds and in river valleys (BDH, RHDS). Nelson, no sightings reported Waimea estuary 1972/3 (FHB); Karamea Lagoon, Aug 72, 3 (RJP); Westport, 7 over river, May 73 (JJ). Ahaura Bridge April 73, 2 (JAC); Karangarua River flat, Jan 73, nest, 4 eggs (MLB). Marlborough, Rai Valley, Nov 72 (JAC); Wairau Plain, Jan-June 73, common on all waterways from Waihopai River to Cloudy Bay (ES); pairs at Lake Elterwater and Flaxbourne River

road bridge, Aug 72 (JAT). Swallows have nested under a concrete bridge between Anama and Cavendish, Canterbury, for several years (ML). Otago, May 72, 4 at Hooper's Inlet, 6 at Kaikorai estuary (AW). Southland, widespread sightings winter 72, gradual disappearance in late spring. 2/1/73, Awarua Bay, nest with four eggs found under a bridge by Martin Muller; eggs vanished; new clutch of 4 in same nest, 28/2/73; may not have been successful. 3 unoccupied nests found in April 73, Bluff road; report per Dr Lloyd Franklin of nesting in a hay barn near Waituna, Feb 73. First autumn sightings for 1973, early March; build up from then onwards, individual winter flocks of 100 plus in lower and middle reaches of Mataura River and on lagoons at Thomson's Crossing near Winton, May 73; scattered birds over a wide area in mid-Aug 73 (RRS).

N.Z. PIPIT (*Anthus novaeseelandiae*)

Waikato, Pennydale, a nest on a steep road bank already fully constructed on 22/8/72 (TAB). Marlborough, Ward, more than usual in Autumn 73 after an exceptionally dry summer (JAT).

HEDGE SPARROW (*Prunella modularis*)

Well over a week may elapse between completion of nest construction and laying the first egg. Between 4 and 10 Nov 72 a pair watched on lawn; female seen on several occasions to adopt a crouching position with quivering wings; male followed her and occasionally pecked at her cloaca but no attempt at mating (EBJ).

N.I. FERNBIRD (*Bowdleria punctata vealeae*)

Waipu, two miles north of river mouth and  $\frac{1}{4}$  mile in from beach, 3-4 pairs in low manuka, 1973 (TGL). Great Barrier, Te Ahumata, 13/1/73, two pairs and a single along 600 yards of track on scrubby north-west face (AJG). Tanner's Point, Tauranga Harbour, two populations in low scrub, long grass and swamp near low mangroves, 10 south and 5 north of point (JFC). Opoutere 1973, common around harbour, up stream, even to edge of pine forest (BB).

WHITEHEAD (*Mohoua albicilla*)

Little Barrier, Nov 71, male fed female on a nest with three eggs, placed 2 m above ground in manuka (BB). Coromandel, 1972, not seen past Kaitarakihi (SC).

YELLOWHEAD (*M. ochrocephala*)

Waikaia River, 3 miles north of Piano Flat, 24/2/73, 6 in beech forest; robin, tit, rifleman, grey warbler and parakeets also seen (R. Janssen).

GREY WARBLER (*Gerygone igata*)

Whangarei, 1972, a nest well hidden in coprosma 3 ft from ground was found to contain a dead shining cuckoo chick; during the previous three weeks cuckoos calling near nest, once two, three times a single bird (P. Smith). Lake Alexandrina, one caught a large moth (RJP).

N.I. FANTAIL (*Rhipidura fuliginosa placabilis*)

Brown's Island, Auckland, 7/7/72, 13 feeding together round Black Poll cattle in long grass (MED). Mataitai, Clevedon, 22/7/72, loose flock of 22, some near and one actually perching on a horse (CDB). Hamilton, 29/4/73, one attacking reflection in a mirror (JFC). Gisborne, a pair building in a suburban plantation 7/5/73; birds around completed nest on 15/5/73 but a severe frost on 16th stopped

further activity (AB). Black Fantails recorded Avondale, Auckland, 10/4/72 (AM); Hunua Falls road 14/11/72 (SC); Hexton, Gisborne, April/May 73 (AB); Bridge Pa, Hastings, 6/11/71 (KVT).

S.I. FANTAIL (*R. f. fuliginosa*)

Southland population reduced to a very low level during the very wet autumn, winter and spring of 1972; breeding conditions apparently favourable in 1972/3 season but numbers probably still below normal (RRS).

PIED TIT (*Petroica macrocephala toitoi*)

Puketū Forest, Dec 72 (BAE). Waipoua Forest, two, July 72 (GW). Waipu, Mareretu Forest, a few pairs along the summit ridges; Tangihua Range, 10 counted on a walk to Tangihua Trig (2,063') from the Omana side of the range, 27/1/73 (TGL). Waitakere Range, Auckland, on Cutty Grass track, 23/9/72 (MED). Kohukohunui track, Mōmoukai, 1/11/72, one singing about every 200 yards, apparently increased over the last ten years (AIG).

SONG THRUSH (*Turdus philomelos*)

Whangarei, 18 nests were under observation in 1971/2 and 1972/3 seasons, and from these only 5 successful broods were reared. The other nests were deserted, as follows: all eggs gone, no sign of nest disturbance, two nests; all eggs gone, nest disturbed, possum droppings on foliage nearby, one nest; fourth nest, one egg disappeared, bird sat for 9 days on 2 eggs and deserted when a second egg was taken. Eggs pecked, two nests (in one nest pecking occurred during incubation period, in the other the eggs had been in the nest for 17 days); two nests, chicks found dead and remains being eaten by black beetles; two nests, chicks gone, nests undisturbed; two nests, chicks gone, nests disturbed, possum droppings on foliage near nest; the last nest had 2 unfertile eggs and two chicks; the chicks disappeared on consecutive days and the parent deserted after the second chick had gone (P. Smith). Rotorua, eating berries of *Coprosma australis*, 5/5/72 (RWJ). Lake Alexandrina, adults and a juvenile taking snails from beneath the surface of the water at the lake edge and beating them against stones on the bank (RJP).

BLACKBIRD (*T. merula*)

Whangarei, 1971/2 and 1972/3 seasons, 13 nests observed, from which 6 successful broods were reared. Chicks disappeared from one nest, eggs pecked in two nests, eggs gone from four nests, one of which had been built on the ground; at two nests scattered black feathers in or around the nest and nearby foliage. One Blackbird hatched and reared two chicks from a three-egg clutch; chicks in nest on 14th day after hatching, had left on the 15th day, but one of them still in the tree near the nest, which was found to contain the unfertile egg and 61 nikau berries; two days later no Blackbirds near nest and only 17 nikau berries left, scattered round the rim or outside it (P. Smith). Clevedon, Nov 72, eating calyx of feijoas as they do every year. 15/5/73, a pair acting as if copulating; 17/5/73, definitely copulated three times; later seen carrying nest material; no nest found and no young seen (HMMCK). July 72, three cock birds disputing an area in the garden; 18th, two alighted on top of the clipped hedge, one carrying a bright yellow salvia leaf by the stalk; holding this up as conspicuously as possible he

did all he could to provoke the other bird, which however completely ignored him; this went on for about a minute, when both flew to the lawn; the leaf was soon dropped and both set about worming (AJG). Otago Peninsula, Broad Bay, Blackbirds carrying food 26/8/71; seems to have been an early nesting season (AW). Wetherstones, Lawrence, 2/12/72, 66 Blackbirds and 31 Thrushes in one paddock (MLB).

#### SILVEREYE (*Zosterops lateralis*)

Whangarei, one sat on two unfertile eggs for 13 days; one flitted from branch to branch while I was examining its nest, carrying in its beak a whole moth which it later fed to the chicks (P. Smith). Clevedon, Nov 72, pecking and apparently eating calyx of feijoa (HRMcK). Levin, 16/10/72, two flying up and catching insects after sunset, like flycatchers; three young seen the next morning, huddled high in a shrub (EBJ). Rotorua, 16/5/72, flock of ten systematically searching an Akeake tree; caterpillars about one inch long (?tortricid) extracted from under strips of bark or leaves, *Tortrix* pupae taken from between woven leaves (RWJ). Hamilton, winter 73, individual birds of a flock on the bird table adopt an aggressive posture with wing shivering, often followed by a short attack on another bird or birds. Song heard several times in May-July period (JFC). Ashburton, from early May, one singing a song like that of a skylark two or three times a week throughout the winter, in the garden (ML). Nelson, 29/5/72, two Silvereyes indulging in mutual preening. They were perched in a coprosma, the male with his bill up-pointed as the female preened round his nape, neck and upper breast; such preening as was done by the male was more perfunctory (FHB). Silvereyes mutual preening, especially cleaning round each other's eyes, cheeks and bills, while sitting close together in the fuchsia tree; Ashburton, winter 73 (ML). Hamilton, I have seen up to six pairs of Silvereyes sitting close to each other in a willow tree near our bird table, some with feathers fluffed, others mutual preening. The bird being preened raises its head to a vertical position, and the area preened is usually the head and neck; sometimes both birds preen each other at once. I have seen this behaviour on several dates in June and July 73, and also when I was living in Rotorua last year, at the same season and under the same conditions — a cold morning, the sun just disen, the birds perched in the sun on a tree near the bird table (JFC). Ashburton, 11/10/72, a silvereye in the garden, feeding with others, had yellow throat, breast and underparts, dusky wings with gold-yellow margin, crown, neck and mantle olive with a yellowish greeny tone. The bill was not black (ML). Unusually yellow birds (but evidently *Z. lateralis*) have been reported from Hutt Valley in 1972 (FCK).

#### BELLBIRD (*Anthornis melanura*)

S. Auckland, Moumoukai, Nov 72, near hiker's track (D. Harding); odd birds area Mangatawhiri Dam up to April 73 (EStP). All the way up Coromandel Peninsula, 1972 (SC). Chasing sparrows out of *Coprosma australis* bush at Rotorua, May 72 (RWJ). Rarely reported in Gisborne outer suburbs; many reports in spring 73 in the outskirts and birds have appeared in unusual numbers in country areas, e.g. Waimata Valley (AB).

**TUI** (*Prothemadera novaeseelandiae*)

Whangarei, 1973 autumn drought, Tuis take a daily bath in dew in the Myrtle tree then retire to the Erythrina to preen, preferring this to water put out for them; Tuis like crab apples in winter; walking on lawn and pecking apples knocked off by Blackbirds (KR). Waipu, Bream Bay, May 72, 4 flying over the sea at 200 ft heading inland, perhaps from Hen Island (TGL). Eating holly berries, Clevedon, Aug 72 (HRMcK). Karakarakai, Waikato, June 73, one chased a falcon, which perched in a tree; the Tui flew to a higher perch in the same tree; during and after the chase the Tui uttered a good imitation of a falcon's call (JFC). Gisborne, nesting pair fearlessly attacked a falcon flying low overhead (AB). Nelson, Lake Rotoiti, pair raised two young Nov/Dec 72 (PJ). Kaikoura, 2 on lower slopes of Mt Fyffe, Aug 72; seldom seen in this district (JAC). Queen's Park, Invercargill, less than usual spring 73 after a hard winter (MLB).

**CIRL BUNTING** (*Emberiza cirius*)

BAE reports a sighting road Kerikeri-Okaihau, Bay of Islands, Jan 73. Normandale, one in 1972 (MAF), April 73, male with probable attendant female (JAF). Marlborough, summer 73, 7 seen at Ward, mostly cock birds; 5 pairs on farm at Flaxbourne River and at least one successful brood (JAT); one seen in Kaikoura township by J. Rutledge, May 72 (JAC). Richmond, Nelson, May 73, one found dead in Hill Street (HFH). Pleasant Point, one on 26/8/72 (RJP). Taiaroa Head, 23/9/72 (AW). Alexandra, 7/10/71, male seen on fence, first definite sighting in this locality (PC).

**CHAFFINCH** (*Fringilla coelebs*)

Orakei Korako, Taupo, Sept 72, one getting food from algae in steaming water which flowed over the terrace (BB). Lake Alexandrina Nov 71, the commonest passerine, followed by Redpoll (RJP). Becoming very common in Silver Beech forests east of main divide, e.g. Matukituki, Wilkin, Routeburn. In a week's trip through the Tial and Siberia in May 72, easily the most common bird of the forest, especially on the sunny side of a valley. In some localities behaving like fantails, fluttering out over streams from the forest margin to take insects on the wing (PC).

**GREENFINCH** (*Carduelis chloris*)

Kerikeri, seen on flax heads, April, probably taking seeds (ATE). Papakura, feed all winter on windfall tamarillo seed and look for dried passion fruit pods to open (BB). Rotorua, May 72, three feeding on seeds from the cones of Lawson's cypress; Aug 72, feeding on green seed heads of hairy bitter cress (*Cardamine hirsuta*) and chickweed (*Stellaria media*) (RWJ).

**GOLDFINCH** (*C. carduelis*)

Raoul Island, June 73, one occasionally visited hostel garden (CSK). Waikato Heads, June 73, flock c. 55 working the sandy tide line on upper beach (HRMcK). Eating dock seed, June; seeds of *Poa annua* July and Aug 72 (RWJ).

**REDPOLL** (*Acanthis flammea*)

Waipu, Bream Bay, common in sand dune country 1972 (TGL). Clevedon, Ohau Mt. Road, April 73, c. 300 on manuka and spider-wort; also ate paspalum. One immature had bill stained red from

spiderwort (BB). Generally distributed in all the hilly area from Onewhero to the west coast (DMW). Two flocks in pines, Maioro Forest, Waiuku; one flock fed on pampas seed (BB). Lake Horowhenua, one on 24/6/72 (EBJ).

#### HOUSE SPARROW (*Passer domesticus*)

Aramiro, Waikato, a colony of sparrow nests in a small tree near a farmhouse and hen run; 15-20 nests, 8-15 ft above ground level; at least 5 communal nests, larger than normal, with two or three entrance holes each leading to a separate nest within the one structure; most of the nests had eggs or young on 23/1/73 (JFC). Rotorua, May, an eaten egg found in garden (RWJ). Levin, a bird with a malformed (hooked) bill seen from 18/1/70-4/1/73. 1973, a female with white patches on wings; one with white on primaries and secondaries; a male with a patch of pale colour on the mantle (EBJ). Nelson, Jan 73, partial albino, body plumage light cream, wing and tail light coffee colour (FHB). Sept 71, a melanic sparrow photographed at Dunedin; photograph filed with Recording Scheme (DG).

#### STARLING (*Sturnus vulgaris*)

Kerikeri, March/April 73, Starlings bringing nest material to nest site and later dismantling the partly made structure (RL). Eastern end of Brown's Island, Auckland, July 72, a roost of several tens of thousands; calling at varying degrees of intensity throughout the night (MED). Rotorua, April 73, Starlings, apparently young birds, fighting around nest boxes (RWJ). Papakura, one imitating a Yellowhammer; Opoutere, several thousand fly towards Alderman Islands each afternoon (BB). Nelson, mid-March 73, Starlings in Marsden Valley commenced building in nest boxes and under eaves; this continued up to 21 April, but operations are desultory and do not include egg laying (HFH).

#### INDIAN MYNA (*Acridotheres tristis*)

Tamaterau, Whangarei, April 73, wasps (*Vespa germanica*) swarmed thickly round the tops of small trees and shrubs. One or two mynas perched on the tops of these, moving their heads to watch the wasps, catching them, crushing the abdomen and then the head and thorax with two or three quick snaps and swallowing them. One bird ate 8 wasps in about two minutes; no sign of it being stung, but it twice held its beak agape for 5-10 seconds. This behaviour was observed on three occasions over a fortnight (CWD). Clevedon, Nov 72, eating calyx of feijoa; first time I have seen this here (HRMcK). Opoutere, July, feeding and bathing among waders (BB). Te Kuiti, 1973, a group of mynas attacking a single bird of the same species, which was lying on the ground with outstretched wings. I have seen this happen four times, usually the victim is killed; it once happened on the roof of my house; when I climbed up the myna was at its last gasp though it had flown there pursued by the other mynas only minutes previously (TAB). Queen's Crossing, just north of Paekakariki, one on power lines 9/7/72 (HAR).

#### WHITE-BROWED WOOD SWALLOW (*Artamus leucorhynchus*)

#### MASKED WOOD SWALLOW (*A. personatus*)

Naseby, 19/3/73; early last spring a Masked pair departed, leaving the White-browed male and another Masked male behind.

During last week the breeding pair (Masked) returned to the area of Forest HQ with three young. The young birds are distinguishable from the adult by their spotted plumage. The population has therefore increased to seven. It would appear that these birds are capable of surviving in the Central Otago climate (KAL).

N.I. KOKAKO (*Callaeas cinerea wilsoni*)

Great Barrier, 9/1/73, heard once  $\frac{1}{2}$  mile SW of Rangiwhakaea Bay but song not repeated during the next hour (AJG). Waikato, Karakariki, 23/6/73, one heard in bush (JFC). Dansy Scenic Reserve, 24/6/72, heard one, in the same locality as I heard one on 10/4/65 when accompanied by HL (RWJ).

WHITE-BACKED MAGPIE (*Gymnorhina tibicen hypoleuca*)

Waipu, hybrids occasionally seen; some have a narrow black collar on the hind neck (TGL). Clark's Bay, Seagrove, Karaka, 5; flock of 8 on farm at lower end of Ness Valley where it joins the Wairoa (Clevedon) River (HRMcK). Generally small numbers well scattered on Manukau Peninsula; 7 on paddocks, Taurangaruru, 22/10/72 (MED). NE slopes of Mt Pirongia, 24/8/73, 5 (DW). In 1937 it was very rare to see a magpie between Te Kuiti and Raetihi; in 1972 they are becoming quite common in King Country and around National Park and are often seen within  $\frac{1}{2}$  mile of Te Kuiti (TAB). 23/4/73, Newcombes, Palmer's Road, Grey Valley, one 22/4/73 (V. Hawker per JJ). Dumbarton, 3; Dunrobin, 4 (MLB).

ROOK (*Corvus frugilegus*)

South Kaipara Head, one in March 73 (MAW). Miranda, 1/4/73, flock of 20-22 flew towards works from fields beyond pools, had not been seen for a long time (EStP). Dillon's Hill, Napier-Taupo road, 30/9/72, nesting in gum trees; 19/7/73, apparently moving northwards to feed, birds seen returning from beyond Titiokura saddle in late afternoon, steady stream flying high (BB). Ward, Flaxbourne River bridge, May 72, 2; Dog Hill, Nov 72, 5 (JAT). Swyncombe, 8 miles west of Kaikoura, 27/6/72, one (JAC). Middlemarch, my estimates for the past two years are 13-15 birds in Nov 70, 15-16 birds in Oct 71 and definitely 23 birds in July 72 (GH). Chatham Islands, one seen (immature) on a farm at Owenga a few days before it was shot on 17/4/73; specimen preserved (RMW).



## SHORT NOTES

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### PIED AND BLACK FANTAILS IN AUCKLAND

John L. Craig, in his article on polymorphism in the Fantail (Craig 1972), recorded counts of pied and black morphs of the North Island Fantail (*Rhipidura fuliginosa*), and John and Mary McFadzien later gave an additional count (McFadzien & McFadzien 1972). In total only three blacks were noted in approximately 1100 piers in the North Island. A few isolated records of the black form have been listed by A. T. Edgar (1972 *a* & *b*) in "Classified Summarised Notes."

I make two regular bird censuses, and details of fantails for the five years 1968 to 1972 are as follows.

1. My garden in Te Atatu, Auckland. The maximum number seen in each week is recorded, i.e. single birds on several days would only count as one for the week, whereas three in the garden at one time would count as three. All birds observed have been piers, no blacks have been seen.

	No. of Weeks	No. of Birds Present				No. of Weeks Present
		0	1	2	3	
1968	52	42	7	3		10
1969	52	52				0
1970	52	42	8	1	1	10
1971	51	47	4			4
1972	52	43	7	2		9
	259	226	26	6	1	33

2. Old disused market garden, Avondale, Auckland, 4.6 km from my garden. Here a 30 min walk is made most weeks and the total number of birds noted.

	No. of Visits	No. of Birds Present					No. of Times Present
		0	1	2	3	4	5
1968	43	22	8	6	7		21
1969	48	32	12	2	2		16
1970	48	27	15	4	2		21
1971	46	34	7	3	2		12
1972	44	17	11	9	4	1	2
	229	132	53	24	17	1	2
							97

On one occasion, on 10 April 1972, a black morph was present, but otherwise only pied birds have been seen.

The total number of individuals is unknown, as no doubt most of the birds are resident and seen repeatedly, but the figures are sufficient to show that in the Auckland area the black form is as described in the Annotated Checklist, "rare."

The results also perhaps indicate that there may have been fewer fantails in the area in 1969 and 1971 than in the other three years.

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NEST HELPERS AT A WHITE-BREASTED WOODSWALLOW  
NEST

Between 2 and 22 December, 1972, I had a White-breasted Woodswallow (*Artamus leucorhynchus*) nest under daily observation. It was located in the fork of a branch high in a raintree (*Samanea saman*) in Gordon Street, Suva, Fiji, being well sheltered by the canopy, unlike those mentioned by Wood (1926: 131) which were exposed to the sun on the tops of pandanus trees. This raintree has been a favourite woodswallow roost for several years, it being usual to see up to half a dozen birds performing noisy aerobatics over the canopy as the evening darkens, or perched side by side on a branch, chattering loudly and preening each other. I have often seen woodswallows driving Fiji Goshawks (*Accipiter rufitorques*) and even a Peregrine Falcon (*Falco peregrinus*) from its vicinity by particularly bold attacks. The falcon definitely kills adult woodswallows on occasion, while the goshawk almost certainly takes their young.

When first noticed the nest contained three small nestlings. One disappeared on 8 December, while a second was found crushed on the road beneath the tree on 20 December, having left the nest with its companion several days earlier, to roost on nearby branches. The surviving nestling fledged successfully and was regularly seen on powerlines in the vicinity, soliciting adults for food.

Mayr (1945: 97) stated that "both parents take part in rearing the young" but the situation at this White-breasted Woodswallow nest was more complex, four birds caring for the young during part of the nesting cycle.

Numerous instances in which more than two birds were in attendance at the nest were witnessed on eight different days between 2 and 14 December, by which latter date the two surviving young were beginning to venture out along the branch supporting the nest. No more than two birds were seen caring for the young after this.

In the instances of multiple care mentioned above, three and often four woodswallows were in attendance at the nest within minutes and sometimes seconds of each other. Indeed, on more than one occasion three birds came in simultaneously with food, and had to queue up to feed the young, while the fourth bird, relieved of its watch, hawked out in search of more insects. All four birds were seen to brood and feed the nestlings, remove their faeces from the nest, and maintain guard duties, fiercely harrassing Indian and Jungle Mynahs (*Acridotheres tristis*, *A. fuscus*) and Red-vented Bulbuls (*Pycnonotus cafer*) which moved too close to the nest, but ignoring a Red-headed Parrot Finch (*Erythrura cyanovirens*), which often perched nearby. In one skirmish a woodswallow actually collided with a mynah in mid-air, apparently accidentally, but neither bird was hurt. The woodswallows would even dive at dogs passing beneath the tree, skimming in silently just over their backs and rising with an aggressive chatter, sometimes clumsily aided by a pair of Indian Mynahs, which were nesting in a hole in the trunk.

Two of the woodswallows seemed regularly to hunt as a pair, while the others hunted individually. All seemed efficient hunters. Food brought in included a variety of insects, among which I could recognise moths, grasshoppers, dragon flies and a big cockroach. Large insects were battered on branches and stripped of their heads and wings before being fed to the young. They were sometimes dropped during this hammering, but were invariably recaptured before they hit the ground, either by the woodswallow concerned, or by one of the others.

As with most Fiji birds, few nesting dates are recorded for the White-breasted Woodswallow. I have seen one of a pair carrying grass in its bill as early as mid-May, but the main nesting period probably begins in late August to early September. Belcher (1931, painting No. 6) gives this as the nesting season, while Blackburn (1971: 168) recorded nesting and courtship feeding on Taveuni at that time of year.

The December date of the woodswallow nest in Gordon Street, Suva, was roughly matched by another Suva nest, at which incubation was apparently in progress on 31 December, 1972. These late dates might quite possibly have been the result of earlier broods being destroyed by the hurricane which ravaged the area at the end of October, and this may suggest that the nest helpers at the Gordon Street nest were adult birds which had lost their brood, and had not renested. There was, however, no way of determining the exact status of the nest helpers.

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FERGUS CLUNIE

*Fiji Museum,  
Suva, Fiji.*



## BLACK FANTAIL IN NORTH ISLAND

The appearance of a Black Fantail (*Rhipidura fuliginosa*) in my garden in Masterton in three successive years is rather unusual. The first one seen in the district since 1948, it was recorded on 20 January 1971. The following year another Black Fantail, or the same one, was seen in the garden on 17 February. Then, on 20 February 1973 (note dates) one had a bathe under the spray from a hose and two days later, presumably the same bird, was seen again but not since then.

It is possible that these records concern the same bird though I have regarded each year's observations as another record. It may be pertinent to add that in Wellington Provincial observations extending over fifty years from 1921 to date I have seen 10 Black Fantails and in that period I have notes of 1352 Pied Fantails as having been actually seen. I have ignored all records of birds heard and not seen. The area covered in these observations, the southern portion of the Wellington Provincial District, extends from the Hawke's Bay boundary in the east to the mouth of the Rangitikei River in the west and includes Kapiti Island, where I saw a Black Fantail consorting with a Pied on 22 February 1927. An additional record for the Wairarapa to those already published is one for 18 May 1924 in the Waingawa River Gorge.

R. H. D. STIDOLPH

*120 Cole Street,  
Masterton.*

FIRST RECORD OF WHITE-TAILED TROPIC BIRD  
IN NEW ZEALAND

On 27 January 1973 I patrolled approximately two miles of beach to the west of the Whakatane River mouth. The remains of 12 specimens of 8 species of sea birds were found, but one complete skull could not be identified. It was peculiar in shape, the bill was like that of a tern, but malformed, the upper mandible being crossed over the lower mandible.

I was unsure of the identification of the bird so I sent it to Mr F. C. Kinsky at the National Museum, Wellington. He identified it as a juvenile White-tailed Tropic Bird (*Phaethon lepturus*). This is the first positive identification of this species in the New Zealand region.

Because of the malformed bill it is possible that the bird had difficulty feeding and died through starvation. The malformity of the bill had probably occurred at birth, or at a very early stage in the bird's life.

This species occurs in the centre of the tropical oceans, mainly on the Ascension and Galapagos Is, where it breeds amongst the larger Red-billed Tropic Birds (*P. aethereus*). It also appears around the Tongan Is, where it is more common than the Red-tailed Tropic Bird (*P. rubricauda*).

S. R. BROWN

5 Brabant Street,  
Whakatane.



#### ANTARCTIC SKUAS AT VANDA STATION, ANTARCTICA

Vanda Station is a small permanent New Zealand field station sited at the East end of Lake Vanda in the Wright Valley at 77°31'S, 161°40'E. Its main function since its establishment in 1967 has been as a meteorological station and as a service centre for field parties studying geology, glaciology, hydrology, etc., in the Dry Valleys. The coast lies some 30 miles to the east where, at Marble Point, the nearest colony of Antarctic Skuas (*Stercorarius skua maccormicki*) breeds. Each summer since the opening of Vanda Station skuas have visited the Station (unpublished Vanda Leader's Reports to the Ross Dependency Research Committee). The largest number seen together is recorded as three, and the earliest arrival at the Station on 9 November, in 1971.

During the summer season 1972-73 I was appointed Leader, Vanda Station, by the Antarctic Division of the DSIR, and noted on 6 November the arrival of the first skua, which carried a plain, un-numbered band. Presentation of high quality food scraps attracted the individual for several days until it was joined by another and, a little later, a third. Although, at this stage, no more than three birds were seen together, it was clear from plumage variations and recognisable individual behaviour that more birds were involved. In an attempt to assess the size of the visiting population I commenced a trapping programme in which four birds were trapped and banded. Subsequently three un-banded birds were seen feeding together, bringing the total number of confirmed visitors to seven. On 15 January seven birds were seen together in flight and it is probable that the actual total number of visitors during the season exceeded ten — far more than has hitherto been suspected. Two birds (one of which was the first visitor of the season) were present when the Station was closed for the winter on February 8.

On several occasions during the season elementary courtship display, territorial defence behaviour and exciting aerial chases were observed, but because the visiting skuas are entirely dependant on food scraps proffered by the Station's personnel it is considered most unlikely that breeding could take place in the vicinity of the Station.

J. A. FOWLER

Department of Education,  
Private Bag,  
Wellington.

★

#### PREENING OF SILVEREYES

For many years I have, over the three winter months, fed Silvereyes (*Zosterops lateralis*) at a feeder suspended in a tree. Although I have frequently observed what I call "reciprocal preening," it is only recently I have had the opportunity of watching this at close quarters, from inside a window at a distance of three metres.

The procedure is for two birds, after feeding, to perch close together. Each preens itself wherever it can reach. The birds then in turn preen each other all round the head and neck in a very detailed manner. Occasionally the birds will preen each other's head at the same time. The operation takes from less than a minute to a maximum of five minutes. The greatest number of pairs preening at one time has been four.

L. W. McCASKILL

8a Kauri Street,  
Christchurch, 4.

[See also under 'Silvereye' in this issue of Classified Summarised Notes — Ed.]

★

#### HYBRID OYSTERCATCHER REPORTED IN ARGENTINA

In an article on winter bird populations in Argentina, Jehl, Rumboll & Winter (1973) published a photograph of a pair of American (pied) Oystercatchers (*Haematopus palliatus*, sometimes treated as a subspecies of *H. ostralegus*) with a supposed hybrid between that form and the Blackish Oystercatcher (*H. ater*). *H. palliatus* averages 8 to 10 pairs a mile along the sand beaches of their study area of Golfo San Jose, most of them maintaining territories throughout the year, a habit more reminiscent of the New Zealand *H. reischeki* phase of *H. unicolor* than of *H. ostralegus finschi*. Where rocky platforms outcrop, supporting mussel beds, they provide habitats for the Blackish Oystercatcher which "occasionally hybridises with *H. palliatus* in this area." Thus *H. ater*, like *H. unicolor* in New Zealand, tends to replace the pied on rocky shores. A third form, *H. leucopodus*, the Magellanic or Fuegian Oystercatcher, winters in this area.

The photograph shows that these Argentinian "*palliatus*" (perhaps properly the subspecies *durnfordi*) differ from the true

*palliatu*s of the North and Central America (in R. C. Murphy's words) by their "mottled line of demarcation between the black and white plumage on the breast," another *unicolor-reischeki* character. While the relationship between *finschi* and Palearctic *H. ostralegus*, pointed out by Falla, has not been questioned, the affinities of the dimorphic *H. unicolor/reischeki* seem still undetermined and these South American forms, together with the Australian coastal species, must be considered candidates for relationship.

I apologise for adding more to the considerable amount of space already devoted to oystercatchers in Vol. 20 of *Notornis*, but it seems justified to alert readers to a forthcoming paper by Jehl (cited as "in prep." without further detail) that will presumably amplify evidence for hybridisation.

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C. A. FLEMING

"Balivean,"  
42 Wadestown Road,  
Wellington, 1.

[See also reference to this paper in A. J. Baker, *Genetics of plumage variability in the Variable Oystercatcher (Haematopus unicolor)*, *Notornis* this issue — Ed.]

## LETTERS

The Editor,  
Sir,

### OYSTERCATCHER TERMINOLOGY

May I draw attention to two errors which have crept into Dr P. B. Heppleston's etymological note on the terminology of oystercatchers?

(a) *Haematopus*. The last syllable of this generic name is the Greek word for "foot." *Haematopus*, therefore, does not mean "bloody eye," but "blood-red foot (or leg)." The derivation is correctly given on page 179 of Helen Oliver's *Annotated Index* (1968). The ending signifying "eye" is "-ops" as in *Zosterops* = Belt eye or Girdle eye.

(b) *Malacophaga*. *Malakia* is a Greek diminutive meaning "little mollusca." Admittedly there is a Greek, not Latin, adjective *malakos*, meaning soft or luxurious. However, a malacologist is an authority, not on effeminate softness, but on living mollusca.

In the South Island the Black Oystercatcher is sometimes called the Musselpicker, a descriptive name which reflects sound observation by a good countryman. In north-west Nelson I have watched these oystercatchers picking among small mussels on exposed rocks and reefs at low tide. This vernacular name is added in the second edition of the *Field Guide*.

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R. B. SIBSON

26 Entrican Avenue,  
Remuera,  
Auckland, S.E. 2  
31 July 1973

★

The Editor,  
Sir,

### RECORDINGS OF N.Z. BIRDS AVAILABLE

I am writing to bring up to date the list of bird species that I now have available on tape for research purposes. This list shows all the additions to 13 October 1973 after the original list, giving those recordings held at 12 October 1972, published by me in *Notornis* a year ago (Macpherson 1972).

Adelie Penguin; Northern Blue Penguin; NZ Black-browed Mollymawk; Yellow-nosed Mollymawk; Antarctic Petrel; Antarctic Fulmar; Cape Pigeon; North Atlantic Shearwater; Manx Shearwater; Leach's Petrel; Little Shag; White Heron; Brown Teal; Blue Duck; NZ Scaup; Australian White Ibis; Takahe; Spur-winged Plover; Ringed Plover; Asiatic Whimbrel; Asiatic Black-tailed Godwit; Eastern Bar-tailed Godwit; Greenshank; Common Sandpiper; Terek Sandpiper; Turnstone; Japanese Snipe; Banded Dotterel; Black Stilt; Arctic Skua; Long-tailed Skua; Gull-billed Tern; Caspian Tern; Arctic Tern; Sulphur-crested Cockatoo; NI Kaka; SI Kaka; Eastern Rosella; Antipodes Is



Parakeet; Reischek's Parakeet; Long-tailed Cuckoo; SI Rifleman; Welcome Swallow; White-winged Triller; Dunnock; Whitehead; NI Fantail; Pied Tit; Yellow-breasted Tit; NI Robin; SI Robin; Silvereye; Cirl Bunting; Chaffinch; Canary; NI Saddleback.

## REFERENCE

MACPHERSON, L. B. 1972. Recordings of New Zealand birds. *Notornis* 19 (4): 373-374.

LESLIE B. MACPHERSON

P.O. Box 21-083,  
Edgeware,  
Christchurch  
14 October 1973



The Editor,  
Sir,

## OYSTERCATCHER PROBLEMS

Reading Dr A. J. Baker's paper on the different oystercatchers in New Zealand has been an informative exercise; but I must confess that I am puzzled by the last sentence of the 'Abstract' — "This density effect may be alleviated for some time if the species expands its recent tendency to remain inland at breeding localities throughout the year, and adopt a terrestrial mode of feeding."

a. Is it possible to "expand a tendency"?

b. Surely oystercatchers adopted a terrestrial mode of feeding a very long time ago, possibly in the Lower Miocene, if *Paractiornis* was an ancestral oystercatcher. Whether *finschi* oystercatchers are probing Mother Earth deeply and vigorously on tidal flats or in grassy paddocks, or fossicking about on ploughed land, riverbeds or mountainsides, they are feeding terrestrially. Has anyone ever seen an oystercatcher feeding aerially like a Swift or Swallow; arboreally like a Kaka or Whitehead; aquatically like a Grebe or Scaup; pelagically like a Shearwater or Storm-Petrel? Dr Baker seems to be narrowing the meaning of the word "terrestrial" and restricting it to something like "entirely inland or non-littoral."

May I offer another correction? The first histogram, A on p. 141, is wrongly attributed. Manakau, with a central 'a,' is a harbourless settlement of no great distinction between Otaki and Levin in the province of Wellington. The large harbour to the west of Auckland, which is a very important wintering-ground for *finschi* oystercatchers, is Manukau, with a central 'u.' The spellings for which I am arguing are backed by tradition and vindicated by, for example, the N.Z. Index of 1930 and A. H. McLintock's "Descriptive Atlas of New Zealand," 1959.

## REFERENCE

BAKER, A. J. 1973. Distribution and numbers of New Zealand oystercatchers. *Notornis* 20 (2): 128-144, figs 1-8.

26 Entrican Avenue,  
Remuera,  
Auckland, 5  
17 August 1973

R. B. SIBSON

[The official publication on New Zealand place names (*Gazetteer of New Zealand Place Names*. 576 pp. Wellington: Department of Lands and Survey, 1968 [=1969]) lists the geographic locations of all places called either Manakau (p. 215) or Manukau (p. 231) — Ed.]

## REVIEWS

*Evolution of the rails of the South Atlantic islands (Aves: Rallidae)*  
by Storrs L. Olson. Smithsonian Contributions to Zoology, No. 152.  
Pp. 1-53, text-figs 1-8, pls 1-11, 1973.

In this important monograph, Storrs Olson makes a considerable contribution to our knowledge of the Rails. From fumaroles on the barren island of Ascencion, in which he collected thousands of bones during four visits in 1970-71, he recovered bones of at least 52 individuals of a Rail. The Ascencion Island Rail was first described by Peter Mundy on 7 June 1656, but remained un-named, and until the British Ornithologists Union Expedition of 1957-59, no bones of this bird had been recovered. (Peter Mundy and his companions found their specimens of the living bird "more than ordinary dainty meatt, relishing like a roasting pigge.")

A skull and tarso-metatarsus were found during the BOU trip (entertainingly described by Bernard Stonehouse in *Wideawake Island*) but they remained un-named. Philip Ashmole referred them to *Rallus* but noted the resemblance of the skull to *Atlantisia rogersi* of Ascencion Island. He hoped to get better specimens later. James Fisher referred the bird to "*Crecopsis* sp." but later decided it was a *Rallus*. Olson selected a left tarso-metatarsus from a nearly complete skeleton of the Rail as his holotype, and named it *Atlantisia elpenor*. He gives a very full description. Until this, *Atlantisia* had been a monotypic genus, containing only *A. rogersi*, which is 25 to 35% smaller than *A. elpenor* but in addition, Olson refers to Alexander Wetmore's *Aphanacrex podarces* from St Helena, which is about twice as large as *A. elpenor*, also to *Atlantisia*, because of its very similar morphology.

After that, he turns his attention to the Rails of St Helena, where he gives more reasons for transferring *podarces* to *Atlantisia*. Olson collected numerous specimens of *A. podarces*, in addition to Wetmore's material, and publishes a useful table of comparative measurements for the three species of *Atlantisia*. He then describes a new *Porzana*, *P. astrictocarpus*; the holotype is a nearly complete skeleton. He found other specimens of this little extinct Rail on several localities on St Helena. After a brief summary of what is known of the Rails of the Tristan da Cunha group and Gough Island, he gives a very useful discussion of the origin and evolution of the South Atlantic Rails, and then considers the evolution of flightlessness in Rails. The latter section begins with a quotation from Peter Mundy, who was speculating about evolution some 200 years before Darwin. In an Appendix Olson lists the large number (49) of different living and extinct Rails of which he has used skeletal material for comparison. This is a much larger number than is available to the reviewer, who is also very interested in Rails, but it is interesting to note that Dieffenbach's Rail, from the Chatham Islands, is not included.

R. J. S.

*Swifts in a Tower* by David Lack. Reprint by Chapman & Hall Ltd., London. 19 photographs and 24 figures. \$2.50.

The publishers are to be congratulated on reprinting this book, first published by Methuen's in 1956, and thus making it available to a wider circle of ornithologists and of others who wish to extend their knowledge and understanding of birdlife. With a complete absence of technical language, the late David Lack describes the results of several years of intense study of the nesting of the Common Swift in all its strange facets, made in the tower of Oxford Museum by substituting glass-backed boxes for the ventilators in which the birds were nesting.

There is of course much more included than the results of the study. There is an absorbing chapter on the astonishing nesting habits of many of the world's swifts, including the two species which straggle to this country; and in a chapter on the author's reclassification of the whole family of Apodidae, the application of Gloger's and Bergmann's rules is made perfectly clear to the non-scientific reader.

From a mass of intriguing detail, I shall mention one item because of its particular application. A British observer noted for several years that swifts regularly hunted round his bee-hives. Thinking that they must take a great many bees, he shot eight birds at intervals. On dissection he found that they had only taken the drones, harmless of course to the swift and valueless to the bee-keeper. How does the swift in flight at 25 mph distinguish a drone from a worker bee? The author goes on to say that bee-eaters have often been shot as pests in countries where they are common, but that a recent study in Czechoslovakia has shown that hive-bees formed only two per cent of the bee-eaters diet, and all of them were drones! I know that years ago the Australian bee-eater, now more usually called the Rainbow Bird, was destroyed as a pest by apiarists, but we can hope that they have now all been made aware of the true position.

A. B.



*Birdlife at Waikanae Estuary, 1969-1972.* By M. L. Falconer, C. A. Fleming & K. A. Wodzicki. 19 pp., illus. [Wellington]: "for private circulation, by the authors," October 1973.

The Waikanae River mouth has long been known as a favoured haunt of estuarine birds which have been studied over the last century by such ornithologists as Buller and Wodzicki. There are now proposals to stabilise the river mouth which would inevitably destroy the habitats of bare sand, tidal flats and shallow ponds essential to these birds. The authors have produced for private circulation a small booklet summarising the present healthy position of the bird life barely affected by the now continual stream of fishermen, white-baiters, boatmen and weekend strollers. Fleming's diagrams although not all to the same scale are of particular value, illustrating for example with careful and sympathetic treatment of form and attitude 6 varieties of shag met with in the Wellington area. Since Falla's article on shags (*Tuatara* 2 (3), 1949) is hard to come by, one would hope that these items, at least, of the booklet could be made available for wider circulation.

J. M. C.

*Words for birds: a lexicon of North American birds with biographical notes.* By Edward S. Gruson. Pp. xiv + 1-305, illus. New York: Quadrangle Books, Inc. 1972. US \$8.95.

At one time the scientific names given to animals and plants meant something. Features of shape, size, colour, or anatomy, for example, were recognised by descriptive terms such as *griseus*, *melanophris*, or *sulcirostris*. Geographical localities could be specified such as *chathamensis*, *novaezealandiae*, *westlandica* or even *pacifica*. Names might be given commemorating those who had found the original specimens or who deserved recognition by the author for some other reason: *bulleri*, *forsteri*, *hectori*, *huttoni*, and *pycrofti* are familiar to us. To-day, particularly in groups of marine or terrestrial invertebrates, names which mean little or nothing are bestowed freely without thought as to whether anyone so inclined will burn his midnight oil trying to discern the author's reason for his choice. How many people would realise that an animal called *Taihape karori* is, in fact, a shore-living marine amphipod (a "sandhopper" of sorts) originally described (by J. Laurens Barnard in 1972) from Eve Bay, Wellington Harbour and recorded from Whangaparoa Peninsula, Leigh and Gisborne. Examples have been given of irrelevant, absurd or unnecessarily complicated names (such as *Cancelloidokytodermogammarus* (*Loveninuskytodermogammarus*) *loveni* Dybowski, 1926, the like of which we hope never to see again) and the inquirer is referred to *Methods and Principles of Systematic Zoology* by Mayr, Linsley & Usinger (McGraw-Hill, 1953) or to Blackwelder's *Taxonomy: a text and reference book* (Wiley, 1967) for further comments on this theme. Happily, with birds things seem to be different, largely, I imagine, because most species of birds were described in the days when naturalists not only had benefited from a classical education in the basic Greek and Latin with the accompanying knowledge of mythology but were able to commemorate obvious features of plumage, size, habitat, or geographic source, as well as honouring their collectors, friends or relatives.

R. B. Sibson has introduced us to something of the derivation of the names of New Zealand birds in Helen Oliver's *Annotated Index to some early New Zealand bird literature*, 1968. An earlier attempt to explain the meanings and origins of both the scientific and common names of British birds was made by R. D. McLeod in his *Key to the Names of British Birds* (Pitman, 1954). This book and the outstandingly-scholarly New Naturalist volume by the Rev. Edward Armstrong, *The Folklore of Birds* (Collins, 1958), described as "an enquiry into the origin and distribution of some magico-religious traditions," provide many hours of fascinating delving for those interested in such things. I dealt some years ago (*Notornis* 8: 183, 1959) with a most informative specialized work on the origins of the names of parrots (*I name this Parrot*, by A. A. Prestwich, 1958), now in its second edition (1963) in which "brief biographies of men and women in whose honour commemorative names have been given." There are also two little-known articles on the derivation of the names of ducks (N. Kuroda, 1968. The explanation of the scientific names of the Japanese duck tribes. *Tori* 18 (84): 267-271; and 1971. The explanation of the scientific names of the duck tribes of the world. *Bull. Biogeogr. Soc. Japan* 27 (4): 19-36). Of a wider scope, at least in its geographic coverage, is Colonel Owen E. Wynne's *Names of*

*Birds of the World. Key to Authors and those commemorated* (Privately published at Fordingbridge, Hants, 1969). This book, of 246 pages, lists alphabetically, with a one line biographical note, all those people who have named a bird scientifically or who have been commemorated in a bird's name. Each of these books suffers its deficiencies or inadequacies. Such bibliographic tasks are both time consuming and frustrating to do and not without their pitfalls, but we must be indebted to their authors for providing so much of interest.

Edward Gruson's book, however, is something of all of these other books and more than any of them, in its own geographically-limited way, being the best, most readable, etymological, biographical and historical introduction to the names and naming of birds. It is all about "Eponymy" as Gruson calls it. The word refers to the habit of people naming species of birds to commemorate other people. Gruson points out that — "It is the person memorialized that interests me." However, I take issue with him over the word itself. I can't find it in my dictionary, American usage included. My *Webster Universal* tells me that an "eponym" is a "real or mythical person for whom a clan, family, nation, or place derives its name." Another great American work, *The Random House Dictionary of the English Language*, tells me much the same and from the OED we learn that "eponymy" pertains to the practice of referring names to an "eponym," one who gives his name to a people, place or institution. The word is derived "by adaptation" from the Greek *eponomos* formed on *epi-* = "upon" + *onoma*, from *onuma* = "name" in the Aeolic dialect of Asia Minor. So there you have it. Perhaps "eponymy" is permissible. The point I make, however, is that when one starts off with a suspect derivation for what the book is all about, how true are the entries themselves? Let us console ourselves because Gruson seems to be reasonably accurate even if nodding in his knowledge of which William Swainson was which.

Gruson's real limitation for New Zealand or European readers is that he only deals with North American birds, some 800 of which are included. Although most of them are unknown to us, there is still sufficient in the lore and legend, mythical, factual or historical, surrounding these birds, their names and those who named them, to make quite fascinating reading.

*Words for Birds* is arranged in systematic order from the Loons (Gaviidae) to Grosbeaks, Buntings, Finches and Sparrows (Fringillidae) with a bibliography and indexes of common, generic and specific names, and of people for whom birds were named. To take an example of what the book has to offer — under the American Wood Warblers or Parulidae, we find not only an explanation of the term "warbler" as well as of "Parulidae" but reference to each species of wood warbler; for instance, to "Bachman's Warbler. *Vermivora bachmanii*. See above [i.e. an entry under the Worm-eating Warbler, *Helminthos vermivorus*, which tells us that *vermivorus* is Latin for "worm-eating," formed from *vermis*, "worm," and *vorare*, "devour"]. *bachmanii* For a biography of Rev. John Bachman, see page 95." There an imaginative life story of John Bachman, a "Southern worthy," friend and collaborator of the great John James Audubon is revealed, written with a nice touch for the humorous and unusual aspect of their work together. Other entries tell us that although Elliott Coues was thrice married he found time to write perhaps 1000 works on ornithology,

that Audubon was "a neurotic, passionate, creative genius" whose continual poverty with several bankruptcies drove his wife Lucy to working as a governess to rich families and himself to "eking out an existence as an itinerant portraitist." As Gruson comments, "This for a man who dreamt of being the Lost Dauphin." We are told something of the "mysterious Henry C. Palmer," one of Lord Rothschild's collectors originally commissioned to collect on the Chatham Islands and who is said to have been "obscurely murdered" on the goldfields of Australia. The story of Felix-Louis l'Herminier (1779-1837) is amongst others given to the reader and will serve to help those of us who can never remember how to spell or pronounce his name commemorated in Audubon's Shearwater, *Puffinus lherminieri*. William Swainson, the famed English naturalist who emigrated to New Zealand in 1841 receives a page and a bit under Swainson's Hawk but Edward Gruson, following a commonly-made mistake, muddles him (1789-1855) a little with William Swainson (1809-1884), Attorney-General, Member of the Executive and Legislative Council, writer and churchman, in attributing to him the teaching at Wesley College, Auckland, of Walter Lawry Buller who, himself, gets an entry under *Puffinus bulleri*.

*Words for Birds* bears comparison with Col. Wynne's *Biographical Key* for the North American part of which it is really a lively expansion. Although Wynne's *Key* must not be underrated, Gruson's book is more satisfying. In contrast to 1½ pages devoted by Gruson to John Bachman, Wynne has this entry: "BACKMAN [misspelt thus], Rev. Dr. J. (1790-1874) *Vermivora* 1834. Condor 1928, 30: 266"; 1872 "Quadrupeds of N. America" 1854. Condor 1928, 30: 266"; but Wynne goes further and has an entry for the authors of species as well so we find out something about one Widmann in the entry — "WIDMANN, O. (1841-1933) *Vermivora bachmanii* 1897. "Cat. Birds of Missouri" 1907. Auk 1954, 71: 456." Referring to the Buff Weka, *Gallirallus australis hectori*, Wynne has — "HECTOR, Sir J. F.R.S. (1834-1907) *Gallirallus* 1874. Dir. Geol. Surv. New Zealand. Dict. Nat. Biogr. 1907-11, 2: 236." Or to a kingfisher — "*gertrudae*, Halcyon 1924. Whitney, Gertrude, Mrs H. P. (q.v.)" and the cross-reference reads — "WHITNEY, Gertrude, Mrs H. P. (1877-1942) *Halcyon* 1924. nee Vanderbilt, purch. Rothschild Coll. 1932, mar. 1896." How nice it would be to have Edward Gruson telling us in his own particular style all about the many-faceted Sir James Hector, for whom an overwhelming amount of information is available, or giving us the inside story, for which there is good documentation also, of the Whitneys' part in the purchase and removal of the Rothschild collection from Tring to New York (see Murphy, R. C. 1932. Moving a Museum. *Nat. Hist.* 32: 497-511) as well as the history of the Whitney South Sea Expedition itself (see Murphy, R. C. 1924. The Whitney South Sea Expedition. *Nat. Hist.* 24: 538-553).

This treatment of the origins of the popular or vernacular names of birds and the explanations of classically-derived scientific names is really a delight even if one does have an odd quibble with the author from time to time. The only thing to do is to get *Words for Birds* and enjoy it, if indeed "words for birds" ("eponymy," "eponymy," what you will) intrigue you as much as they do your reviewer.

E. W. D.

*Tane*. The journal of the Auckland University Field Club. Vol. 19, Anniversary Issue, 1973. Pp. xvi + 1-244, illus. \$1.50.

Student journals in natural history play an important role in providing an outlet for the publication of notes and observations from field trips, most of which would not otherwise be reported upon or made known to a wider audience. All too often the casual but significant records of the occurrence of various species, seasonal variations, features of behaviour or aspects of life-history, perhaps fragmentary in themselves, as well as narratives of where people went and what they did, are thought unsuitable for publication because they cannot be made to measure up to the rigid standards usually demanded by scientific journals.

*Tane* is the annual journal of the Auckland University Field Club and is a leader in the field of student publications having begun its life in 1948. Now *Tane* celebrates its 25th anniversary with a special issue which not only marks its own place in the literature of the natural history of New Zealand but also commemorates and documents the 50th anniversary of the Field Club itself, from which many first-rate zoologists, botanists and geologists have developed their careers.

One cannot stress too strongly what an important publication this has been throughout its 19 volumes. The pages of *Tane* are essential reading for all interested in the Northland to Bay of Plenty area and particularly so as a reference point for what is known of the islands of the Hauraki Gulf. A tabular arrangement of articles dealing with the offshore islands is given in Vol. 19 and will be widely used and appreciated.

Vol. 16 of *Tane* gives a classified reference list of all articles published in the first 15 volumes, and a wide range of topics of interest to readers well beyond Auckland is shown. There are not many articles on birds as such but they do include accounts of the birds of the Poor Knights, of Hen Island, of Red Mercury Island, of Mayor Island, of Little Barrier, of the Aldermen Islands (in Vol. 19, 1973), of the Lake Waikaremoana district, and of the field identification of waders. More important, however, is the amount of ecological and general background information available for those who plan field work on the islands of the Gulf and will need to refer, for example, to what knowledge exists on the botany or geology of these places. In addition, the reporting of visits by Field Club members to such places as Little Barrier Island serves to provide a base line for detecting any environmental changes that may be taking place over the long period in which the Club has been flourishing.

The world of science in New Zealand, both amateur and professional, environmentalists and conservationists alike, owes a great debt to the Auckland University Field Club for its initiative in founding *Tane* and for maintaining it so successfully and regularly over 25 years. Well done! The annual volume subscription rate is \$1.50 and original copies of Volumes 8 to 19 are still available. Requests should be addressed to: "*Tane*," c/o Botany Department, University of Auckland, Private Bag, Auckland.

E. W. D.

## FROM THE EDITOR'S DESK

### THE ROYAL SOCIETY OF NEW ZEALAND

Study the Statement of Accounts given annually with the Treasurer's Report to the AGM of the Ornithological Society and you will see an item "Royal Society Affiliation \$20" listed under "Expenses." You might well ask what this means. Not a large sum, \$20 in some \$6500 otherwise spent during the year, but the amount is immaterial: the enquirer wants to know what the Royal Society is and why we are affiliated to it. What do we get from it, or, conversely, what do we give to it? The handful of professional scientists amongst our 1200 members could probably answer such questions readily enough. However, the laymen amongst us (most of us in fact) probably know little of the Royal Society and what it does. Science with a capital S may not seem our concern but if we realise New Zealand's place in the forefront of scientific endeavour is due to what we can do in contributing to the promotion of science in our own country in our own way, be it apparently small or inconsequential, as members of an affiliated society, joining with kindred bodies, under the mantle of the Royal Society of New Zealand, then we might have more than a glow of satisfaction.

The Royal Society of New Zealand, as we know it to-day, is the direct descendant of the New Zealand Institute established by act of Parliament in 1867 "to promote the general study and cultivation of the various branches and departments of art, science, literature and philosophy." We can all recall the great names of those days, Hector, Hutton, Haast, Buller, Colenso, Potts (and one could go on), many of them ornithologists, gentleman naturalists, professional scientists in government employ, laymen of all kinds, and we know the traditions the Royal Society has to maintain of scholarship and freedom of thought and publication as well as of scientific integrity and impartiality. In 1933 the Institute was abolished by the Royal Society of N.Z. Act and, with royal approval (following the tradition of Charles II in establishing the Royal Society of London over 300 years ago), the organisation was given its new name. The Society was reconstituted into its present form in 1965.

The first stated object of the Royal Society is "to promote science, to encourage and stimulate high standards of scientific endeavour and achievement, and to give recognition to notable achievements in the advancement of science in New Zealand." In practical terms this means that over the past 100 and more years the Society has, amongst many other things, published a journal recording scientific work and thought in New Zealand (formerly called the *Transactions* and now the *Journal*), encouraged a high standard of research by the award of prizes and medals, provided an outstanding reference library (built up largely by exchange of its *Transactions* throughout the world) available for use by the whole New Zealand library interloan system, contributed through its representatives to the work of national and regional organisations such as UNESCO, the National Parks Authority, the Historic Places Trust, and the National Museum, sponsored science congresses and an increasing number of important international symposia in New Zealand, initiated scientific expeditions such as the joint expeditions with the Royal Society of London to Chile in 1958,



to the Solomon Islands in 1965 and the Cook Bicentenary Expedition in the South-west Pacific in 1969. Through research grants, the Royal Society has supported much work especially in the natural sciences. Special mention should be made of the Hutton Memorial Fund which is available to all members of affiliated member bodies to encourage work which might not otherwise be able to be financed. Since its first use in 1919, awards from this fund have been made on many occasions in the field of ornithology; four separate grants were made to L. E. Richdale as well as a special grant to the Southland Branch of the Royal Society to erect a hut on Whero Island in 1944 for his work; other grants have helped the gannet census of 1947, a study of the Shining Cuckoo, of the White-fronted Tern, and banding of Spur-winged Plovers, and it would be pleasing to see more OSNZ members applying to this source. A special prestige award of the Society is the Captain James Cook Fellowship set up at the Bicentenary in 1969. Another way in which the Royal Society has contributed to the general welfare of New Zealand is by making particular recommendations to Government, often brought forward from individual Member Bodies, which have had far reaching effects. In particular, the work of the Royal Society's ad hoc committees has provided unbiased and novel approaches which have been appreciated widely; such reports include those on the Omega Navigation system, on coronary heart disease, on oil pollution, on pesticides, on world populations, and on the scientific knowledge available for beech forest utilisation and its ecological consequences.

The Society consists of its Fellows, a group of up to 100 distinguished scientists, its Member Bodies, and the members of these Member Bodies. Accordingly, all members of Member Bodies, that is of societies or organisations affiliated to the Royal Society, are members of the Royal Society of New Zealand. Hence, every individual member of the Ornithological Society of New Zealand, whether professionally involved in science or concerned in the first place only with the aims and activities of the Ornithological Society, is a member of the Royal Society of New Zealand, and he may well be interested to learn what this means for him. A Member Body of the Royal Society is defined as "a regional body for the promotion of science as a whole, within a district or province of New Zealand, or a national body concerned with promoting some stated branch or aspect of science on a national basis." There are now over 30 Member Bodies, totalling some 12,000 members, and they include such diverse organisations as the NZ Institute of Chemistry, the NZ Archaeological Association, the NZ Institute of Food & Science, & Technology, the Operational Research Society of NZ, the NZ Ecological Society, and, of course, the Ornithological Society of NZ.

The day to day work of the Royal Society is done through its Council which consists of the President (currently Dr R. W. Willett) with 4 Officers and 8 Fellows' Councillors and 2 Member Bodies' Councillors. The traditional democratic spirit evident from the inception of the Society in 1867 is maintained in that the Member Bodies' Councillors are elected by the special committee of representatives from the Member Bodies known as the Member Bodies' Committee. This committee provides the link between kindred affiliated societies, informs the scientific community and the Government through the Royal Society's Council of current activities, needs and problems,

and reports back to its member bodies and individual membership. Contacts are made and channels of communication kept open or created where needed. The Member Bodies' Committee allows individual societies to have a say in nominations for national and special committees of the Royal Society, to give advice on matters of conservation or environmental issues of many kinds, to make available sources of information or draw attention, at Government level in particular, to matters of concern affecting not only the individual member bodies but the national scene. The unity of 12,000 members behind such requests gives a powerful voice to be heard where it matters most!

Members of the Ornithological Society, and ornithologists before the Society was founded, have played an important part in the Royal Society's activities. One well known member as a former President of the Royal Society did a great deal towards the reconstitution of the Society in 1965, several others have been Presidents in their day, other members serve on the Member Bodies' Committee or on the Society's national and special committees, and one of the current Member Bodies' Councillors is the editor of the Ornithological Society's journal as well of the Royal Society's Newsletter. Mr Brian Bell, Vice-President of the OSNZ, is our representative on the Member Bodies' Committee.

The Member Bodies' Committee produces the quarterly *Newsletter* of the Royal Society which is made available in bulk to Secretaries of Member Bodies for distribution to their members. It contains notes of current events in New Zealand scientific activities, including the work of the Royal Society member bodies and committees, a calendar of forthcoming meetings, news of awards and honours, and so on. It is published for the information of members of the Royal Society and by its content is ephemeral in nature. It is issued by the Member Bodies for the members of Member Bodies. It is a vehicle to be used in the widest possible way for achieving one of the major objects of the Royal Society — "to initiate and maintain contacts between scientists in New Zealand, and to provide liaison between and correlate the efforts of its member bodies and other New Zealand scientific bodies." The *Newsletter* exists as much for the members of the Ornithological Society as for any other affiliated body, but it is up to members to decide not only whether they want to read it but whether they can contribute to it to tell our kindred societies what we do and show what common paths we tread.

In matters of environmental concern in the widest sense OSNZ members might like to consider that a proper channel of action (and perhaps the most highly respected) is through the Member Bodies' Committee. Past experience has shown that Government has a good regard for the views of the Royal Society as an impartial and yet adequately controlled body representing through its Council the considered conclusions and expertise of its members.

The Government recognises the value of the activities of the Royal Society of New Zealand by a substantial annual grant and we as taxpayers might wonder what the Society is and does that we should be asked to share this burden. A study of the work of the Society, the achievements of its Fellows, the activities of its Member Bodies and the contributions of its members, as annually reported in

the *Proceedings* of the Society (available to all members from the General Secretary, P.O. Box 12-149, Wellington) should assure anyone that this is money well spent.

The Royal Society has plans in hand for a multistory building in central Wellington to serve as its headquarters. This will contain the Society's library of some 30,000 volumes, lecture rooms, and offices and committee rooms for member bodies as well as providing common secretarial services and possibly also editorial assistance. The Science Centre will be the Royal Society's major project for some years ahead, one that will need the support of the Member Bodies financially and in spirit, and one that will give the Royal Society and its affiliated organisations the home that it has earned as the independent body for the promotion of science and the free expression of scientific thought and opinion representing the united effort of the 12,000 individuals who make up the membership.

Affiliation with the Royal Society brings with it both privilege and responsibility. The Member Bodies both give and receive.

Let no one say that our affiliation fee of \$20 is an idle gesture. This is a small price to pay for our share in a noble achievement. The Royal Society needs us and we need the Royal Society!



#### THE ROYAL SOCIETY TRANSACTIONS

The *Transactions* of the Royal Society of New Zealand (formerly the New Zealand Institute) contain many articles of importance on New Zealand birds and their habitat especially in the early volumes. Mrs Helen Oliver's *Annotated Index to some early New Zealand bird literature* (Wildlife Publ. 106, 1968) provides a helpful key to ornithological articles in the first 33 volumes (1868-1900) and a comprehensive index to the whole series is in active preparation by the staff of the Royal Society offices. Many members of the OSNZ, as well as of similar societies or clubs composed largely of amateur naturalists, might be unaware that most back issues of the *Transactions* are still readily available from the Society's offices (P.O. Box 12-249, Wellington). Often one sees such volumes highly priced on the shelves of second-hand book dealers but most of these can, in fact, be bought directly from the Royal Society at a most reasonable price, viz, Vol 1-53 (2-6, 8 and 43 out of print), \$2.00 each; Vol 54-79, \$4.00 ea.; Vol 80-88, \$6.00 ea. The New Series issued as separate papers is also available in addition to the currently appearing *Journal*. Special rates are available to members if purchased through their Member Bodies.



#### BIRD MAPPING SCHEME

Would contributors please send all remaining lists for 1973 to their Regional Representatives (address in back of *Notornis*) as soon as possible. All cards should reach the recording office by 31 January 1974, to ensure an early appearance of the annual report. All queries concerning the scheme should be sent to Regional Representatives or to Mr P. D. Gaze (Ecology Division, DSIR, Box 30-466, Lower Hutt).

## REGIONAL REPRESENTATIVES

FAR NORTH: } D. E. Crockett, 21 McMillan Ave., Kamo, Whangarei  
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WEST COAST: Vacant

OTAGO: Mrs. J. B. Hamel, 42 Ann Street, Roslyn, Dunedin

SOUTHLAND: R. R. Sutton, P.O., Lorneville, Invercargill



## LITERATURE AVAILABLE

*From all bookshops:*

Annotated checklist of the birds of New Zealand. (OSNZ) \$4.95  
 A field guide to the birds of New Zealand, by R. A. Falla,  
 R. B. Sibson and E. G. Turbott, 2nd rev. ed. \$5.00

*From B. D. Heather, 10 Jocelyn Crescent, Pinehaven, Upper Hutt:*

A biology of birds, by B. D. Heather. \$1.33

*From B. A. Ellis, 44 Braithwaite Street, Wellington 5:*

Field guide to the waders, by H. T. Condon & A. R. McGill. 75c

*The following are available from Mrs. H. R. McKenzie, P.O. Box 45, Clevedon:*

Back numbers of Notornis at 75c (Vols 2-13) and \$1 per  
 part (Vols 14-19). Complete sets available.

OSNZ Library catalogue, 70 pp. 50c

Banding reports, Nos 8-14, 50c each.

Nos 1-7 are incorporated in early issues of Notornis.

Kermadec Expedition, 1964, by A. T. Edgar. 45c