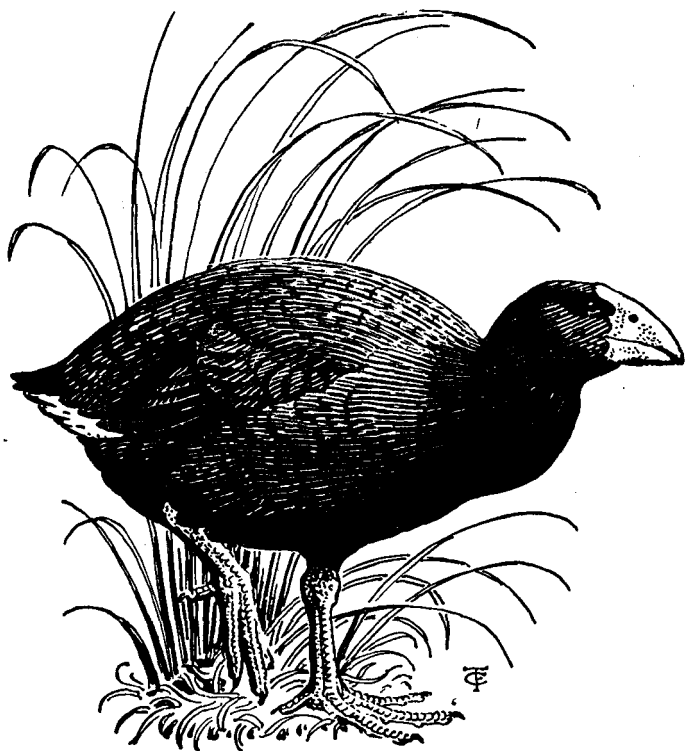


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## BREEDING OF GREENFINCHES IN HAWKE'S BAY, NEW ZEALAND

By B. W. H. MacMILLAN

### ABSTRACT

Information on the breeding of Greenfinches was collected over three breeding seasons (1979-1981) in Hawke's Bay from 104 nests, 78 clutches and 31 broods. The laying season lasted from mid-October to early February. The average clutch size was 4.60 eggs ( $n=55$  clutches). Sixty percent of completed clutches consisted of 5 eggs and 35% of 4 eggs. Twenty-seven percent of 297 eggs in 78 clutches resulted in young that flew. Predators removed 40% of eggs and 31% of young. Comparisons were made with 191 Greenfinch nest record cards collected over 47 years by the Ornithological Society of New Zealand and with data from Britain. Clutch sizes and brood sizes of Greenfinches in New Zealand were significantly smaller than in Britain.

### INTRODUCTION

Greenfinches (*Carduelis chloris*) were introduced to New Zealand from Britain when they were liberated in Auckland in 1865-1868 (Thompson 1926). The only information on the breeding of Greenfinches in New Zealand is that of Niethammer (1970) and that recorded on 191 Ornithological Society (OSNZ) nest record cards collected over the years 1934 to 1981. Some information is available from Britain, where Monk (1954) and Newton (1972) studied breeding success and causes of failure. In the present study, nests were observed during the course of other work in two areas in Hawke's Bay, namely, the DSIR Research Orchard at Havelock North and Turamoe, a mixed livestock/arable-cropping farm on the Heretaunga Plains 16 km south-west of Hastings. The breeding statistics were not part of a population study but represent the only information so far obtained for this bird in New Zealand. The study covered the breeding seasons of 1978-79, 1979-80 and 1980-81. In the third season, causes of predation were examined in detail and are reported elsewhere in this issue (McLennan & MacMillan 1985).

TABLE 1 — Nesting sites used by Greenfinches

Plant type used	OSNZ nest records (nationwide)	Hawke's Bay (present study)
	%	%
Holme oak ( <u>Quercus ilex</u> )		39
Elaeagnus ( <u>Elaeagnus pungens</u> )		14
Various conifer trees	21	7
Fruit trees (peach, plum, apricot, apple, pear)	7	13
Rose bushes ( <u>Rosa</u> sp.)		4
Gorse ( <u>Ulex europaeus</u> )	18	
Manuka and kanuka ( <u>Leptospermum</u> spp.)	14	
Matagouri ( <u>Discaria toumatou</u> )	8	
Various thorn hedges (mainly hawthorn, <u>Crataegus</u> sp.)	7	
Boxthorn ( <u>Lycium ferocissimum</u> )	1	20
Other	24	3
	<hr/> 100 <hr/>	<hr/> 100 <hr/>
Total number used	183	104

TABLE 2 — Height above ground of Greenfinch nests

Breeding season	No. nests started	Mean height (m)	Range (m)
1978-79	44	2.1	0.9- 4.5
1979-80	29	2.7	1.2- 7.6
1980-81	28	2.9	1.2- 9.1
All combined	101	2.5	0.9- 9.1
OSNZ nest records	187	2.6	0.9-10.7

## METHODS AND DEFINITIONS

Each week from mid-September the two study areas were searched for nests. Any found were subsequently examined twice a week. The plant species in which the birds had nested, height of nest above ground, date, clutch size, brood size, and number of young leaving the nest were recorded for each nest. Some nests in tall hedges and pines were inaccessible.

To calculate first-egg dates and hatching dates, incubation was assumed to begin when the last egg was laid and to last for 13 days (Monk 1954). Young fly from the nest 13-16 days after hatching (Newton 1972).

A completed clutch was one where the number of eggs remained unchanged between visits. A clutch or brood was termed "successful" when at least one young bird flew from the nest or had young in it beyond day 12.

Differences in clutch and brood sizes were examined by non-parametric tests; differences of  $p < 0.05$  were considered significant.

## RESULTS

### *Nest sites and height*

Table 1 shows the range of nest sites found in this study and a comparison with nationwide records derived from OSNZ nest record cards. In both samples, bushes and small trees, thorny hedges and shelterbelts appear to have been preferred. Gorse, *Leptospermum*, matagauri and hawthorn do not grow on Turamoe, but there are thickets of *Elaeagnus* round the homestead and winter oaks in the shelterbelts. Nests were also built in taller trees but were difficult to locate. For example, at Turamoe, Greenfinch nests were occasionally seen high up in macrocarpa and pine trees. Clearly the birds use a wide range of structural types from thickets to trees, but the mean height above ground was very similar in the two samples (Table 2).

### *Distribution of first-egg dates*

Figure 1 shows the distribution of first-egg dates from Hawke's Bay, and from the North Island and the South Island derived from OSNZ records. The first-egg dates were established by P. C. Bull (pers. comm.) according to a standard set of rules. The dates of the first and last eggs for each of the three seasons in Hawke's Bay are shown in Table 3; the earliest was 16 October 1978 and the latest was 5 February 1979.

In the earliest OSNZ nest records, first-egg dates for the North Island occurred about 10 days earlier than those from the South Island (Fig. 1), even though the sample sizes were similar. The Hawke's Bay sample, with its earliest first-egg date of 16 October, was in fact later than other North Island regions (with smaller sample sizes) to the south of it or at about the same latitude.

### *Measures of breeding success*

Table 3 gives the full range of numbers and statistics for breeding, from the inception of a nest through to the young leaving the nest.

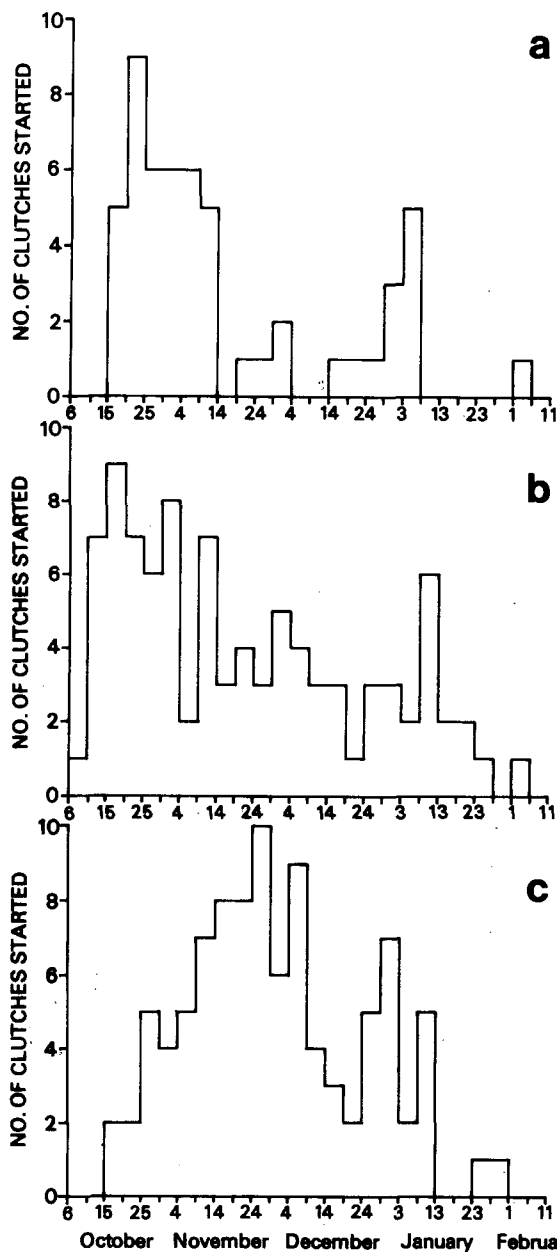


FIGURE 1 — Distribution of Greenfinch first-egg dates through the breeding season. (a) Hawke's Bay (n = 53) (b) OSNZ nest record cards, North Island (n = 93) (c) OSNZ nest record cards, South Island (n = 96)



TABLE 3 — Measures of Greenfinch breeding success in Hawke's Bay over the seasons 1978-79, 1979-80 and 1980-81

Measure of breeding success	Breeding season			
	1978-79	1979-80	1980-81	All
<b>A. Attempts</b>				
a. No. of partial and complete nests	44	34	28	106
b. No. (and % of a) of nests that ever contained eggs. Equals total nest attempts and total no. of clutches	26 (59)	29 (85)	23 (82)	78 (74)
c. First-egg date of the season	16 Oct	19 Oct	22 Oct	
d. Last-egg date of the season	5 Feb	5 Jan	11 Jan	
<b>B. Eggs</b>				
e. No. of eggs laid	107	116	74	297
f. No. (and % of e) of eggs that hatched	50 (47)	49 (42)	24 (32)	123 (41)
g. No. of eggs (and % of e) that produced young that flew	43 (40)	31 (27)	7 (10)	81 (27)
<b>C. Completed clutches</b>				
h. No. of completed clutches	20	21	14	55
i. No. of eggs in completed clutches	94	95	64	253
j. Mean clutch size for completed clutches ( $\pm$ SE)	4.7 $\pm$ 0.12	4.5 $\pm$ 0.16	4.6 $\pm$ 0.14	4.6 $\pm$ 0.08
<b>D. Broods</b>				
k. No. (and % of i) of eggs that hatched	50 (53)	49 (52)	24 (38)	123 (49)
l. No. of broods	12	13	6	31
m. Mean initial brood size ( $\pm$ SE)	4.2 $\pm$ 0.37	3.8 $\pm$ 0.36	4.0 $\pm$ 0.36	4.0 $\pm$ 0.19
n. No. (and % of m) of young that flew	43 (86)	31 (63)	7 (29)	81 (66)
o. Mean no. of young that flew per nesting attempt ( $\pm$ SE) (from item b)	1.7 $\pm$ 0.36	1.1 $\pm$ 0.23	0.3 $\pm$ 0.17	1.0 $\pm$ 0.18
<b>E. Completely successful broods</b>				
p. No. (and % of n) of young that flew from broods that did not suffer partial losses	39 (91)	26 (84)	7 (100)	72 (89)
q. No. (and % of b) of nests	10 (38)	8 (28)	2 (9)	20 (26)
r. Mean ( $\pm$ SE)	3.9 $\pm$ 0.27	3.3 $\pm$ 0.54	3.5 $\pm$ 0.17	3.6 $\pm$ 0.25
<b>F. Losses</b>				
s. No. (and % of e) of eggs lost to predators	36 (34)	43 (37)	40 (54)	119 (40)
t. No. (and % of e) of eggs lost to other causes	21 (20)	24 (21)	10 (14)	55 (19)
u. No. (and % of f) of young lost to predators	4 (8)	17 (35)	17 (71)	38 (31)
v. No. (and % of f) of young lost to other causes	3 (6)	1 (2)	0 (0)	4 (3)

The average size of 55 completed clutches was  $4.60 \pm \text{SE } 0.08$  eggs. Differences between the clutch sizes for the three seasons were not significant ( $p > 0.05$ ). Of these 55 completed clutches, 60% (33) consisted of 5 eggs, 35% (19) of 4 eggs, 4% (2) of 3 eggs and 2% (only 1 clutch) of 6 eggs. Forty-one percent of 297 eggs in 78 clutches (regardless of whether they were completed or not) hatched young, and 49% of 253 eggs in the 55 completed clutches hatched young.

Thirty-one broods averaged  $3.97 \pm \text{SE } 0.17$  young for the three seasons. Differences between the brood sizes for the three seasons were not significant ( $p > 0.05$ ). Of the 31 broods, 1 (3%) consisted of 6 young, 8 (26%) of 5 young, 13 (42%) of 4 young, 7 (23%) of 3 young and 2 (6%) of 2 young. Sixty-six percent of 123 young in these 31 broods flew, which represented 27% of 297 eggs originally laid in 78 clutches. Ninety-three percent of 87 eggs laid in 20 successful nests produced young that flew.

On average,  $1.0 \pm \text{SE } 0.18$  young flew per clutch ( $n = 78$  clutches) and  $3.6 \pm \text{SE } 0.25$  young per successful nest ( $n = 20$  nests).

Clutch size in Hawke's Bay varied throughout the breeding season in all three seasons, and in the OSNZ nest records over 20 seasons (Table 4). Whereas the OSNZ records showed an increase in clutch size from October to a maximum in December and a falling away in January, the Hawke's Bay results showed a decrease to December and an increase in January.

TABLE 4 — Mean clutch size from October to February for all three breeding seasons in Hawke's Bay and from OSNZ nest records. Sample size in brackets

	October	November	December	January	February	Mean
Hawke's Bay	4.73 (15)	4.57 (19)	4.40 (10)	4.70 (10)	4.00 (1)	4.596
OSNZ	4.43 (7)	4.45 (20)	5.00 (17)	4.18 (11)		4.563

TABLE 5 — Length of time for incubation and leaving the nest for 9 clutches and 3 broods of Greenfinches

No. of days since start of incubation or hatching	11	12	13	14	15	16	17	Median
No. of clutches hatching on each day since onset of incubation	1	2	2	3	1			13
No. of broods that flew on each day after hatching			1		1		1	15

Table 5 shows the time taken for incubation (from the time the last egg in a clutch was laid until the young hatched) and for young to fly, for nine clutches and three broods respectively. The median time for incubation was 13 days with a range of 11-15 days for clutches with known first-egg and hatching dates. The three fledging periods were of 13, 15 and 17 days for broods with known hatching and flying dates.

Nests were checked only once during a field visit. When there was a nest check the following day, all the eggs that had been recorded as about to hatch had duly done so. Thus it was concluded that all the eggs in a clutch hatched on the same day. On the same basis all the young in a brood usually left the nest on the same day. Sometimes they all flew off during a nest check; whenever this occurred young were never back in the nest on a following day.

### DISCUSSION

The breeding statistics presented are the first of their kind for Greenfinches in New Zealand.

In the 158 OSNZ nest record cards only 55 full clutches were listed, of which 55% had 5 eggs and 36% had 4 eggs. The mean was 4.6 eggs (range 3-6). There were also 55 full clutches in the Hawke's Bay sample, of which 60% contained 5 eggs and 34% contained 4 eggs. In Britain, 593 clutches had an overall mean of 4.83 eggs, and 64% of clutches were of 5 eggs and 21% were of 4 eggs (Monk 1954). Niethammer (1970) showed that the mean clutch size of six passerine species introduced to New Zealand was significantly smaller than in Britain. A further four species, including the Greenfinch, showed the same trend but sample sizes from New Zealand were small. We are now able to compare a large New Zealand sample (110 clutches) with British data given by Monk (1954). Greenfinch clutch sizes were significantly smaller (Mann-Whitney U test  $p < 0.001$ ) in New Zealand (mean = 4.58) than in Britain (mean = 4.83), the main contributions to this difference being the conspicuous shortage of six-egg clutches and more four-egg clutches in New Zealand (Table 6). Resultant brood sizes were also significantly smaller (Mann-Whitney U test  $p < 0.01$ ) in Hawke's Bay (mean = 3.97) than in Britain (mean = 4.44) (Table 6).

Monk (1954) also found that clutch size increased from early April to a peak in the first week of June and then declined. A similar trend was found in New Zealand in the average monthly clutch sizes of the 55 OSNZ nests (see Table 4), but not for the 55 Hawke's Bay nests, where clutch size decreased from October to December and then increased in January. The Hawke's Bay sample did not have the effect of climatic variation with latitude that the OSNZ sample had, and so it was surprising that it did not show the trend of increasing clutch size with increasing daylength more strongly.

If there were a clear latitudinal cline for first-egg dates, the Northland and Auckland regions could be expected to be earliest. This was not so, although only 7 out of 158 nest record cards were from these two regions. In fact the earliest laying dates came from the Wairarapa (six between 6 and 14 October) and from Wanganui (three between 14 and 15 October).

In Britain, a higher proportion of early clutches failed than later ones, and they were followed by replacement clutches. There were also subsidiary peaks, due to the laying of later clutches, which could not be found in the small Turamoe/Research Orchard sample with its heavy egg predation. Measures of breeding success were much lower in Hawke's Bay than in Britain because of the effects of predators (Table 6). The efforts to discover the predators involved are reported separately (McLennan & MacMillan, this issue).

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TABLE 6 — Comparison of some Greenfinch breeding data in Britain (Monk 1954), Hawke's Bay, and New Zealand (OSNZ data plus Hawke's Bay)

	Britain	Hawke's Bay	New Zealand
Mean clutch size	4.83	4.60	4.58
2 eggs	4	0	0
3 eggs	17	2	5
4 eggs	124	19	39
5 eggs	377	33	63
6 eggs	71	1	3
Mean brood size	4.44	3.97	
1 chick	4	0	
2 chicks	10	2	
3 chicks	22	7	
4 chicks	87	13	
5 chicks	130	8	
6 chicks	22	1	
Hatching success (%)	74.1	41.4	
Nestling success (%)	77.5	65.9	
Nestling success (minus broods failed) (%)	95.9	88.9	
Breeding success (%)	52.9	27.3	

## LITERATURE CITED

- McLENNAN, J. A.; MacMILLAN, B. W. H. 1985. The predators of eggs and chicks of Greenfinches in a mixed farming area in Hawke's Bay, New Zealand. *Notornis*, this issue.  
MONK, J. F. 1954. The breeding biology of the Greenfinch. *Bird Study* 1: 2-14.  
NEWTON, I. 1972. *Finches*. London: Collins. 288 pp.  
NIETHAMMER, G. 1970. Clutch sizes of introduced European Passeriformes in New Zealand. *Notornis* 17: 214-242.  
THOMPSON, G. M. 1926. *Wildlife in New Zealand. Part 2. Introduced birds and fishes*. Wellington: Government Printer. 110 pp.

B. W. H. MacMILLAN, *Ecology Division, Department of Scientific and Industrial Research, Goddards Lane, Havelock North*



## SHORT NOTES

**Hedge Sparrow feeding Chaffinch chicks**

On 27 December 1984, I was photographing the nest of a Chaffinch (*Fringilla coelebs*) from a hide about 3 metres away. The nest, containing four chicks about 5 days old, was in an elderberry tree on the bank of Harts Creek, Lakeside, Canterbury.

At first, all seemed normal, the chicks being fed first by the cock and then the hen; but the next bird to approach the nest was a Hedge Sparrow (*Prunella modularis*), which fed the chicks and departed quickly.

This was the pattern for several feedings, until the cock Chaffinch arrived sooner than usual. He waited in the tree, and when the Hedge Sparrow arrived, he chased it away. When the cock Chaffinch had left, the Hedge Sparrow returned and fed the chicks.

When I visited the nest again on 31 December, the Hedge Sparrow was still feeding the chicks, which were feathered.

PETER REESE, 2-11 Dilworth Street, Christchurch 1

Colour slides sent with this note clearly show a Hedge Sparrow feeding Chaffinch chicks in the nest. — Ed.

### A macabre swallow nest

On 22 December 1984, I was called to the farm of Mr McKenna, near Dannevirke, to see an unusual nest of Welcome Swallow (*Hirundo tahitica neoxena*). It was built into a corner of a small pump shed, glued directly on to the wall on two sides, a triangle with a curved front. Round the front of the nest was the body of a dead adult swallow (Fig. 1), positioned with wings outstretched to the corners and head hanging down in centre front. It was firmly fixed with dry mud round the edges of the wings but not obscuring them. In the nest were four young swallows. The dead bird was well coloured, the blue and rusty red being as in life.

Although Mr McKenna had seen two swallows building the nest, and the chicks were being fed, I could not tell whether one or two swallows were still in attendance. The chicks eventually flew from the nest.

JANET DRAKE, 23 Korimako Road, Taupo



# THE PREDATORS OF EGGS AND CHICKS OF GREENFINCHES IN A MIXED FARMING AREA IN HAWKE'S BAY

By J. A. McLENNAN and B. W. H. MacMILLAN

## ABSTRACT

Experiments were undertaken to identify the animals responsible for attacks on nests of Greenfinches (*Carduelis chloris*) on a mixed farm in Hawke's Bay. Nests encased in wire mesh, which excluded all potential predators except mice, suffered no egg losses. Tracking papers placed on wooden poles leading to nests were marked by rats twice. Two ship rats (*Rattus rattus*) were killed at nests with eggs injected with strychnine. Mustelids destroyed one clutch of eggs and were probably responsible for most of the predations on young. The experiments did not test whether Harriers (*Circus approximans*) or other birds were involved.

## INTRODUCTION

The avifauna of the main islands of New Zealand coexists today with introduced mammals which eat eggs and young in the nest. Recent studies have shown that the incidence of nest predation varies with species, localities and seasons, but for most New Zealand birds it generally ranges from 30% to 70% each year (Moors 1983, MacMillan 1985).

Predation attempts are rarely witnessed and the animals responsible for losses of eggs and chicks are seldom identified. However, in Kowhai Bush, near Kaikoura, Moors (1983) deduced the identity of predators by examining the sign in plundered nests. He found that rodents preyed proportionally more often on clutches than broods, whereas mustelids did the reverse.

In a mixed farming area in Hawke's Bay, MacMillan (1985) found that predators destroyed an average of 40% of the eggs laid by Greenfinches and 31% of the young in the nest over three successive breeding seasons. MacMillan saw mice (*Mus musculus*), ship rats, Norway rats (*R. norvegicus*), stoats (*Mustela erminea*), feral cats (*Felis domesticus*), possums (*Trichosurus vulpecula*), magpies (*Gymnorhina hypoleuca*) and Harriers in the general vicinity of the Greenfinch nests, but he did not know which animals caused the losses. Several small experiments were undertaken in the same area from 1980 to 1982 to identify the predators; the results are reported here.

## STUDY AREA

The study was done at Turamoe, a livestock and cropping farm 16 km south-west of Hastings, described by MacMillan (1981). The investigation was concentrated on nests in bushes of Holme oak (*Quercus ilex*) and boxthorn (*Lycium ferocissimum*) under a shelterbelt of poplars (*Populus spp.*) bordering a creek. The bushes were 2-6 m in height and were surrounded by rank grass. Silvereyes (*Zosterops lateralis*), Goldfinches (*Carduelis carduelis*), Blackbirds (*Turdus merula*) and Song Thrushes (*T. philomelos*) also nested in the bushes.

A few nests elsewhere on the farm were included in some experiments. Most were about 1.5 km from the shelterbelt in an overgrown *Elaeagnus* hedge about 2 m high, 3 m wide, and 20 m long, growing on a hillside among ornamental garden trees and shrubs.

## METHODS

*Predatory mammals using the shelterbelt:* In October 1980, 25 tracking tunnels were placed in tall fescue grass at the base of the Holme oaks. The floor of each tunnel consisted of a metal tray with an ink pad in the centre and a sheet of tracking paper at each end. Another three tracking tunnels were placed under boxthorn in the first week of November 1980. The tunnels were checked twice in the week after their installation and then fortnightly until 8 December 1980.

*Experimental nests:* An experiment was designed to determine whether the predators were birds, mice, or larger mammals. Twenty-three nests of small birds (Greenfinches, Goldfinches, Chaffinches (*Fringilla coelebs*), Dunnocks (*Prunella modularis*) and Silvereyes) were collected from Turamoe. Each of these nests was seeded with 4 eggs, obtained mainly from finches, House Sparrows (*Passer domesticus*) and Starlings (*Sturnus vulgaris*) elsewhere in Hawke's Bay. Eight of the nests were secured to the end of wooden poles, 1 m long and 3 cm in diameter. An ink pad was fastened to the middle of each pole, and a sheet of tracking paper was taped between the pad and the nest. The pole nests were positioned carefully in the boxthorn bushes so that mammals could reach the nest easily only by walking along the pole. Birds, however, could land directly on the nest and remove the eggs without marking the tracking paper.

Nine other nests were enclosed in domes of 2 cm mesh wire netting. The roof of each dome was at least 5 cm above the eggs and had a 3 cm diameter hole cut in it, which allowed only mice to enter. Laboratory tests verified that mice could enter the nests. The dome nests were placed in boxthorn bushes, often in exactly the same position as natural nests whose contents had recently been raided.

As a control, six nests without domes or other attachments were also placed in the boxthorn clumps to check whether predation was still taking place.

*Nests set on rat traps:* Five break-back rat traps baited with nests containing eggs were set in the boxthorn bushes in mid-November 1980, when the experiments with seeded nests had finished. Six traps baited with a Starling's egg were also set on the ground at the base of the bushes.

*Poisoned eggs:* In late November 1980, eight Greenfinch nests in the boxthorn bushes were seeded with an egg injected with about 0.25 ml of strychnine. Two untreated eggs were also added to each nest to encourage the predator to stay until the poison acted.

This experiment was repeated in late October and early November 1981 by means of one or two poisoned eggs added to natural clutches of Greenfinches (6), Goldfinches (1), Thrushes (3) and Blackbirds (1). It was not always possible



to match the poisoned eggs with those of the recipient clutch; Starling eggs were used in the Song Thrush and Blackbird nests, and House Sparrow eggs were added to some of the finch nests.

## RESULTS

### *Tracking tunnels*

Mice were the only animals to pass through the tunnels under the Holme oaks and boxthorn bushes. They visited the tunnels frequently in the first week, but rarely from then on. Rats seemed to avoid the tunnels; some within a few metres of *R. norvegicus* burrows were never entered, nor were others at the base of trees known to be claimed by *R. rattus*. The tracking tunnels therefore gave a poor indication of the predatory mammals in the vicinity of the Greenfinch nests.

### *Experimental nests*

Eight of the 23 nests seeded into the boxthorn bushes in the evening of 10 November 1980 had been robbed by 9.30 a.m. the next day (Table 1). Five of these were control nests, and three were nests on poles. The tracking sheets on two of the poles were marked with rat prints. No eggs were damaged in any of the nine nests covered with wire mesh that mice could pass through. A rat had defecated on top of one wire dome, but the dropping did not contain egg-shell fragments.

Some of the eggs in robbed nests were not eaten; in one nest, three of the four eggs were left intact, and in another, one egg was holed but not eaten. All of the robbed nests contained fragments of shell, indicating that the eggs were eaten *in situ*. This is characteristic of predation by rats (Moors 1978).

TABLE 1 — Results of the first experiment set up in the evening of 10 November 1980. See text for definition of nest types

Date	Nest type	No. of nests	No. of nests attacked	Eggs missing or damaged		Comments
				No.	%	
11 Nov 1980	natural	6	5	18	75	
	dome (mice entry only)	9	0	0	0	one with rat dropping on top
	pole	8	3	9	28	rat tracks on two papers
12 Nov 1980	natural	1	1	4	100	
	dome	9	0	0	0	
	pole	5	4	13	65	

On the second night of the experiment, four of the five remaining nests on poles and the last control nest were robbed. The dome nests were again intact. None of the tracking papers on the poles was marked, but the sign in the nests indicated predation by mammals. Some shell fragments had smooth, narrow grooves along their edges, which suggested that the eggs had been opened by biting. The predator may have jumped over the ink pad on the pole, or at two nests, jumped directly on to the nest from an overhanging branch.

The nine dome nests were left in place for the next 15 days. Two were robbed during this period, apparently by rats. One of the nests had tilted, and so the eggs had rolled to within easy reach of the 3 cm hole, and in the other, the predator reached the eggs by squeezing between two layers of wire netting and gnawing through the underside of the nest.

#### *Nests set on rat traps*

Three of the traps baited with finch nests were sprung, but no animals were caught. The six traps baited with a single Starling egg were not disturbed.

#### *Poisoned eggs*

Two of the eight nests seeded with poisoned eggs in November 1980 were attacked, and near one of these a female ship rat was found dead in the branches of a boxthorn bush. Its stomach contained a yellowish gel, probably yolk, but no shell fragments. Egg-shell fragments within the cup of the other nest indicated that its poisoned egg had been eaten there, but no predator was found dead nearby.

The other nests were removed after a week to avoid endangering livestock which had been moved into the shelterbelt.

When the experiment was repeated in 1981, eight of the 11 nests seeded with poisoned eggs were robbed. A male ship rat was found dead beneath one of the nests, and a female Greenfinch under another; she died after eating the House Sparrow egg that had been added to her clutch.

Of the remaining six robbed nests, four contained egg-shell fragments and were probably preyed on by rats. One Greenfinch nest and its eggs disappeared, and the entire clutch from a Blackbird nest in an *Elaeagnus* hedge was removed intact, possibly by a mustelid. A nest robbed in the same hedge the previous year has mustelid hair adhering to the shell fragments. No animals were found dead near these nests.

### DISCUSSION

The experiments proved that ship rats were responsible for some of the predation on finch nests at Turamoe. These agile climbers eat the eggs and chicks of a variety of tree-nesting birds, sometimes inflicting heavy losses. They exterminated five endemic species on Big South Cape Island in the early 1960s (Bell 1978) and probably contributed to the decline of other species in the North Island in the 1870s (Atkinson 1973).

The impact of ship rats and other mammalian predators on the introduced avifauna of New Zealand has not been studied. Introduced birds, however, generally laying large clutches and raising several broods in a season, are less likely to be affected by predation than many of the longer-lived and slower-producing endemic species (Moors 1983). At Turamoe, for example, three-quarters of the clutches of Greenfinches were destroyed or abandoned; yet on average pairs still raised 1.0 chick per nest and probably 2 chicks each season (MacMillan 1985).

House mice were abundant at Turamoe but apparently did not rob the nests. Moors (1983) considered that mice were not important predators in Kowhai Bush, near Kaikoura, but cited several reports from elsewhere in New Zealand where mice were known to have eaten eggs and nestlings of small birds.

Mustelids apparently destroyed few clutches at Turamoe but were probably responsible for most of the predation on broods. Nests which lost chicks were undamaged and never contained carcasses. This lack of sign is characteristic of predation by mustelids, whereas rats generally disturb the lining of the cup and leave partly eaten chicks in the nest (Moors 1978).

The experiments failed to test whether birds were responsible for any of the predation at Turamoe. Harriers have been observed taking chicks from Goldfinch nests in an orchard in Hawke's Bay (J. Crouchley, pers. comm.) but were probably not responsible for any losses by Greenfinches in this study. Our visits to nests within an hour or two of dusk and dawn indicated that predation was probably taking place at night. Moreporks (*Ninox novaeseelandiae*) may have been involved because they are known to eat small birds (Falla *et al.* 1979) and eggs (Oliver 1955).

Limited comparative data indicate that Greenfinches suffer less nest predation in Britain (their country of origin) than at Turamoe, despite being exposed to a greater diversity of predators. Newton (1972) found that, in the south of England, about one-third of Greenfinch nests were robbed, mainly in the first few weeks of the breeding season when deciduous trees were not fully in leaf. As at Turamoe, more clutches than broods were taken, presumably because the more conspicuous nests were found quickly, and so those that escaped until hatching had a good chance of surviving further.

Nest records from the whole of Britain showed that about 25% of Greenfinch clutches failed completely each season, and of these, 41% resulted from interference by humans (egg collectors). Corvids, gulls and mammals accounted for 7.7% of failures (Monk 1954), a conservative estimate because predators would also have been responsible for some of the unexplained losses (47% of all failures).

There are few data on the breeding success of Greenfinches elsewhere in New Zealand, so we do not know if the predation at Turamoe was unusually heavy. Greenfinches nesting in an orchard in Hawke's Bay lost fewer eggs to predators than did those at Turamoe, but they deserted nests more frequently, apparently because they were disturbed when the trees were sprayed (MacMillan, pers. obs). Greenfinches breeding in riparian vegetation and forests

probably suffer less predation than those in farmland, where they generally nest with several other species in small isolated patches of vegetation.

### ACKNOWLEDGEMENTS

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### LITERATURE CITED

- ATKINSON, I. A. E. 1973. Spread of the ship rat (*Rattus r. rattus* L.) in New Zealand. *J. Roy. Soc. NZ.* 3: 457-472.
- BELL, B. D. 1978. The Big South Cape Islands rat irruption. In Dingwall, P. R.; Atkinson, I. A. E.; Hay, C. (eds). *The ecology and control of rodents in New Zealand Nature Reserves*. Dept Lands & Survey Information Series No. 4. Pages 33-40.
- FALLA, R. A.; SIBSON, R. B.; TURBOTT, E. G. 1979. *The new guide to the birds of New Zealand*. Auckland: Collins.
- MacMILLAN, B. W. H. 1981. Food of House Sparrows and Greenfinches in a mixed farming district, Hawke's Bay, New Zealand. *NZ J. Zool.* 8: 93-104.
- MacMILLAN, B. W. H. 1985. Breeding of Greenfinches in Hawke's Bay, New Zealand. *Notornis*, this issue.
- MOORS, P. J. 1978. Methods for studying predators and their effects on forest birds. In Dingwall, P. R.; Atkinson, I. A. E.; Hay, C. (eds). *The ecology and control of rodents in New Zealand Nature Reserves*. Dept Lands & Survey Inf. Ser. 4. Pages 47-56.
- MOORS, P. J. 1983. Predation by mustelids and rodents on the eggs and chicks of native and introduced birds in Kowhai Bush, New Zealand. *Ibis* 125: 137-154.
- MONK, J. F. 1954. The breeding biology of the Greenfinch. *Bird Study* 1: 2-14.
- NEWTON, I. 1972. *Finches*. London: Collins.
- OLIVER, W. R. B. 1955. *New Zealand birds*. Wellington: A. H. & A. W. Reed.

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### SHORT NOTE

#### Hutton's descriptive catalogue of New Zealand birds (1871)

Since I published (*Notornis* 30: 7-14) letters by Hutton and Buller documenting the latter's irritation at the publication of Hutton's *Catalogue* just before the appearance of his own *History of New Zealand Birds* (1872-73), I have come across a letter from Dr James Hector to the Colonial Secretary, in the National Museum letter book, dated 3 August 1871.

Hector forwards "a descriptive catalogue of the native and introduced birds of New Zealand which has been drawn up by Capt. Hutton in compliance with my instructions. As it forms a report on the Collection recently purchased for the Colony from Mr Buller and embodies in a form available for general use the chief advantage by that purchase, together with all the other information that can be obtained on the subject, I beg to recommend that it should be printed for distribution".

This clearly confirms that Hector was responsible for publishing the catalogue in the form in which it appeared, despite Buller's suggestion that he was absent overseas during its production and the omission of his name as Director from the title page.

C. A. FLEMING

# ADÉLIE PENGUIN ROOKERIES AT COULMAN ISLAND, WESTERN ROSS SEA, ANTARCTICA

By R. H. TAYLOR and P. R. WILSON

## ABSTRACT

Three rookeries of Adélie Penguins (*Pygoscelis adeliae*) at Coulman Island were last reported in 1964. Their size was then only roughly estimated and their positions were incorrectly mapped. They were relocated and photographed during aerial photographic surveys of Ross Sea penguin breeding areas on 6 December 1981, 29 November 1982 and 2 December 1983. This paper reports the correct position of each colony, together with detailed description and photograph and an accurate count of occupied nests. Numbers of breeding pairs in 1983 were assessed as Northern Rookery 2157, Middle Rookery 3989, Southern Rookery 22 743.

## INTRODUCTION

Coulman Island (73°30'S, 169°45'E) is an elongated basaltic dome, 34 km long, lying 16 km off the coast of northern Victoria Land (Harrington *et al.* 1967). The island rises to 1998 m a.s.l. and is covered with a thick ice cap flowing to steep 600-1800 m high cliffs on all sides. Along the eastern coast numerous glaciers combine to form an almost continuous ice shelf.

Three rookeries of Adélie Penguin (*Pygoscelis adeliae*) are known from Coulman Island. One, near the northern end, was discovered by Scott's National Antarctic Expedition of 1901-04 (Scott 1905, Wilson 1907). The other two were first seen in 1964 from helicopters transporting geological and biological field parties (Cranfield 1966). Cranfield named them Northern Rookery, Middle Rookery, and Southern Rookery and estimated the size of each from information received from Bishop Museum entomologists Gressitt, Wise and Shoup, who had overflown or visited them in November 1964. He gave little indication of their position other than that they were below exposed parts of the island's high eastern cliffs and appeared to be sited on moraine-covered shelf ice. Later, all three were positioned on the published 1:250 000 topographical map of the Coulman Island area (US Geological Survey 1969). The southern rookery was shown about 5 km south of Cape Main and the others about 21 km and 13 km south from Cape Wadworth at the north end of the island.

## AERIAL SURVEY

Coulman Island was searched for breeding Adélie Penguins from a C-130 Hercules aircraft flying at an altitude of about 1000 ft during aerial photographic surveys of Ross Sea penguin breeding areas on 6 December 1981 (Taylor & Wilson 1982) and again on 29 November 1982 and 2 December 1983. We could not locate penguins at the positions previously mapped but found three rookeries — the most southern about 2 km north of Cape Main and other two about 11 km and 7 km south of Cape Wadworth (Fig. 1).

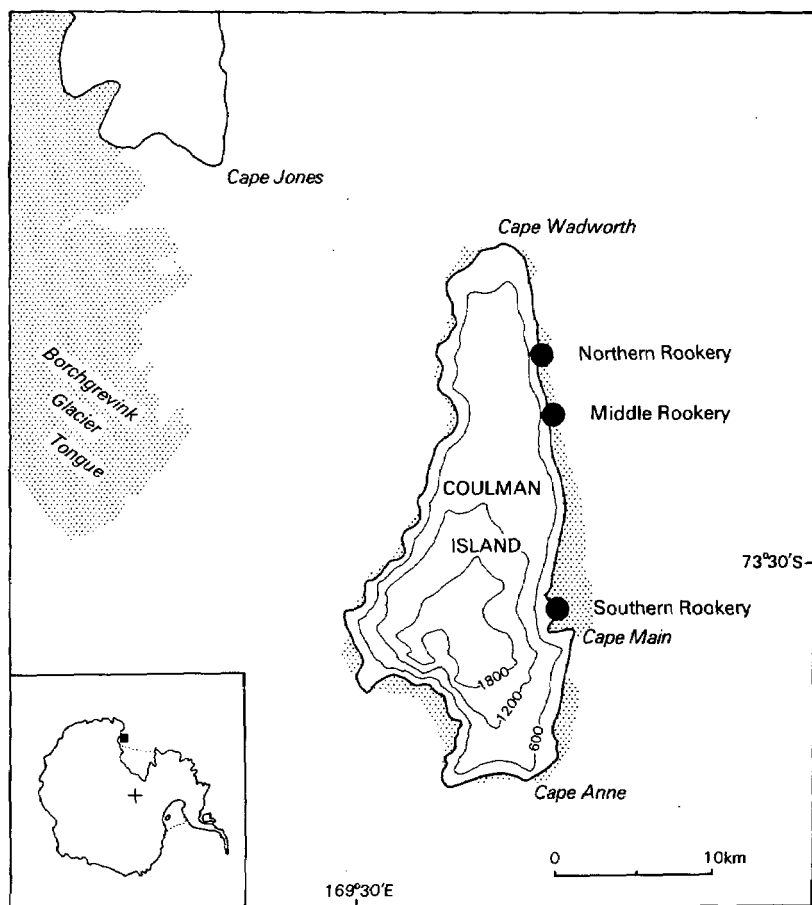


FIGURE 1 — Coulman Island and its Adélie Penguin rookeries. Areas of glacial ice shelf are shown in stipple



FIGURE 2 — Site of Northern Rookery, Coulman Island, 2 December 1983. Adélie Penguins nested in the two areas marked (see text)



FIGURE 3 — (A) Site of Middle Rookery, Coulman Island, 2 December 1983. The sea cliff was less than 100 m down slope from the bottom edge of the colony



In 1983, we took several large-format (6 x 7 cm) black-and-white oblique photographs of each rookery. We then enlarged sections of these photographs and made accurate counts of the total number of occupied nests in all three rookeries. We estimated the dimensions of the breeding areas by using for scale the size of incubating birds and the distances between evenly spaced nests, as measured at Cape Royds rookery. The timing of the photographic flights was planned to coincide with the phase of breeding when nearly all birds ashore were incubating while their mates and non-breeding birds were feeding at sea (Taylor 1962, Taylor & Wilson 1982). By comparing counts of occupied nests from aerial photographs with careful ground counts of breeding Adélie Penguins at Cape Royds, we found that aerial photography gives an accurate count of the number of breeding pairs at this stage of the season, with less than 5% error (unpubl. data).

#### *Northern Rookery*

This rookery is at the southern end of a small steeply sloping glacial shelf extending below high volcanic cliffs (Fig. 2). Fallen rock debris thinly covers the margin of the shelf ice, which is partly ablated where it abuts exposed coastal rock. These features form a base for the penguin rookery and sloping access from the sea. This rookery is the smallest of the three with 2157 occupied nests on 2 December 1983. Most nests (2090) were among the veneer of stones covering an area of about 30 x 90 m on the rim of the glacial shelf, but a small group of 67 was seen on a ledge on the debris-covered ice slope.

#### *Middle Rookery*

This rookery (Fig. 3A) is on a patch of sloping rock debris towards the northern end of the 17-km-long glacial ice shelf which extends south to Cape Main. The debris patch is roughly 60 x 140 m in extent and less than 100 m from the shelf's seaward ice cliff, where there is access for penguins. On 2 December 1983, about half the area of exposed moraine was covered with 3989 occupied nests.

#### *Southern Rookery*

This rookery (Fig. 3B) is on the wide glacial ice shelf about 2 km north of Cape Main. The birds' only access is up a small gut in the side of an ice tongue about 2 km south of the rookery (M. Gregory and P. Harper, pers. comm.). They nest on low ridges on a large triangular tail of glacial moraine in the lee of an exposed rock cliff between two ice falls. The area of sloping moraine is about 350 m wide at its upper end and steadily tapers away over its length of about 600 m. This is by far the largest group of breeding Adélie Penguins at Coulman Island. On 2 December 1983, 22 623 occupied nests were on the moraine and 120 in small groups were on the steeper talus slopes immediately below the cliffs. The total of occupied nests was 22 743.

### POPULATION TRENDS

The Coulman Island Adélie Penguin rookeries are all on moraine-covered shelf ice, which is subject to glacial movement. They may therefore be less



FIGURE 3 — (B) Site of Southern Rookery, Coulman Island, 2 December 1983. Adélie Penguins were nesting on every ridge on the triangular moraine and in small groups (arrowed) on talus below the volcanic cliffs.

permanent and display greater fluctuations in numbers than those established on rocky terrain elsewhere. Access for penguins on to the ice shelf at the middle and southern rookeries could be difficult or even impossible in some years. Other factors, such as the variation in the amount of rock debris being deposited or of snow accumulating, may in time change the size, shape and viability of these breeding areas.

Although their mapped positions differ by as much as 10 km, we assume that the three rookeries found in 1980-83 are the same as those found in 1964. Table 1 compares the results of the 1983 aerial census with the 1964 estimates given by Cranfield (1966). The 1964 figures were based only on an overall impression from the air or the ground, whereas the 1983 figures are from careful counts of occupied nests on aerial photographs. Therefore, we cannot make any conclusions on trends in the size of the Coulman Island rookeries during the last 20 years. Now that the three breeding sites have been relocated and described, the recent aerial census gives an accurate basis for comparing future numbers of Adélie Penguins breeding at Coulman Island.

TABLE 1 — Population estimates of Adélie Penguin rookeries, Coulman Island, 1964 and 1983

Rookery	Number of breeding pairs	
	Nov 1964 (Cranfield 1966)	2 Dec 1983
Northern	1000 - 2000 (air estimate)	2157
Middle	4000 - 5000 (air estimate)	3989
Southern	8000 - 10000 (ground estimate)	22743
Totals	13000 - 17000	28889

### ACKNOWLEDGEMENTS

We thank pilots and crew of the RAAF aircraft used in 1981 and of 40 Squadron RNZAF (1982 and 1983). The aerial photographic survey is part of New Zealand's contribution to the International Survey of Antarctic Seabirds (ISAS). Interest and support for our project from Antarctic Division, DSIR, is gratefully acknowledged. We thank Richard Sadleir for assisting with the 1982 survey, Tim Fitzgerald for printing photographs and carefully counting penguins, and Jocelyn Tilley for draughting.

### LITERATURE CITED

- CRANFIELD, H. J. 1966. Adélie Penguin rookeries in the Cape Hallett region. *Antarctic* 4: 315-317.  
 HARRINGTON, H. J.; WOOD, B. L.; McKELLAR, I. C.; LENSEN, G. J. 1967. Topography and geology of the Cape Hallett district, Victoria Land, Antarctica. *NZ Geol. Surv. Bull.* n.s. 80.  
 SCOTT, R. F. 1905. *The voyage of the Discovery*. London: John Murray.  
 TAYLOR, R. H. 1962. The Adélie Penguin *Pygoscelis adeliae* at Cape Royds. *Ibis* 104: 176-204.  
 TAYLOR, R. H.; WILSON, P. R. 1982. Counting penguins from the air. *Antarctic* 9: 366-368.  
 U.S. GEOLOGICAL SURVEY 1969. Topographic map, 1:250 000 Reconnaissance Series. Coulman Island, Antarctica. SS58-60/6.  
 WILSON, E. 1907. Aves. *British National Antarctic Expedition 1901-04. Zoology* 2: 1-121.

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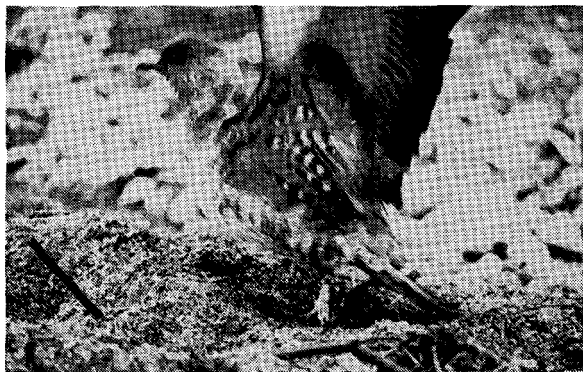
## SHORT NOTE

### Small skua at Taupo

In May 1982, Michael Morse told me that, during the previous Labour Weekend (October 1981), he and his father had seen and photographed at Kawatau Spit, Western Bays, Lake Taupo, a lightly built skua. They had estimated its body size as about that of a Red-billed Gull (*Larus novaehollandiae*), maybe smaller. Its flight was very easy. It tended to glide and float, not like (to use MPM's actual words) "the other skua (Arctic?), which I seem to remember as having a reasonably fast flight. The Taupo skua was feeding on a trout head on a beach, and it was unafraid of us, even though we approached within a metre or so." Clearly, it was exhausted and hungry.

The bird was subsequently identified, on the basis of colour photos, as an immature Long-tailed Skua (*Stercorarius longicaudus*) by its lightweight build, small two-tone bill, generally greyish plumage, pale nape, and distinctive barring on the underwing.

R. B. SIBSON



# THE DISTRIBUTION OF BULLER'S SHEARWATER (*Puffinus bulleri*) IN THE NORTH PACIFIC OCEAN

by T. R. WAHL

## ABSTRACT

From available records ranging from systematic surveys to casual observations, the known distribution of Buller's Shearwater in the North Pacific Ocean is described. The birds arrive in subarctic waters in June and slowly expand northward and eastward as far as the Gulf of Alaska by August. The mid-ocean distribution after August is poorly known, but many birds, presumably non-breeders, are along the west coast of North America, at least from British Columbia to southern California, until late October-early November. Numbers observed along this coast have increased since the mid-1960s.

Although Buller's Shearwater has been known to occur in the North Pacific since at least 1900 (Loomis 1900), only in recent decades has a general pattern of its distribution become clear. In this paper I have summarised recent records that report the species over almost all of the subarctic North Pacific, including northern Japan, southern Kurile Islands, Kodiak and the northeastern Gulf of Alaska, British Columbia, the west coast of the United States, and in mid-ocean. I am unaware of reports from the Sea of Japan, Sea of Okhotsk and the Bering Sea.

Records from mid-ocean were obtained through systematic observations from research vessels. Figure 1 shows some features of the subarctic North Pacific Ocean. Figure 2 shows the tracks of six cruises I made. Data from one cruise made by DeGange (1979) in the northwestern Pacific are included. Data from these sources, while representing some 4000 individual censuses, is only a minimal sampling and limited mainly to the months of June-August. In addition, all other published records for the area are included, including records from Japan and adjacent waters judged valid by Nakamura & Hasegawa (1979).

Figures 3-5 show, for most of the North Pacific, including the Gulf of Alaska, total numbers observed by five degree latitude and longitude "blocks". Census effort is not comparable between blocks. The figures do not represent density (birds/area surveyed) and cannot be used to compare total numbers found in mid-ocean directly with numbers found in coastal areas.

The records from the waters off the west coast of North America, south of Alaska (see Figure 6), are mostly totals from one-day bird-watching boat trips reported in the seasonal summaries published in *Audubon Field Notes/American Birds*. Reports in these seasonal summaries seldom relate observations to effort and usually omit days when no Buller's were seen, but they give important information. Fortunately, Buller's Shearwater is a species of interest on bird-watching trips and published trip reports include most records, except

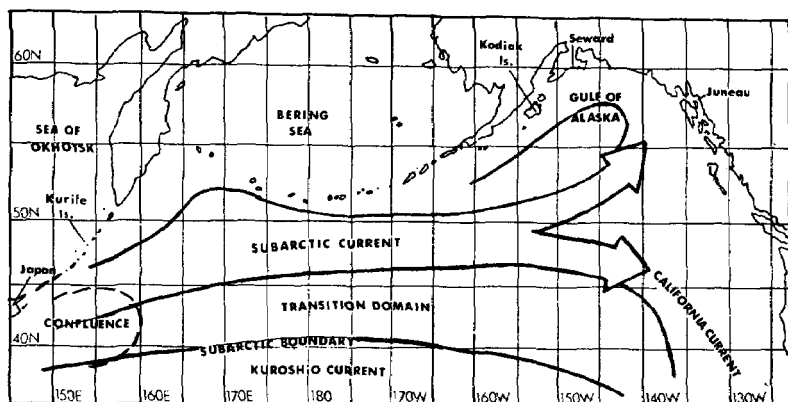


FIGURE 1 — Subarctic North Pacific Ocean, showing some oceanographic features (after Favorite *et al.* 1976)

that summaries for Monterey Bay often give only early and late dates, or unusual numbers and occurrences. Because methods of observation were not standardised and the 100+ reports available cannot be statistically treated, I have used from the 1971–1983 records the largest number reported in each geographic subregion (Figure 4) by month in Table 1 and year in Table 2. The results are a simple analysis that corresponds in year with the beginning of regular offshore trips and other field work and represents a large proportion of all records of Buller's Shearwater in the North Pacific. Data from this part of the North American west coast offer some insights on month-to-month and year-to-year variations and so I have kept this separate from data from the western and mid-North Pacific. I have also included data from research cruises from California (Briggs *et al.* 1978; Tyler *et al.* 1982) and Washington (Wahl 1975 and unpub.)

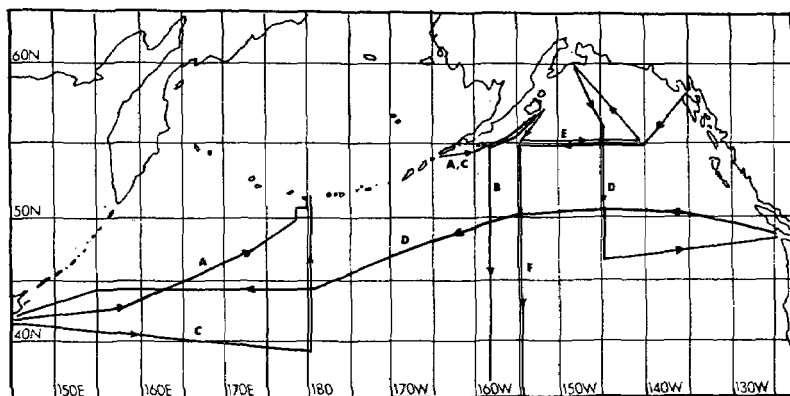


FIGURE 2 — Cruise tracks. A — Japan to Kodiak, June-July 1975. B — Kodiak to Hawaii, October-November 1976. C — Japan to Kodiak, June-July 1980. D — Seward, Alaska, to Seattle to Japan, July-August 1981. E — Kodiak to Seward, July 1983. F — Juneau, Alaska, to Hawaii, July-August 1984.



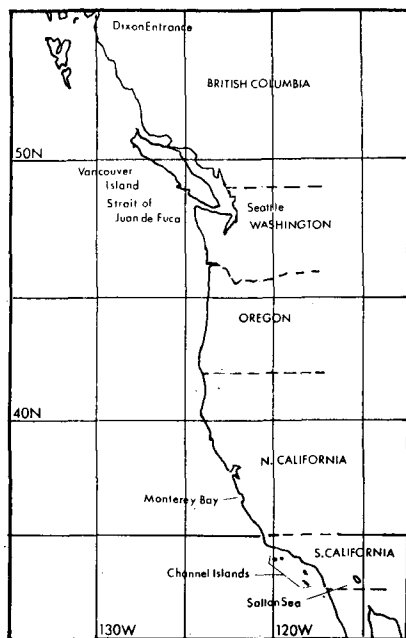


FIGURE 6 — West Coast of North America

### SEASONAL DISTRIBUTION

*June:* Apart from one record of three birds near Kodiak in April (Kessel & Gibson 1978) and five off Southern California in May (Briggs *et al.* 1978), the earliest records of any widespread numbers of Buller's Shearwaters appear to be in June (Figure 3) when, north of the subarctic boundary in mid-Pacific (in the Transition Domain: see Figure 1 and Favorite *et al.* 1976), I recorded birds in June 1980 and C. Bouchet (pers. comm.) reported them in June 1981. Flocks of 10-50 birds were resting on the surface and often flushed by the vessel. No obvious migration was noted. Nakamura (pers. comm.) believes that distribution off Japan relates to the Kuroshio-Oyashio Confluence and that no birds occur within the warm waters of the Kuroshio Current itself during the northern summer, after migration across the tropics is largely completed. Sleptsov (1960) described this shearwater as fairly widespread in the northwest Pacific "from 30°34'N, 150°11'E to 46°15'N, 160°15'E" but did not give month or season.

In the eastern Pacific, the only records are of 17 birds in mid Gulf of Alaska in 1976 (Kessel & Gibson 1978) and one bird off Southern California in June 1976 (McCaskie 1978).

*July:* Birds apparently move northward in July in the western Pacific (Figure 4). While little is known from mid-Pacific in June and July owing to lack of observations, we can only speculate that many birds move to the east along the Subarctic Current. I saw no Buller's Shearwaters while crossing



the Gulf of Alaska in 1983. In 1984 I crossed the Gulf of Alaska again and then went south to Hawaii on 155°W. Small numbers of Buller's were seen between 44° and 47°N. Thus, Figure 4 indicates scarcity in the open northeastern Pacific and Table 1 shows only two other July records: three birds seen near San Francisco (Remsen & Gaines 1973) and birds seen daily during the first ten days of July 1971 between Kyoquot and Cape Cook, Vancouver Island (Guiguet 1971). Records in the northeastern Pacific before August are few.

*August:* In August, birds are known from almost all across the North Pacific (Figure 5), apparently having followed the Subarctic Current (and one of its extensions, the California Current) eastward. Shepard (in Guzman & Myres 1983) reported Buller's Shearwaters "on most days" on a cruise from Japan to Vancouver BC in late August 1968, with the largest number, about 100, seen off the Strait of Juan de Fuca. A flock of over 200 were recorded at Ocean Station 'P', 50°N, 145°W on 27 August 1969 (Gruchy *et al.* 1971). As breeding birds appear in New Zealand in September (Jenkins 1974), August is probably the month of most widespread distribution in the Northern Hemisphere. Although observers have been in the Gulf of Alaska in August, no Buller's Shearwaters have been reported north of Ocean Station 'P'. The birds seen there in April and June may have been vagrants associated with oceanographic variations — they are normally distributed further south. In August, birds also appear along the west coast of North America (Table 1). There is a record for British Columbia on 7 August 1926 (Nichols in Godfrey 1966) which has been discounted in the past, apparently for lack of a specimen. Flocks of birds occur off Washington and Oregon in August. At least 183 birds were reported off Monterey Bay, California, in August 1970. A flock of 1300 off the Channel Islands, Southern California, in 1976 (Briggs *et al.* 1978), seen during surveys done further offshore than previously, may represent a relatively regular occurrence, perhaps of breeding birds about to leave on southwestward migration (see Ainley 1976). An interesting record is of a bird captured alive at the Salton Sea, Southern California, about 125 km inland, on 6 August 1966 (McCaskie 1966). Oceanic birds observed here may be more likely come from the Sea of Cortez, Mexico, than from over a mountain range directly from the Pacific Ocean proper.

TABLE 1 — Maximum numbers (largest sighting reported) per month, all years combined, 1970-1982

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
British Columbia							+		10	93	1	
Washington		1						37	1183	1232	6	
Oregon								150	50			1
Northern California*	1	1					1	183	2000	750	3	1
Southern California			1		5	1		1300	2000	2	3	

\* Almost all reports from San Francisco - Monterey Bay area

TABLE 2 — Maximum numbers (largest sighting reported) per region per year, 1971-1983

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
British Columbia	Too few data												
Washington	150	509	870	178	207	1232	937	129	33	24	14	14	71
Oregon	Too few data												
Northern California*	400	20	400	750	600	1	1		1	75A	15A	2000	B
Southern California	2		2	1	12	2000	5		3	3		4	8

\* Almost all reports from San Francisco - Monterey Bay area

A Also recorded offshore by Briggs et al, but numbers not given

B "lower than normal"

*September:* Buller's Shearwater has not been reported mid-ocean in September — no observations have been conducted then. There are, however, records of it off the Kuriles (see Nakamura & Hasegawa 1979), in the northern Gulf of Alaska (Wohl 1975, Kessel & Gibson 1978) and at 50°N, 145°W mostly between 10 and 27 September (Guzman & Myres 1973). As breeding birds would have withdrawn to the south (see Jenkins 1974), the birds may be scarce over much of the North Pacific in September, with non-breeders remaining in areas of rich feeding. However, Table 1 shows that this is a month of peak occurrence along the west coast of North America. Many birds are still present in numbers through October, and these are presumably non-breeders, feeding over the continental shelf without any urgency to migrate directly across the tropics to New Zealand. The 2000 birds seen off San Miguel Island (Channel Islands) on 26 September 1976 (McCaskie 1977) is a very large number for Southern California, where numbers are normally low (see Garrett & Dunn 1981) compared with Northern California and Washington.

*October:* Birds continue to be observed off the North American west coast in October, with maximum numbers about the same as, or higher than, those reported in September (Table 1). Before 1982, when 2000 birds were reported on 22 September in Monterey Bay (LeValley & Roberson 1983), the highest counts for each year in Northern California occurred in October (e.g. DeSante *et al.* 1972). The only October record from elsewhere in the North Pacific is of two birds off northern Honshu, Japan (see Nakamura & Hasegawa 1979). On a research cruise from Kodiak to Hawaii in late October-early November 1976 along 158°W, I did not record any Buller's Shearwaters. Thus, the main North Pacific concentration during September and October is probably along the North American west coast.

*November-February:* I am aware of only eight records for Buller's Shearwaters in November, all along the west coast of North America (Table 1), where observation effort is relatively higher than in other regions. The British Columbia record is for Dixon Entrance (Crowell & Nehls 1972). Two records were off Washington (see Hunn & Mattocks 1983), one was of three

birds in Monterey Bay (DeSante *et al.* 1972) and, as might be expected, four records were concentrated at the south, off Southern California (McCaskie 1970, 1980, 1981), including one bird in 1957 (Garrett & Dunn 1981). Single birds have been seen in December off Oregon (Hunn & Mattocks 1983) and Monterey (Stallcup & Winter 1976) and one possible was reported off Point Pinos, near Monterey Bay (LeValley & Evens 1982). Single dead birds have been found in January in Washington (Hunn & Mattocks 1983), and in February in Northern California (Stallcup & Winter 1976) and Southern California (McCaskie 1976). Observation efforts continue through the winter months off California, and so the few records there indicate that the species is rare after November.

### HISTORICAL TRENDS

*Population changes:* In addition to the earlier records given above, we have California records given in Loomis (1918), the first record for Washington in 1931 (Jewett *et al.* 1953) and for Oregon in 1932 (Gabrielson & Jewett 1970). Although the species was apparently seen quite consistently near Monterey Bay through the years, very few occurred before the early 1960s at other locations. Sleptsov (1960) and Kuroda (1955) took early specimens in the northwestern Pacific, but other observers did not report this rather distinctive species: Hamilton (1958) crossed from Japan to Washington in June 1955, Sanger (1965, 1972) spent considerable time off the Washington and Oregon coasts and farther offshore, and Martin (Martin & Myres 1969) observed other birds but reported no Buller's Shearwaters while fishing off British Columbia and Washington from May to September 1946-1949. Although observation effort offshore along the continents and in mid-ocean before the 1960s was much lower than after about 1970, the few Buller's Shearwaters reported by these observers suggests lower numbers were present then than recently.

*Annual numbers:* Variations are unknown for most of the North Pacific and this will remain so unless much greater survey effort is possible. However, existing records give some idea of changes in numbers observed along the west coast of North America. Table 2 gives the single largest records per year for the three areas where reports of observations have been consistent — Washington, Northern California and Southern California. By this simplified means, we can see that numbers do vary. Before 1971, numbers were low until 1966, when up to 225 were seen in Monterey Bay (Paxton & Chandik 1967). In 1967, 300 were reported off Northern California (Chandik & Baldrige 1968) and the maximum count in 1968 was 175 off Southern California (McCaskie 1969). In 1969, the maximum count was four birds at Monterey (Baldrige *et al.* 1970). In 1970, a maximum of 700 was seen off Northern California (Chandik *et al.* 1971). Then, from 1971 on, numbers were relatively high through 1975 in Northern California and through 1977 in Washington. The large numbers of birds off Southern California in 1976 (McCaskie 1977) were seen during unusually thorough surveys off the Channel Islands, whereas numbers seen during other trips were low.

In 1980 and 1981, large-scale offshore surveys by Tyler *et al.* (1982) showed birds present off Northern California in "moderate numbers" in

September and October and numbers given for these years (Evens & LeValley 1981, Evens *et al.* 1982) are not comparable with numbers recorded in other years: birds may be farther offshore than regular boat trips go. Numbers remained low along the west coast of North America until a large flock appeared in Monterey Bay in 1982 (LeValley & Roberson 1983).

Ainley (1976) related the occurrence of Buller's Shearwater along coastal California to oceanographic conditions and gave three peaks of abundance — 1956, 1966-1967, and 1970-1971 — corresponding with periods of above-average upwelling and plankton volume. He stated that high numbers off California seem to foretell a period of warm water to follow. Oceanographic data are incomplete, but the peak number in Monterey Bay in September 1982 (with "moderate numbers" off Northern California in 1980 and 1981 preceding this) was followed in late 1982 by sea surface temperatures that were very much higher than average along the Pacific Coast of North America (Auer 1983).

The relationships of birds with oceanography are not well known. Further analysis, perhaps of conditions well to the north or west of the North American west coast, may offer clues as to what causes presumed non-breeding age classes of Buller's Shearwater to head either for this area or to take another route back to New Zealand.

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### LITERATURE CITED

- AINLEY, D. G. 1976. The occurrence of seabirds in the coastal region of California. *West. Birds* 7:33-68.
- AUER, S. Ed. 1983. Oceanographic monthly summary. US Dept. Comm./NOAA. Vol IV (1,2).
- BALDRIDGE, A.; CHANDIK, T.; DeSANTE, D. 1970. Fall migration. *Aud. Field Notes* 24:58.
- BRIGGS, K.; CHU, E.; LEWIS, P.; TYLER, W.; PITMAN, R.; HUNT, G. Jr., 1978. Distribution, numbers, and seasonal status of seabirds of the Southern California Bight. In *Summary of marine mammals and seabirds surveys of the Southern California Bight area, 1975-1978*. Santa Cruz and Irvine, Regents of the Univ. of Calif.
- CHANDIK, T.; BALDRIDGE, A. 1968. Fall migration. *Aud. Field Notes* 22:83.
- CHANDIK, T.; DeSANTE, D.; PUGH, E. 1971. Fall migration. *Amer. Birds* 25:100.
- CROWELL, J. B., Jr.; NEHLS, H. B. 1972. The fall migration. *Amer. Birds* 26:107.
- DeGANGE, A. R. 1979. In *Data record of oceanographic observations and exploratory fishing*. No. 22. Faculty of Fisheries, Hokkaido University, Hakodate, Japan.
- DeSANTE, D.; LeVALLEY, R.; STALLCUP, R. 1972. The fall migration. *Amer. Birds* 26:112.
- EVENS, J.; LeVALLEY, R. 1981. Autumn migration. *Amer. Birds* 35:219.
- EVENS, J.; ERICKSON, R.; LeVALLEY, R. 1982. Autumn migration. *Amer. Birds* 36:212.
- FAVORITE, F.; DODIMEAD, A. J.; NASU, K. 1976. Oceanography of the Subarctic Pacific region. *Int. N. Pac. Fish. Comm. Bull.* 33. 187 pp.
- GABRIELSON, I. N.; JEWETT, S. G. 1970. *Birds of the Pacific Northwest*. Dover Publ. Inc., New York. 650 pp.
- GARRETT, K.; DUNN, J. 1981. *Birds of Southern California*. Los Angeles Aud. Soc., Los Angeles. 408 pp.
- GODFREY, W. E. 1966. *Birds of Canada*. Nat. Mus. of Canada Bull. No. 203, Ottawa. 428 pp.
- GRUCHY, C. G.; DYKES, A. A. R.; BOWEN, R. H. 1972. The Short-tailed Albatross recorded at Ocean Station Papa, North Pacific Ocean, with notes on other birds. *Can. Field Nat.* 86: 285-287.
- GUIGUET, C. J. 1971. *Birds of British Columbia* (9): Diving birds and tube-nosed swimmers. BC Prov. Mus. Handbook No. 29, Victoria, B.C.
- GUZMAN, J. R.; MYRES, M. T. 1983. Occurrence of shearwaters (*Puffinus* spp.) off the west coast of Canada. *Can. Zool.* 81:2064-2077.
- HAMILTON, W. J. III. 1958. Pelagic birds observed on a North Pacific crossing. *Condor* 60:158-164.
- HUNN, E. S.; MATTOCKS, P. W., Jr. 1983. The autumn migration. *Amer. Birds* 37:214.

- JENKINS, J. A. F. 1974. Local distribution and feeding habits of Buller's Shearwater (*Puffinus bulleri*). *Notornis* 21:109-120.
- JEWETT, S. G.; TAYLOR, W. P.; SHAW, W. T.; ALDRICH, J. W. 1953. *Birds of Washington State*. Univ. of Washington Press, Seattle. 767 pp.
- KESSEL, B.; GIBSON, D. D. 1978. Status and distribution of Alaskan birds. *Studies in Avian Biol.* No. 1. 100 pp.
- KURODA, N. 1955. Observations on pelagic birds of the northwestern Pacific. *Condor* 57:290-300.
- LeVALLEY, R.; EVENS, J. 1982. Winter season. *Amer. Birds* 36:325.
- LeVALLEY, R.; ROBERSON, D. 1983. Autumn migration. *Amer. Birds* 37:219.
- LOOMIS, L. M. 1900. California water birds, No. 4 and 5. *Proc. Calif. Acad. Sci. Third Series, Zool.*, Vol. 2.
- LOOMIS, L. M. 1918. Expedition of the California Academy of Science to the Galapagos Islands, 1905-1906. A review of the albatrosses and petrels. *Proc. Cal. Acad. Sci. Fourth Ser., Zool.*, Vol. 2, No. 12.
- MARTIN, P. W.; MYRES, M. T. 1969. Observations on the distribution and migration of some seabirds off the outer coasts of British Columbia and Washington State, 1946-1949. *Syesis* 2:241-256.
- MATTOCKS, P. W. J.; HUNN, E. S. 1983. The winter season. *Amer. Birds* 37:330.
- MCCASKIE, G. 1966. The nesting season. *Aud. Field Notes* 20:599.
- MCCASKIE, G. 1969. Fall migration. *Aud. Field Notes* 23:106.
- MCCASKIE, G. 1970. The fall migration. *Aud. Field Notes* 24:97.
- MCCASKIE, G. 1976. The winter season. *Amer. Birds* 30:764.
- MCCASKIE, G. 1977. The fall migration. *Amer. Birds* 31:221.
- MCCASKIE, G. 1978. The nesting season. *Amer. Birds* 30:1003.
- MCCASKIE, G. 1980. The autumn migration. *Amer. Birds* 34:199.
- MCCASKIE, G. 1981. The autumn migration. *Amer. Birds* 35:225.
- NAKAMURA, K.; HASEGAWA, M. 1979. A brief note on distribution of Buller's Shearwater, *Puffinus bulleri*, in Japan and adjacent seas. *J. Yamashina Inst. Ornith.* Vol. 11 (2):123-127.
- PAXTON, R.; CHANDIK, T. 1967. Fall migration. *Aud. Field Notes* 21:72.
- REMSEN, V.; GAINES, D. A. 1973. The nesting season. *Amer. Birds* 27:912.
- SANGER, G. A. 1965. Observations of wildlife off the coast of Washington and Oregon in 1963, with notes on the Laysan Albatross (*Diomedea immutabilis*) in the area. *Murrelet* 46:1-6.
- SANGER, G. A. 1972. Checklist of bird observations from the eastern North Pacific Ocean, 1955-1967. *Murrelet* 53:16-21.
- SHUNTOV, V. P. 1974. Seabirds and the biological structure of the ocean. (Trans. from Russian). TT74-55032, NTIS, U.S. Dept. Comm. 1974.
- SLEPTSOV, M. M. 1960. Buller's Shearwater in U.S.S.R. waters. *Ornitologia* 3:410-412. (Transl. from the Russian by W. Hall).
- STALLCUP, R.; WINTER, J. 1976. The winter season. *Amer. Birds* 30:761.
- TYLER, W. B.; LEWIS, D. B.; BRIGGS, K. T.; DETTMAN, K. F. 1982. Seabird findings. In Dohl, T. P., et al. Marine mammal and seabird study Central and Northern California. USDI POCS Tech. Paper No. 82-1.
- WAHL, T. R. 1975. Seabirds in Washington's offshore zone. *West. Birds* 6:117-134.
- WOHL, K. D. 1975. Sightings of New Zealand Shearwaters in the northern Gulf of Alaska. *Can. Field Nat.* 89:320-321.
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# CLASSIFIED SUMMARISED NOTES

## NORTH ISLAND

1 July 1983 to 30 June 1984

Compiled by L. Howell

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**Abbreviations:** asl — above sea level; BoP — Bay of Plenty; B — Beach; E — estuary; FP — Forest Park; FoT — Firth of Thames; H — Harbour; imm/s — immature/s; juv/s — juvenile/s; I — Island; L — Lake; MH — Manukau Harbour; NP — National Park; Pen — peninsula; R — River; SF — State Forest; SP — Sewage Ponds.

### BROWN KIWI *Apteryx australis*

Opuawhanga, both sexes calling fairly regularly as late as 6.20 a.m. on 5/6 (JFS). Little Barrier, quite vocal near homestead on 2-9/8 (TGL); a male calling at night on 15/11 (BB). Tabora, 7 from Northland released between 23/5/83 and 5/2 (MJT).

### BLUE PENGUIN *Eudyptula minor*

Kapiti I, 1 in burrow 300 m a.s.l., the highest found, on 2/12 (AJB, TGL).

### NEW ZEALAND DABCHICK *Podiceps rufopectus*

Aupouri Pen, Far North, 38 on 10 lakes, Jan (MPK). Horsham Downs, LE, 1 March (MB). Raglan SP, 2 on 25/11 (RSL, LAL). Te Kuiti airfield, present except for June. Te Kuiti SP, 1 on 3 occasions in March and April. L Taharoa, 1 on 23/7 (AMCD). Thornton Lagoon, 3 pairs on 7/8, 5 (2 pairs + 1) on 29/4. Awaiti Wetland Reserve, 3, 2 involved in courtship behaviour

and very aggressive to the third bird on 23/6 (PCML), L Purimu, 3 on 17/9 (KVT). L Oingo, 12 on 3/3 (PWT, MT). Westshore Lagoon, 3 on 30/6 (ARG, ALH, ACS, KVT). Tongariro NP, L Rotokuru, 1 feeding well-grown chick on 24/4 (DAR). Kaitoke L, 6 on 4/6. Marton SP, 26 on 22/1 (BDH); 49 on 8/4 (RAC, SEC); 39 on 4/6. Flock House ponds, 2 adults and 2 chicks on 22/1 (BDH). Omanuka Lagoon 12 on 1/4 (LJD, CRS, PMS). Longburn SP, 1 on 9/1. Manawatu R, at Longburn 1 on 10/3 (MKT). Foxton No. 3 L, 14 on 1/4 (CRS, PMS). Foxton No. 2 L, 1 on 1/1 (JLM, MM). Foxton No. 1 L, 8 on 1/4 (RNT); 3 on 23/4 (JLM, MM). Ngakawau L, 22 on 31/3. Horowhenua L, 62 on 31/3 (WRJ, MO).

**AUSTRALIAN LITTLE GREBE** *Tachybaptus novaehollandiae*

Aupouri Pen, Far North, 15 on 3 lakes in Jan (MPK).

**YELLOW-NOSED MOLLYMAWK** *Diomedea chlororhynchos*

Little Barrier, 3 off south landing on 2/8. Mercury I, 1 astern of the tanker *Kuaka* on 4/7 (TGL). Motiti I, 14 km north, 1 adult on 27/7 (PCML). Mt Maunganui B, 1 dead 11/7 (KF, PCML).

**NEW ZEALAND BLACK-BROWED MOLLYMAWK**

*D. melanophrys impavida*

Matakana I, 1 dead 18/12 (BC).

**WHITE-CAPPED MOLLYMAWK** *D. cauta cauta*

Papamoa B, 1 dead on 23/10 (PCML).

**SALVIN'S MOLLYMAWK** *D. cauta salvini*

Raukokore, 1 dead on 4/11 (WMH, PCML).

**LIGHT-MANTLED SOOTY ALBATROSS** *Phoebastria palpebrata*

Matata, 1 dead on 16/7 and another later in the year at Maketu (GAT).

**GIANT PETREL** *Macronectes* sp.

Okato vicinity, 2 offshore on 2/10. Cape Egmont, 1 offshore on 18/3 (DGM). Foxton B, 1 on 27/12, 2 on 18/3 (JLM, MM). Kapiti I, 1 on 15/3. Cook Strait, 2 on 15/1, 3 on 22/1 (TGL).

**CAPE PIGEON** *Daption capense*

Cook Strait, 12 on 15/1 (TGL).

**GREY-FACED PETREL** *Pterodroma macroptera*

Cavalli Islands, Motukawanui I, several gathering offshore at dusk on 23/4. Panaki I, freshly cleaned burrows on 23/4. Tutukaka, several to seaward at dusk 24/4 (TGL). Little Ohena I, occupied burrows probably this species on 5/7 (CRV, TGL, IM). Rabbit I, 7 corpses on 7/3 (BHS, JHS).

**COOK'S PETREL** *P. cookii*

Little Barrier I, two groups 8 and 10 south of I on 27/2, a few over I at night on 2-8/4. Rangitoto Light, 1 to the north on 13/2 (TGL).

**BLUE PETREL** *Halobaena caerulea*

Papamoa B, 1 flew along beach during storm and later was attacked by Black-backed Gulls on 30/6 (PCML).

**PRION** spp. *Pachyptila* spp.

Bay of Islands, c. 12 logged across mouth on 24/4 (TGL). Foxton B, c. 10 on 24/12, considerable passage north 20/1 to 28/1, peaking on 24/1 at 1500/2000 per hour (JLM, MM). Cook Strait, a general movement heading south-east at dusk on 21/1 (TGL).

**BLACK PETREL** *Procellaria parkinsoni*

Little Barrier I, halfway to mainland, 2 following astern on 2/4 (TGL, CMM, IS); 3 on passage on 13/11 (BB). Colville Channel, several astern of boat on 13/12 (TGL).

**WESTLAND BLACK PETREL** *P. westlandica*

Tory Channel, 2 on 22/1 (TGL).

**FLESH-FOOTED SHEARWATER** *Puffinus carneipes*

Little Barrier I, common between I and Takatu Point on 2 and 9/4. Hauraki Gulf groups of 15 and 30 feeding with Gannets on 13/2 (TGL). East Cape, passing in westerly direction about 1.5 km offshore at rate of c. 10 per minute on 24/10 (PCML). Slipper I to Mayor I, many on 8/2 (BHS, JHS). Cook Strait, 6 on 22/1. Karori Rock, 1 on 15/1 (TGL).

**BULLER'S SHEARWATER** *P. bulleri*

Step I, 3 on 24/4. Taiharuru Head, 1 on 20/4. Little Barrier to Takatu Point, a few on 2/4 (TGL); hundreds on 13/11 (BB). East Cape, passing in westerly direction c. 1.5 km offshore at a rate of c. 20 per minute on 24/10 (PCML). Slipper I to Mayor I, many on 8/2 (BHS, JHS). Kapiti I, 1 heading south on 15/3. Karori Rock, 1 on 15/1 (TGL).

**SOOTY SHEARWATER** *P. griseus*

Foxton B, small numbers in Dec, April, and May (JLM, MM). Kapiti I, occupied burrows in several colonies western clifftops and near sea level eastern coastline, summer 1983/84. Cook Strait, a general north west movement at dusk on 22/1 (TGL).

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

Papamoa B, 1 alive on 8/12 (PCML).

**FLUTTERING SHEARWATER** *P. gavia*

Step I, 5 on 24/4. Tutukaka entrance, c. 300 on 25/4. Bream Head, c. 800 on 25/4. Takatu Point, c. 200 in a feeding flock on 2/4; numerous on 2 and 10/8. Mercury Bay, numerous on 4/7 (TGL). Motutapu I, Hauraki Gulf, 380 on water on 18/2 (PB). Foxton B, c. 2000 moving south on 26/11, 100 + on 21/4, small numbers on other occasions (JLM, MM). Kapiti I, 8 heading south on 15/3. Paraparaumu B, 3 small flocks heading south on 22/5. Wellington Heads, c. 200 on 15/1 (TGL).

**LITTLE SHEARWATER** *P. assimilis*

Step I, 3 on 24/4. Taiharuru Head, 1 on 20/4. Little Barrier I, 2 on south-west on 2/4 (TGL).

**DIVING PETREL** *Pelecanoides urinatrix*

Step I, 5 on 24/4 (TGL).

**AUSTRALASIAN GANNET** *Sula bassana serratator*

Hauraki Gulf, feeding flock of c.20 on 13/2 (TGL). Muriwai, stack, 220 occupied nests on 27/11, last young fledged in March; mainland cliff, 13 nests on 27/11 (IAN); 9 nests, 6 with a chick, 2 with 1 egg, 1 empty on 8/1 from which 6 or 7 fledged in early March (MJT). Karaka, 11 offshore on 26/8 (KJF, AVS).

M H census, winter 78. FoT census, summer 2 (BB). Kawhia H census, 9 on 17/6 (BHS). Taharoa, 1 dead in Mar that had been banded at Muriwai in 11/79 (AMCD). Papamoa B, 1 imm. on 28/1. Matakana I, 2 imm. with



1 adult north end on 10/3 (PCML). Cape Kidnappers, Black Reef, all flat rocks covered completely with nests 2/1 (KVT). Oaonui, 47 offshore on 30/10 (RE). Foxton B, recorded in all months except Aug and May, maximum of 13 on 6/11 (JLM, MM).

#### BLACK SHAG *Phalacrocorax carbo*

Takou Bay, 6 on 12/2/83 (BS). M H census, winter 76, summer 7. FoT census, winter 48, summer 59 (BB). Ring's B, Coromandel Pen, 8 on 5/3. Whitianga, 10 on 6/3 (BS). Ohinewai, Black L, 2 and 3 young in 2 nests on 29/11; 15 on 17/3 (BJZ). L Kimihia, 4 on 17/3 (FN). Horsham Downs, L E, 3 on 17/3. Hamilton L census, 13 on 16/10, 26 on 26/2 (MB). Aotea H census, 4 on 9/11, 2 on 17/6. Kawhia H census, 6 on 9/11, 31 on 17/6 (BHS). Te Kuiti SP, 9 on 25/1 (AMCD). Maraetai Lagoon, 1 on 7/9 (BJZ). L Purimu, 10 on 17/9. Westshore census, 57 on 3/3 (KVT). Whirokino, 54 on pylons and small colony in macrocarpas on 5/5 (JLM, MM).

#### PIED SHAG *P. varius*

90 mile B, 6 on 25/10 (BHS, JHS). Takou Bay 1 on 11/2/83 (BS). Hamaruru I, roost of 30 on 23/4 (TGL). Hobson Bay, maximum 47 nests on 8/11. Orakei Creek, colony went out of use after a period of low water levels in Orakei Basin in Oct (MJT). M H census, winter 251, summer 155. FoT census, winter 20, summer 22 (BB). Karaka, 62 from Hingaia Inlet colony on 5/4 (JU). L Waahi, 2 on 17/3 (PJA). Kawhia H census, 4 on 17/6 (BHS). Slipper I, c.33, 7 nests, some fully fledged young and adults incubating on 6/2 (BHS, JHS). Kaituna Cut, c.40, c.20 nests many of which contained young on 16/6. Whakatane R mouth, 46 with 6 imm. being fed on 7/8 (PCML).

#### LITTLE BLACK SHAG *P. sulcirostris*

M H census, winter 84, summer 3. FoT census, winter 27, summer 6. Kawakawa Bay, c.80 fishing on 28/8 (BB). Karaka, 22 on 31/7 (MJT). L Waikare, 16 at outlet on 19/9 (BB, AJG).

Whitianga, c.100 feeding close to wharf on 3/7 (TGL). Hamilton L census, 2 on 16/10, 11 on 26/2 (MB). L Aniwhenua, c.50 on 28/6. Whakatane R mouth, 2 banded on 3/7 (WMH). Rangitaiki R mouth, Thornton Lagoon, flocks of c.35 at mouth and fishing in lagoon on 3/7 (WMH, PCML). Kaituna Cut, 30 feeding at mouth on 6/8. Waikareao E, c.50 roosting at water's edge, 1 banded bird on 17/6 (PCML). Motu R mouth, 20 on 3/11. Haparapara R mouth, 15 on 3/11. Raukokore R mouth, 10 on 4/11. Waiaua R mouth, 5 on 17/11 (WMH). Ahuriri, 160 on 23/10 (PWT, MT); c.170 on 7/4 (ALH, JLL, KVT). Kaitoke L, 60 + on 4/6. Marton Reservoir, 8 on 4/6 (BDH). Foxton Loop, Manawatu R, present Aug, Oct, and March, max. 14 on 9/10. Manawatu R E, present Aug, Jan, May and June, max. 33 on 5/5 (JLM, MM); 46 on 16/6 (WRJ, MO). Horowhenua L, 50 fishing on 10/7 (LJD); 20 + on 30/8 (WRJ).

#### LITTLE SHAG *P. melanoleucos brevirostris*

Takou Bay, 1 on 11/2/83 (BS). Hobson Bay, max. 47 nests on 8/11; active from Aug to Mar (MJT). M H census, winter 19, summer 17. FoT census, winter 28, summer 9 (BB). Whitianga, colony opposite wharf, 2 carrying nest material and one nest on 27/8 (BS). Ohinewai, Black L, 2 on 17/3. L Hakanoa, 1 on 13/5 (BJZ). Hamilton L census, 1 on 16/10, 24 on 26/2 (MB). Aotea H census, 8 on 17/6. Kawhia H census, 3 on 9/11, 15 on 17/6 (BHS). Te Kuiti airfield, bred second year and 7 young Jan (AMCD). Tuki Tuki R, 11 on 10/9. Westshore census, 44 on 3/3 (KVT).

**SPOTTED SHAG** *Stictocarbo punctatus*

M H census, winter 5. FoT census, winter 324, summer 1 (BB). FoT, 100+ on 28/8, 21 on 1/10 and 41 on 11/12 (BB, DGB).

Paraparaumu B, 6 feeding, all in pale plumage, on 15/3 and 1 flying out to sea on 22/5 (TGL).

**WHITE-FACED HERON** *Ardea novaehollandiae*

Takou Bay, 2 on 12/2/83 (BS). M H census, winter 248, summer 311. FoT census, winter 74, summer 199 (BB). Karaka, 50 on 23/1 (SD); 93+ on 17/4 (AVS). Hautapu, 60 feeding in paddock on 31/5 (FN). Aotea H census, 2 on 9/11, 21 on 17/6. Kawhia H census, 16 on 9/11, 103 on 17/6 (BHS). Te Kuiti SP, 40 in June (AMCD). Westshore census, 94 in pines on 3/3 (KVT). L Oingo, 1 stood in water up to lower breast for over an hour on 3/3 (PWT, MT, KVT). Tangoio, 19 in lucerne field on 12/5 (CFM, KVT). Foxton B township, 21 feeding in field undergoing subsoil drainage on 6/6 (JLM, MM). Manawatu R E, 17 on 16/6 (WRJ, MO).

**WHITE-NECKED HERON** *A. pacifica*

Waipu E, 1 on 3/1 (AG, AG).

**WHITE HERON** *Egretta alba*

Oakleigh, 1 on 9/6 (PL), Jordan's farm, Kaipara, 2 on 24/8 (MJT); 1 on 1/3 (CE). Lake Whangape, 1 on 24/6 (BB). L Waikare, 1 with 5 White-faced Herons on 4/5 (GW). Matata, 1 all July to 7/8 (PCML, BHS, JHS); 1 from 28/5 to 30/6 (BC, PCML). Waiaua R mouth, 1 from 24/2 to 13/4 (BC, WMH); 2 on 20/6 (WMH). Haumoana Lagoon, 1 on 29/4 (KVT). Onekawa, 1 on 22/5. Taradale, Anderson Park, 1 on 26/5 (MM). Clive R, 1 on 2/6 (MTC, JLL, KVT). Foxton Loop, Manawatu R, 1 in Aug, Oct, and May. Manawatu R E, 1 in May and June (JLM, MM). Levin, Joblins Rd, 1 on 9/5 (WRJ, MO). Horowhenua L, 2 on 21/7 (WRJ).

**LITTLE EGRET** *E. garzetta*

Ohiwa H, 1 May and June (WMH, RMW). New Plymouth. L Rotomanu, 1 on several occasions from July to June (RWW, AAB, REL, JCM). Horowhenua L, 1 on 28/4 (WRJ).

**REEF HERON** *E. sacra*

Parengarenga H, 1 on 29/10 (BHS, DHS). Takou Bay, 1 on 11/2/83 (BS). Whitianga, 2 on 4/7 (TGL). Auckland region, isolated sightings of c.10 (MJT). M H census, winter 3, summer 1. FoT census, winter 1, summer 1 (BB). Awhitu Pen, Hudsons B, 1 on 18/11 (JBT, ET); Graham's B, 1 on 27/5 (BB). Kawakawa Bay, 1 on 28/8. Opoutere, 1 on 3/1 (BB). Access Bay, Kaiaua, 1 on 31/7 (SD). Boundary Creek, Thames, 1 on 4/3 (BS). Port Waikato, 1 on 5/3 (BJZ). Raglan H, 2 on 15/4, 1 on 18/3 (RSL, LAL). Aotea H census, 1 on 17/6. Kawhia H census, 4 on 17/6 (BHS). Marakopa R mouth, 1 on 30/3 (AMCD). Rangitaiki R mouth, 1 on 6/8 (BHS, JHS). Ohope B, 2 on 2/10. Opape B, 2 on 1/11. Waiaua R mouth, 2 on 17/11. Waihou Bay, Orete Point, 1 on 5/11. Waiotahi R mouth, 2 on 30/5 (WMH). Whakatane R mouth, 1 on 7/8. Ohiwa H, 2 on 16/10. Kaituna R mouth, 1 on 29/10. Matakana I, north end, 3 on 10/3 (PCML). Tauranga H, Sulphur Point, 1 on 26/11 (AM). Waiaua R mouth, 1 on 1/12 and 14/3 (BC, PCML). Westshore, 1 on 23/10 (PWT, MT). Ahuriri census, 1 on 3/3 (KVT). Kapiti I, odd birds regularly commuting along eastern coastline and 1 breeding pair summer 1983/84 (TGL).

**CATTLE EGRET** *Bubulcus ibis*

Thoms Landing, 3 in breeding plumage on 27/10 (BHS, JHS). Helensville area, 62 on 20/8; 98 in Oct, often in 2 flocks (CE). Mt Roskill, 1 on 16/4 (MJT). FoT census, winter 65, summer 2. Aka Aka, 19 on 3/5, then 46 and later 70 but all gone by 29/5; 8 or 9 previous year (BB). Piako, 29 on 21/8 (DMW). Waitakaruru, 1 on 26/1 (AJG). Rangiriri, 124 with many White-faced Herons on 28/7 (BHS); 120 among cattle on 28/8 (BJZ). Horotiu, 3 on 26/5 (MB). Hamilton L, 2 in trees on 10/5 (RWL). Hautapu, 4 on 31/5 (TBST). L Ngaroto, 5 on 4/5; 23 on 12/6 (RWD). Taharoa, 4 on 5/6 (RG). Te Kawa West Rd, 3 on 11/5. Waikeria Rd, 2 on 14/5 (RWL). Taharoa village, 14 in early June (AMCD). Kiritehere, 2 on 7/5 (FN); 3 on 12/5 (AMCD). Te Kuiti, 3 for a few days in May (RG). Katikati, on harbour flats, 4 on 6/7 and still present on 10/9 (BC). Awaite Wetlands Reserve, some present on 9/6; 26 feeding with gulls among stock, on being disturbed perched in trees in reserve on 23/6. Maketu, 5 on 16/6 (PCML). Ahuriri census, 1 on 2/7 (KVT); 2 in nuptial plumage on 7/12. Meeanee, 13 on 28/5 (NBM, REW). New Plymouth, Barrett Lagoon, up to 12 July to Oct, 30 on 30/6 (7 observers). Stratford, East Rd, 4 arrived mid-May (JM). Wanganui East, 2 on 28/4 (OCT). Manawatu R E, present until 6/11, maximum 25 on 2/7 (JLM, MM); 6 on 4/3 (LJD); 17 on 16/6. Horowhenua L, 42 on 22/5. Foxton, 28 on 22/5 (WRJ, MO).

**NANKEEN NIGHT HERON** *Nycticorax caledonicus*

Waiwhetu Stream, Lower Hutt, 1 with colour band W-A on 13/1 (KB, JLK, TGL).

**BITTERN** *Botaurus poiciloptilus*

Aupouri Pen, 16 on census in Jan (MPK). Opahi, 4 booming on 2/11. Hikurangi Swamp Wildlife Reserve, 5 flushed on 4/9 (JFS). Waiohira, 1 on 29/9 (TGL). L Kereta, 9 on 3/9. Jordan's farm, Kaipara, 1 on 24/8 (MJT). Coroglen, 1 on 6/3 (BS). Waikato North Head, 1 adjacent to NZ Steel intake pond on 2/8 (BJZ). Maramarua, 1 on 18/1. Huntly Bridge, 1 mobbed by Pukekos on 19/4. L Ngaroto, 1 on 10/3 (RSL); 2 on 5/5 (RWD). Marakopa Valley, 1 on 30/3 (AMCD). Matata I, 1 on 6/8 (BHS, JHS). L Aniwhenua, 2 on 28/8. Waiohira R mouth, 1 on 1/2 (WMH). Kaituna Wildlife Reserve, 2 on 6/8. Thornton Lagoon, 2 on 29/4. Awaite Wetlands Reserve, 1 on 9/6 and 23/6 (PCML). Westshore, 1 on 9/8 (REW). Ahuriri, 3 on 3/3 (FHB, NPL). Clive, 1 on 13/4 (NPL). Waitotara R mouth, 1 on 20/11 (DGM). Foxton Loop, Manawatu R, 3 on 21/4 (JLM, MM). Rakauhamama L, 2 on 31/3 (WRJ, MO).

**GLOSSY IBIS** *Plegadis falcinellus*

Aka Aka, 6 on 30/5, 1 with white on head, apparently an imm; present 24-31/5 and then 8 on 14/7, leaving after a few hours (BB, AJG).

**ROYAL SPOONBILL** *Platalea regia*

Jordan's farm, Kaipara, 2 on 9/10 (MJT). M H, winter census 1. Rangiriri, 1 on 20/6 (BB). Whakatane R mouth, 1 on 16/7 and 7/8, absent on 2/10 (BC, WMH, PCML); 1 in Feb (AM). Ahuriri, 2 on 20/8 (ARE, KVT); 3 on 25/4 (ALH, ACS). Manawatu R E, present July to Nov, max. 21 on 4/9 and from 18/2 on, max. 24 on 5/5 (JLM, MM, LJD, WRJ). Waikanae E, 2 on 10/1/83 (AJDT).

**MUTE SWAN** *Cygnus olor*

L Hakanoa, 5 on 17/9 (BHS). Hamilton L census, 2 on 16/10 and 26/2 (MB). L Poukawa, c.18 on 17/6 (KVT). Wanganui, Virginia Lagoon, 7 on 20/1 (JLM, MM).

**BLACK SWAN** *C. atratus*

FoT census, winter 6. M H census, winter 233. L Whatihua, Waiuku, 14 on 24/7 (BB). Whangapoua Harbour, 100 + on 5/3 (BS). Ohinewai, Black L, 2 on 17/3 (BJZ). Hamilton L census, 98 with 42 young on 16/10, 80 with 3 young on 26/2 (MB). L Hakanoa, 31 including 7 cygnets on 17/9. Aotea H census, 152 on 9/11, 800 on 17/6. Kawhia H census, 44 on 9/11, 760 on 17/6 (BHS). L Taharoa, 1000 + breeding on 17/3, 500 on 3/6, 950 including juvs on 25/6. Te Kuiti SP, 5 on 16/5 (AMCD). L. Poukawa, c.200, 25% grazing with sheep, on 2/8. Westshore census, 215 on 3/3 (KVT). Foxton No. 3 L, 130 on 1/4 (CRS, PMS). Foxton No. 2 L, c.20 on 23/4. Foxton No. 1 L, max. 300 + on 23/4. Foxton Loop, Manawatu R, 55 on 20/8. Whirikino, 4 on borrow pits on 20/8, 2 on 5/5 (JLM, MM).

**CANADA GOOSE** *Branta canadensis*

L Pupuke Auckland, 6 on 10/7 (MJT). L Hakanoa, 2 on 17/9 (BHS). Hamilton L census, 3 on 16/10 and 26/2 (MB). Matata, 2 on 16/10 and 6/8 (BHS, JHS); 5 on 2/10 (PCML). Kaituna Cut, 1 pair from 29/10 to 14/11, then 4 on 27/11, 2 on 17/3, 7 on 16/6. Little Waihi, 9 on 16/6 (PCML). Ahuriri, southern marsh, 2 on 16/10 (ARG, ALH, KVT). Te Awanga, 16 in sea just offshore on 15/12 (JLM, MM). New Plymouth, Barrett Lagoon, 120 on 1/4 (DGM). Foxton No. 1 L, 2 on 26/12, 23/4 and 3/6 (JLM, MM). Horowhenua L, 4 on 31/3 (WRJ, MO).

**PARADISE DUCK** *Tadorna variegata*

Paua, 52 + on 29/10 (BHS, JHS). Aupouri Pen, Far North, 1222 on Jan census (MPK). Waiwera SP, pair with 6 young on 12/11; Straka's refuge, c.50 on 10/4 (MJT). MH census, winter 18. FoT census, winter 18, summer 3. Wharekawa, FoT, pair with 8 young on 11/12. Tuakau, 32 on 24/6 (BB). Karaka, 20 on 10/3 (SD). L Hakanoa, 1 pair on 28/7 (BHS). Hamilton L census, 1 on 16/10 (MB). L Taharoa, 100 + on 30/1. Te Kuiti SP, 600 on 29/1. Marakopa, 100 on 6/2 (AMCD). Matata, 58 on 6/8 (BHS, JHS, PCML); 1 with 6 ducklings on 16/10, 35 on 5/5. Maketu, 1 pair on 7/8 and 29/10. Omaio, 1 on 23/10. Raukokore, 10+ 1 dead on 23/10. Potaka, 8 on 23/10. Thornton Lagoon, 1 pair on 29/4 (PCML). Ahuriri, 4 on 13/12 (JLM, MM); census, c.264 on 3/3 (KVT). Te Mata, 10 on 15/12 (JLM, MM). Awakino-Uruti, 113 on 29/4. New Plymouth, Barrett Lagoon, 73 on 12/2 (DGM, JCM). Wanganui R at Wanganui, 1 male from 2/7 to 7/8 (OCT). Koitiata L, 300 on 1/4 (GRS). Omanuka Lagoon, 105 on 1/4 (LJD, CRS, PMS). Foxton No. 2 L, 15 on 23/4. Foxton No. 1 L, 2 in Aug, Oct, and Apr. Foxton Loop, Manawatu R, 1 on 20/8 (JLM, MM). Waikanae E, 39 on 25/5 (AJDT). Kapiti I, 1 pair, 8 ducklings on 14/11 (TGL).

**MALLARD** *Anas platyrhynchos*

Ohinewai, Black L, c.185 on 17/3. Maraetai Lagoon, 1 on 7/9 (BJZ). L Kimihia, 56 (including Grey Duck) on 17/3 (FN). L Hakanoa, 1 pair on 28/7; 2 clutches of young on 17/9. Aotea H census, 5 on 9/11, 280 on 17/6. Kawhia census, 17 on 9/11, 233 on 17/6 (BHS). Horsham Downs, LE, 150 on 17/3. Hamilton L census, 280 + 98 young on 16/10, 2560 on 26/2 (MB). Te Kuiti SP, first broods present on 21/9, max. 1000 + on 4/5 (AMCD). Matata, c.1000 on 5/5 and 23/6 (PCML). Waitangi, Hawke's Bay, census, 300 on 2/7. Westshore census, c.185 on 3/3 (KVT); c.400 on 30/6 (ARG, ALH, ACS, KVT).

**GREY DUCK** *A. superciliosa*

MH census, winter 9, summer 17 (BB). Waikato North Head, 6 on NZ Steel settling ponds on 2/8. Maraetai Lagoon, 2 on 7/9 (BJZ). Hamilton

L census, 1 on 26/2 (MB). Pirongia West Rd, 5 on 29/1. Kawhia H census, 3 on 17/6 (BHS). Te Kuiti SP, usually 1 pair but 10 juv. appeared on 20/11 (AMCD). Kaituna Wildlife Reserve, 2 pairs on 6/8. Whakatane R mouth, 4 on 7/8. Matata, c.30 on 5/5 (PCML). L Purimu, 3 on 17/9 (KVT). Westshore, 1 on 3/3 (AEB, HR, RP). Koitiata L, 20 on 1/4 (GRS). Omanuka Lagoon, 10 on 1/4 (LJD, CRS, PMS). Manawatu R E, 10 on 5/5 (JLM, MM).

#### GREY TEAL *A. gibberifrons*

Straka's refuge, Waiwera, 6 on 10/4 (MJT). MH census, winter 6. FoT census, winter 607, of which 600 were at Piako. Karaka, 30 on 19/2 (BB). Whangamarino, 12 + on 19/9. L Waikare, 2 on 19/9 (BB, AJG). Ohinewai, Black L, 60 on 17/3 (BJZ). L Hakanoa, east end, 17 + on 28/7, 20 + on 17/9 (BHS); west end, 12 + on 13/5. Hamilton L, model boat harbour, 1 on 9/6 (BJZ). Lake Kimihia, 24 on 17/3 (FN). Kaituna Cut, c.150 on 17/3 and 16/6 (PCML). Katikati, a pair raised 4 young, not previously seen on property spring 1983 (BC). Westshore census, 255 on 3/3 (KVT). Kaitoke L, 12 on 4/6 (BDH). Foxton No. 1 L, 10 on 1/4 (RNT); 3 on 23/4. Manawatu R E, 47 on 2/7, 7 on 5/5 increasing to 45 by 24/6 (JLM, MM). Horowhenua L, 9 on 31/3 (WRJ, MO). Wairongomai L, 15 on 31/3 (RNT). Waikanae E, 3 on 10/5 (AJDT).

#### BROWN TEAL *A. chlorotis*

Great Barrier I, Redlands Stream, 8 on 1/12; Awana Creek and flats, 2 flocks totalling c.165 on 2/12 (BHS, JHS).

Kapiti I, 1 well-grown duckling near ranger's house on 2/1, birds seen with young in Taepiro headwaters c.300 m a.s.l. summer 1983/84, and 2 Okupe Lagoon on 4/3 (TGL).

#### NEW ZEALAND SHOVELER *A. rhynchotis*

Straka's refuge, Waiwera, 3 on 12/11, 10 on 10/4 (MJT). MH census, winter 16. Miranda, 18 on 17/7 (BB). Ohinewai, Black L, 1 male and 2 female on 17/3 (BJZ). L Kimihia, 3 on 17/3 (FN). L Hakanoa, 1 pair on 28/7 and many males, pairs doing nuptial flights on 17/9 (BHS). L Taharoa, 10 on 17/3. Te Kuiti SP, present all year with max. 25 on 11/3 (AMCD). Matata, c.150 on 5/5 (PCML). Westshore Ponds census, 47 on 3/3 (KVT); c.170 on 30/6 (ACS, KVT). New Plymouth, Barrett Lagoon, 2 on 15/5 (A Gra, A Gre). Kaitoke L, 187 on 4/6 (BDH). Foxton No. 3 L, 122 on 1/4 (CRS, PMS). Foxton No. 1 L, 200 on 23/4 (JLM, MM). Manawatu R E, 37 on 16/6 (RWJ, MO). Papaitonga L, 352 on 31/3 (RNT).

#### NEW ZEALAND SCAUP *Aythya novaeseelandiae*

Aupouri Pen, 20 on census in Jan (MPK). Straka's refuge, Waiwera, 3 on 12/11, 14 on 10/4 (MJT). Horsham Downs, L E, 1 on 17/3 (MB). L Taharoa, 120+ on 23/7. Te Kuiti SP, 1 on 23/9 and 10/3 (AMCD). Maraetai Lagoon, 6 on 7/9 (BJZ). Matata, 30 on 3/7, 29/4, 23/6. Thornton Lagoon, 20 on 29/4 (PCML). L Oingo, c.23 on 31/3 (PWT, MT). New Plymouth, Barrett Lagoon, 8 the largest count to date, on 1/4. L Mangamahoe, 83 on 8/4 (DGM, JCM). Horowhenua L, 7 on 31/3 (RWJ, MO). Papaitonga L, 10 on 31/3 (RNT).

#### AUSTRALASIAN HARRIER *Circus approximans*

Opuawhanga, 4 on 19/7, courtship displays and calling (JFS). Matata, a beautiful pale cock on 11/4 and 23/6 (PCML, RMW). Westshore, 1 chased by Spur-winged Plover on 20/8; 1 being chased by 2 Black-backed Gulls on 24/1; census, 9 on 3/3 (KVT); 47 flying into rushes for night roost on 2/6 (REW).

**NEW ZEALAND FALCON** *Falco novaeseelandiae*

Puketī SF, 1 on 5/2 (SEC, RAC). Karioi, 1 above summit on 26/2 (BJZ). Marakopa B, 1 on log eating NZ Pigeon on 15/7. Bennydale, 1 on many occasions each winter since 1979 chasing starlings and domestic pigeons over the township (AMCD).

Te Kuiti, 1 on 17/7. Mangaokewa SF, 1 attacking small passerine with alternate upward and downward stoops on 2/4. Piro Piro Flats, 1 attacking Harrier on 29/11 (RG). Taupo, Tarawera Hotel, 1 on 8/5/82 (GJE). Kaweka Range, Donald R, 1 pair on 19/12. East Ruahines, Mangleton, 1 adult 1 imm. on 6/4. Puketapu, 1 male on 8/4 (REW). Hastings, Frimley Park, 1 eating feral pigeon on 8/4 (JGH). Waitiri Block, 2 on 24/4. Te Haroto, 2 on 26/4. Puketitiri, 1 regularly visiting a farm for a week in search of homing pigeons April (REW). Turoa Mountain Rd car park, 1 on 28/8 (MKT). Kapiti I, 1 at the western cliffs and 1 at Rangitira in April (TGL).

**BROWN QUAIL** *Synoicus ypsilophorus*

Waitiki Landing, 3 on 27/10. Tapotupotu B, 2 on 27/10 (BHS, JHS). Ahipara B, 3 on 23/3. Opuawhanga, 1 on 25/11, calling incessantly (JFS). Motukawanui I, common in open areas on 23/4. Moturoa I, Bay of Islands, numerous on 29/9 (TGL). Tawarau SF, 4 in pines on 7/3, family crossing firebreak in Apr (RG). Kaituna Cut, 2 pairs on 29/10. Papamoa, 1 on 8/10. Waiaua R mouth, small flock on 1/12 (PCML). Katikati, 3 pairs + 1 feeding on buttercup flowers on 24/11 (BC).

**CALIFORNIAN QUAIL** *Lophortyx californica*

Moturoa I, Bay of Islands, numerous on 29/9 (TGL). Red Hill, Papakura, lame female daily made climb up steep hill with mate and dwindling family from March until winter (BB). Tuapiro — Katikati, c.50 on 20/6 (BC). Hastings, 1 in garden eating violet leaves and cabbage on 14/10 (KVT).

**BANDED RAIL** *Rallus philippensis*

FoT, 3 on 27/11 (BB). Raglan SP, 1 on 25/11 (RSL, LAL). Waiotahi R mouth, 1 on 7/5. Ohiwa H, 1 on 25/5 and 25/6. Ohiwa H, Wainui Rd, 2 on 6/6 (WMH).

**WEKA** *Gallirallus australis*

Huia, Waitakere Ranges, 1 with chick on 2/4 (BS).

**SPOTLESS CRAKE** *Porzana tabuensis*

Nga Hau Swamp, 3 on 1/9. Whananaki, 2 on 6/9 (JFS). Waiuku SF, 1 responded to taped calls on 21/8. Awhitu Pen., 3 responded to taped calls and 1 seen on 27/5 (BB). L Ngaroto, 1 seen and several heard on 5/5 (RWD). L Aniwhenua, 3 on 28/8 (WMH). East Clive, 1 responded to tape on 23/8 (PWT, MT). Foxton, Round Bush, 1 heard responding to tape on 29/12. Papaitonga L, 1 heard responding to tape on 5/5 (JLM, MM).

**PUKEKO** *Porphyrio melanotus*

Great Barrier I, Awana Creek flats, 40 + on 2/12 (BHS, JHS). L Hakanoa, many on 28/7 (BHS). Hamilton L census, 4 on 16/10, 3 on 26/2 (MB). Te Kuiti SP, maximum 115 within 500 m on 12/7 (AMCD). Westshore census, 34 on 2/7. L Poukawa, c.90 on 2/8 (KVT).

**AUSTRALIAN COOT** *Fulica atra australis*

Aupouri Pen, 1 on census in Jan (MPK). Western Springs, 3 on 20/10; pair with 2 chicks on 5/12 (CJ); pair feeding 1 fledgling on 14/1 (MJT). Hamilton L census, 98 with 20 young on 16/10, 132 on 26/2 (MB); 30 on 9/6. L Hakanoa, 2 + on 13/5 (BJZ). Wanganui, Virginia L, c.50 adults with

many juv. on 20/1. Horowhenua L, 1 on 3/3 (JLM, MM). Palmerston North, Centennial Lagoon, 13 adults with 3 juv. on 6/2 (LJD).

#### SOUTH ISLAND PIED OYSTERCATCHER *Haematopus ostralegus finschi*

Parengarenga H, 14 on 29/10 (BHS, JHS). Takou Bay 1 on 12/2/83 (BS). Whangarei, H survey, 3793 on 3/3 (MPK). MH census, winter 28 042, summer 4555. FoT census, winter 11 590, summer 1941. Karaka, 6000+, on 19/2. Sand I, Waikato R, 90 on 24/7 (BB). Aotea H census, 95 on 9/11, 400 on 17/6. Kawhia H census, 544 on 9/11, 2600 on 17/6 (BHS). Taharoa, 5 on 30/1 (AMCD). Tauranga H, Bowentown Shell banks, 63 on 26/11, c.400 on 10/3, c.450 on 17/6 (BC, PCML). Little Waihi, 3 on 6/8 (BHS, JHS); 12 on 16/6 (PCML). Westshore census, 20 on 2/7, 20 on 3/3 (KVT); 4 on 13/12 (JLM, MM). Mangatahi, Ngaruroro R, 2 on 1/9, 1 on 2/6 (PWT, MT). Waitotara R mouth, 4 on 20/11. Mohakatino E, 15 on 29/4 (DGM, JCM). Manawatu R E, recorded in all months, max. 85 on 4/3 (JLM, MM).

#### VARIABLE OYSTERCATCHER *H. unicolor*

Rarawa B, 10 on 24/10. 90 Mile B, 18 on 25/10 (BHS, JHS). Takou E, 26 on 11/2/83 (BS). Moturoa I, Bay of Islands, 1 pair on 29/10. Smuggler's Cove, Whangarei Heads, a pair incubating on 23/10. Whangarei H survey, 15 on 3/3 (MPK). Whitianga, 4 on 4/7 (TGL). Waiwera E, 22 roosting with c.100 SIPO on 14/4 (MJT). MH census, winter 6, summer 7. FoT census, summer 1. Opoutere Spit, 16 adults and 5 large chicks on 3/1; c.40 on 3/6 (BB). Matarangi B, 4 on 27/8. Tairua, 22 on 27/8 (GMHP). Simpson's B, pair with 1 egg on 19/1. Ring's B, 7 on 5/3. Whitianga, 11 on 6/3 (BS). Weymouth, 1 on 5/9 (AVS). Waikato R mouth, c.10 on 4/9 (AJG). Aotea H census, 2 on 9/11, 17 on 17/6. Kawhia H census, 8 on 9/11, 6 on 17/6 (BHS). Marakopa and Taharoa always present, breeding presumed. Marakopa, 11 on 8/5. Taharoa, 5 on 17/3 (AMCD). B of P, Opoutere to East Cape survey, c.100 breeding pairs and c.90 others Oct/Nov (PCML). Tauranga, Bowentown Shellbanks, 17 on 17/6 (BC); Sulphur Point, 5 pairs with 1 half-grown chick and 2 younger chicks on 1/1 (PCML); Sulphur Point, 58 on 17/6. Matakana I, north end, 8 pairs on 18/10 (KF, AM); south end, 14 pairs + 1, 8 nests with eggs (BC, PCML). Maketu Spit, 7 pairs establishing territories on 2/10, 7 pairs + 3 others, 1 nest with 3 eggs on 29/10 (PCML). Little Waihi, 33 on 6/8 (BHS, JHS); 18 on 2/10. Rangitaiki R mouth, 2 pairs on 7/8 (PCML). Whakatane R mouth, 30 on 3/7 (WMH); 50 on 7/8, 51 on 2/10 (PCML); 32 on 24/10 (WMH). Otara, Waiana, Torere, Motu, Haparapara, Kereu, Raukokore and Whangaparaoa R mouths, usually 1 pair on Oct/Nov survey (WMH, PCML). Te Araroa to East Cape, 4 pairs + 3 on 24/10 (PCML). Cape Kidnappers, Black Reef, 2 on 2/1. Porangahau, 4 on 28/1 (KVT). Ocean B, 4 on 4/5 (ALH, MAR, KVT). Waitotara R mouth, 3 on 20/11 (DGM, JCM). Manawatu R E, recorded in all months (JLM, MM); maximum 12 on 16/6 (WRJ, MO). Levin, Hokio Stream mouth, 4 on 19/6 (MO).

#### SPUR-WINGED PLOVER *Vanellus miles novaehollandiae*

Aupouri Pen., 13 on census in Jan (MPK). Mangawhai E, 2 on 25/9 (GJE); 5 on 19/11 (MJT). FoT census, winter 5. Red Hill, Papakura, 3 flying south on 1/12 (BB). Orere Point, 3 on 7/8 (AJG). Wharekawa, 3 on 12/9 (BHS); pair mating on 1/10 (BB, DGB). Whangamarino 23 on 30/7 (MH, JL); 9 on 19/9 (BB, AJG). Kopuku, 4 on 19/9 (BB, AJG). L Whangape, 17 on 17/3. L Waahi, 2 on 17/3 (PJA). Mangapehi, common and increasing. Marakopa, 7 on 6/2 (AMCD). Taupiro, Katikati, 3 overhead on 24/10 (BC). Papamoa, 2 on 6/5 (PCML). Maketu, Kaituna Cut, 2 on 6/8 (BHS, JHS); village, 1 pair with 2 half grown young on 7/8, 1.5 km

away, 6 on 16/6. Tarawera R mouth, 1 on 16/7, 2 on 29/4. Horoera, 4 on beach on 24/10 (PCML). Westshore, 1 on 13/12 (JLM, MM). Ahuriri, 43 on 2/2 (LRL, JGG). Flaxmere, 2 mobbed by flock of starlings on 3/5 (JGH). Wanganui R at Wanganui, 9 on 13/11. Turakina R E, 16 in flight on 21/1 (OCT). Manawatu R E, 25 on 2/7, 27 on 3/1 (JLM, MM). Horowhenua L, 16 on 31/3 (WRJ, MO).

#### LEAST GOLDEN PLOVER *Pluvialis fulva*

Parengarenga H, 12 on 25/10 (BHS, JHS). Whangarei H survey, 5 on 3/3 (MPK). MH census, summer 30 (BB). Karaka, 1 on 24/9 (TC); 25 on 24/11, 29/1 (SD, KJF); 13 + on 21/3, 1 in almost full breeding plumage (BHS). Kaituna Cut, 14 on 29/10, 22 on 17/3, 11 on 24/3 (WMH, PCML). Ohope Spit, 9 on 11/10 (WMH); 11 on 16/10 possible recent arrivals (PCML); 20 on 2/12, 21 on 10/3 (WMH). Westshore, 47 on 13/12 (JLM, MM); 1 on 2/7 (NBM); census, 20 on 3/3 (KVT). Ahuriri, 57 on 24/11 (DA). Manawatu R E, present from 25/9 to 18/3, max. 32 on 3/3 (JLM, MM).

#### NEW ZEALAND DOTTEREL *Charadrius obscurus*

Rangaunu H, 18 including 1 juv. on 28/10 (BHS, JHS). Takou Bay, 25 on 11/2/83 (BS). Whangarei H survey, 52 on 3/3 (MPK). Whananaki, 15 on 31/5 (JFS). Moturoa I, Bay of Islands, 2 pairs, 1 with nest and 1 egg on 29/10 (TGL). Tahuna-Torea Reserve, 3 egg nest on 29/10, subsequently failed (GJE, MJT). Te Matuku Bay, Waiheke I, 31 on 26/2, 18 on 19/3, 25 on 12/4 (BS). Great Barrier I, Awana B, 1 pair with chick on 4/12 (BHS, JHS). Matarangi B, 2 on 27/8. Buffalo B, 1 pair on 27/8 (GMHP). MH census, winter 35, summer 23. FoT census, winter 18, summer 8. Opoutere Spit, 15 on 3/1 (BB). Auckland International Airport, 16 on 28/3 (KJF). Puhinui Creek refuge, 15 on 4/3 (BB, RC, KJF). Karaka, 9 on 31/8 (SD); 13 on 15/4 (KJF). Mataitai, 6 + on 28/8 (BHS). Kawakawa Bay, 1 on 28/8 (SD). Waikato River, near mouth, 12 on 4/9 (AJG). Taramaire South, one incubating eggs on 9/11 (BC); 7 on 21/1. Miranda, pair with 1 fledged young on 23/1 (BHS). Aotea H census, 4 on 9/11 and 17/6. Kawhia H census, 8 on 9/11, 12 on 17/6 (BHS). Taharoa and north of Marakopa R, breeding presumed at both beaches (AMCD). Opoutere to Cape Runaway, Oct, Nov survey, c.70 breeding pairs and c.20 others (PCML). Bowentown, 11 on 17/6 (BC). Sulphur Point, 19 on 17/6 (KF, AM). Maketu, 28 on 16/6. Little Waihi, 11 on 16/6 (PCML). Ohope Spit, 50 on 10/3, 30 on 23/6. Whangaparaoa to Cape Runaway, an isolated breeding group of 4 on 4/11 (WMH).

#### BANDED DOTTEREL *C. bicinctus*

Whangarei H survey, 165 on 3/3 (MPK). Miranda, 15 on pasture on 3/9 (TGL). Great Barrier I, Awana B, c.9 and 1 nest with 3 eggs on 4/12 (BHS, JHS). Auckland International Airport, 150+ on 28/3 (KJF). MH census, winter 1010, summer 1. FoT census, winter 39, summer 3 (BB). Karaka, 22 on 1/2 (SD); c.200 on 21/3, all in eclipse plumage (BHS); 250+ on 5/5 (BB). Miranda, pair on territory on 1/10 (BB, DGB); 200+ on 23/1 (SD). Access Bay, pair with 2 flying young on 10/11 (AJG, BB). Raglan H, 3 on 15/4, 1 on 29/4 (RSL, LAL). Kawhia H census, 1 on 9/11, 387 on 17/6 (BHS). Taharoa, 13 on 30/1 (AMCD). Bowentown B, 65 on 31/3, c.217 on 14/6. Matakana I, north end, 3 pairs nesting on 18/10 (BC); south end, 3 pairs nesting on 5/11. Sulphur Point, 4 pairs nesting on 5/11; 70 on 1/1 (PCML); c.200 on 17/6 (PCML, AM). Kaituna Cut, c.50 on 6/8 (BHS, JHS); 3 pairs



on 29/10, c.200 on 4/3. Otamarakau B, 4 pairs nesting on 8/10. Herepuru stream mouth, 4 pairs nesting on 16/10. Tarawera R mouth, 1 pair on 7/8 (PCML). Ohope Spit, 106 on 2/8, c.50 on 10/3, c.350 on 23/6 (WMH); 8 pairs nesting on 16/10. Waiaua R mouth, 1 pair with 2 full grown young on 1/12 (PCML); 4 on 30/4 (WMH). Motu R mouth, 1 pair on 23/10. Omaio B, 1 pair on 23/10 (PCML). Raukokore R mouth, 20 with 1 chick on 4/11 (WMH). Whangaparaoa B, 2 pairs nesting on 23/10. Te Araroa B, 1 pair nesting on 23/10 (PCML). Tuki Tuki R, c.22 on 31/7. Havelock North, c.65 in freshly ploughed field on 6/8 (KVT). Clive, 1 on 14/12 (JLM, MM). Westshore census, 28 on 3/3 (KVT). Mangatahi, Ngaruroro R, c.50 flying and wheeling on 2/6 (PWT, MT). Mokau E, 1 on 29/12 (RWW). Manawatu R E, maximum 50+ on 19/2 (JLM, MM).

#### RINGED PLOVER *C. hiaticula*

FoT, Access Bay, 1 first seen on 9/11, confirmed 10/11, and remained until 19/5; a first southern summer bird on arrival, it was in full breeding plumage when last seen (BB, BC, SD, AJG).

#### MONGOLIAN DOTTEREL *C. mongolus*

Karaka, 1 on 24/9, (TC); 1 on 9/1 (DS); 1 on 10/3 (SD); 2 colouring up on 7/4 (KJF).

#### LARGE SAND DOTTEREL *C. leschenaultii*

Karaka, 1 on 24/11, 23/1 (SD). FoT census, winter 1, summer 1 (BB). FoT, 2 on 29/10, 9 on 10/11 (BB, BC, SD, AJG).

#### BLACK-FRONTED DOTTEREL *C. melanops*

Kaituna Cut, 1 on 7/8 (PCML). Porangahau, 1 pair with nest on edge of swollen river on 10/12, eggs successfully hatched (CST, JT). Mangatahi, Ngaruroro R, 6 including 1 on nest with 2 eggs on 1/9 (PWT, MT, KVT). Te Mata, 1 pair with 3 fledged chicks on 15/12 (JLM, MM). Westshore census, 14 on 3/3 (KVT). Waimarama, 3 on 4/5 (ACS, BMT). Marton Reservoir, 7 on 4/6 (BDH). Omanuka Lagoon, 15 on 1/4 (LJD). Hokio B, 3 on 30/6 (RNT).

#### WRYBILL *Anarhynchus frontalis*

Whangarei H. survey, 73 on 3/3 (MPK). MH census, winter 8/7, summer 21 (BB). Karaka, 250 on 26/8 (KJF, AVS); 90 on 19/2 (BB). FoT census, winter 2561, summer 45 (BB). Access Bay, 1500 on 13/7 (BB, BAB); 2500 on 25/4 (BB, DGB). Miranda, 70 on 25/9 (SD). Kaituna Cut, 1 on 7/8. Matahui Point, 25 on 17/6 (PCML). Sulphur Point, 3 on 26/11, 24 on 1/1, 52 on 17/6 (KF, PCML, AM). Waitangi census, 3 on 2/7 (KVT). Ahuriri, 1 on 3/3 (FHB, NPL). Manawatu R E, recorded in all months, max 57 on 25/9 (JLM, MM); 2 banded birds in a flock of 18 on 12/1 (RJW). Hokio B, 10 on 30/6 (RNT). Waikanae E, 27 on 4/10/81 (AJDT).

#### FAR-EASTERN CURLEW *Numenius madagascariensis*

Parengarenga H, 4 on 25/10 (BHS, JHS). Access Bay, FoT, 2 on 5/9 (TGL). MH census, winter 6, summer 3 (BB). Karaka, 9 on 23/1 (SD). FoT census, summer 7 (BB). Kaiaua, 6 on 16/10 (RC, MJT); 7 on 13/1 (CS, KM). Manawatu R E, present from 8/10 to 18/3, max 3 from 30/12 to 4/3 (JLM, MM).

#### ASIATIC WHIMBREL *N. phaeopus variegatus*

Parengarenga H, 21 on 25/10. Rangaunu H, 19 on 28/10 (BHS, JHS). Whangarei H survey, 10 on 3/3 (MPK). MH census, summer 3. MH, from 1 to 3 between 21/11 and 6/5. FoT census, winter 2(BB). Miranda, 1 on

25/9 (SD). Kaituna Cut, 1 on 17/3 (BC, PCML). Ohope Spit, 1 on 11/10 (WMH). Manawatu RE, 1 from 22/10 to 6/11 (JLM, MM).

**AMERICAN WHIMBREL** *N. phaeopus hudsonicus*

Parengarenga H, 1 on 25/10 (BHS, JHS). Karaka, 1 on 29/1 (KJF).

**WHIMBREL** sp.

Karaka, 12 on 9/1 (DS); 10 with 2 Asiatics on 19/2 (BB); 7 on 15/4 (KJF). FoT census, summer 9 on 27/11 at Piako (BB).

**LITTLE WHIMBREL** *N. minutus*

Manawatu RE, 1 from 15/1 to 18/2 (LJD, JLM, MM).

**ASIATIC BLACK-TAILED GODWIT** *Limosa limosa melanuroides*

Manawatu RE, 1 from 2/7 to 29/9 (RAC, SEC, LJD, JLM, MM).

**BAR-TAILED GODWIT** *L. lapponica*

Parengarenga H. 45 on 25/10. Ranganu H, c.6000 on 28/10 (BHS, JHS). Whangarei H survey, 3170 on 3/3 (MPK). MH census, winter 1943, summer 18 759. FoT census, winter 755, summer 4914 (BB). Karaka, 500 on 26/8 (KJF, AUS); 9000 on 4/12 (BB); 60 on 17/4 (KJF). Access Bay, 90 on 18/8 (BB, BAB); c.8000 on 20/11 (PCML); 300 + on 25/4 (BB, DGB). Miranda, 1500 on 1/10 (PCML). Opoutere, 90 on 23/12 (BB). Aotea H census, 1100 on 9/11, 35 on 17/6. Kawhia H census, 4575 on 9/11, 152 on 17/6 (BHS). Marakopa, 1 on 1/10 (AMCD). Bowentown shellbanks, c.1300 on 26/11, 250 on 10/3, 815 on 3/6, 280 on 17/6 (BC). Matahui Point, c.60 on 14/8, c.1000 on 17/6 (PCML). Matakana B, c.1000 on 26/11 (BC). Sulphur Point, c.2500 on 26/11 (KF, PCML, AM). Omokoroa Golf Course, 3 on 17/6 (PCML). Kaituna Cut, 22 on 6/8 (BHS, JHS); c.250 on 29/10, 426 on 27/11, 367 on 17/3. Maketu, 14 on 16/6. Little Waihi, 29 on 16/6 (PCML). Ohope Spit, c.3600 on 10/11, c.2100 on 10/3, c.250 on 30/6 (WMH). Westshore, 400 on 12/11 and 13/12 (PWT, MT, JML, MM). Porangahau RE, c.45 on 28/1 (KVT). Wanganui R at Wanganui, 53 on 10/3 (OCT). Manawatu RE, present in all months, 10 on 3/9, 430 on 25/12 (JLM, MM); 56 on 30/6 (CRS, PMS).

**GREENSHANK** *Tringa nebularia*

Matahui Point, 1 between 2/7 and 17/6, was still in winter plumage (BC, PCML).

**MARSH SANDPIPER** *Tringa stagnatilis*

Karaka, present from 29/1 to 17/4, a pale bird (5 observers). Westshore, 1 on 12/11 (PWT, MT, ALH).

**SIBERIAN TATTLER** *T. brevipes*

Ranganu H, 1 on 28/10 (BHS, JHS). Access Bay, May 1983 to 6/4 (BB).

**TATTLER** sp.

Tahunamanu I, 1 very shy on 11/10 and 4/1 (BC).

**COMMON SANDPIPER** *T. hypoleucos*

Waipu E, 1 on 3/1 (AG, AG). Waiaua R mouth, 1 between 9/11 and 14/3 (BC, WMH, PCML, AM). Manawatu R at Longburn, 1 from 26/8/81 to 6/9/81 (MKT).

**TEREK SANDPIPER** *Xenus cinereus*

Karaka, 1 on 26/8 (KJF, AVS); 3 from 24/9 to 24/3 (TC, SD, AH). Miranda, 3 on 25/9 (SD); otherwise 1 or 2 until 24/3 (BHS).

**TURNSTONE** *Arenaria interpres*

Parengarenga H, 7 on 25/10. East B, c.40 on 26/10. Rangaunu H, c.500 on 28/10 (BHS, JHS). Whangarei H survey, 4 on 3/3 (MPK). MH census, winter 77, summer 576, FoT census, winter 62, summer 321 (BB). Karaka, 10 on 26/8 (KJF, AUS); c.400 on 19/2 (BB); c.20 on 17/4 (AVS). Access Bay, 28 on 23/8 (SD); 281 on 2/11 (BAE). Miranda, 120 on 25/9 (SD). Kawhia H census, 4 on 9/11 (BSH). Bowentown shellbanks, 400 on 26/11, 24 on 17/6 (BC). Matakana B, c.550 on 10/3 (BC, PCML). Sulphur Point, 2 on 26/11 (KF, PCML, AM). Matahui Point, 58 on 14/8 (PCML). Kaituna Cut, 9 on 6/8 (BHS, JHS); 36 on 27/11, 20 on 4/3. Little Waihi, 1 on 2/10 (PCML). Waitangi, 7 on 13/11 (PWT, MT). East Clive, 2 feeding on top of concrete sewer outfall on 10/12 (JGH, RMH, KVT). Westshore, 1 on 11/12. Haumoana, 4 on 12/12. Manawatu RE, 1 or 2 present from 24/9 to 29/1 (JLM, MM). Waikanae E, 4 on 20 and 27/11 (AJDT).

**KNOT** *Calidris canutus*

Rangaunu H, c.6000 on 28/10 (BHS, JHS). Whangarei H survey, 4938 on 3/3 (MPK). MH census, winter 1797, summer 15 051. FoT census, winter 62, summer 1901 (BB). Karaka, 6000 + on 9/10; 10 000 on huge tide on 19/2 (BB); 1 partial albino on 24/11 and 19/2 (SD). Access Bay, c.5000 many showing broken colour on 1/10; c.200 on 25/4, still some bright birds (BB, DGB). Kawhia H census, 14 on 9/11 (BHS). Bowentown shellbanks, 14 on 26/11 (BC). Matahui Point, 3 on 14/8, 80 on 21/3, 16 on 17/6 (BC, PCML). Sulphur Point, 3 on 26/11 (PCML). Kaituna Cut, 73 on 27/11, 120 on 17/3 the highest count ever for the BoP (PCML). Ohope Spit, 7 on 11/10 (WMH). Westshore, 10 on 16/10 (ARG, ALH, KVT); 1 on 11/12 (JLM, MM). Waitangi, 10 on 25/12 (KVT). Manawatu RE, present from 24/9 to 7/4, max 253 on 30/1 (JLM, MM).

**SHARP-TAILED SANDPIPER** *C. acuminata*

Parengarenga H, 1 on 29/10 (BHS, JHS). Takou Bay, 2 on 13/2/83 (BS). MH census, summer 14. FoT census, summer 6 (BB). FoT, 6 on 2/11 (BAE); 5 on 3/3 (BB). Karaka, 9 on 9/1 (DS). Kaituna Cut, 5 on 2/10, 13 on 24/3 (PCML). Westshore, 1 on 11/12 (JLM, MM); 2 on 24/1 (ACS, KVT). Manawatu RE, present from 22/10 to 17/3, max 7 on 4/3 (JLM, MM).

**PECTORAL SANDPIPER** *C. melanotos*

Karaka, 1 on 20/1 (DS). Westshore, 3 on 10/2 (ALH, JLL, KVT). Manawatu RE, 1 on 19/2 and 4/3 (JLM, MM). Waikanae, 1 on 12/1 (AJDT).

**CURLEW SANDPIPER** *C. ferruginea*

Parengarenga H, 18 on 29/10 (BHS, JHS). Karaka, 8 on 26/8, 1 or 2 looked brownish (KJF, AVS); 3 on 30/1 (BB, BJB, AJG). FoT census, summer 23 (BB). Access Bay, 1 on 13/7 (BC); c.50 on 25/3 (AVS); 6, of which 3 showed colour on 25/4 (BB, DGB). Kaituna Cut, 1 from 26/11 to 4/3 (WMH, PCML). Manawatu RE, 1 on 18/2 and 18/3 (JLM, MM).

**RED-NECKED STINT** *C. ruficollis*

Rangaunu H, 1 on 28/10. Parengarenga H, 11 on 29/10 (BHS, JHS). MH census, summer 35. FoT census, winter 1, summer 20 (BB). Karaka, 20 on 11/7 (TC); 51 on 24/3 (AH); 25 on 17/4 (AVS). Access Bay, 10 on 18/8 (BB, BAB); 21 on 29/10 (SD). Kaituna Cut, 2 on 6/8 (BHS, JHS); 16 on 14/11, 10 on 24/3 (PCML). Westshore, 5 on 24/11 (DA); 6 on 13/12. Manawatu RE, 1 during July to Sep, then 2 on 8/10, present until 23/4, max 4 on 14/1 and 18/3 (JLM, MM).

**SANDERLING *C. alba***

Manawatu RE, 1 from 30/7 to 25/9 (LJD, JLM, MM).

**PIED STILT *Himantopus himantopus leucocephalus***

Takou Bay, 9 on 11/2/83 (BS). Whangarei H survey, 418 on 3/3 (MPK). MH census, winter 3692, summer 1116. FoT census, winter 3344, summer 717 (BB). L Hakanoa, 4 on 28/7. Aotea H census, 49 on 17/6. Kawhia H census, 20 on 9/11, 268 on 17/6 (BHS). Te Kuiti, 4 kms south on State Highway 30, 5-7 pairs, 2 eggs on 8/11, 2 juv on 5/12. Te Kuiti SP, 60 on 10/7 (AMCD). Matahui Point, 425 on 14/8, 430 on 17/6. Omokoroa Golf Course, c.100 on 17/6 (PCML). Bowentown shellbanks, 19 on 17/6 (BC). Sulphur Point, 15 on 17/6. Hairini, 30 on 17/6 (AM). Kaituna Cut, c.300 on 17/3, 217 on 16/6. Maketu Lagoon, c.260 on 16/6. Little Waihi, c.40 on 16/6 (PCML). Westshore census, c.1013 on 3/3 (KVT). Wanganui R at Wanganui, c.180 on 10/3 (OCT). Marton Reservoir, 30 on 4/6 (BDH). Manawatu RE, 300 + on 5/5 (JLM, MM). Waikanae E, 188 on 29/1 (AJDT).

**BLACK STILT *H. novaezeelandiae***

MH census, summer 1 (BB). Weymouth, 1 on 3/7 and 19/8 had white ring around bill (RC); 1 on 5/9 (AVS). Graham's B, 1 on 19/2 with white ring on face (KG). Miranda, 1 smudgy on 16/10 (RC, MJT). Kawhia H, Kinohaku, 1 from July to Aug (AMCD). Kawhia H census, 8 + 2 hybrids on 17/6 (BHS). Matahui Point, 2 on 2/7, 3 on 14/8 respectively, heavy speckled white on breast, face and belly; white undertail coverts and grey face smudge; totally black with grey smudge at bill base (BC). Manawatu RE, 1 smudgy hybrid on 20/8, 31/12, 14/1, 29/1 and 18/3 (JLM, MM). Waikanae E, 1 on 15/11/81, black apart from some white at base of bill and smudgy white on lower abdomen (AJDT).

**WILSON'S PHALAROPE *Phalaropus tricolor***

Manawatu RE, 1 on 25/9 and 29/9 (RAC, SEC, LJD, JLM, MM).

**POMARINE SKUA *Stercorarius pomarinus***

Kawau I, 1 on 2/4 (TGL). Tarata Point, FoT, 1 dark phase on 28/8 (BB).

**ARCTIC SKUA *S. parasiticus***

Kawau I, 2 on 2/4 (TGL). Karaka, 1 on 23/1 (SD). Motutapu I, 1 light, 1 dark phase with 380 Fluttering Shearwaters on 18/2 (PB). Whakatane R mouth, 1 dark phase on 16/11. Whale I, 1 pale phase on 27/11 (WMH). Papamoa B, 5 dark phase working a large White-fronted Tern flock c.1 km offshore on 28/1 and 6/2 (PCML). Rangitaiki R mouth, 2 over beach harrying White-fronted Terns on 11/4 (RMW). Kairakau, 1 harrying a tern on 20/11. East Clive, 1 near nesting site of White-fronted Terns on 18/1 (KVT). Foxton B, 1 on 6/11, present 17/1 to 21/4, max 4 on 7/4 (JLM, MM). Kapiti I, singles often during summer (TGL).

**BLACK-BACKED GULL *Larus dominicanus***

Rangaunu H, c.20 on 28/10, 1 juv (BHS, JHS). Takou Bay, 3 on 11/2/83 (BS). Waitotira, only seen at lambing time (TGL). Flax Point, Rangitoto I, 342 nests on 30/10 (DGB). MH census, winter 1024, summer 481. FoT census, winter 384, summer 510 (BB). Aotea H census, 10 on 9/11, 40 on 17/6. Kawhia H census, 55 on 9/11, 64 on 17/6 (BHS). Taharoa B, 80 on 17/3, breed on cliffs south of B. Marakopa, 30 on 8/5 (AMCD). Te Kuiti, 4 on 23/8, 1 on 27/12 (RG). Matakana I, c.500 pairs nesting at the south end and along the ocean beach sand dunes on 5/11 (BC, PCML). Waitangi

and Tuki Tuki E census, c.763 on 2/7. Westshore census, 185 on 3/3 (KVT). Waitotara R mouth, many nests with up to 3 eggs on 20/11 (DGM, JCM). Paraparaumu B, 1 eating a c.300 mm dogfish on 15/3. Kapiti I, first flying young seen on 12/1 (TGL).

**RED-BILLED GULL** *L. novaehollandiae scopulinus*

Rangaunu H, c.50 nesting on 28/10. Parengarenga H, 52 on 29/10, *Zostera* used as nesting material (BHS, JHS). Takou Bay, 5 on 11/2/83 (BS). MH census, winter 3850, summer 61. FoT census, winter 1369, summer 43(BB). Walton's Gap, Awhitu Peninsula, 500 + on 23/10 (JVD). Tairua, Paku Rock, c.240, 80-90 incubating on 28/9 (DGB). Opoutere, Hikinui Rock, 120 + breeding pairs on 23/12 (BB). Aotea H census, 1 on 9/11, 10 on 17/6. Kawhia H census, 64 on 9/11, 44 on 17/6 (BHS). Taharoa B, 36 on 17/3 (AMCD). Tarawera R mouth, c.450 at roost after feeding about Awaiti Wetlands on 3/7. Rangitaiki R mouth, c.800 on 3/7. Whakatane R mouth, c.150 on 7/8 (PCML). Tuki Tuki R, 220 on 2/7 (JMcF, M McF, JPCW). Westshore census, 247 on 3/3 (KVT). Wanganui R at Wanganui, 310 on 10/3 (OCT).

**BLACK-BILLED GULL** *L. bulleri*

FoT census, winter 57, summer 90 (BB). Access Bay, 60 displaying but no nests on 12/9 (BHS); 85 on 1/10 (BB, AJG); c.20 feeding 12 young, most not fully fledged, 1 downy chick on 21/1; Miranda, 20 on 12/9 (BHS). Kawhia H census, 15 on 17/6 (BHS). Matahui Point, 1 on 17/6. Little Waihi, 1 on 16/6. Tarawera R mouth, 2 subadults 3/7, 1 on 29/4 (PCML). East Clive, c.300 on 23/10. Westshore census, 227 on 3/3 (KVT). Turakina E, 6 on 28/1 (OCT). Horowhenua L, 180 on 4/2 (BDH); 80 on 1/4 (WRJ, MO).

**WHITE-WINGED BLACK TERN** *Chlidonias leucopterus*

Clive, 1 on 14/12 (JLM, MM). Waitangi, 1 imm on 27/1 (MTC, JLL, KVT). L Ratapiko, 1 hawking and being harassed by Welcome Swallows, later rested with Pied Stilts on 2/1 (LC). Manawatu RE, 1 imm from 24/1 to 23/6 (JLM, MM). Horowhenua L, 1 present from 27/1 to 30/6 (WRJ).

**GULL-BILLED TERN** *Gelochelidon nilotica*

Ahuriri, 2 on 20/8 (MTC, KVT); 1 on 25/3 (JLL, KVT); 1 on 30/6 (ARG, ALH, ACS, KVT). Westshore, 1 adult in summer plumage on 16/2 (JLM, MM).

**CASPIAN TERN** *Hydroprogne caspia*

Rangaunu H, 147, 3 imm, c.53 nests on 28/10 (BHS, JHS). Takou Bay, 3 on 11/2/83 (BS). Whangarei H survey, 5 on 3/3 (MPK). Mangawhai Spit, 97 nesting pairs on 19/11 suffered storm losses of eggs and chicks in early Dec, 24 pulli banded G-R/M on 19/11, 18/12 and 27/12 (MJT). South Kaipara Head, colony failed to establish Oct-Dec (DR). Tahuna-Torea, 28 incl. 1 juv banded at Mangawhai on 31/1 (MJT). Te Matuku Bay, Waiheke I, pair with 2 chicks on 5/11 (BS). MH census, winter 98, summer 74. FoT census, winter 208, summer 16 (BB). Karaka, 75 on 23/1 (SD). Access Bay, 106 on 17/6 (BB). L Waahi, 1 on 17/3 (PJA). Aotea H census, 9 on 9/11, 16 on 17/6 Kawhia H census, 11 on 9/11, 14 on 17/6 (BHS). Taharoa and Marakopa, 2 on most visits (AMCD). Bowentown Shellbanks, 2 attempts at nesting wiped out by storms; 35 on 17/6 (BC). Matahui Point, 14 on 26/11, 10 on 17/6. Matakana I, ocean beach colony 71 nests, 24 with 1 egg, 43 with 2 eggs, 4 with 3 eggs on 5/11 (PCML). Sulphur Point, 27 on 17/6 (KF, AM). Ohope Spit, colony had 24 eggs on 2/12 but was washed out by 6/1, except for 1 pair which had a nest with 1 egg in the midst of a White-fronted Tern colony (WMH). Tuki Tuki E, 24 on 2/7 (J McF,

M McF, JPCW). Westshore, 4 on 13/12 (JLM, MM). Porangahau, 2 and 1 pair with 3 half-grown chicks on 28/1 (FHB). Ahuriri census, 29 on 3/3 (KVT). Manawatu R at Longburn, 2 from 30/7 to 18/8, 1 on 13/9 (MKT). Manawatu RE, present in all months, maximum 35 on 3/3 (JLM, MM).

#### BLACK-FRONTED TERN *Sterna albostrata*

Tarawera R mouth, 1 on 3/7, first bird of the season on 15/4 (PCML); 16 on 9/6 (WMH). Rangitaiki R mouth 17 at roost with 20 feeding inland on 3/7 (PCML); first bird of season on 11/4 (RMW); 5 (4 adults, 1 young) on 29/4, 26 on 23/6 (PCML). Marine Parade B, Napier, 31 on 20/7. Waitangi, 75 including 13 hawking over sheep paddocks at Meeanee on 30/6 (PWT, MT). Manawatu R E, 1 adult on 19/5, 3 imm on 20/5 (JLM, MM). Waikanae E, 1 in full breeding plumage on 2/6. Kapiti I, 2 off Rangitira heading north on 4/5 (TGL).

#### COMMON TERN *S. hirundo*

Rangitaiki R mouth, 1 almost in breeding plumage with White-fronted Terns on 8/4 (BC, WMH, PCML).

#### COMMON/ARCTIC TERN *S. hirundo/paradisaea*

Manawatu R E, 1 on 5/5 (JLM, MM).

#### FAIRY TERN *S. nereis*

Mangawhai Spit and Te Arai Stream, 2 pairs on 27/12 (MJT); 1 pair which had a 2 egg nest on 27/12 and was defending 2 chicks on 22/1 (KRB). South Kaipara Head, 1 pair nesting on 19/12 (DR).

#### LITTLE TERN *S. albigrons*

Rangaunu H. 37 on 28/10 (BHS, JHS). Whangarei H survey, 7 on 3/3 (MPK). Karaka, 3 on 23/1 (SD). FoT census, summer 16 (BB). Miranda, 14 on 10/1 (DS). East Clive, 1 associated with a White-fronted Tern colony on 13/1 (PWT, MT); 1 on 29/4 (KVT). Waitangi, 2 on 27/5 (PWT, MT). Manawatu R E, 1 from 22/10 to 5/11, 2 from 6/11 to 18/3, 3 from 7/4 to 20/5, 1 until 2/6 (JLM, MM).

#### WHITE-FRONTED TERN *S. striata*

Rangaunu H, c.20 on 28/10 (BHS, JHS). Takou Bay, 20 on 11/2/83 (BS). MH census, winter 6, summer 404. FoT census, winter 118, summer 1034 (BB). Walton's Gap, Awhitu Pen, 50 on 23/10 (JVD). Access Bay, 450+ on 10/11 (BB, AJG); c.3000, with c.1400 on nests on 11/12 (BB, DGB); c.100 young, some adults possibly still brooding on 21/1 (BHS). Buffalo B, 5 on 27/8. Whangapoua, 50+ on 5/3. Matarangi B, 200+ on 6/3. Ring's B, 25 on 6/3. Tairua, 79 on 6/3 (BS). Papanui Point, 30 on 10/1 (RSL, LAL). Kawhia H census, 2 on 9/11 (BHS). Taharoa, 12 on 30/1, 150 on 17/3, 41 on 8/5, 300 on 3/6. Marakopa, 75 on 17/3, 21 on 8/5 (AMCD). Rangitaiki R mouth, 245, many in breeding plumage, on 6/8 (BHS, JHS); c.200 in 2 flocks with c.200 offshore on 5/5. Kaituna Cut, c.300 on 17/3 (PCML). Ohope Spit, nests with 47 eggs on 6/1 later spoiled by motorcyclists but c.7 chicks later in month. Waiaua R mouth, c.200 on 28/12, nesting colony on sandspit on 22/1 (WMH). Motu R mouth, c.100 pairs nesting on 3/11 (WMH, PCML). Mahoenui Hill, rocks offshore, c.150 pairs nesting on 3/11 (WMH). East Clive, 1000+ on 22/9 (ACS); began nesting on 23/10, site deserted by 13/11, 220 pairs renested 1 km south by 28/12, site vandalised and deserted by 18/1 (NPL, KVT). Marine Parade, Napier, 2 with yellow band on 17/5 (PWT, MT). Turakina E, 20 on 28/1 (OCT). Manawatu R E, 200 on 9/2 (JLM, MM).

**GREY TERNLET** *Procelsterna cerulea*

Stratford, Beaconsfield Rd, 1 dead on road on 8/3 (JM).

**NEW ZEALAND PIGEON** *Hemiphaga novaeseelandiae*

Northcote, regularly seen in patches of native bush 1983/84 (TGL). Raglan, 1 eating hoheria leaves on 12/8. Pirongia West Rd, 3 on 29/1. Rangitoto Ranges, 8 on 12/11 (BHS). Te Toto Gorge, 1 on 18/11 (RSL). Elsthorpe, 8 with 1 eating whole kowhai leaves on 20/11. Maraetotara, 7 on 15/4 (KVT).

**BARBARY DOVE** *Streptopelia risoria*

Hastings, 3 on 10/12 and singles on two later dates. Te Mata, 2 on 15/12. Havelock North, 2 on 16/2 (JLM, MM).

**KAKAPO** *Strigops habroptilus*

Little Barrier I, 1 booming at summit on 6/4 (GJE, DAR, IS); partly completed bowl of different bird near Bald Rock on 8/4 (DAR, IS).

**WHITE COCKATOO** *Cacatua galerita*

Kumeu, 8 on 22/8 and 2 on 29/4 (KMPF). Waiuku SF, 62 tape-recorded as they gathered on 21/8, regularly cross Waikato R to feed in pine forest (BB). Maoro, 90 on 6/2. Wairamarama, 53 on 14/8, 40 on 8/2 (DMW).

**GALAH** *Eolophus roseicapillus*

Mangatawhiri, 3 on maize stubble on 8/9 (BB).

**KAKA** *Nestor meridionalis*

Mahurangi West Pen, 4 present in Jan (MJT). Whitford, 1 on 2/9 (JVD). Eastern Kaimais Aongatete, heard on 4/1 (BHS, JHS). Eastern Tararua Ranges, 2 above Mitre Flats hut on 1/3 (RAC).

**EASTERN ROSELLA** *Platycercus eximius*

Auckland University, 1 calling from clock tower on 26/9 (SD). Cornwall Park, Auckland, 2 on 26/8 and on previous occasions (KMPF). Becoming common in South Auckland. Red Hill, Papakura, 14 feeding in ti-tree in winter (BB). L Hakanoa, 4 on 28/7 (BHS). Karakariki, c.8 in mid-Feb. Raglan, 3 in garden on 25/12 (RSL, LAL). Waitomo, Benneydale, Te Kuiti, Ahuroa, increasing (AMCD). Katikati district, becoming more common. Tuapiro, c.5 frequently in June (BC). Pohangina Valley, Totara Reserve, 2 on 28/8 (SEC, RAC). Foxton, Round Bush, 1 on 29/12 (JLM, MM). Levin area, Kimberley Rd, 12 on 9/5; Tangimoana Rd, 3 on 9/5 (WRJ, MO).

**RED-CROWNED PARAKEET** *Cyanoramphus novaeseelandiae*

Opuawhanga, 1 on 2/2 (JFS). Little Barrier I, 3 feeding on *Pittosporum umbellatum* flowers on 4/8. Little Ohena I, a few on 5/7. Stanley I, common on 4/7. Kapiti I, nesting inside a hollow *Olearia* in a site previously used by a Saddleback, Jan (TGL).

**YELLOW-CROWNED PARAKEET** *C. auriceps*

Little Barrier I, several in *Leptospermum* forest 3 to 8/8 (TGL).

**SHINING CUCKOO** *Chrysococcyx lucidus*

Opuawhanga, first call heard 24/9 (JFS). Waiotira, first heard 1/10, many by 4/10. Cuvier I, several fledglings 14-24/2, one begging from a Bellbird but ignored (TGL). Whangamarino wetland, first full song on 28/9 (PJA). Matangi, first song on 2/10 (BJZ). Hamilton, 1 catching caterpillars off a grape vine on 2/3 (FN). Raglan, 2 on 10/3 (RSL, LAL). Te Kuiti, much fewer this year (AMCD). Rangitoto Ranges, 1 on 12/11 (BHS). Mt Maunganui, Arataki, 1 on 19/1 (AM). Whakatane R mouth, 1 on 22/11. Omaio Domain,

1 on 3/11. Motu and Raukokore R mouths, 1 each on 3/11 (WMH). Gwavas Homestead, Hawke's Bay, 1 heard on 30/10. Elsthorpe, 1 heard on 20/11 (KVT). New Plymouth, first heard on 29/9 (JCM). Te Popo, first heard on 24/9 (JM). Shannon, Law's Hill, 6 in manuka and pines on 18/9 (RL). Kapiti I, last call on 9/2 (TGL).

#### LONG-TAILED CUCKOO *Eudynamis taitensis*

Opuawhanga, 1 on 5/2 (JFS). Little Barrie: 1, last birds heard on 3/4. Cuvier I, 1 between 14 and 24/2 (TGL). Otakauke Bay, Waiheke I, 1 calling all day on 22/11 (BS). Half Moon Bay, Auckland, 1 of the year killed by a cat on 31/3 (BAE). Rangitoto Ranges, 2 on 12/11 (BHS). Otanewainuku, 1 flying and many calling on 23/12, 1 calling and searching for food under the canopy near the summit on 2/1 (PCML). Bellbird Bird, 1 on 3/12 (NPL, ACS, KVT). Black Birch Range, 2 on 18/12 (ARG). New Plymouth, 1 in suburb on 19/2, 1 dead on 18/3 (DGM). Egmont NP, Pouakai Ranges, 2 heard on 22/1 and 19/2 (RWW). Wanganui River Valley, Atene Walkway, 1 heard on 26/2 (RAC, SEC). Kapiti I, first young on 8/2, last heard on 27/3 (TGL).

#### MOREPORK *Ninox novaeseelandiae*

Matakohe, 1 on 9/11 sitting on a ponga at 11.30 a.m. (JFS). Hamilton, 1 with broken wings on roadside on 30/5 (FN). Rangioru, 1 dead on 16/6 (PCML). Patoka, 1 killed after hitting window on 12/7 (NBM). Foxton, Round Bush, 1 in response to taped calls on 29/12 and 24/1 (JLM, MM).

#### FORK-TAILED SWIFT *Apus pacificus*

Napier, 2 on 2/7 (PWT, MT).

#### NEW ZEALAND KINGFISHER *Halcyon sancta vagans*

Whananaki, 35 on 31/5 (JFS). Westshore census, 26 on 2/7 (KVT).

#### RIFLEMAN *Acanthisitta chloris*

South West Pirongia, 2 on 3/3 (RSL, LAL). Rangitoto Ranges, Cowan Reserve, 2 family groups each of 2 adults feeding 3 young mid-Jan (RWD). Rangitoto Ranges, 1 pair on 12/11 (BHS). Mohi Bush Maraetotara, 8+ on 15/4 (FHB, PWT, MT). Triplex Creek, 6 on 25/2 (ARG).

#### SKYLARK *Alauda arvensis*

Waitangi, Hawkes Bay, 1 prolonged trilling on 25/12 (KVT).

#### WELCOME SWALLOW *Hirundo tahitica neoxena*

Moturoa I, Bay of Islands, nesting in old gun emplacements, fledglings nearby on 29/10. Cuvier I, nesting in sea caves (TGL). Pirongia West Rd, 6 on 29/1 (BHS). Te Kuiti SP, 150 on 19/12 (AMCD). Esk R, c.400 roosting in 6 m high willows on 22/1 (ALH, MAR, ACS). Oingo L, c.1000 hawking before roosting in raupo on 27/1 (JGH, RMH).

#### NEW ZEALAND PIPIT *Anthus novaeseelandiae*

Maio, 5 together in two places during beach patrol on 15/4 (BB). Pirongia West Rd, 2 on 29/1 (BHS). Kawhia H census, 11 on 17/6 (FN, BHS). Benneydale, Rangitoto, Te Anga Waitomo Rd, present (AMCD). Mangorewa Gorge, Kaharoa, 2 on 30/7. Kaimai Summit, 1 on 28/8. Kaituna Wildlife Refuge, 1 on 6/8. Kaituna Cut, 1 on 17/3 (PCML). Katikati, Saphire Springs, 1 on 4/3 (BC). Raukokore R mouth, 2 on 4/11. Whangaparaoa B, 4 on 4/11 (WMH). Te Awanga, 3 on 14/12 (JLM, MM). Upper Esk, 20+ on 28/1 (ARG).



**DUNNOCK** *Prunella modularis*

Moturoa I, Bay of Islands, common on 29/10 (TGL). Red Hill, Papakura, 1 singing regularly in garden of new house (BB). Hamilton, calling by end of Aug (PJA). Hastings, 1 eating porridge bits on 26/8 (KVT).

**FERNBIRD** *Bowdleria punctata*

Rawene, 3 on 22/3/83 (JFS). Mamaku, several calling on 14/4 (TGL). Whangamarino, 1 seen, 8 heard on 10/9 (JVD). Taharoa, Waiohipa Stream, 1 in swamp on 25/6. Mangaokewa SF, relatively common in 4-year-old pines on 2/4 (RG). Ohiwa H, Wainui Rd, 1 on 19/6. Kaituna Wildlife Refuge strong population 6/8 (PCML). Koitiata L, several calling from lupins at lake edge on 1/4 (GRS).

*Correction* to CSN 30/6/82 to 30/6/83; Records beginning "Egmont NP, 12 near Lake Dive on 30/10 . . ." to "Kaitake Ranges, 11 on 30/1 (RWW)." all refer to the Whitehead.

**WHITEHEAD** *Mohoua albicilla*

Mamaku, a few still in cutover forest but none in young pines (TGL). Pirongia West Rd, heard on 29/1. Rangitoto Ranges, 17 on 12/11 (BHS). Tawarua SF, 3 scolding a Long-tailed Cuckoo on 3/1 (PCM). Eastern Kaimais, Wharawhara Rd track, heard on 1/1 (BHS, JHS). Otanewainuku, good numbers on 23/12. Mangorewa Gorge, Kaharoa, 6 with Silvereyes on 30/7 (PCML). Triplex Creek, 1 seen others heard on 14/11 (JPCW). Te Aringa, 4 on 26/11 (ARG). Boundary Stream Reserve, 2 on 3/12 (KVT). Egmont NP, 12 near Lake Dive on 30/10/82 (R Zuur); several near Holly Hut on 2/2/83 (AAB). Waiwakaiho — Mangaoraka Tracks, N Egmont, 9 on 20/2/83. Kaitake Ranges, 11 on 30/1 (RWW). Pukeiti Rhododendron Trust, 1 on 2/1. Waiwakaiho R, 4 feeding on seeding kamahi on 8/1 (DGM, JCM). Pouakai Ranges, common in kamahi forest on 22/1. Kaitake Ranges summit, several heard on 29/1 (RWW). Kapiti I, 1 fledgling on 13/11 (TGL).

**GREY WARBLER** *Gerygone igata*

Pirongia West Rd, 8 on 29/1. Rangitoto Ranges, 4 on 12/11 (BHS). Bellbird Bush, common on 3/12. Mohi Bush, Maraetotara, common on 15/4 (KVT).

**FANTAIL** *Rhipidura fuliginosa*

South West Pirongia, 1 black on 3/3 (RSL). Waitomo, Tumutumu Rd, 1 black in April (AMCD). Mohi Bush, Maraetotara, 8 on 15/4 (CFM). White Pine Bush, c.8 on 12/5 (KVT). Kapiti I, only 2 black phase seen in three summers (TGL).

**PIED TIT** *Petroica macrocephala toitoi*

Te Toto Gorge, c.6 on 15/12. South West Pirongia, 8 on 3/3 (RSL). Pirongia West Rd, 1 on 29/1. Rangitoto Ranges, 12, and 1 pair feeding young in nest in ponga, on 12/11 (BHS). Matakana I, north end, 1 cock in pine forest on 25/11 (BC). Mangorewa Gorge, Kaharoa, 5 cocks feeding along riverbed, 1 was dropping from branch into a small pool to wash and drink, 3 times in 5 minutes on 30/7 (PCML). Bellbird Bush, c.6 on 3/12 (KVT). White Pine Bush, 1 pair in exotic forest on 12/5 (RMH, CFM). Wanganui River Valley, Atene Walkway, 21 seen at intervals along track on 26/2 (RAC, SEC).

**NORTH ISLAND ROBIN** *P. australis longipes*

Moturoa I, Bay of Islands, 1 surviving on 29/10 6 months after 6 birds were transferred from Rotorua district. Little Barrier I, singing strongly on

4/8. Mamaku, very common in cutover forest but absent from nearby pines on 13/4 (TGL). Kaimai foothills, Rapurapu Stream, 7 along 3 km bush track on 14/3 (FN, BHS, MS). Rangitoto Ranges, 1 on 12/11 (BHS). Mangorewa Gorge, Kaharoa, 1 cock singing on 30/7. Otanewainuku, plentiful all visits during the year (PCML). Wanganui River Valley, Atene Walkway, 2 heard on 26/2 (RAC, SEC). Kapiti I, fledging at end of first week of Nov (TGL).

**SONG THRUSH** *Turdus philomelos*

Hamilton, first song on 17/4 (PJA).

**BLACKBIRD** *T. merula*

Hamilton, first song on 21/7 (PJA). Te Kuiti, first song attempt on 6/8 (RG). Hastings, dawn song on 30/5, 3 males and 1 female bathing in puddle on 4/6 (KVT).

**SILVEREYE** *Zosterops lateralis*

Hastings, 14 feeding at syrup dish on 20/8. Mohi Bush Maraetotara, noisy flocks on 15/4 (KVT).

**STITCHBIRD** *Notiomystis cincta*

Cuvier I, present on 4/7. Little Barrier I transfers now breeding and a number of independent juveniles recorded (MED, TGL, CRV). Kapiti I, 30 Little Barrier I transfers released on 11/8 and during 1983/84 summer 7 colour-banded birds found, 2 males, 5 females, 4 of which are known to have bred; 1 fledgling 1 day out of nest attacked by a male Bellbird on 26/3 (TGL).

**BELLBIRD** *Anthornis melanura*

Stanley I, present on 4/7. Little Ohena I, a few on 5/7. The birds in the Mercury Group have a curious rattling call like some of the Fiji Wattled Honeyeaters (TGL). Waharau Reserve, 1 in school camp on 28/8, and during circuit of track from sea level into bush a small population was found (BB). Mt Karioi No. 2 summit, 2 on 15/12 (RSL). Pirongia West Rd, 4 on 29/1. Rangitoto Ranges, 6 on 12/11 (BHS). New Plymouth, Barrett Lagoon, 2 on 9/10 (DGM); Pukekura Park, 1 feeding young on 16/1 (JM); seldom seen (DGM). Wanganui, Virginia Lagoon, 1 heard on 20/1 (JLM, MM).

Kapiti I, a nest in a cavity of a rocky bank on 25/12, nestlings fed on a diet which appeared to consist entirely of invertebrate material; 2 chicks fledged despite threat of predation by wekas and Norway rats; first fledglings heard on 31/12 (TGL).

**TUI** *Prosthemadera novaeseelandiae*

Opuawhanga, 1 feeding 2 juv. on 2/12 (JFS). Waitakere Ranges, a partial albino on 29/10 remained in area over some weeks (BAE, JES). Waharau Reserve, 14 all silent on 28/8 (AJG). Kawakawa Bay, 50+ feeding on kowhais on 25/9, not uncommon for hundreds to be present (BB). Pirongia West Rd, 6 on 29/1. Rangitoto Ranges, 4 on 12/11 (BHS). Te Kuiti, absent from Ailsa St during March (RG). Mohi Bush, 8 on 15/4 (MTC, BMT). White Pine Bush, 3 on 12/5 (KVT).

**YELLOWHAMMER** *Emberiza citrinella*

Waiotira, first "cheese" song on 3/10 (TGL). Kaituna Wildlife Refuge, 2 flocks of 100+ in harrowed and disced ground on 6/8 (PCML). Hawke's Bay, large flocks in winter (KVT).

**CHAFFINCH** *Fringilla coelebs*

Auckland Domain, first song on 28/7 (TGL). Te Kuiti, first song on 16/7 (RG). Kaharoa, 2 flocks, c.50 in rank growth in bush clearing on 18/3 (PCML).

**GREENFINCH** *Carduelis chloris*

Albert Park, Auckland, harsh buzzing calls heard in oak trees on 21/9. Similar calls at Waiotira on 29/9 (TGL). Hamilton, 20 feeding on sunflower seedhead in Jan/Feb (FN). Haumoana, c.80 feeding on seeds of wild beet and shore convolvulus on 29/4 (KVT).

**GOLDFINCH** *C. carduelis*

Ahuriri, c.600 feeding in grass paddock on 25/3 (KVT). Foxton, 1000+ on waste ground at Wharfe Rd in Aug (JLM, MM).

**REDPOLL** *C. flammea*

Hastings, 1 at syrup dish on 6/7, 1 on 16/8 (KVT).

**STARLING** *Sturnus vulgaris*

Hamilton, all in winter plumage by 7/3 (PJA). Hastings, 1 with large hooked bill on 17/1 (KVT).

**INDIAN MYNA** *Acridotheres tristis*

Wanganui, 1 on 20/1 (JLM, MM).

**NORTH ISLAND SADDLEBACK** *Philesturnus carunculatus rufusater*

Motukawanui I, a survey between 21 and 23/4 gave a total of 21, of which 12 were locally bred from the 1983/84 season (MED, PFJ, TGL). Little Barrier I, 50 transferred from Cuvier I on 26/2, 25 seen again between 2 and 9/4 (MED, TGL, CRV). Stanley I, now at least 200 birds, 9 of the 24 released 7 years ago still alive (MED, PFJ, TGL). Kapiti I, some locally bred males continuing to sing mimicked copies of Tui alarm notes 1983/84 season; some Morepork predation; a male and 3 juv mobbing a Morepork on 30/1 (TGL).

**NORTH ISLAND KOKAKO** *Callaeas cinerea wilsoni*

Little Barrier I, 4 adults and 1 juv all above 450 m elevation between 3 and 8/4; the juv. was the first for the I (TGL). Hunua Ranges, Kohukohunui Track, 5 heard on 27/11 (JVD). Coromandel Pen, Golden Cross, 2 seen, 1 heard making an unusual churring noise on 2/12 (CS, GS). Pirongia West Rd, heard on 29/1 (BHS). Pareora, 1 mewing and moving through pines at Fletchers Rd on 26/10; census of Pikiariki Bush, 8 pairs and 9 singles in Jan (RG). Rangitoto Ranges, Meyer Block, 2 on 26/4 (PJA). Kararoa, Aislabie Block, 3 in full song, nest in ponga on 18/3 (PCML). Waitaanga Ranges Saddle, 1 seen, 2 heard on 28/8 (RWW, TPB).

**BLACK-BACKED MAGPIE** *Gymnorhina tibicen tibicen*

Te Kuiti airport, 2 with 12 White-backed Magpies on 30/6 (AMCD). Mangleton, 1 attacking a stoat on 6/4 (REW).

**ROOK** *Corvus frugilegus*

Takapau, c.200 in ploughed field on 25/4 (KVT). Dannevirke, c.20 on 17/12 (JLM, MM).

*Corvus* sp.

Waikanae E, an all-black corvid flying inland on 2/5 (TGL).

# CLASSIFIED SUMMARISED NOTES

## SOUTH ISLAND

1 July 1983 to 30 June 1984

Compiled by P. D. Gaze

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**Abbreviations:** ad. adult, c. approximately, Ck Creek, Est. Estuary, Hbr Harbour, Hd Head, I. Island, imm. immature, juv. juvenile, L. Lake, NLNP Nelson Lakes National Park, Pen. Peninsula, Pk Park, Pt Point, R. River, Sd Sound, S.P. Sewage Pond, SF State Forest, Stm Stream.

### STEWART ISLAND BROWN KIWI *Apteryx australis lawryi*

Tin Range, 1 female feeding in the open in mist and drizzle on 25/12 (AJDT).

### GREAT SPOTTED KIWI *A. haastii*

Greymouth-Westport, common, breeding (DJO).

### YELLOW-EYED PENGUIN *Megadyptes antipodes*

Banks Pen., 5 at Stony Bay on 29/12 (DB). L. Wainono, 1 imm. in surf on 26/3 (KM). Bluff Hill, adult with 2 eggs on 6/11, empty and deserted on 27/11 (MLB). Penguin Beach, 72 came in during 7 hours on 17/12 (KCG). Boulder Beach, 8 incubating on 22/10, Papanui Beach, 2 incubating on 22/10 (KM).

### BLUE PENGUIN *Eudyptula minor*

Titirangi, Marlborough Sounds, 20 ashore in dunes in late evening (6 appeared immature) on 27/3, 6 under building near shore on 3/6 (GIR). Tasman Bay, 100+ in April, in pairs and groups where previously on only 2-3 pair (JMH). Pelorus Sound, 2 on 4/7 (DJB). Charleston, breeding (DJO). Tuhawaiki I., 2 chicks at burrow on 3/1 (KCG). Okuru, 1 in July (CFJO'D).

### FIORDLAND CRESTED PENGUIN *Eudyptes pachyrhynchus*

Murphys Beach, c.40; Monroe Beach, c.20; Hunts Beach, 1 in Nov; Knights Pt, 1 on 27/5 (CFJO'D).

### SOUTHERN CRESTED GREBE *Podiceps cristatus*

L. Rotorua, NLNP, 1 on 26/11 (GIR). L. Rotorua, Kaikoura, 2 on 17/9, 5 on 1/10 (BE). L. Poerua, 7 on 15/10 (CSL). L. Pearson, 6 ad. and 1 young on 7/2, 7 ad. and 2 young on 25/5; L. Marymere, 2 ad. and 1 young on 7/2; L. Grassmere, 2 ad. on 7/2 (CFJO'D). L. Selfe, 4 on 16/7 (PMS), pair shot by fisherman in Jan 84 (CFJO'D). L. Coleridge, 12 on 16/7 but

none on other lakes in this group (PMS). L. Heron, 26 on 11/3; L. Emma, 9 on 11/3; Maori Lakes, 0 on 11/3; L. Camp, 0 on 11/3; L. Roundabout, 0 on 11/3; L. Clearwater, 2 on 11/3; giving total of 37 ad. and 3 young on the Ashburton Lakes (CFJO'D). L. Moeraki, pair with nest part covered with water on 18/12 (NJW). L. Thomas, 1 on 25/12, no further sightings (KM). L. Monowai, 4 juv. near outlet on 2/5 (AW), 1 adult on 27/6 (WJC). L. Te Anau, pair near Wildlife Park on 7/9 (AW).

AUSTRALIAN LITTLE GREBE *Tachybaptus novaehollandiae*

L. Rotorua, Kaikoura, 3 on 17/9 (BE). St Annes Lagoon, 1 on 16/5 (CJFO'D).

CAPE PIGEON *Daption capense*

Nelson sewer outfall, 200+ in July (JMH). Kaikoura wharf, c.80 on 13/7 (BE). Lawyers Head, 94+ on 2/10 (KCG).

MOTTLED PETREL *Pterodroma inexpectata*

L. Hauroko, breeding (WJC). Wairaurahiri Valley, heard overhead at night on 19/1 (GL).

CHATHAM ISLAND PETREL *P. axillaris*

South East Island, 2 on 16/1 (JFMF).

BROAD-BILLED PRION *Pachyptila vittata*

Te Anau, 4 birds (2 dead) found near township on 12/12 (AW).

FAIRY PRION *P. turtur*

Motunau I., many birds arrived ashore after 2140 on 2/12, eggs well incubated at this stage (JFMF, PMS).

WESTLAND BLACK PETREL *Procellaria westlandica*

Punakaiki, poor breeding success, winter 83 (DJO).

BULLER'S SHEARWATER *Puffinus bulleri*

Cape Foulwind, 2 on 26/3 (DJO). Milford to Caswell Sound, hundreds seen offshore on 4/4; Breaksea to Doubtful Sound, 3 on 14/4 (KM).

SOOTY SHEARWATER *P. griseus*

Punakaiki, summer visitor probably breeding Seal I. (DJO). Motunau I., very few birds ashore on 2/12 (JFMF, PMS). Banks Pen., no adults at Tumbledown Bay on night of 19/3 but 10 burrows located. Four of these each contained a dead chick, one contained 2 dead adults, one was empty and two were too deep to investigate. Wild cats are the suspected predator (GW). Makawhio SE, reported to breed on coastal cliffs (CFJO'D). Monroe Beach, 20 on 7/12 (NJW). Taiaroa Hd, several coming into burrows after dark on 23/10 (AJDT). Balclutha, 1 on road on 23/5, later released at L. Te Anau (AW). Tuhawaiki I., 1 between island and mainland feeding on small fish on 3/1 (KCG). L. Monowai, 30 on 2/5 (AW).

FLUTTERING SHEARWATER *P. gavia*

Wairau Diversion, 600+ on 21/1 (DJB). Cape Foulwind, c.50 on 26/3 (DJO).

WHITE-FACED STORM PETREL *Pelagodroma marina*

Motunau I., several birds in burrows on night of 2/12, all incubating 1 egg each (JFMF, PMS).

**AUSTRALASIAN GANNET** *Sula bassana serratior*

Farewell Spit, 600 in November (BDB, JMH). Punakaiki, regularly seen in small numbers offshore, adults only (DJO). Monroe Beach, 12 on 7/12, seen regularly in Jan, locals report that gannet numbers have never been so high with groups of up to 30 birds (CFJO'D). Otago Pen., single birds seen fishing on 22/10, 19/11 and 17/12 (KCG).

**BLACK SHAG** *Phalacrocorax carbo*

Kenepuru Sound, 2 on 10/10 (GIR). Vernon Lagoons, 10 on 27/7, 15 on 6/8 (GIR), 76 on 20/11 (DJB). Hokitika R., 7 at mouth on 7/7 (NJW).

**PIED SHAG** *P. varius*

Heaphy R., 11 at mouth on 21/1 (AJDT). Pelorus Sd, 120+ on 29/10 (PJ). Wairau Diversion, 1 imm. tried unsuccessfully to swallow flounder 15/3 (APB). L. Grassmere, 29 on 5/11 (DJB). L. Elterwater, no nesting early winter as lake dry (TJT). Avon-Heathcote Est., 2 on 31/7; Taylors Mistake, 3 on 27/5 (DB). Monroe Beach, 1 in Aug (CFJO'D).

**LITTLE BLACK SHAG** *P. sulcirostris*

Seal I., Kaikoura, 1 on 13/7 (BE).

**LITTLE SHAG** *P. melanoleucos brevirostris*

Wairau Loop, Grovetown, c.60 roosting in willows on 19/11 (DJB).

**KING SHAG** *Leucocarbo carunculatus carunculatus*

Stewart I., off D'Urville I., 20 in April (JMH). Duffers Reef, 62 including 17 imm. and 10 nests on 3/7 (DJB).

**SPOTTED SHAG** *Stictocorbo punctatus punctatus*

Tasman Bay, 2000+ during winter (JMH). Wairau Diversion, 233 on 21/1 (DJB), 132 on 15/3 (APB). Perpendicular Point and 10 Mile Bluff, breeding; Charleston, 180 seen in 10 min. on 22/2 (DJO).

**BLUE SHAG** *S. punctatus steadi*

Monroe Beach, 2 on 11/12 (NJW).

**LESSER FRIGATE BIRD** *Fregata ariel*

Farewell Spit, 1 in November (TW).

**WHITE-FACED HERON** *Ardea novaehollandiae*

Grovetown, c.20 on 23/5 (WFC). Fairhall, 18 on 12/5 (PJ). Blaketown Lagoon, 2 on 7/1, 5 on 11/2 (CSL). Lake Station, St Arnaud, 9 on 2/6 (PJ).

**WHITE HERON** *Egretta alba*

Collingwood, 1 on 14/1 (WFC); Westhaven, 1 on 14/1 (WFC); Motueka, 1 on 14/1 (WFC). Nelson Haven, 1 during April-May (JMH). Hope, 1 in garden for several weeks during August (EH). Karamea, 1 on 18/1 (WFC); Vernon Lagoons, 1 on 17/5 (WFC), 1 on 21/7, 1/8 and 6/8 (GIR). Marshlands, 1 in flooded paddocks on 17/7 (DJB). Birchfield, 1 on 6/6 (JCD). West Coast Region, small numbers in estuaries and paddocks especially in autumn/winter (DJO). Avon-Heathcote Est., 1 on 4/6 (KCH). L. Forsyth, 4 on 4/9 (DB). L. Ellesmere, 1 on 1/6 (KCH). Saltwater Ck, 1 on 20/8 (KCH). Milford Lagoon, 1 on 27/8 (PMS). L. Monowai, 1 on 2/5 (AW).

**LITTLE EGRET** *E. garzetta*

Waimea Est., 2 during April (JMH). Orowaiti Est., 1 on 14/4 (DJO).

REEF HERON *E. sacra*

Torrent Bay, 3 in Feb (JMH). D'Urville I., 2 on 7/5 (WFC). Orowaiti, 1 on 6/6 (JCD). Avon-Heathcote Est., 1 on 5/8 (DB). Lyttleton Hbr, 1 on 3/6 (KCH).

CATTLE EGRET *Bubulcus ibis*

Golden Bay, 23 on 13/6 (census). Hope, 6 during May (EH). Rai Valley, 3 on 12/8 (PJ), 1 on 20/5 (WFC). Grovetown, 26 on 17/7 and 22/9 (DJB), 26 on 24/10 in breeding plumage, 1 on 11/4, 13 on 21/4, 27 on 12/5 (PJ), 37 on 18/6 (APB). Rapaura, 6 on 25/6; Fairhall, 12 on 12/5 (PJ). Ward, 4 feeding among sheep, some worms eaten on 27/5 (TJT). Karamea, 10 on 15/4; Little Wanganui, 2 on 15/4; Mokihinui, 5 on 15/4 (M&RL). Birchfield, 4 on 24/5 (JCD). Carters Beach, 2 on 25/5 (RNT). Kaikoura, 11 on 1/10, 3 on 12/11 (BE). Inangahua, 4 on 15/4; Reefton, 4 on 10/4 (M&RL). Canoe Ck, 6 on 25/5 (RNT). Barrytown, 5 on 8/4, 10 on 3/6 (DJO). Inchbonnie, 3 on 4/5 (PJF). Arahura, 4 on 30/7, 5 on 3/8, 5 on 23/10 (NJW). Harihari, 8 on 18/4 (CFJO'D); 2 on 21/5 (AW). Whataroa, 7 on 18/4 (CFJO'D); 2 on 21/5 (AW). Franz Josef, 3 on 18/4 (CFJO'D); 2 on 21/5 (AW). Hunts Beach, 6 on 18/4; Mahitahi R, 15 on 18/4; Paringa, 18 on 18/4; Haast, 7 on 18/4 (CFJO'D), 1 on 21/5 (AW). Birds arrived in S. Westland during first week of April and most had disappeared by first week of May (CFJO'D, NJW). Waikuku, 3 on 20/8; Bromley Sewage Farm, 2 on 4/6 (KCH). Templeton, 2 on 12/6 (CFJO'D). Clandeboye, 15 with dairy herd on 27/8 (PMS). Makarora, 2 on 21/5 (AW). Berwick, 10 on 18/3 (ALN). Milford Sd, 16 roosting in beech tree on 11/4 and 20/4 (KM). Te Anau, 1 on 3/7, up to 8 from 13/4 to 29/4 (JVM). Manapouri, 3 on 8/5 (KM). Makarewa, 18 feeding with sheep on 30/6 (WJC). Ōwenga, Chatham Island, 3 on 12/10 (JFMF).

NANKEEN NIGHT HERON *Nycticorax caledonicus*

Pakawau, 1 banded bird on 15/8 probably an escapee from Wgtn Zoo (EG).

AUSTRALASIAN BITTERN *Botaurus stellaris*

Punakaiki, uncommon (DJO). Cook R. flats, 1 in rough pasture and tussock on 6/6 (PDG). Hunts Beach, 1 on 25/5 (CFJO'D).

ROYAL SPOONBILL *Platalea regia*

Farewell Spit, 20 on 14/6 (census). Motueka Est., 17 during winter 84 (JMH). Vernon Lagoon, c.20 and 20/11 (DJB), 14 on 17/5 (WFC). Brooklands Lagoon, 3 on 23/9; Bromley Sewage Farm, 2 on 9/7 (KCH). Kaituna Lagoon, 2 on 22/11 (JFMF, PMS), 2 on 8/4 (DB).

BLACK SWAN *Cygnus atratus*

Vernon Lagoons, c.1500 on 20/11 (DJB). L. Ryan, 3 adults and 3 cygnets on 12/11 (CSL); Paynes Gully, 1 on 17/3 (CSL). L. Thomas, pair with 3 juv. on 27/2 (JVM).

CANADA GOOSE *Branta canadensis*

L. Elterwater, 153 on 1/7 (TJT). Barrytown, 8 on 23/6; L. Ryan, 2 on 12/11; Cobden Lagoon, 4 on 24/6 (CSL). L. Thomas, c.100 on 14/2, 116+ on 19/6 (KM).

PARADISE SHELDUCK *Tadorna variegata*

Ward, clutches of 5 and 9 on dams on 20/10, 520 on pea paddock on 15/2 (TJT). L. Thomas, 600+ on 25/12 (JVM).

**MALLARD** *Anas platyrhynchos*

Hokitika S.P., c.80 on 3/2; Hokitika R. mouth, 41 on 7/7, 3 on 11/10 (NJW). L. Thomas, 700+ on 16/6 (JVM).

**GREY DUCK** *A. superciliosa*

Stewart I., 2 at Scollays Flat on 28/12 (AJDT).

**GREY TEAL** *A. gibberifrons*

Hapuku, 14 on 2/2 (BE). Kumara Beach, 3 in swamp on 17/3 (CSL). L. Ellesmere, c.1500 in April (CFJO'D). L. Te Anau, 28 at south end on 17/6 (JVM).

**NEW ZEALAND SHOVELER** *A. rhynchotis*

Hapuku, pair on 7/10 (BE). Cobden Lagoon, 9 on 12/11 (CSL), c.30 on 8/4 (DJO). Blaketown Lagoon, c.60 on 30/6 (CSL). Greymouth airfield, c.30 during March/April (DJO). Hokitika S.P., 8 on 6/1 (NJW). Arahura R. mouth, 4 on 30/8 (NJW). L. Ellesmere, 50 on 2/10 (KCH). L. Te Anau, 14 at south end on 17/6 (JVM).

**BLUE DUCK** *Hymenolaimus malacorhynchos*

Pelorus R., 1 calling at night on 21/4 (DJB). Central Maruia Ecological Area, 2 in Scotty Ck on 10/1; L. Christabel Ecological Area, 1 in Brown Grey R. on 12/2, 1 on west branch of Blue Grey R. on 15/2 (IPN). Upper Kokotahi R., 3 on 24/4 (DB), Lower Kokotahi R., 2 on 26/4 (DB). Architects Ck, Copland Valley, 2 on 25/5 (EBS). Manakaiaua R., 1 in Dec; Upper Moeraki R., 1 in March (CFJO'D).

**NEW ZEALAND SCAUP** *Aythya novaeseelandiae*

L. Cobb, 1 on 1/1 (BN). L. Christabel, 2 on 13/2 (DB). L. Kaniere, breeding (DJO). L. Pearson, 88 on 16/7; L. Grassmere, 119 on 16/7 (JFMF). L. Heron, c.1300 in March; L. Alexandrina, 1028 on 17/7 (CFJO'D). L. Hauroko, 3 nests Nov-Dec (WJC).

**AUSTRALASIAN HARRIER** *Circus approximans*

Molesworth, 1 standing in 15 cm of running water on 18/9. It has been suggested they drink a lot after eating rabbits poisoned by 1080 (PJ). St Bathans Range, 1 at 1980 m on 20/3 (JVM).

**NEW ZEALAND FALCON** *Falco novaeseelandiae*

Maud I., 1 in April (WFC). Port Gore, 1 caught a skylark on 28/3 (GIR). Ward, 2 on 20/10 (TJT). Goose Bay, 1 on 3/11 (BE). Central Maruia Ecological Area, 2 on 17/11 (KWD). West Bank Maruia, 2 in Wooley R. on 26/1 (DB). L. Christabel Ecological Area, 2 on 17/2 (IPN). L. Lyndon, 1 near road on 4/3 (DB). L. Onslow, 1 on 7/1 (WMJ). Gorge Hill, 1 in Burwood Bush on 14/12; L. Hauroko, 1 heard on Mary Island on 7/10 (WJC).

**CHUKOR** *Alectoris chukar*

Ward, small numbers seen consistently over recent years — breeding (TJT). Upper Awatere, 2 on 18/9 (PJ). Seaward Kaikouras, 1 on 17/11 (BE).

**CALIFORNIA QUAIL** *Lophortyx californica*

Ward, breeding in Feb, good numbers in June (TJT). Grovetown, c.30 on 25/10 (DJB). St Arnaud, 2 on 20/11 (PJ).

**PHEASANT** *Phasianus colchicus*

Pounaweia, 1 on 7/1 (KCG).



**WESTERN WEKA** *Gallirallus australis australis*

Pelorus Sound, 4 on 29/10 (PJ). Pelorus Valley, 1 on 23/4 (APB). Paringa, 1 on 24/6, rare elsewhere in S. Westland apart from Karangarua Valley (PDG). Windbag Valley, 1 regularly present; Waitototo R., 1 in Dec (CFJO'D).

**MARSH CRAKE** *Porzana pusilla*

Gillespies Beach, present in Aug (CFJO'D).

**PUKEKO** *Porphyrio porphyrio*

Nydia Bay, 2 on 15/2 (GIR).

**AUSTRALIAN COOT** *Fulica atra australis*

St Anne's Lagoon, 13 on 6/5 (CFJO'D).

**SOUTH ISLAND PIED OYSTERCATCHER** *Haematopus ostralegus finschi*

Grovetown, c.10 on 23/5 (WFC). Karamea, 250 on 15/4 (M&RL). Charleston, 205 on 3/7; Okari, c.600 on 17/3, c.950 on 22/4; Orowaiti, c.300 on 26/3 (DJO). Hokitika R. mouth, 16 on 16/7, c.200 on 11/9, c.50 on 17/9, 12 on 25/9 (NJW). Okarito R. mouth, c.250 on 6/2 (CSL). L. Te Anau, 75 with Spur-winged Plover flock at Upukerora Est. on 30/6 (JVM).

**VARIABLE OYSTERCATCHER** *H. unicolor*

Karamea, 14 on 15/4 (M&RL). Punakaiki, present in small numbers along coast (DJO), 2 on 12/11 and 23/6 (CSL). Hokitika R. mouth, 3 on 17/9; Okarito Lagoon, 6 on 18/11 (NJW). Ashley Est., 1 on 7/1 (KCH). Taylors Mistake, 2 on 27/5; Little Akaloa Bay, 2 on 23/12 (DB). Otago Pen., a pair dived at Yellow-eyed Penguins that came too close on 13/11 (KCG).

**SPUR-WINGED PLOVER** *Vanellus miles novaehollandiae*

Wairau R., 60+ flocking on shingle banks on 11/8 (DJB). Blenheim, 19 near town on 4/8 (PJ). Grassmere, 1 pursued by Banded Dotterel on 5/11 (DJB). Lake Station, St Arnaud, 130 on 2/6; Howard Jct., 20 on 4/12 (PJ). Hokitika R. mouth, 50+ on 14/9; Taramakau R. mouth, 10 on 23/6 (NJW). Norwood, 110 on 23/6, Homebush, 1 ad. with small chick on 10/5 (JSF). Dunedin, 2 at sportsfield on 22/5 (KCG). L. Waipori, 2 out of 4 hatched on 29/8 (ALN). L. Te Anau, 342 at Upukerora Est. on 30/6 (JVM). Otatara, a breeding adult banded on 21/9/71 was recaptured 200 m from original site on 5/7 (MLB).

**LEAST GOLDEN PLOVER** *Pluvialis fulva*

Greymouth airfield, 1 in moult on 9/10 and 12/11 (CSL). Hokitika R. mouth, 1 on 14/9 (NJW). L. Ellesmere, 13 on 8/10 (5 in breeding plumage), 6 on 17/12, 14 on 17/2, 37 on 23/3 (KCH). Invercargill Est., 36 on 22/11 (WJC). Awarua Bay, 9 on 19/11 (RRS), 2 (1 in full breeding plumage) on 3/3 (WJC).

**NEW ZEALAND DOTTEREL** *Charadrius obscurus*

Motueka Sandspit, 2 in March (BE). Farewell Spit, 6 on 13/6 (census). Awarua Bay, 15 on 4/3 (WM&HJ), 15 on 24/6, breast colour 3++, 5+, 7 nil (MLB). Stewart Island, Blakies Hill, 3 on 23/12, Table Hill, 5 on 25/12 (AJDT); Masons Bay, 11 on 4/3, Doughboy Bay, 9 on 4/3 (GMCS).

**BANDED DOTTEREL** *C. bicinctus*

Nelson Haven, 40 on 17/1, 30 on 19/3, 30 on 26/5, 30 on 3/6 (GQ). Vernon Lagoons, 5 on 2/8 (GIR). Kaikoura Pen., 63 on 17/1 (DJB). North Westland, breeding on beaches, airfields and river beds, movements to estuaries in autumn peaking in March, e.g., Westport airport, 117 on 18/3 (DJO). Orowaiti

Lagoon, 20 on 28/11 (CSL). Greymouth airfield, 7 with 2 chicks on 26/11; Blaketown Lagoon, 21 on 7/1, 15 on 24/6 (CSL). Hokitika R. mouth, 20+ on 7/7 (NJW).

**LARGE SAND DOTTEREL** *C. leschenaultii*

Ashley Est., 1 on 29/11 and 11/1 (KCH).

**BLACK-FRONTED DOTTEREL** *C. melanops*

Wairau R., 1 on 26/11 (DJB). Spider Lagoon, 1 on 18/9 (PMS). Karangarua R., 1 in June (CFJO'D), still present on 13/6 (PDG). Outram, 4 on 5/7, nest with 2 eggs on 14/2 (PS). Orari R. mouth, 21 ad. and 3 juv. feeding on silty island on 26/3 (KM). Opihi R. mouth, 18 ad. and 2 juv. on 26/3 (JVM).

**WRYBILL** *Anarhynchus frontalis*

L. Ellesmere, 36 on 13/8 (KCH), 127+ on 1/9, 61 on 1/10 (DB), 83+ on 8/10 (PMS), 50 on 20/10 (KCH), 50+ on 19/2, 72+ on 3/3 (PMS), 48 on 25/3 (JVM), 5 on 17/4, 6 on 28/4 (KCH).

**FAR-EASTERN CURLEW** *Numenius madagascariensis*

Hokitika R. mouth, 1, 11-14/9 (NJW). Avon-Heathcote Est., 1 on 2/9, 15/9, 17/11 and 29/11, 2 on 7/1; L. Ellesmere, 2 on 11/1 (KCH). Waituna Lagoon, 1 at Shand Bay on 19/11, 3 at Walker Arm on 20/12 (WJC).

**HUDSONIAN GODWIT** *Limosa haemastica*

L. Ellesmere, 1 on 25/3 (JFMF).

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

Vernon Lagoons, c.30 on 17/5 (WFC). North Westland, summer visitor in small numbers, a few overwinter. Okari, 27 on 19/11, 4 on 22/4; Orowaiti, 1 on 17/3 in summer plumage (DJO). Hokitika R. mouth, 1 on 11/9, 4 on 17/9, 1 on 19/9 (NJW). Avon-Heathcote Est., 150 on 2/9 (DB), 253 on 15/9 (KCH), 630+ on 4/3 (DB). L. Ellesmere, 12 on 19/9, 4 on 2/10 (KCH), 28 on 16/10 (PMS), 30 on 20/10, 50 on 24/10 and 17/11, 65 on 29/11 (KCH), 2 on 3/3 (PMS), 1 on 25/3 (KM). Hoopers Inlet, 40 on 22/10; Papanui Inlet, 170 on 22/10, 22 on 12/6 (JVM).

**TATTLER** sp. *Tringa* sp.

Catlins Est., 1 on 13/1 (second year seen) (KCG). Awarua Bay, 4 on 19/11 (RRS), 4 together on 16/12 (KVM), 3 on 3/3 (WJC).

**SIBERIAN TATTLER** *T. brevipes*

Kaikoura, 2 on 28/11 (BE), 1 on 16/1 (DJB).

**TURNSTONE** *Arenaria interpres*

Vernon Lagoons, 2 on 4/8 (PJ). Hokitika R. mouth, 1 on 14/9 (NJW). Grassmere, 38 on 23/6 (DJB).

**KNOT** *Calidris canutus*

Okarito Lagoon, 9 on 18/11 (NJW). L. Ellesmere, 22 on 19/9, 2 on 2/10 (KCH), 23 on 16/10 (PMS), 91 on 20/10 (KCH), 90 on 24/10 (CFJO'D), 28 on 17/11 (KCH), 28 on 19/11 (PMS), 2 on 29/11, 49 on 4/1, 2 on 11/1 (KCH), 70 on 7/1 (JFMF), 17 on 17/2 (KCH), 75 on 19/2, 60+ on 3/3, 30 on 15/4 (PMS). Karangarua R., 3 on 10/12, 8 km from mouth (NJW). Invercargill Est., 120 on 17/12 (PM). Awarua Bay, 120+ on 19/11 (MLB), 183 on 16/12 (JVM), 154 on 17/12 (RRS), 18 on 23/4 (JVM), 7 on south side on 24/6 (MLB).

**SHARP-TAILED SANDPIPER** *Calidris acuminata*

L. Ellesmere, 2 on 17/11 (KCH), 1 on 19/11 (PMS), 1 on 7/1 (JSF), 2 on 23/3 (KCH), 3 on 25/3 (KM), 2 on 17/4 and 24/4 (KCH), maximum of 4 during summer (CFJO'D). Invercargill Est., 46 on 22/11 (WJC). Awarua Bay, 3 on 19/11 (MLB). Waituna Lagoon, 5 at Walker Arm on 20/12 (RRS).

**PECTORAL SANDPIPER** *C. melanotos*

L. Ellesmere, 2 on 24/10 (CFJO'D), 1 on 21/11 (KCH), 1 on 19/2, 2 on 3/3, 5 on 17/4 (PMS), 1 on 24/4 (KCH).

**CURLEW SANDPIPER** *C. ferruginea*

L. Ellesmere, 12 on 19/9 (KCH), 3 on 1/10 (DB), 7 on 2/10, 12 on 8/10 (KCH), 26 on 8/10, 49 on 19/11, 15 on 15/4 (PMS), 19 on 24/4, 6 on 28/4 (KCH), maximum count of 61 during summer (CFJO'D). Invercargill Est., 4 on 22/11 (WJC). Awarua Bay, 9 non-coloured on 23/4 (JVM). Waituna Lagoon, 3 at Walker Arm on 17/12 (WJC).

**RED-NECKED STINT** *C. ruficollis*

L. Grassmere, 14 on 5/11 (DJB). L. Ellesmere, 50 on 19/9 (KCH), 56 on 1/10 (DB), 72 on 2/10 (KCH), 74 on 22/10 (JFMF), 105 on 24/10, 40 on 17/2 (KCH), 67+ on 3/3, 71 on 15/4 (PMS), 33 on 24/4, 8 on 28/4 (KCH), maximum of 128 counted during summer (CFJO'D). Awarua Bay, 3 on 17/12 (RRS), 18 in breeding plumage on 23/4 (K&JVM). Waituna Lagoon, 12 at Walker Arm on 17/12 (WJC).

**SANDERLING** *C. alba*

L. Ellesmere, 1, 8-22/10 (JFMF, JSF, PMS), 1 on 6/2 (CFJO'D), 1 on 23/3 (KCH).

**PIED STILT** *Himantopus leucocephalus*

Nelson Haven, 200 during winter 1984 (JMH, GQ), Grovetown, 55 on 5/2 (DJB). Karamea tidal flats, 29 on 15/4 (M&RL). Orowaiti, 65 on 19/11, 80 on 17/3 (DJO). L. Ellesmere, 734+ on 3/3 (PMS). Spider Lagoon, 5 on 27/8, 13 on 18/9 (PMS). Glenavy, 500+ in ploughed paddock on 19/2 (KCH).

**BLACK STILT** *H. novaeseelandiae*

Farewell Spit, 1 on 14/6, G type (GBW). L. Ellesmere, 1 juv. on 2/10 (KCH), 1 on 3/3 (PMS).

**SOUTHERN GREAT SKUA** *Stercorarius skua lonnbergi*

Stewart I., 1 at Maori Bay on 15/12 (AJDT).

**POMARINE SKUA** *S. pomarinus*

Monroe beach, Moeraki, 3 on 11/12 (NJW), up to 6 seen later in summer (CFJO'D).

**ARCTIC SKUA** *S. parasiticus*

North Westland, small numbers especially in autumn. Tauranga Bay, c.7 on 19/11; Charleston, 1 on 1/1; Fox R., c.5 on 18/2; Punakaiki, c.4 on 24/3; all dark colouring (DJO).

**SOUTHERN BLACK-BACKED GULL** *Larus dominicanus*

Nelson Boulder Bank, 1577 nests on 8/11 (JMH).

**RED-BILLED GULL** *L. novaehollandiae*

Tauranga Bay, c.20 nests on 19/11; Fox R., 1 nest on 16/12 (DJO).

**BLACK-BILLED GULL** *L. bulleri*

L. Rotoiti foreshore, 0 on 8/10, 2 on 11/10, 4 on 18/11 (PJ). Maggie Terrace, St Arnaud, 300 on 12/10, c.1000 on 19/11 (PJ). Arahura R. mouth, c.80 on 30/3; Hokitika R. mouth, c.120 on 26/7, 190 on 30/8, 200+ on 11/9 (NJW). Glenavy, 1000+ feeding on ploughed paddock on 19/2 (KCH). Whitestone R., c.200 nests with eggs on 30/10, later washed out (KM).

**WHITE-WINGED BLACK TERN** *Chlidonias leucopterus*

Nelson Boulder Bank, 1 imm. at WF Tern colony on 2/1 (JMH). Jacobs R., 1 on 29/11 (NJW). Coopers Lagoon, 1 on 12/3 (CFJO'D). Spider Lagoon, 2 on 27/8, 1 imm., 1 in full breeding plumage; 3 on 18/9, 2 moulting out of breeding plumage and 1 in winter plumage (PMS).

**CASPIAN TERN** *Hydroprogne caspia*

Nelson Haven, 30 during Feb-April (JMH). Taylor R., 1 on 12/7 (DJB). Punakaiki, 2 (1 juv.) on 23/6; Blaketown Lagoon, 1 on 24/6 (CSL). Avon-Heathcote Est., 32 on 4/3 (DB). L. Ellesmere, 1 on 16/10 (PMS). Catlins Est., adults fed 1 juv. on 13/1 (KCG). Invercargill Est., 4 on 20/8, 51 chicks in 54 nests on 22/11 (WJC).

**BLACK-FRONTED TERN** *Sterna albobriata*

Howard Jct., 58 on ploughed paddock 19/1; Maggie Terrace, St Arnaud, 12 on 19/1 (PJ). Vernon Lagoons, 300+ on 17/5 (WFC). Wairau R. mouth, 11 feeding at sea over dirty flood waters on 17/7 (DJB). Wairau (Wye), 104 on 24/7; Wairau (Saltwater), 150 on 25/11 (PJ). Rapaura, 50 feeding over mown hay on 26/11; Kaituna, 6 on 31/10 after colony washed out (DJB). Mahitahi R., 1 imm. on 11/1; Okuru, 21 in Aug (CFJO'D). L. Ellesmere, 5 roosting on 3/3; Opihi R. mouth, c.13 feeding offshore on 10/7, 11 on 19/2 (PMS). Glenavy, 98 feeding over ploughed paddock on 19/2 (KCH). Taieri Mouth, 1 with White-fronted Terns on 23/4 (KCG). Dunton Ck, Eglinton V., pair hovered over their nest as 4 Black-billed Gulls ate one of their eggs on 2/10 (KM). Oreti Beach North, 40 roosting in field on 24/6 (WJC).

**LITTLE TERN** *S. albifrons*

Pakawau, 1 in Nov (BDB, JMH). Waimea Est., 4 in June (RHT, HAR, PC). Vernon Lagoons, 1 with White-fronted Terns on 20/11 (DJB). L. Ellesmere, 3 on 6/2 (CFJO'D). Taieri Mouth, 1 with White-fronted Terns on 23/4 (KCG).

**WHITE-FRONTED TERN** *S. striata*

Wairau mouth, 340 on 21/1 (DJB). Kaikoura, 50 on 17/1 (APB). Tauranga Bay, c.200 and c.15 nests on 19/11; Fox R., c.700 on 25/8, 6 nests on 16/12; Charleston, c.300 on 24/1 (DJO). Hokitika R. mouth, c.120 on 12/7, 22 on 30/8 (NJW). Okarito, c.40 (7 juv.) on 6/2 (CSL). Paringa R. mouth, c.145 (50% juv.) on 12/2 (NJW). Invercargill Est., 92 nests on 22/11 (WJC). Stewart I., 6 at Maori Bay on 1/1, 3 at Diprose Bay on 2/1 (AJDT).

**NEW ZEALAND PIGEON** *Hemiphaga novaeseelandiae*

Okuti Valley, Banks Pen., 2 on 24/6 (KCH). Catlins, flock of 15 plus many others at Falls Ck on 9/2 (AJDT). Manapouri, 54 feeding on clover by road on 5/9 (WJC).

**SOUTH ISLAND KAKA** *Nestor meridionalis*

West side Takaka hill, 2 on 22/1 (WFC). Port Gore, 2 in beech forest on 27/3 (GIR). Fenian Gully, Heapthy Track, 5 on 23/1 (AJDT). Central Maruia Ecological Area, present from 17/11 to 12/1 (KWD). West Bank Maruia, 3 on 2/12 (DB). L. Christabel Ecological Area, 2 on 5/2 (DB).

**KEA *N. notabilis***

Mt Stokes, 1 on 28/3; L. Angelus, 2 on 3/10 (GIR). Travers Valley, 2 on 26/11 (PJ). Charleston, 1 on 25/5 (DJO). Blaketown, 1 on 7/1 (CSL). Poerua, 2 on 4/4 (PJF). Blackhill, Oxford, 1 at 600 m on 29/1 (EBS).

**EASTERN ROSELLA *Platycercus eximius***

Berwick, 6 in scrub on 22/10; Waipori, 2 on 22/10 (KM).

**RED-CROWNED PARAKEET *Cyanoramphus novaeseelandiae***

Stewart I., Diprose Bay Track, 7+ near a hollow tree with fresh wood chips on 2/1 (AJDT).

**YELLOW-CROWNED PARAKEET *C. auriceps***

Charleston, 1 on 7/2 and 19/3 (DJO). Maruia Ecological Areas, present over summer months (KWD). L. Karapataka, 2 on 26/8 (DB).

**SHINING CUCKOO *Chrysococcyx lucidus***

Pelorus R., 3 on 15/10 (DJB). Charleston, first record on 26/9, first fledging 19/12, last fledging 28/1, singing ceased 12/1, last record 3/3 (DJO). Hokitika, first heard 29/9 (NJW). Inchbonnie, 1 on 6/2 (PJF). Ashley R., near Rangiora, several birds feeding among stones under willows and gorse on 15/10 (PMS). L. Holm, 1 heard on 22/10 (ALN).

**LONG-TAILED CUCKOO *Eudynamis taitensis***

Charleston, uncommon, 1 on 3/12, 1 on 9/1, 1 on 22/2; Punakaiki, present through summer (DJO). Greymouth, 1 on 10/12 calling at 10 pm; Franz Josef, 1 on 6/2 (CSL).

**MOREPORK *Ninox novaeseelandiae***

Saxon Hut, Heaphy, 5 on 19/1 (AJDT). Pounawea, heard only once during Jan (KCG). Te Kakaho, 2 on 3/7 (DJB). Bruce Bay, 1 seen to take whistling frog from highway (PDG).

**LITTLE OWL *Athene noctua***

SH 94, Mossburn-Te Anau, 1 injured on road on 23/5 (AW). West Melton, 2 on 7/1 (JSF).

**NEW ZEALAND KINGFISHER *Halcyon sancta***

Blenheim, 1 with brown back on 31/7 (PJ). Karama, 16 on 15/4 (M & RL). Te Anau, up to 4 feeding on Atlantic salmon in fish troughs at Wildlife Reserve during June (AW). Invercargill coast, last sighted 25/9, first sighted 20/2 (MLB).

**SOUTH ISLAND RIFLEMAN *Acanthisitta chloris chloris***

Mt Robertson, 10 on 3/12 (DJB). Kaikoura township, 1 present Dec-Feb (BE). Charleston, very common in mountain beech forest, unusual record of one in gorse and manuka on 5-20/4 (DJO). Orari R., pair in crack willow 1.4 km upstream from mouth on 25/3. Glandeboye-Milford road bridge, 4 in willows on 26/3 (KM).

**ROCK WREN *Xenicus gilviventris***

Central Maruia Ecological Area, 1 in Scotty Ck on 15/1 (IPN). West Bank Maruia R., 2 in Waterfall Ck on 28/1 (DB). L. Christabel Ecological Area, 2 at Brown Grey R. on 8/2 (IPN). Okarito, 1 on 6/2 on driftwood and beach rocks, sightings over several days (CSL). Cronin R., below Whitehorn Pass, 2 on 20/4 (DB).

**TREE MARTIN *Petrochelidon nigricans***

L. Holm, 1 on 12/1, 2 on 18/1, 3 on 21/1, 8 on 14/2, 10 on 17/2 and 11 on 2/3 (ALN).

**FAIRY MARTIN** *P. ariel*

L. Holm, 1 seen on 29/12 and 30/12 (ALN).

**WELCOME SWALLOW** *Hirundo tahitica neoxena*

Bells I., S.P., 300+ roosting and feeding in April (JMH). Ward, nested in cave in Jan, a small group mobbed a falcon (TJT). Heaphy Track, pair nesting in the Aorere Shelter on 18/1 (AJDT). L. Rotoiti, 4 young being fed on 27/11 (PJ). Blaketown Lagoon, c.40 on 24/6 (CSL). Nenthorn, 1 on 27/3 (JVM). L. Holm, first fledging on 2/12 (ALN). Te Anau, 30-40 in late July, 6 on 5/8 then reappeared 5 on 12/5, 5 on 27/6 (KM). Awarua, single bird remained all year from last season until Sept when 2 birds seen; 2 yr old nest relined, 3 eggs, 2 fledged. On 5/11 3 eggs in a new nest; full clutch of 5, 5 hatched, 4 fledged. The two adults and 4 young all roosting in nest on 20/12. On 1/1 a third clutch of 4 eggs in same nest, no sign of juveniles. Nest empty on 15/1 (MLB).

**PIPIT** *Anthus novaeseelandiae*

Charleston, breeding on pakihis and alpine tops, winter dispersal to beaches and farmland. A partial albino in June (DJO). Awarua, 51 on 7/1 along 8.8 km of road (MLB).

**HEDGESPARROW** *Prunella modularis*

Hokitika beach, common in lupins along foreshore on 11/9 (NJW).

**FERNBIRD** *Bowdleria punctata*

Heaphy Track, 2 at Mackay Hut on 21/1 (AJDT). L. Christabel Ecological Area, 3 on 1/2 (RCM). L. Holm, 4 singing on 22/4 (ALN). Stewart I., 1 at base of Table Hill on 23/12 (AJDT).

**BROWN CREEPER** *Finschia novaeseelandiae*

Ward, 2 pair 1.5 km from bush on 15/12, present in most scrub patches (TJT). Reynolds Valley, Banks Pen., 12 on 24/6 (KCH). Stewart I., 4 on Arena Ridge on 30/12 (AJDT).

**YELLOWHEAD** *Mohoua ochrocephala*

Flora Saddle, 1 bird seen and heard on 1/1 (JT). West bank Maruia, 1 heard on 23/1 (KWD, DB). Ohinemaka SE, 1 in Jan (CJFO'D). Paringa R., 1 on true right bank above SH 6 on 23/6 (PDG). Windbag Valley, 3 in Nov and again in June; Upper Moeraki, 4 in March (CFJO'D). Greenstone Valley, 3 feeding in silver beech on 3/5; Upper Caples Hut, 2 on 6/5 (JVM).

**YELLOW-BREASTED TIT** *Petroica macrocephala macrocephala*

Cape Campbell, 1 in Oct (A & GS). Charleston, first fledging 2/10, last of second brood 6/11 (DJO). Te Anau, Lynwood Reserve, 1 ad. male on 24/9, 10 km from nearest beech forest (JVM).

**SOUTH ISLAND ROBIN** *P. australis australis*

Tennyson Inlet, 2 in forest on 16/2 (GIR). Pelorus R., only present upstream of Middy Ck (APB). Otemakura Stm (Goose Bay), 5+ on 3/11 (BE). Kahutara R., 1 on 16/11 (BE). Hope R., L. Sumner, common in August (DB).

**SONG THRUSH** *Turdus philomelos*

Westport, first egg on c.11/8; Little Totara R., first egg on c.24/8, last fledging c.24/1 (DJO). Invercargill, Queens Pk golf course, 54 on 18th fairway on 23/2 (WM & HJ).

**BLACKBIRD** *T. merula*

Little Totara R., first egg c.17/9, last fledging c.24/1 (DJO). Old Man Range, female on ground at 1640 m on 15/3 (JVM).

**SILVEREYE** *Zosterops lateralis*

Little Totara R., first egg on 18/10, peak fledging mid Jan, very large flocks in March/April (DJO).

**TUI** *Prosthemadera novaeseelandiae*

Vernon Lagoons, 4 feeding on Eucalyptus on 27/7 (GIR). Hope R., several in beech forest near Lewis Pass highway on 22/8 (DB). L. Kaniere, 1 caught large dragonfly on wing on 18/3 (NJW). Bruce Bay, 1 feeding on nectar from *Pseudopanax colensoi* on 24/7 (PDG). Pounaweia, 1 present from 24/12 to 14/1 (KCG).

**CIRL BUNTING** *Emberiza cirrus*

Stephens I., 2 on 18/1 (WFC). Nelson Haven, c.12 during winter months (JMH, GQ). St Annes Lagoon, 1 on 6/5 (CFJO'D).

**GREENFINCH** *Carduelis chloris*

Bells I., piggery, 2000+ feeding 2/6 (GBW).

**REDPOLL** *C. flammea*

Shag R. Est., flock of c.35 on 24/6 (AJDT).

**STARLING** *Sturnus vulgaris*

Ward, a cream bird in flock of 40+ on 15/12 and seen again on 27/5 several km away (TJT).

**BLACK-BACKED MAGPIE** *Gymnorhina tibicen tibicen*

Hunderlees, 1 on 1/7 (TJT).

**WHITE-BACKED MAGPIE** *G. tibicen hypoleuca*

Hunderlees, 1 on 27/5 (TJT).

**ROOK** *Corvus frugilegus*

Ward, 1 in July, 1 on 13/9 (TJT). Dunedin, 1 at Saddle Hill on 11/4 (PS).

## SHORT NOTES

### A note on the nomenclature of the New Zealand stilts (*Himantopus*)

The most consistent feature of systematic assertions regarding the stilts (*Himantopus*) of New Zealand has been disagreement, two basic aspects being (1) the nature of the taxa (i.e., species, subspecies, or hybrids) and (2) the names to be applied to these taxa. Pierce (1984) has recently provided an extensive analysis of the nature of the taxa incorporating much new data. He concludes (in consensus with the literature of the past 25 years) that two taxa should be recognised, one of which, the Black Stilt, warrants full specific status. The names he uses for these taxa are *Himantopus himantopus leucocephalus* (Pied Stilt) and *H. novaeseelandiae* (Black Stilt). In this usage he follows current systematic practice in the Australasian region, at least since publication of the *Checklist of New Zealand birds* (Ornith. Soc. New Zealand 1953). However, Pierce does not provide a comprehensive analysis of the nomenclature used for New Zealand stilts and has overlooked a long-existing error. The purpose of the present note is to review the nomenclature used for these birds and correct the above mentioned error. A number of additional minor errors in the literature are discussed in the appendix.

Pierce (1984), from the context of his extensive knowledge of juvenile and hybrid plumages, has presented a good historical account of the confusion resulting from attempts to delimit the New Zealand stilt taxa over the past 150 years. At the extreme of splitting, Buller (1905) recognised four species of *Himantopus* in New Zealand (*albicollis*, *leucocephalus*, *melas*, *pictatus*). Peters (1934) represented the opposite extreme, lumping all New Zealand birds into a single subspecies, "*novae-zelandiae*", within his world-wide *H. himantopus*. In addition, at least six other specific names (including variant spellings) have been applied to these birds.

Table 1 lists the names that have been used for the New Zealand stilts along with the original description or first usage for each that I have been able to locate. Pierce's (1984) work has allowed the allocation of most New Zealand stilts described in the 19th and early 20th century literature to one or the other of the two taxa listed above or to hybrids between them, and these identifications are also indicated.

One name, *novaezealandiae* Gould, 1841, has been used in at least three different spellings, both with and without hyphens. Hyphens are not to be used in scientific names — International Code, Art. 32 (c) (i) — and will not be considered further in discussing variant spellings of *novaezealandiae*. This name has priority if the Black Stilt is to be considered a valid taxon as it predates *melas* Hombron and Jacquinot, 1841, by most of a year. By the International Code, Gould's original spelling (above) is the only form valid;



TABLE 1 — Specific names used for Pied and Black Stilts. Variant names using hyphens or capital letters are not listed

Year	Author	Name
PIED STILT		
1861	Ellman	<i>H. albus</i> Ellman
1865	Buller ( <i>fide</i> Pierce 1984)	<i>H. leucocephalus</i> Gould
1930	Oliver	<i>H. leucocephalus albus</i> Ellman
1934	Peters	<i>H. himantopus novaezealandiae</i> Gould
1953	Ornith. Soc. New Zealand	<i>H. himantopus leucocephalus</i> Gould
BLACK STILT		
1841a	Gould	<i>H. novaezealandiae</i> Gould
1841	Hombron and Jacquinot	<i>H. melas</i> Hombron and Jacquinot
1844	Gray	<i>H. novaezealandiae</i> [ <i>sic</i> ] Gould
1861	Ellman	<i>H. niger</i> Ellman
1864	Schlegel	<i>H. novaezealandiae</i> [ <i>sic</i> ] Gould
1875	Buller	<i>H. albicollis</i> Buller
1934	Peters	<i>H. himantopus novaezealandiae</i> Gould
1970	Ornith. Soc. New Zealand	<i>H. novaezealandiae</i> [ <i>sic</i> ] Gould
Names not attributable to either species		
1861	Ellman	<i>H. picatus</i> Ellman ( <i>nomen dubium</i> )
1872	Potts	<i>H. spicatus</i> Potts (hybrid)

the others (*novaezealandiae* and *novaezeelandiae*) are incorrect subsequent spellings — International Code, Art. 33 (b) — and so have no status in nomenclature and should never be used.

In summary, the correct epithet for the taxon comprising the New Zealand stilt populations called by the English name of Black Stilt is *novaezealandiae*.

## ACKNOWLEDGEMENTS

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## REFERENCES

- BULLER, W. L. 1865. Essay on the ornithology of New Zealand. Dunedin: Fergusson & Mitchell.  
 BULLER, W. L. 1875. On the genus *Himantopus* in New Zealand. Trans. NZ Inst. 7: 220-224.  
 BULLER, W. L. 1905. Supplement to the "Birds of New Zealand". Vol. 1. London.  
 ELLMAN, J. B. 1861. Brief notes on the birds of New Zealand. Zoologist 19: 7464-7473.  
 GOULD, J. 1837a. Proc. Zool. Soc. London 1837: 26.  
 GOULD, J. 1837b. A synopsis of the birds of Australia. Part II. London.  
 GOULD, J. 1841a. [Description of a new species of *Himantopus* from New Zealand.] Proc. Zool. Soc. London 1841: 8.  
 GOULD, J. 1841b. Part IV (pl. 25; bound in vol. VI). In: Gould, J. 1840-1848. The birds of Australia. London.  
 GRAY, G. R. 1844. List of the specimens of birds in the collection of the British Museum. Part III. Gallinae, Grallae, Anseres. London.  
 GRAY, G. R. 1871. Hand-list of genera and species of birds. Part III. London.  
 HOMBROUN, JACQUINOT. 1841. Ann. Sci. Nat., Ser. 2, 16: 320.  
 MATTHEWS, G. M. 1927. Systema avium australasianarum. Part I. London: British Ornith. Union.  
 MEYER, A. B. 1879. Index zu L. Reichenbachs ornithologischen Werken. Berlin: R. Friedlander & Sohn.  
 OLIVER, W. R. B. 1930. New Zealand birds. Wellington: Fine Arts (NZ) Ltd.  
 OLIVER, W. R. B. 1955. New Zealand birds. Second edition. Wellington: A. H. & A. W. Reed.  
 ORNITH. SOC. NEW ZEALAND. 1953. Checklist of New Zealand birds. Wellington: A. H. & A. W. Reed.  
 ORNITH. SOC. NEW ZEALAND. 1970. Annotated checklist of the birds of New Zealand. Wellington: A. H. & A. W. Reed.  
 PETERS, J. L. 1934. Check-list of birds of the world. Vol. 2. Cambridge, Mass: Harvard Univ. Press.  
 PIERCE, R. J. 1984. Plumage, morphology and hybridisation of New Zealand Stilts *Himantopus* spp. Notornis 31: 106-130.  
 POTTS, T. H. 1872. On the birds of New Zealand. Part 3. Trans. NZ Inst. 5: 171-205.  
 REICHENBACH, H. G. L. 1850. Grallatores. In: REICHENBACH, H. G. L. 1845-1863. Die vollständige Naturgeschichte des In- und Auslandes. Dresden.  
 SAUER, G. C. 1982. John Gould. The bird man. London: Henry Sotherton Ltd.  
 SCHLEGEL, H. 1864. Scolopaces. In: Rijksmuseum van Natuurlijke Historie. 1862-1881. Museum d'histoire naturelle des Pays-Bas. Vol. IV. Leiden.  
 SHARPE, R. B. 1896. Catalog of the Limicolae in the collection of the British Museum. In: Catalog of the birds in the British Museum. London. Vol. 24.  
 VIEILLLOT, L. J. P. 1817. L'Échasse à cou blanc, *Himantopus albigollis*. N. Dict. d'Hist. Nat. 10: 41.

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## APPENDIX

The following comments also concern the names used for the New Zealand Stilts.

1. If the New Zealand population of the Pied Stilt is to be considered distinct from the Australian *leucocephalus*, the oldest available name is *albus* (Ellman 1861).
2. As pointed out by Pierce (1984), Ellman (1861) provided insufficient description for his *H. picatus* to permit certain identification as either Pied or Black Stilt. Thus, *picatus* is a *nomen dubium* and cannot confidently be assigned to the synonymy of either form.
3. Pierce (1984) also pointed out that the description of *spicatus* Potts, 1872, refers to hybrids. This name is thus not available for any taxon.
4. Buller (1875) proposed *albicollis* for (as it turns out) the Black Stilt. This name is preoccupied, having been used by Vieillot (1817) for *H. himantopus*.
5. The original descriptions of *H. leucocephalus* and *H. novaeseelandiae* are found in the *Proceedings of the Zoological Society of London* (Gould 1837, 1841a) published in January of the respective years, not in the *Synopsis of the birds of Australia* (Gould 1837b; for *leucocephalus*) or *The birds of Australia* (Gould 1841b; for *novaeseelandiae*) as cited by, for example, Gray (1871), Matthews (1927), Oliver (1930), Peters (1934), and Oliver (1955). Part II of the *Synopsis* was not published until at least March of 1837 (despite the date listed in the volume), and Part IV of *The birds of Australia* was not issued until September of 1841 (Sauer 1982).

6. Pierce (1984) indicated (in his Table 5) that Peters (1934) recognised two species of stilts in New Zealand (listed as *H. him* [antopus] *leuco* [cephalus] and *H. h. novae* [zealandiae] (sic) in the table). Peters specifically stated (p. 289, footnote) that he did not believe there to be two species of stilts in New Zealand. He referred all New Zealand birds to *H. himantopus novaezealandiae*. In the same table (footnote 1), Pierce (1984) stated that Ellman's descriptions of stilts were referred to the genus *Hypsibates*. This is incorrect, as Ellman (1861) used *Himantopus*.
7. Sharpe (1896) cited the illustration in Reichenbach (1850) as referring to the Pied Stilt (see Sharpe's synonymy of *H. picatus*). the coloured plate in question is labelled 1045-46 and clearly refers to one species. Since one of the two is completely black and the other mostly so they are obviously *novaezealandiae*. Meyer's (1879) compilation supports this interpretation.



## SHORT NOTE

### Predation of an arboreal rat by a New Zealand Falcon

At 11.30 a.m. on 13 February 1984 I encountered a New Zealand Falcon (*Falco novaeseelandiae*) in mixed beech-podocarp forest on the Cole Creek track, Mataketake State Forest, South Westland. The Falcon was initially perched on a large branch in the canopy of a silver beech (*Nothofagus menziesii*), but it soon moved into a large rimu (*Dacrydium cupressinum*) about 20 m high and for two minutes moved around the small branches and twigs searching continuously. It then flew rapidly into a large epiphyte (*Astelia* sp.) 15 m up in the crook of the same tree. There was a loud crash, pieces of vegetation fell out of the rimu, and then the falcon flew off to the original beech carrying a rat (*Rattus* sp.) in its talons.

The falcon perched on a large branch and appeared to prod the rat with its beak. I could not determine whether the rat was eaten because my view was partly obscured, but about a minute later the Falcon flew into a second rimu without the carcass and searched through the tree. At 11.38 a.m., five minutes after catching the rat, the Falcon flew into the canopy of this tree and caught a Silvereye (*Zosterops lateralis*) on the wing from a flock feeding in the foliage.

As far as I am aware this is the first record of an arboreal rat being taken by a New Zealand Falcon.

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# OBITUARY

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### 1909-1984

Educated at the Auckland Grammar School and the University of Otago where he graduated in Dentistry in 1934, Noel Gleeson worked at the Auckland Hospital before setting up his own practice. On the outbreak of war he volunteered immediately, sailed with the Second Echelon and spent five years overseas, reaching the rank of Major.

A personal diary, now in the library of the Auckland Museum, reflects the thoughts of a gentle and sensitive New Zealander, as he meets a world so different from that in which he had grown up. Stationed in England near Aldershot, he visited and was welcomed by the aged and famous bird-painter, G. E. Lodge. The friendship which ensued meant much to Noel. A discriminating photographer, he pursued his hobby so successfully in Egypt that one of his pictures 'Desert Landscape' won the highest award at a Cairo Art Exhibition.

Back in New Zealand he retained his interest in the R.N.Z.D.C. commanding 1 Mobile Dental Unit from 1950-56 with the rank of Lieut-Colonel. Later he served as President of the R.N.Z.D.C. Association and became its first Honorary Life Member. In the little spare time he allowed himself, he was busy with his cameras seeking especially birds in scenic settings and joining Peter Stein, his former mathematics master, on his trips to Horuhoru, whence some fine portraits of gannets began to appear.

For ornithological patients a visit to his surgery was not all agony. Because Noel loved beautiful things, choice pictures adorned the walls and a Crested Grebe, the work of a master from Copenhagen, caught the eye. A session was likely to begin with a discussion on a new bird book or an examination of the best of his latest photographs.

For many years Noel was a devotee of the Firth of Thames in all its moods, delighting in the tern colonies, the great flocks of waders and the changing light across its wide open spaces. He mastered the art of counteracting the dazzle of the piled shell banks. He could appreciate and capture the subtle hues of an expanse of salt marsh where the uninitiated would see only drabness. On the west coast he loved Bethells where he also did some productive beach combing; and from its start he realised the dramatic possibilities offered by the new gannetry at Muriwai.

The society has lost a loyal member of long standing who read Notornis from cover to cover. To Noel the aesthetic aspect of ornithology appealed strongly. He was generous in his praise of fine photographs taken by others. He died of a lingering sickness which he bore with quiet fortitude, while his mind remained acutely alert for news of events or developments in New Zealand's world of birds.

Throughout he was nursed devotedly by his wife, Joy, to whom the Ornithological Society offers its warmest sympathy.

R. B. S.