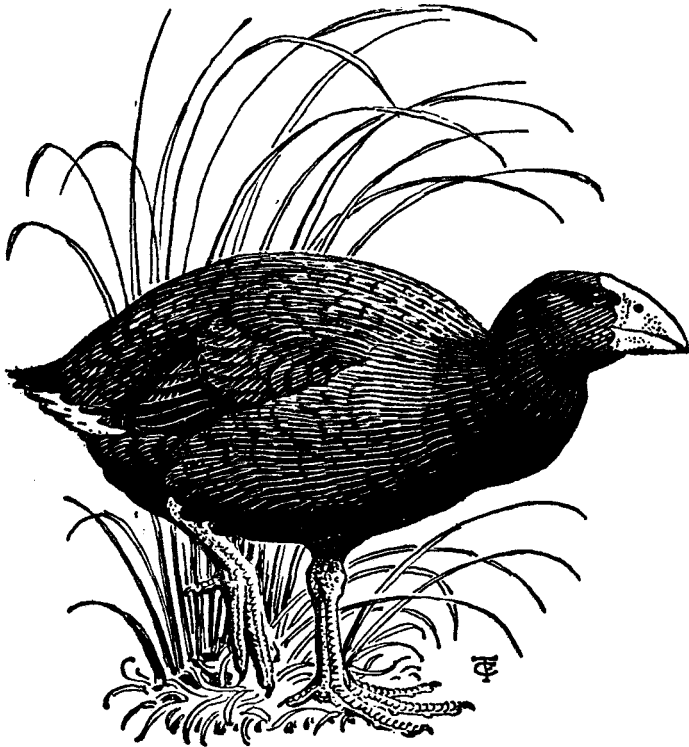


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THE SUBFOSSIL DISTRIBUTION OF EXTINCT NEW ZEALAND COOTS *Fulica chathamensis* subsp. (Aves: Rallidae)

By P. R. MILLENER

ABSTRACT

The mainland form of the Extinct New Zealand Coot, *Fulica chathamensis prisca* (Hamilton), is recorded from 11 North Island and 21 South Island localities. Two published North Island records are shown to be invalid.

It is noted that the Chatham Island form, *Fulica c. chathamensis* (Forbes), has been recorded from 18 named localities on Chatham Island and is also present in many collections for which no more detailed locality record than "Chatham Island(s)" is available.

Olson (1975), in a recent review of the extinct rails of the New Zealand region, reported that, apart from H. O. Forbes' type series held in the British Museum (Dawson 1958), abundant material of the Chatham Island form of the Extinct Coot, *Fulica c. chathamensis* (Forbes, 1892) was available in New Zealand museums.

Most of the early collectors (e.g. F. W. Hutton c. 1890, H. O. Forbes 1892, A. Clough 1903, J. J. Fougere c. 1919) gave no more detailed locality description for their material than simply "Chatham Island(s)." However, the remarkable quality of preservation and completeness of many of the skeletons they collected indicates that most came from natural dunes rather than from midden deposits.

At least a dozen subsequent collectors, most notably R. J. Scarlett between 1972 and 1975, have obtained material from predominantly Holocene dunes and occupation middens at many localities, especially

on the northern and western coasts of Chatham Island (Wharekauri) itself (Fig. 1: 33-50).

A detailed listing of this Chatham Island material is not attempted here. Almost all of it is held by the Canterbury Museum, Christchurch, where the many hundreds of bones are listed under some 284 catalogue numbers. The National Museum, Wellington, holds a single almost complete skeleton (DM 384: "Chatham Islands" — A. Clough 1903) and four tibiotarsi (DM 385: "Chatham Islands" — collector unknown). Sutton (1979) records a single bone from each of two midden sites (Te Ngaio, NZAA Site C240/277 and CHB, NZAA Site C240/680) in the Point Durham area, south-west Chatham Island. A single radiocarbon date has been obtained for the Te Ngaio site (NZ 3363C, 380 ± 50 years BP; Sutton 1977) and two for the CHB site (NZ 4655C, 250 ± 90 years BP and NZ 4654C, 440 ± 70 years BP; Sutton 1979a).

Olson (1975) also noted that the mainland form, *Fulica c. prisca* (Hamilton, 1893), had been recorded from at least 16 localities in the South Island (Brodkorb & Dawson 1962, Trotter 1965) but from only one in the North Island (Dawson 1962).

A search for material in museum, university and private collections, personal collecting in the course of PhD research, and a perusal of recent literature have resulted in bones of the Extinct Coot becoming known from a further ten North Island and five South Island localities.

The 32 currently known mainland and 18 named Chatham Island localities are shown in Figure 1: 1-50. Details for each of the mainland collections are given below. Abbreviations preceding catalogue numbers are as follows: AM (Auckland Museum); AU (Auckland University, Geology Department); Av (Canterbury Museum); BM (British Museum of Natural History); DM and NMNZ (Dominion, now National Museum, Wellington).

NORTH ISLAND: Figure 1: 1-11

1. Dunes; Tom Bowling Bay, Northland (Scarlett 1979; but see also Millener, in press).
Radiocarbon dates for moa and landsnail remains in the vicinity of roughly the same age range from 2130 ± 130 years BP (NZ 4671C) to 3750 ± 100 years BP (NZ 4687C).
AU 4040.9: R. coracoid. J. A. Grant-Mackie 1969.
2. Dunes (possibly occupation midden); Ocean Beach, Whangarei.
Av 19125: L. tarsometatarsus. C. W. Devonshire & R. J. Scarlett 1963.
Av 20584: distal L. tibiotarsus. C. W. Devonshire & R. J. Scarlett 1965.
Both specimens may have been collected from the same site and therefore possibly be from the one individual.

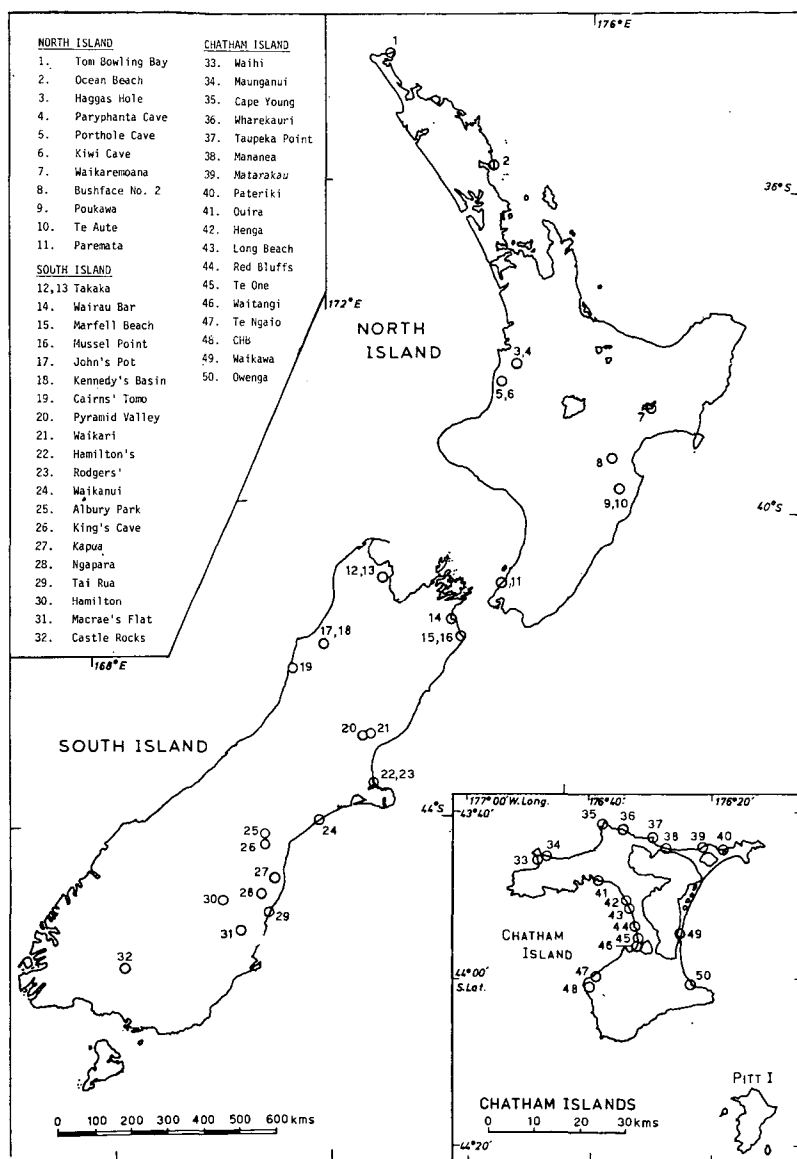


FIGURE 1 — Distribution of *Fulica chathamensis* subsp.

3. Haggas Hole cave, Waitomo area (Barrett 1961, Rickard 1966, Hobson 1976).
 Av 30690: part pelvis, and Av 19148 (p.p.): part sternum, R. femur. J. Hobson, D. Hobson, & R. J. Scarlett 1963.
 Av 19148 (p.p.): L., R. scapulae, L., R. coracoids. L. humerus, L., R. carpometacarpi, manal phalanx (R 1 II), L. femur, L., R. tarsometatarsi, 8 pedal phalanges, 8 vertebrae, collection of rib fragments. C. J. Templer 1973.
 All bones from this site are from the one individual.
4. Paryphanta (Mac's Quarry) Cave, Waitomo area (Millener & Templer, in press).
 AU 6394.A: cranium, premaxilla, part mandible, sternum, R. coracoid, R. humerus, L., R. ulnae, distal R. radius, L., R. carpometacarpi, two manal phalanges (L. pollex, L 1 II), L., R. femora, L., R. tibiotarsi, L., R. fibulae, proximal L., R. tarsometatarsi, 14 pedal (including 2 unguis) phalanges, pelvis, 3 ribs. (one individual). C. J. Templer & P. R. Millener 1978.
5. Porthole Cave, Mahoenui area (Medway 1967).
 Av 27174: L. humerus, part pelvis (one individual). C. Paulin & Taranaki Caving Club 1972.
6. Kiwi Cave, Taumatamairi area (Guild *et al.* 1972).
 AU 7105.2: R. humerus. P. R. Millener, D. Peryer *et al.* 1979.
7. Caves; Waikaremoana area (Archev 1941).
 (a) Cave A. AM56:4.3: R. tarsometatarsus, AM85:8.7: pedal phalanx (L 1 III). W. H. Gregory 1930.
 (b) Cave D. AM80:2.4: mandible. No collection data.
 (c) Cave XG. AM75:1.28: R. ulna, 2 pedal phalanges (R 2 II, R 1 III). F. Mappin 1931.
 These specimens are all unregistered bones found amongst moa bone collections in the Auckland Museum. The catalogue numbers given are those of the moa collections with which they were associated. There appear to be no records of the exact localities for, nor relative positions of, the caves designated A, D, XG etc.
8. Bushface No. 2 cave, near Patoka, Hawke Bay district (Hartree 1960).
 Av 18584: proximal L. tibiotarsus. W. H. Hartree & R. J. Scarlett 1960.
9. Poukawa swamp, Hawke Bay district (Price 1963, 1965; Pullar 1970; McFadgen 1978; McGlone 1978; Horn, in prep.).
 (a) NZAA Site N141/12; 2 coracoids, 9 humeri, 3 ulnae, 2 carpometacarpi, 11 femora, 9 tibiotarsi, 2 tarsometatarsi, 3 pelves (41 bones from a minimum of 12 individuals). R. Price, P. Horn *et al.* 1963-1976.
 (b) NZAA Sites N141/1, 2: bones (unspecified) noted as "more numerous . . . than in Site N141/12" (P. Horn, pers. comm. October, 1979). Collectors as above.

10. Te Aute swamp, Hawke Bay district (Hamilton 1889, Kingma 1971).
NMNZ unregistered material: proximal L. humerus, subadult L. ulna (two individuals). A. Hamilton 1888.
11. Dunes (probably occupation midden); Paremata, Wellington (Dawson 1962, 1979; Davidson 1978).
BM. R6346: tarsometatarsus, BM. R6404: coracoid. A. Hamilton 1888.
These bones constituted the first record of the Extinct Coot from the North Island (Dawson 1962). The exact location of "Rauparaha's kitchen middens" (Forbes 1892) from which they came is not known. Davidson (1978) regarded the most probable site as being the "Paremata *pa*" (? = "Porirua" *pa*), close to what is now called the Ngati Toa Domain. Dawson (1979), independently, concluded that this was a possibility but also suggested that "Rauparaha's middens" may have been at the "Taupo" *pa* on the present site of Plimmerton.

Extinct Coot bones have also been reported from two midden sites in the Coromandel region: Hot Water Beach (NZAA Site N44/69); proximal R. femur, A. Leahy 1974 (Leahy 1974; Davidson 1979); and Port Jackson (NZAA Site N35-36/88); L. coracoid, J. Davidson & A. Fransham 1976 (Davidson 1979).

Both records however are in error; the Hot Water Beach bone is of *Gallirallus australis greyi* (N.I. Weka) whilst that from Port Jackson is of *Porphyrio p. melanotus* (Pukeko) — det. P. R. Millener, R. J. Scarlett, May 1980.

SOUTH ISLAND: Figure 1: 12-32

12. Cave; Takaka district (no more precise locality given):
Av 5311: ulna, femur, L., R. tibiotarsi, L., R. tarsometatarsi (one individual). Collector unknown, 1899.
13. Cave; Takaka district (no more precise locality given):
Av 8271: L. tarsometatarsus. F. W. Hutton c. 1890.
14. Occupation midden; Wairau Bar, Marlborough. NZAA Site S29/7 (Duff 1956).
Radiocarbon dates for this site range from 590 ± 60 years BP (NZ 1838A) to 935 ± 110 years BP (Y204) (McCulloch & Trotter 1975; Trotter 1975a; Moore & Tiller 1975).
Material listed under 35 Canterbury Museum (Av) catalogue numbers: 2 scapulae, 3 coracoids, 15 humeri, 2 femora, 14 tibiotarsi, 7 tarsometatarsi, 5 part pelvis (48 bones from a minimum of 11 individuals). J. R. Eyles 1952-1958, R. S. Duff *et al.* 1955, 1959.
Av 7194: distal L. tibiotarsus labelled only "midden, N.Z." was "probably collected from Wairau Bar by J. R. Eyles prior to July 1952" (R. J. Scarlett, pers. comm.).

15. Dunes and middens; Lake Grassmere spit, Marlborough. NZAA Site S29/8 (Dawson 1949, Scarlett 1979).
DM 383: L. humerus. E. W. Dawson & R. F. Moginie, August 1948.
Material listed under 152 Canterbury Museum (Av) catalogue numbers: 6 part sterna, 8 scapulae, 19 coracoids, 53 humeri, 4 carpometacarpi, 26 femora, 102 tibiotarsi, 2 fibulae, 44 tarsometatarsi, 7 pedal phalanges, 28 part pelvis (297 bones from a minimum of 73 individuals). J. R. Eyles, R. S. Duff, L. Gurr, R. J. Scarlett, 1952; J. Britton *et al.* 1952-1961.
16. Occupation midden; Mussel Point, Marlborough.
Av 17124: L. tarsometatarsus. J. & R. Britton 1959.
17. John's Pot cave, Inangahua.
Av 25897: R. tibiotarsus and Av 25902: L. tibiotarsus (one individual). Canterbury Caving Club 1971.
18. Cave; Kennedy's Basin, Inangahua (Wilkinson 1973).
Av 28260: R. humerus. B. Chapman *et al.* 1973.
19. Cairns' Tomo cave, Punakaiki (Rogers, 1972).
Av 23129: L. femur, part pelvis, rib, pedal phalanx (one individual). R. J. Scarlett & Canterbury Caving Club 1961.
20. Pyramid Valley swamp, North Canterbury (Falla *et al.* 1941, Scarlett 1955).
Radiocarbon dates for this site range from 2620 ± 49 years BP (NZ 619A) to 4280 ± 62 years BP (NZ 622A), with dates on faunal remains (moa-bone collagen) between 3450 ± 71 years BP (NZ 623A) and 3740 ± 72 years BP (NZ 625A) (Gregg 1972; McCulloch & Trotter 1979).
Material listed under 29 Canterbury Museum (Av) catalogue numbers: 1 mandible, 1 sternum, 2 coracoids, 6 humeri, 1 ulna, 4 femora, 8 tibiotarsi, 4 tarsometatarsi, 1 pedal phalanx, 2 part pelvis, 3 ribs, 2 vertebrae (35 bones from a minimum of 10 individuals). Canterbury Museum expeditions 1939-40, 1955; J. R. Eyles & R. J. Scarlett 1949, A. Evans 1965, R. J. Scarlett 1965.
21. Cave; Waikari, North Canterbury (McCulloch 1975).
Radiocarbon dates for this site are 1080 ± 70 years BP (NZ 4166A) and 1920 ± 90 years BP (NZ 1723A) (McCulloch & Trotter 1979).
Unregistered material: 3 mandibles, 3 coracoids, 4 humeri, 4 femora, 5 tibiotarsi, 5 tarsometatarsi, 4 pedal phalanges (28 bones from a minimum of 3 individuals). B. McCulloch *et al.* 1971, 1975.
22. Occupation midden; Hamilton's, Redcliffs. NZAA Site S84/76 (Trotter 1967, 1975b).
Radiocarbon dates for this site range from "recent" (NZ 1112A) to 1170 ± 65 years BP (NZ 438A). Trotter (1975) considers

- a moa-bone collagen date of 735 ± 56 years BP (NZ 1113A) to be most reliable.
Av 16276: R. humerus. S. Hovell 1957.
23. Occupation midden; Rodgers', Redcliffs. NZAA Site S84/76 (Trotter 1975b).
Av 16047: R. coracoid. R. J. Scarlett & S. Hovell 1957.
 24. Occupation midden; Waikanui, Ashburton River mouth.
Av 14134: L. femur. T. A. D. Wilson 1955.
 25. Swamp; Albury Park, Canterbury (Smith 1891).
A single radiocarbon date (7390 ± 160 years BP, NZ 1726A) has been obtained from this site (McCulloch & Trotter 1979).
Av 21298: R. humerus, R. tibiotarsus, R., L. tarsometatarsi (one individual). A. W. Hope 1945.
 26. King's Cave, Canterbury (Granger 1959, Wilson 1969a, b).
Av 22480: L. tibiotarsus. G. Wilson 1968.
 27. Kapua swamp, Waimate. (Hutton 1896).
Av 5312: distal end and shaft L., R. tibiotarsi (one individual).
F. W. Hutton *et al.* 1895.
 28. Cave; Ngapara, Oamaru (Hamilton 1904).
DM 380: L. tarsometatarsus. A. Hamilton 1903.
 29. Occupation midden; Tai Rua, North Otago. NZAA Site S136/1 (Trotter 1965, 1979).
Radiocarbon dates for this site, all from the main occupation layer, range from "recent" (NZ 558A, NZ 751A, NZ 765A) to 831 ± 33 years BP (NZ 750A). Trotter (1979) considers that a shell date (NZ 749A, 485 ± 32 years BP) and those for bone collagen (ranging from NZ 766A, 393 ± 37 years BP to NZ 752A, 543 ± 32 years BP) are the most reliable.
Field Number 24 (M. M. Trotter, pers. comm.): L. femur.
M. M. Trotter *et al.* 1958. This specimen is recorded in the Canterbury Museum files as "*Halophalaris chathamensis* — in Otago Museum."
 30. Hamilton swamp, Otago (Booth 1875, 1877).
Av 5126: R. coracoid, R. humerus, proximal L. ulna (possibly one individual). B. S. Booth & A. Hamilton 1875.
 31. Cave?; Macrae's Flat, Otago.
DM 381: L. femur, L. tibiotarsus, L. tarsometatarsus (possibly one individual). No collection data.
 32. Cave; Castle Rocks, Southland (Hamilton 1893, 1894): type locality for *Fulica prisca*.
DM 379: 4 crania, 1 premaxilla, 3 mandibles, 3 furculae, 5 sterna, 5 coracoids, 12 humeri (one of which, Hamilton No. 411/29, has been re-registered as NMNZ S990, the type of *F. chathamensis prisca* — Olson 1975), 12 femora, 19 tibiotarsi, 17 tarsometatarsi, 5 pelvises, 2 vertebrae (88 bones from a minimum of 10 individuals). A. Hamilton 1892.

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SHORT NOTE

NOTES AND MEASUREMENTS OF HUTTON'S AND FLUTTERING SHEARWATERS FOUND DROWNED AT KAIKOURA PENINSULA

On 28 August 1980, an 11-cm mesh nylon fishing net, which had been set in about 4 metres of water for 22 hours, was lifted. Besides fish, the net contained 38 small shearwaters, which I later retrieved from the local tip.

Nine of the birds were Hutton's Shearwaters (*Puffinus huttoni*) and 29 were Fluttering Shearwaters (*P. gavia*). This ratio is interesting in that beach patrols in the area over four years have produced 11 *huttoni* and no *gavia* (G. Harrow, 1976. Some observations of Hutton's Shearwater. *Notornis* 23: 286). More recent beach patrols (1976-1978) in North Canterbury have found 18 *gavia* and 5 *huttoni*, which may indicate a southward extension of *gavia* in recent years.

One *gavia* had smudgy underwings, but its outer undertail coverts were part grey and the axillars were white tipped. One bird had white-tipped axillars but smudgy underwings, bicoloured undertail coverts, and large measurements, clearly indicating it to be *huttoni*.

Of the *gavia*, 9 were female and 17 male. Three could not be sexed — two because sea-lice had eaten the gonads and most other internal organs. Ovaries were enlarged, most around 12 mm, range 8-20 mm. Two to four ova were enlarged in each. Three ova measured 3.5 mm diameter. Testes ranged 6-12 mm in length.

Female measurements were wing 218 (211-221) mm, SD 4.1; culmen 33.2 (31.9-34.4) mm, SD 0.9; wing span 723 (706-731) mm, SD 8.8; mid-toe and claw 50 (48.3-52.0) mm, SD 1.5; tail 69 (66-75) mm, SD 2.7; length 360 (349-373) mm, SD 8.3.

The measurement of one wing was not included because the last primary was shorter than the second last. No other moult was observed in any of the 38 birds.

Male measurements were wing 218 (211-226) mm, SD 3.9; culmen 34.7 (31.5-37) mm, SD 1.5; wing span 725 (715-743) mm, SD 9.8; mid-toe and claw 50.7 (48.3-53.0) mm, SD 1.2; tail 71 (64-76) mm, SD 3.5; length 362 (351-377) mm, SD 7.

Five *huttoni* were female and four male. Female measurements were wing 226 (223-233) mm, SD 3.4; culmen 36.4 (31.9-37.4) mm, SD 0.9; wing span 759 (732-778) mm, SD 18; mid-toe and claw 50.8 (47.9-53.7) mm, SD 2.4; tail 73 (68-75) mm, SD 2.7; length 369 (357-378) mm, SD 8.6. Ovaries were enlarged, ranging 8-15 mm with the largest ova 2 mm diameter, correlating well with their breeding later than *gavia*. Male measurements were wing 227 (221-232) mm, SD 4.4; culmen 36.4 (35.4-38.0) mm, SD 1.1; wing span 756 (736-767) mm, SD 13.6; mid-toe and claw 51.3 (50.2-53.0) mm, SD 1.2; tail 72 (68-79) mm, SD 4.7; length 367 (366-369) mm, SD 1.5.

These data show that, except in extremes, measurements are not satisfactory in distinguishing *gavia* and *huttoni*. Variation between sexes is greater in *gavia* than *huttoni*, but this could be used as a guide only where extreme measurements are concerned.

All birds except one of the *gavia* had huge subcutaneous and internal fat deposits. All had crops full of small fish, which in one *gavia* consisted of 5-cm "fingerling" fish weighing 75 grams. Its total weight was 457.2 g. One *huttoni* had deeper "whitebait" fish 5-8 cm long besides the thinner "fingerlings." Its crop contents weighed 42.5 g and total weight was 466.5 g.

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RECOVERIES OF PARADISE SHELDUCKS BANDED IN THE TAIHAPE, NELSON, MARLBOROUGH, WAITAKI AND SOUTHLAND DISTRICTS

By MURRAY WILLIAMS

ABSTRACT

From 1962 to 1974, 10 590 Paradise Shelducks were banded while flightless at moulting sites in the Taihape district of North Island and in the Nelson, Marlborough, Waitaki and Southland districts of South Island, and from 1970 to 1974, 2400 ducklings in the Southland district. The areas over which these birds dispersed after completing their moult or fledging were determined from the return of 1420 bands by hunters. Two-thirds of more of the birds shot after having been banded at moulting sites near Taihape, in Nelson, and near Manapouri in Southland were recovered within 40 km of their banding site, whereas birds from other moulting sites in South Island dispersed more widely. The dispersal characteristics of males and females banded at the same site were similar, except that two-thirds of the female Southland ducklings shot were recovered within 40 km of their natal site but only 40% of the males. The dispersal characteristics of Paradise Shelduck populations seem to reflect the topography of their habitats, those in irregular hill-country farmland being less dispersive than those inhabiting the flatter tussock grasslands.

INTRODUCTION

Although the Paradise Shelduck (*Tadorna variegata*) is hunted in all but one of New Zealand's 26 Acclimatisation Society districts, in most of them it comprises less than 5% of the total waterfowl harvest. Only in three areas, Taihape-Wairarapa, Gisborne-East Coast and Southern Lakes is the species the major game waterfowl, in 1978 comprising 33%, 32% and 48% respectively of the hunter's kill, while in Wanganui, West Coast and Nelson, it has comprised 10-13% of the harvest (Caithness 1979).

The history of Paradise Shelduck as a game bird records that in these six districts and also in Hawke's Bay, Wairarapa and along the eastern foothills of the Southern Alps from Marlborough to northern Southland, the species has at times been so over-harvested that either it has failed to recover or it has required a long period of protection before it has again become numerous enough to hunt (Williams 1971). Such excesses of the past are unlikely to occur again. Hunting is now more strictly controlled by limiting the number which a hunter may kill each day, by limiting hunting to specific parts of each Acclimatisation

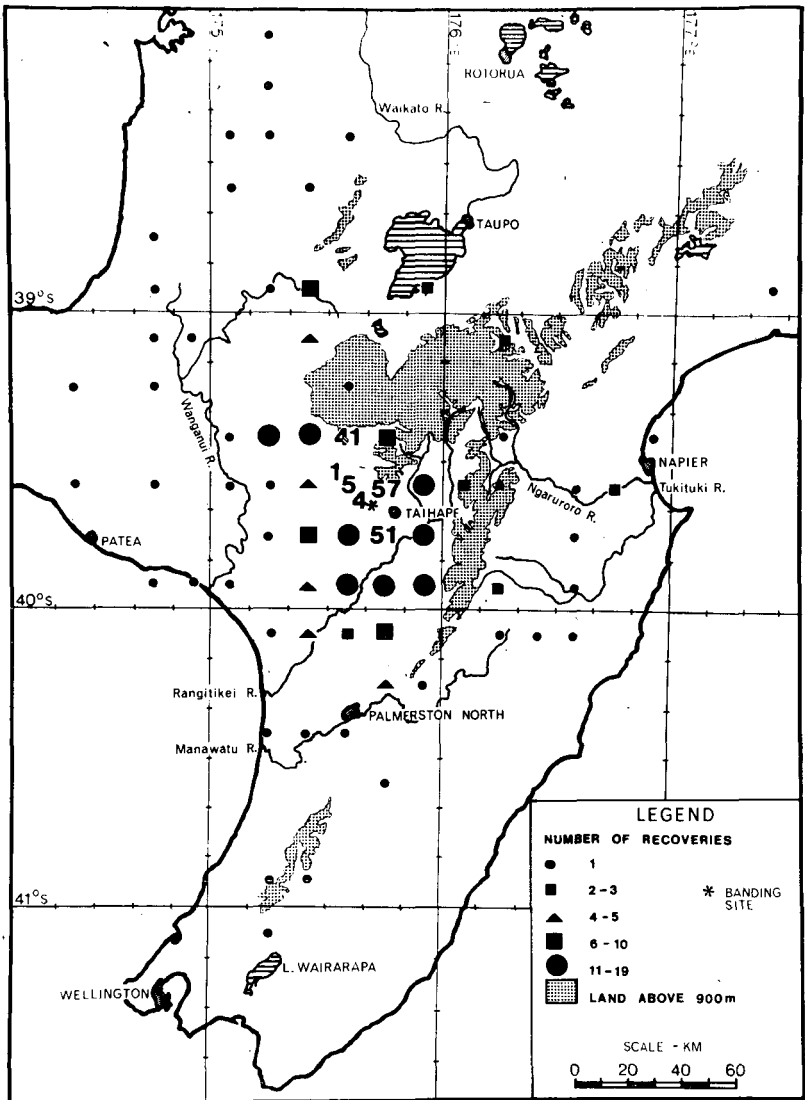


FIGURE 1 — The numbers of Paradise Shelducks, banded at Ruanui Station near Taihape between 1962 and 1974, reported shot within each 0°10' x 0°10' latitude-longitude square between 1962 and 1978.

Society district and by restricting the hunting season. Population trends are now monitored annually by counting shelducks at their moulting sites (Williams 1979 a, b). But some important questions remain. Over how wide an area should particular hunting regulations apply? Where do birds counted at a moulting site come from and disperse to? Answers to these questions would assist the regional and national management of shelducks.

Banding studies in the Gisborne-East Coast district (Williams 1979 b) showed that the birds banded at one moulting site tended to be shot nearby, most within a radius of 20 km, and that only if moulting sites were close together were birds from them shot at the same localities. These findings suggest that once areas of overlap are sorted out, birds from various moulting sites could be considered and managed as separate populations. The aim of this study was to determine, from an analysis of bands returned by hunters, whether shelducks banded near Taihape in North Island and at several South Island sites showed similar dispersal characteristics to Gisborne-East Coast birds.

Banding at Taihape started in 1962 and continued until 1974. Banding at sites in Southland, Nelson, Marlborough and in the Waitaki Valley near Lake Benmore took place between 1969 and 1974. This paper also includes an analysis of band returns from Paradise Shelducks banded as ducklings in Southland. They were banded to complement work at Southland moulting sites.

The birds were caught while flightless at their moulting sites, using the methods described by Williams (1972). All were banded with metal bands bearing a serial number and a return address. Banding was done in early January each year and all birds were designated as "adults," although most had probably not bred. At Gisborne (Williams 1979 b) about two-thirds of the birds caught in early January were juveniles (birds 12-15 months old and undergoing their first wing moult) and yearlings (one year older than juveniles). Breeding adults usually moulted in late January and throughout February.

Ducklings banded in Southland were caught by hand, before they had fledged, on various farm ponds and rivers.

RESULTS

Taihape

From 1962 to 1974, 2329 male and 2185 female Paradise Shelducks were banded in the Taihape district, and by 31 October 1978, 420 males (18.0%) and 289 females (13.2%) had been reported shot. Banding occurred at three sites: Ruanui Station (in all years), Haddon's Lagoon (1967, 1969, 1971-74) and at Harris' Lake (1972-74). All three sites were within 22 km of one another, and the locations at which birds banded at each site were recovered overlapped almost completely. Data from all three sites, therefore, have been combined.

More than half of the recoveries were made within 20 km of the banding site (Table 1) and almost 90% within 60 km. Fourteen

TABLE 1 — Numbers and cumulative percentage of Paradise Shelducks, banded at sites near Taihape, recovered dead at various distances from their banding site.

DISTANCE INTERVAL (km)	MALES		FEMALES	
	NUMBER	CUM.%	NUMBER	CUM.%
0 - 20	222	52.9	163	56.4
21 - 40	126	82.9	77	83.0
41 - 60	23	88.3	23	91.0
61 - 80	25	94.3	11	94.8
81 - 100	7	96.0	7	97.2
101 - 120	6	97.4	5	99.0
121 - 140	5	98.6	0	
141 - 160	1	98.8	2	99.6
161 - 180	2	99.3	1	100
181 - 200	2	99.8		
201 +	1	100		
TOTAL	420		289	

birds traversed the forested Ruahine Ranges and were shot in Hawke's Bay and one bird reached the southern extremity of the Gisborne population, near Wairoa. The most southern recovery came from near Lake Wairarapa (190 km from the banding site). A few birds were shot in inland Taranaki and in the King Country, and the most northern recovery was from the Hauraki Plains, 245 km from the banding site.

The distribution of recoveries of birds banded on Ruanui Station is shown in Fig. 1.

The most obvious feature of the distribution pattern is the lack of recoveries from the area north of Tongariro National Park and near Lake Taupo. Paradise Shelducks are common in this area and are hunted there, but clearly the birds do not come south of the mountains to moult at the Taihape sites.

There was no difference in the distances moved by males and females. The distribution of the distances moved by males and females (Table 1) were similar ($X^2 = 5.5$, 6df, $p = 0.5$), and for both sexes the medial distance was 0-20 km.

Since the majority of birds banded were probably juveniles, the hypothesis that juveniles move more widely than older birds was tested

by comparing the distance moved by birds recovered within one year of banding with that of birds recovered two or more years after banding. Of 207 males recovered within one year of banding, 51.7% were within 20 km of the banding site and 80% within 40 km, compared with 54.0% and 85.4% respectively of the 213 males recovered two or more years after banding. For females, 52.7% of 150 first-year recoveries were within 20 km and 81.3% within 40 km compared with 60.4% and 84.9% respectively for 139 later recoveries. None of these differences within or between sexes was significantly different; birds did not disperse more widely during their first year after banding.

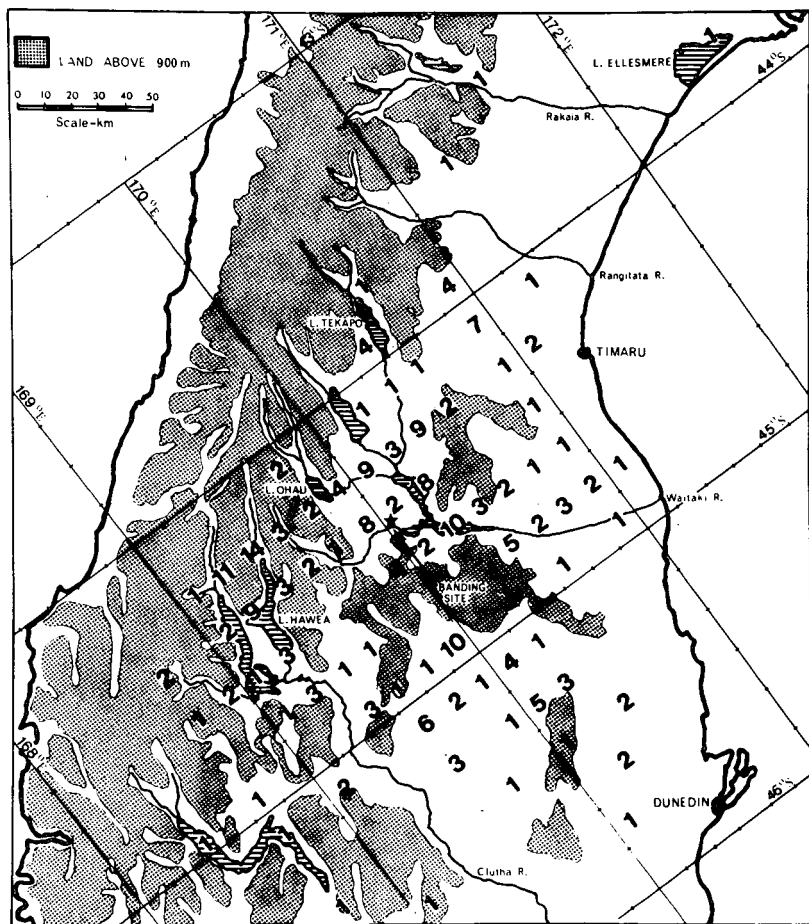


FIGURE 2 — The numbers of Paradise Shelducks, banded at Benmore Station between 1970 and 1974, reported shot within each 0°10' x 0°10' latitude-longitude square between 1970 and 1978.

The data were examined to determine whether, as was the case in the Lake Repongaere population near Gisborne (Williams 1979 b), the distribution of distances moved changed as the banding study progressed. No such change could be detected. Although the proportion of total recoveries made within 0-20 km of the banding site varied between years from a low of 32% in 1966 to a high of 68% in both 1969 and 1971, there was no significant overall trend. Moreover, the percentage of total recoveries made within 0-40 km varied only between 73% and 87%. These variations between years probably reflect local variations in weather during the hunting season and therefore the hunters' opportunity to shoot birds, rather than true changes in dispersion. Thus, I conclude that the Taihape birds were well spread throughout the district when banding was begun and, unlike the Lake Repongaere population, were not colonising additional areas.

Waitaki

During 1970-1974, 1248 male and 1066 female Paradise Shelducks were banded on Benmore Station near Omarama, and by 31 October 1978, the bands of 158 males (12.7%) and 86 females (8.1%) had been returned. The locations of recovery are known for all but three birds.

TABLE 2 — Numbers and cumulative percentage of Paradise Shelducks, banded on Benmore Station, recovered dead at various distances from the banding site.

DISTANCE INTERVAL (km)	MALE		FEMALE	
	NUMBER	CUM.%	NUMBER	CUM.%
0 - 20	13	8.2	10	11.6
21 - 40	32	28.5	20	34.9
41 - 60	49	59.5	26	65.1
61 - 80	27	76.6	14	81.4
81 - 100	28	94.3	8	90.7
101 - 120	3	96.2	3	94.2
121 - 140	2	97.5	0	
141 - 160	1	98.1	2	96.5
161 - 180	0		3	100
181 - 200	1	98.7	0	
201 +	2	100	0	
TOTAL	158		86	

Recoveries were made over a wide area of the central South Island (Fig. 2), the most northern being from near Lake Coleridge in North Canterbury, the most southern from near Dunedin. Most of the banded birds were shot within the Waitaki River catchment, especially near the main lakes of Ohau, Pukaki, Tekapo and Benmore, while another main area of recovery was around Lakes Hawea and Wanaka. The third major area of recovery was in the upper Manuherikia River valley, bounded by the Dunston Mountains, Hawkdun Range and Rough Ridge.

The distribution of distances moved by males and by females was similar ($X^2 = 4.28$, 5df, $p = 0.4$) (Table 2), the medial and modal distance moved was 41-60 km for both sexes, and there were no differences in the proportions of males and females which travelled beyond 80 km ($X^2 = 0.76$, $p = 0.4$) and beyond 100 km ($X^2 = 1.12$, $0.3 > p > 0.2$).

Almost 46% of the recoveries were made within the first year after banding and the distribution of these recoveries was compared with the distribution of birds recovered two or more years after banding by examining what proportions of each sample were obtained beyond the medial (60 km) radius. For males, 32 (43.8%) of 73 males recovered in the year of banding had travelled more than 60 km compared with 37.6% of 85 later recoveries. These proportions are similar ($X^2 = 0.62$, $p = 0.4$). For females, 20 (51.3%) of 39 year-of-banding recoveries moved more than 60 km compared with 21.3% of 47 later recoveries. The proportions are significantly different ($X^2 = 8.45$, $0.01 > p > 0.001$), and if most of the birds were juveniles when banded, this indicates widespread movement of pre-territorial females, a distinct contrast with findings at Gisborne (Williams 1979 a).

Comparing males with females, similar proportions of the year-of-banding recoveries were made more than 60 km from the banding site ($X^2 = 0.56$, $p = 0.4$). However, of the recoveries made more than one year after banding, the difference in the proportions of the male and female samples recovered beyond 60 km was almost statistically significant ($X^2 = 3.74$, $p = 0.053$), suggesting greater movements by males, perhaps as a result of following females to their natal areas.

Southland

During 1969-73, 1585 male and 1457 female Paradise Shelducks were banded at several sites in northern Southland, and by 31 October 1978 the bands of 114 males (7.2%) and 81 females (5.6%) had been returned. The location of recovery is known for all birds.

The recoveries have been analysed as two sets: those of birds banded at sites near Manapouri (Lake Luxmore, Lake Thomas, Lake Echo and Lake Freestone) and those of birds banded at Von Lake. This is because the patterns of movement suggest the two moulting populations are at least partly separate and because few birds banded at one site were subsequently recaptured moulting at the other (8.2%

of 134 recaptures of Manapouri birds were made at Von Lake and 9.5% of 63 recaptures of Von Lake birds were made at Manapouri sites).

Manapouri sites: The distributions of distances moved by males and females (Table 3) were similar ($X^2 = 4.06, 3df, 0.3 > p > 0.2$) and their patterns of dispersal (shown for both sexes combined in Fig. 3) were also similar ($X^2 = 2.22, 5df, p = 0.8$). The medial and modal distance interval for both sexes was 0-20 km, and the proportions of the total recoveries of each sex that were made within 40 km of the banding site were also similar ($X^2 = 2.38, 0.2 > p > 0.1$).

Recoveries made in the year of banding were, on average, from localities closer to the banding site than those made more than one year after the bird was banded. Of 25 males shot in the year of banding, 18 (72%) were within 20 km of the banding site compared with 43.5% of the 46 males shot later, a statistically significant difference ($X^2 = 5.30, p = 0.02$). Females showed a similar tendency; 16

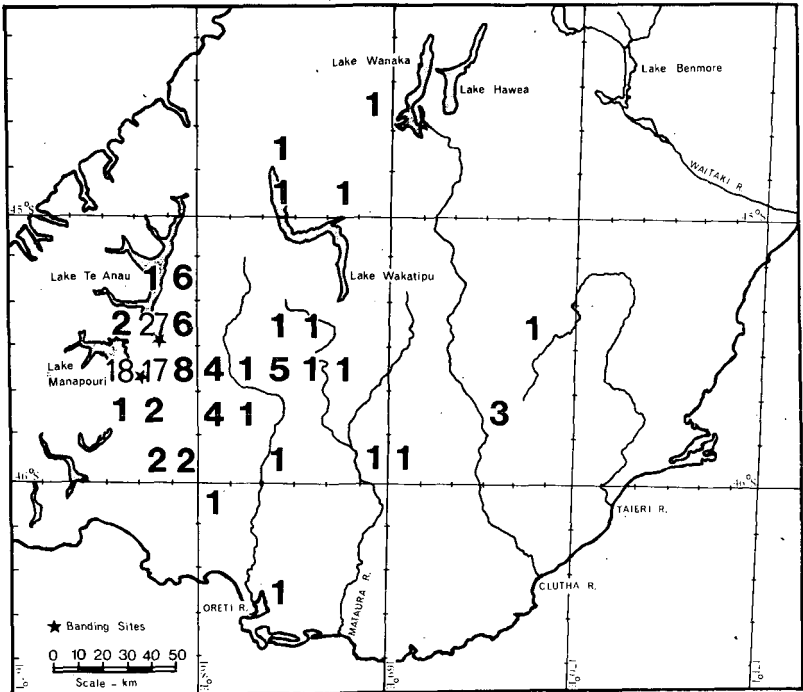


FIGURE 3 — The numbers of Paradise Shelducks, banded at sites near Manapouri between 1969 and 1973, reported shot within each 0°10' x 0°10' latitude-longitude square between 1969 and 1978.

TABLE 3 — Numbers and cumulative percentage of Paradise Shelducks, banded at sites near Manapouri, recovered dead at various distances from their banding sites.

DISTANCE INTERVAL (km)	MALES		FEMALES	
	NUMBER	CUM.%	NUMBER	CUM.%
0 - 20	38	53.5	29	53.7
21 - 40	16	76.0	18	87.0
41 - 60	7	85.9	3	92.6
61 - 80	4	91.5	0	
81 - 100	1	92.9	2	96.3
101 - 120	3	97.2	0	
121 - 140	2	100	1	97.2
141 - 160	0		1	100
TOTAL	71		54	

TABLE 4 — Numbers and cumulative percentage of Paradise Shelducks, banded at Von Lake, recovered dead at various distances from their banding sites.

DISTANCE INTERVAL (km)	MALES		FEMALES	
	NUMBER	CUM.%	NUMBER	CUM.%
0 - 20	3	8.1	1	4.5
21 - 40	12	40.5	9	45.4
41 - 60	12	72.9	7	77.2
61 - 80	1	75.6	1	81.8
81 - 100	1	78.3	1	86.3
101 - 120	6	94.6	1	90.9
121 - 140	1	97.3	2	100
141 - 160	1	100		
TOTAL	37		22	

(66.7%) of 24 females shot in the year of banding were within 20 km of the banding site compared with 43.3% of 30 females shot later, a difference that is almost statistically significant ($X^2 = 2.92, 0.1 > p > 0.05$).

Von Lake sites: The distributions of distances moved by males and females (Table 4) were similar ($X^2 = 0.03, 2df, p = 0.60$), and their locations of recovery appeared similarly distributed, although the small sample precluded statistical testing (Fig. 4 shows the distribution of both sexes combined). For both sexes, the modal distance of movement was 21-40 km, the medial distance 41-60 km.

The samples were small when subdivided according to the time of recovery after banding, but by inspection there appeared to be no differences in the distribution of recoveries made within the year of banding and later.

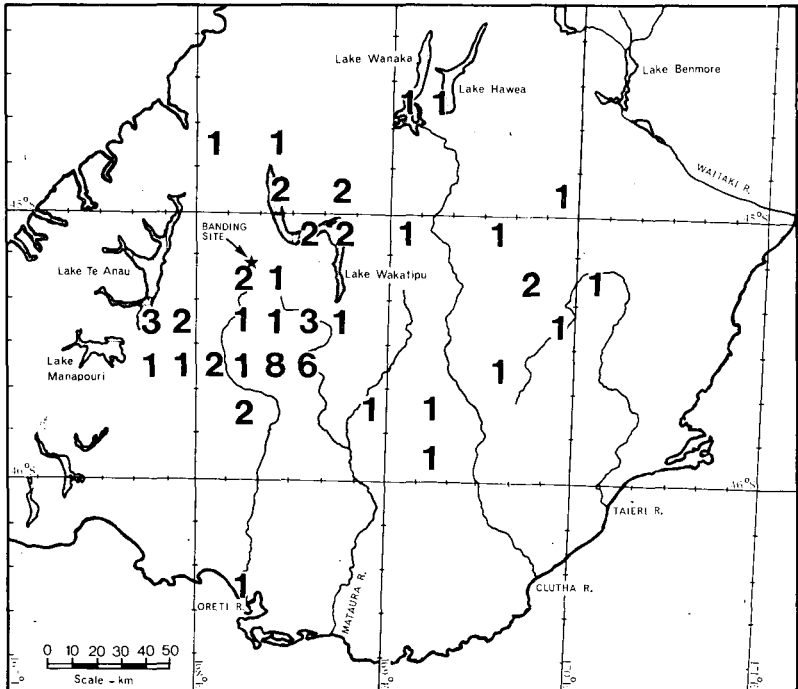


FIGURE 4 — The numbers of Paradise Shelducks, banded at Von Lake between 1970 and 1973, reported shot within each 0°10' x 0°10' latitude-longitude square between 1970 and 1978.

TABLE 5 — Numbers and cumulative percentage of Paradise Shelduck, banded as ducklings at various sites in northern and western Southland, recovered dead at various distances from their site of banding.

DISTANCE INTERVAL (km)	MALES		FEMALES	
	NUMBER	CUM.%	NUMBER	CUM.%
0 - 20	20	18.5	44	50.0
21 - 40	22	38.9	15	67.0
41 - 60	11	49.1	5	72.7
61 - 80	12	60.2	4	77.2
81 - 100	16	75.0	4	81.7
101 - 120	14	88.0	7	89.7
121 - 140	5	92.6	5	95.4
141 - 160	3	95.4	3	98.4
161 - 180	3	98.1	1	100
181 - 200	1	99.1		
201 +				
TOTAL	108		88	

These data suggest that the birds moulting at Manapouri sites are, to a large extent, separate from those moulting at Von Lake. Approximately 80% of the Manapouri birds were recovered within 40 km of their moulting site and 81% of all Manapouri recoveries were made to the west of a N-S line drawn through the moulting site. By contrast, only 42% of the Von Lake birds were recovered within 40 km of the moulting site and only 17% of the recoveries were made to the west of Von Lake. Manapouri birds were mainly shot in the Te Anau-Manapouri area with a few other recoveries coming from the upper Oreti and Mataura valleys. Recoveries from north of Lake Wakatipu and east of the Clutha River were negligible. Few Von Lake birds were shot near Te Anau and Manapouri; instead, their main areas of recovery were in the Garston district, at Lake Wakatipu and east of the Clutha River.

Southland Ducklings

During 1970-74, officers of the Southland Acclimatisation Society banded 1219 males and 1181 females at various sites throughout the northern and western parts of the Southland district and by 31 October 1978 bands had been returned from 108 (8.9%) males and 88 (7.5%) females. One of the aims of banding ducklings was to determine their pattern of dispersal after fledging.

The distributions of the distances moved by males and females (Table 5) are significantly different ($X^2 = 24.7$, 5df, $p < 0.001$): males moved further than females. The medial and modal distance of movement by females was 0-20 km; the medial distance for males was 21-40 km and their modal distance was 61-80 km.

Birds recovered in their year of banding had, on average, travelled further than those shot later. Only 3 (7.7%) of 39 males shot in their year of banding were within 40 km of their banding site compared with 39 (56.5%) of 69 males shot later ($X^2 = 25.0$, $p < 0.001$); similarly, only 13 (37.1%) of 35 females shot in their first year of life were within 40 km of their banding site compared with 46 (86.8%) of 53 shot later ($X^2 = 23.5$, $p < 0.001$). Significantly fewer males than females were shot within 40 km of their banding

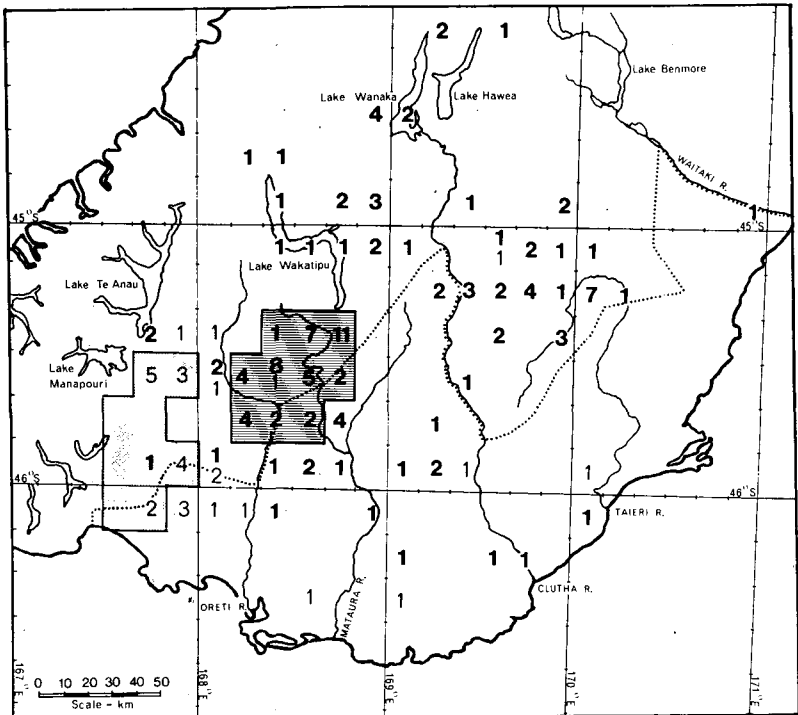


FIGURE 5 — The numbers of Paradise Shelducks, banded as ducklings in the Southland district between 1970 and 1974, reported shot within each $0^{\circ}10' \times 0^{\circ}10'$ latitude-longitude square between 1970 and 1978. Recoveries of ducklings banded in the Garston area (striped) are shown by bold numbers and those banded in the Waiau Valley area (stippled) by light numbers. In the area south of the dotted line, hunting was not permitted during all or part of the recovery period.

site both in the year of banding ($X^2 = 9.4, 0.01 > p > 0.001$) and later ($X^2 = 23.9, p < 0.001$). These data show that both sexes disperse widely in their first year and both sexes, females more so, tend to return to their natal areas.

The pattern of dispersal as revealed by the band returns (Fig. 5) does not show the spread of the species throughout the south-eastern portion of Southland and Otago, for Paradise Shelducks cannot be legally hunted there. However, the recoveries show clearly a difference in dispersal of birds banded in the Garston district and those banded in the Waiau River valley. Garston birds were shot mainly in their area of banding, in the higher country east of Roxburgh and between the Taieri and Manuherikia valleys, with a third but lesser area of recovery about Queenstown and Lake Wakatipu. Ducklings banded in the Waiau valley were recovered mostly within the Waiau catchment and only five (17%) of 29 recoveries were east of the Oreti River.

This pattern of recovery corresponds closely to that shown earlier for adults banded at moulting sites near Manapouri and at Von Lake. Some birds banded as ducklings were retrapped at these moulting sites. Analysis of these captures showed that all 30 ducklings banded in the Waiau valley area and recaptured during the moult were caught at the Manapouri sites. By contrast, of 74 birds originally banded in the Garston area and recaptured during their moult, 68 (92%) were caught at Von Lake, the other six near Manapouri.

TABLE 6 — Numbers and cumulative percentage of Paradise Shelducks, banded at Tarndale and Lake Matiri, recovered dead at various distances from their banding site (both sexes combined).

DISTANCE INTERVAL (km)	TARNDALE		LAKE MATIRI	
	NUMBER	CUM.%	NUMBER	CUM.%
0 - 20	2	4.4	6	24.0
21 - 40	2	8.9	10	64.0
41 - 60	25	64.4	7	92.0
61 - 80	10	86.6	2	100
81 - 100	2	91.0		
101 - 120	2	95.6		
121 - 140	1	97.8		
141 - 160	1	100		
TOTAL	45		25	

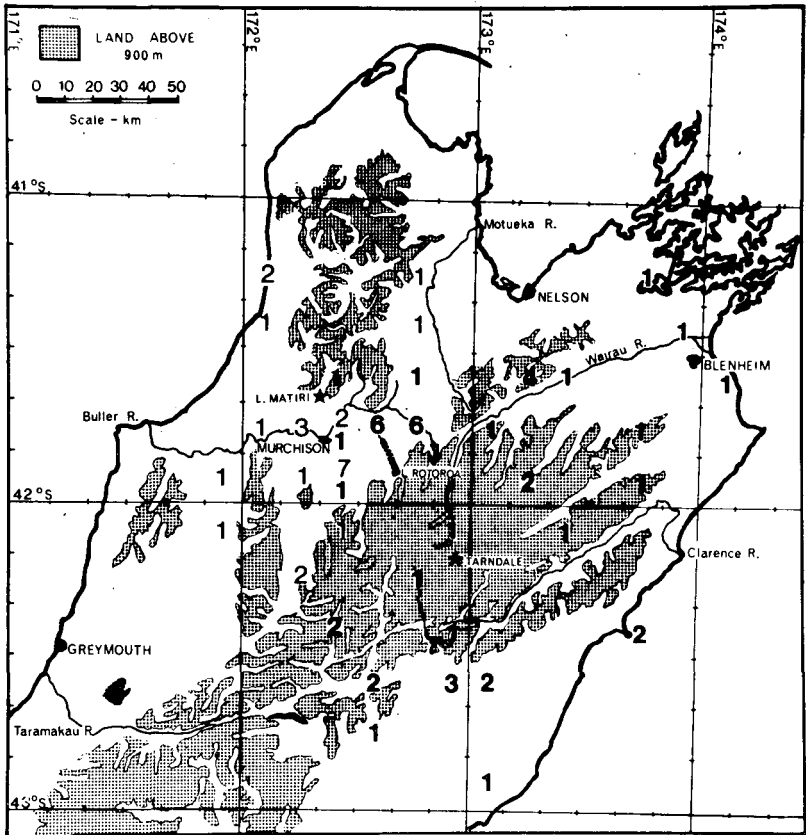


FIGURE 6 — The numbers of Paradise Shelducks, banded at Lake Matiri in 1973 (light numerals) and at Tarndale in 1973 and 1974 (bold numerals), reported shot within each $0^{\circ}10' \times 0^{\circ}10'$ latitude-longitude square between 1973 and 1978.

Nelson-Marlborough

By 31 October 1978 the bands of 45 (7.8%) of 576 moulting Paradise Shelducks banded at Tarndale in 1973 and 1974 and 25 (17.4%) of 144 banded at Lake Matiri in 1973 had been returned to the banding office.

Birds moulting at Lake Matiri were very difficult to catch and, after three years of effort, the programme there was abandoned and with it, the work at Tarndale. Data, therefore, are few and in compiling the distribution of distances moved (Table 6), I have combined data for both sexes.

Tarndale moulters dispersed widely (Fig. 6). The most southern recovery was from near Glentui in the Ashley River valley, the most northern from near Havelock at the head of Pelorus Sound. The medial and modal distance of movement was 41-60 km, but these figures are no doubt influenced by the very light hunting pressure over Molesworth Station, the area immediately adjacent to the moulting site. These widespread recoveries suggest that the Tarndale moulting site may be the main, if not the only, moulting site in the Marlborough district.

The few recoveries of Lake Matiri birds (Fig. 6) constitute a similar percentage of the total banded to that obtained in Taihape and Gisborne. Almost two-thirds of the recoveries were made within 40 km of the moulting site and none more than 80 km away. They remained west of the main divide and close to Murchison and thus were separate from the Tarndale birds, which remained east of the main divide. The only exceptions were those birds shot in the headwaters of the Motueka River and in the Hope Saddle area — they were Tarndale moulters. No birds banded at Lake Matiri in 1973 were caught moulting at Tarndale in 1974.

DISCUSSION

This study shows that the Paradise Shelduck at Taihape, as in the Gisborne-East Coast district (Williams 1979 b), is a sedentary species, whereas in parts of its South Island range it disperses more widely. More than 70% of the shelducks that were shot after being banded at moulting sites in North Island hill country were recovered within 40 km of the moulting site, a similar result to that obtained for birds banded at Manapouri and Lake Matiri (Table 7). In contrast, the medial recovery distance interval for birds banded at three South Island sites, Tarndale, Benmore and Von Lake was 41-60 km. What factors promote this difference in dispersal?

The most likely factor is habitat. Birds from the Tarndale, Benmore and Von Lake moulting sites dispersed widely over tussock grassland areas. These areas lack abrupt topographical changes; they are mostly flat, have little improved pasture, and have only occasional stock ponds. In these areas the principal breeding habitats of shelducks are the water courses (small streams to large shingle riverbeds) and the small swampy tussock-clad terraces alongside. Flocks of pre-breeding juveniles roam widely, preferring the few areas of developed pasture (Bisset 1976) and often moving from one major watershed to another in search of suitable grazing.

In the Gisborne-East Coast and Taihape areas of the North Island, around Lake Matiri in Nelson and, to a lesser extent, the Waiiau valley of Southland, where most of the Manapouri moulters remain, the topography is more irregular with large hillsides and extensive areas of improved hill country pasture. Small stock ponds are common and serve as the principal breeding habitat for Paradise Shelducks. The prebreeding juveniles tend to remain most of the

TABLE 7 — Comparison of the dispersal characteristics of Paradise Shelducks banded at various moulting sites. Gisborne data reworked from Williams (1979 b).

MOULTING SITE	TOTAL RECOVERED	MODAL RECOVERY INTERVAL (km)	MEDIAL RECOVERY INTERVAL (km)	PERCENT RECOVERED WITHIN 40 km OF MOULTING SITE
GISBORNE - Parehaka	76	0 - 20	0 - 20	81
- Tiniroto	101	0 - 20	0 - 20	69
- Burkes	245	0 - 20	21 - 40	73
- Repongaere (1970-1975)	192	21 - 40	21 - 40	70
TAIHAPE - All sites	709	0 - 20	0 - 20	83
NELSON - L. Matiri	25	21 - 40	21 - 40	64
MARLBOROUGH - Tarndale	45	41 - 60	41 - 60	9
WAITAKI - Benmore	244	41 - 60	41 - 60	29
SOUTHLAND - Manapouri	125	0 - 20	0 - 20	76
- Von Lake	59	41 - 60	41 - 60	41

year at a single site (Williams 1979 a) and do not roam far in search of future breeding territories.

My conclusion is that the dispersal characteristics of shelduck populations may be predetermined by the habitat. The management implications of this are that in hill-country habitat, counts of moulting flocks and thus monitoring of the hunter's impact apply to small areas — probably a radius of no more than 30-40 km from the moulting site — and for sensitive management, hunting regulations could be varied over such small areas. But in the tussock grassland communities of the eastern foothills of the Southern Alps, hunting regulations should apply over a much wider area.

The banding of ducklings in the Southland area has shown the value of being able to define areas of dispersal of the age class which probably forms the bulk of the hunter's bag but which is not available to be captured at a moulting site. Although some Southland ducklings dispersed widely, others showed only limited dispersal, even during their first year of life. This difference may also be related to habitat. Ducklings banded in the Waiau River valley, hill country with extensive improved pasture, showed only limited dispersal; those banded at Garston dispersed widely over the flatter tussock grasslands — a parallel with the dispersal characteristics of Manapouri and Von Lake moulters. Although not analysed in such fine detail at Gisborne (Williams 1979 a), the same pattern seems not to hold for ducklings

from the northern part of Gisborne-East Coast. There, in hill-country farmland, ducklings dispersed beyond the range shown by adults that moulted in the same area. Clearly, in future, as well as defining the limits of dispersal of moulting populations, the wildlife manager should give more attention to the first-year age class.

ACKNOWLEDGEMENTS

This study is the result of extensive field work by many officers of the Wildlife Service and Acclimatisation Societies, and it is a pleasure to acknowledge their contribution. In particular, I thank E. S. Bucknell, I. S. Hogarth, T. Thompson, D. V. Zumbach, J. S. Adams, R. R. Sutton, I. Matheson, A. Russell and A. G. Hall. Dr M. C. Crawley kindly commented on the draft manuscript and I. McFadden and C. J. Robertson assisted with data analysis.

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MURRAY WILLIAMS, *Wildlife Service, Department of Internal Affairs, Private Bag, Wellington.*



SHORT NOTES

RARE TERNS UNDATED

Mention of the sighting of rare birds without a precise date can be very frustrating because the time of the occurrence may be highly significant and the occurrence itself may gain in significance as it slips further into the past.

Recently I have re-read a couple of tantalising references. Perhaps someone with curiosity, time and the instincts of a Sherlock Holmes would care to do a little 'digging.' There may be relevant diaries in public libraries or museums.

(a) Stead E. F. (1932 *Life Histories of N.Z. Birds*, p. 25) writes of *Chlidonias albistriata* [sic] "I have seen it on the Waiouru plains and have often wondered that it was not a more plentiful bird in that locality." Yet in 1879 (Buller W. L., *History of N.Z. Birds* 2nd edition, p. 72) Captain Mair discovered a flourishing colony on the sandbanks of the upper Whangaehu, south-east of Mt Ruapehu. Were some still nesting there when Stead noted their presence in that same locality? What was the year and the season of Stead's visit? Were the birds he saw descendants of those upon which Mair had reported? Were the

headwaters of the Whangaehu an ancestral breeding area and when were they abandoned?

(b) Guthrie Smith H. (1936 *Sorrows and Joys of a N.Z. Naturalist*, p. 120) in a chapter headed 'Terns in New Zealand,' states "Consorting with a colony of the Inland Tern (*Sterna albistriata*) [sic] I have come across once in my life the Black-bellied Tern (*Sterna* sp.). The remarkable velocity of the flight of this species, their celerity of movement when in the air would have rendered the pair conspicuous even had their plumage not vividly individualised them." Clearly White-winged Black Terns (*C. leucopterus*); but where? and when? Were they perhaps a breeding pair?

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WEKAS SWIMMING

Part of the management of Maud Island in the Marlborough Sounds includes the removal of Wekas (*Gallirallus a. australis*). Most of the birds have been trapped and released on the neighbouring mainland. After many "last" wekas had been caught, it was suspected that some birds were returning. To determine this it was decided to band all birds released. During late May and June 1978 five wekas were caught, banded and released at Deep Bay, north-west of Maud Island across the Apuau Channel. Three of these birds had subsequent histories.

L. 5158, an adult male, was trapped and relocated on 3 June. On 13 June, 10 days later, the bird was retrapped on Maud Island, 5 metres from the original trap site.

L. 5156, an adult female, was caught and transferred the same day as the previous bird. This bird was retrapped on Maud Island on 16 June, 13 days later, close to where originally caught.

L. 5153, an adult female, was trapped on 28 May but could only be relocated, because of weather conditions, on 31 May. This bird was retrapped back on Maud Island on 11 June, 12 days later. It was trapped 60 metres from the original site. It was again returned to Deep Bay but was retrapped back on Maud Island within a few metres of the last site on 15 June, only 3 days later.

The capacity of wekas to return to Maud Island explained the many "last" wekas caught. It illustrates the birds' territorial tenacity and homing instincts and their ability to swim considerable distances. From where the birds were released at Deep Bay they would have to travel some 2.5 kilometres by land and then swim the Apuau Channel. At its narrowest point this is some 914 metres wide. Its tidal flow reaches some 3-4 knots and it has a long reach exposed to westerly winds. Whether the birds wait for favourable weather and a slack tide is not known.

ALAN WRIGHT, *Wildlife Service, Dept of Internal Affairs*

BIRDLIFE OF AITUTAKI, COOK ISLANDS

By PETER CHILD

INTRODUCTION

During a visit to the Cook Islands, my wife and I spent 5 days (30 August to 3 September 1980) on Aitutaki, where we made a concerted effort to determine the composition and status of the birdlife. In recent years the only published records referring specifically to this atoll were of the Pacific Golden Plover (Holyoak 1976) and the Pacific Lorikeet (DuPont). It thus appeared that, although the avifauna of Rarotonga had been fairly extensively documented by several visitors in the past decade, that of Aitutaki was rather neglected. During our brief visit we observed 18 species. The only species which we found definitely breeding during our visit was the White Tern.

On 1 September we hired a launch and visited five motus in the south-east corner of the atoll, which were said to be the best places for breeding seabirds. On 2 September we spent 3 hours searching the low-tide mudflats between Nikaupāra and the airport, on the lagoon side of the main island, a distance of about 10 km. Although we spent a lot of time "sea-watching" we saw no petrels, shearwaters or other procellariids.

Place-names mentioned in the text are shown in Fig. 1. In the following notes, local Aitutaki names are given after the scientific name. (In some species local names vary for different islands in the Cook group.)

SEABIRDS

RED-TAILED TROPICBIRD *Phaethon rubricauda* (Tavake)

Present in small numbers; said to breed on Maina and Motukitiu islets. On 1 September we recorded a total of 10 flying to and fro about the SE motus.

WHITE-TAILED TROPICBIRD *Phaethon lepturus dorotheae* (Rakoa)

Present in small numbers; said to nest on rock ledges and cavities in basalt cliffs on Maungapu (120 m) and another outcrop a little further south. Greatest tally in one day was 12.

BROWN BOOBY *Sula leucogaster plotus* (Toroa)

Although largely unknown by the locals (and evidently not breeding here), we had several sightings of single birds flying low over the sea, mainly out beyond the reef. On 30 August, with a choppy sea and stiff SE breeze, three were fishing inside the lagoon off the jetty at Tautu.



FIGURE 1 — Sketch map of Aitutaki, showing localities mentioned in the text.

GREATER FRIGATE BIRD *Fregata minor* (Kota'a)

Although odd individuals were seen over the lagoon each day, the greatest concentration was a flock of 57 over Motukituu on 1 September. Of these, only five were adult males, and a similar handful were immatures (with rusty heads), all the others being adult females. They are said to breed only on this islet.

COMMON NODDY *Anous stolidus* (Ngoio)

Uncommon, but mixed flocks of white and dark birds at sea beyond the SE motus on 1 September could have contained further birds of both noddy species; said to breed on Motukituu. Four birds were seen singly flying about during the lagoon trip on 1 September. On 2 September, one was seen to catch a fish in the breakers on the reef off Akitua.

WHITE-CAPPED NODDY *Anous minutus minutus* (Ngoio)

Uncommon, but many could have been present in the flocks

mentioned above. Four adults were recorded during the lagoon trip on 1 September, and on two other days one was seen fishing in the lagoon off the Arutanga wharf. As the locals do not distinguish between the two noddy species breeding was not confirmed — it probably does occur on Motukituu. On 1 September, one fully grown immature was standing on the lagoon beach at this islet.

WHITE TERN *Gygis alba candida* (Pirake)

Common, sightings of twos, threes and fours all day, giving aerial displays, and coming and going between sea and land; also, flocks at sea at the limits of vision with binoculars probably contained this species. On 3 September, 7 to 10 birds were frequenting a large flame tree outside the post office. On 1 September at Motukituu, we sighted a half-grown chick and five immatures perched on pandanus limbs inside the forest, with several pairs of adults hovering about. There are undoubtedly several other treed areas where they breed.

SHORE BIRDS

PACIFIC GOLDEN PLOVER *Pluvialis fulva* (Tolea)

Common, and probably increasing during this southern migration period of our visit. For example, on Rarotonga, we could find only three on 23 August, whereas a fortnight later there were dozens along reefs, beaches and grassed areas. At Aitutaki, they were scattered along the airport verges and runways as well as along the beaches, reefs and mudflats at low tide. In 3 hours on the lagoonside mudflats of the main islet, we recorded 44 on 2 September.

WANDERING TATTLER *Tringa incana* (Kuriri)

The commonest wader around all coasts and open substrates: sandy beaches, mudflats, reefs, dead coral, tidal pools, and occasionally on grassed areas. Greatest single total was 58 in the 3 hours as above. On two separate occasions we witnessed behaviour which suggested an adult was trying to sever its parental ties with an immature attendant bird.

SIBERIAN TATTLER *Tringa brevipes*

There seems to be no separate vernacular name for this species. Of 99 Tattlers recorded, most of which were examined intensively and often at very close range, only three were identified as this species: marginally smaller, silky-grey upperparts, whiter eyestripes, lack of barring on underparts, subtly different yellow shade of leg colour, and the characteristic variation of call. Close comparisons were made alongside a Golden Plover (one bird at Vaipae on 2 September), and among a group of five Wandering Tattlers (two birds at Akitua on 2 September).

TURNSTONE *Arenaria interpres*

No vernacular name obtained. Only one bird seen, at Tautu

breakwater on 30 August. The Cook group seems to be the eastern limit in the South Pacific for this wader.

BRISTLE-THIGHED CURLEW *Numenius tahitiensis* (Kivi)

At the islet of Motukititi on 1 September, five birds were roosting during high tide under the shade of coastal shrubs above a coral pebble beach. Very close views were obtained and the characteristic calls were heard when the birds were flushed.

Two others were frightened from the grass verge at the southern end of the airstrip on 2 September.

ASIATIC WHIMBREL *Numenius phaeopus variegatus*

No vernacular name obtained. On 30 August, four were preening just above high tide level on a dead coral beach at the islet of Akitua. A few minutes later, a fifth flew in from the lagoon to a nearby sand-bar.

On 2 September, during a 3-hour mudflats survey, one Whimbrel was sighted, possibly one of the original five. Whitish rumps and characteristic calls identified this subspecies.

REEF HERON *Egretta sacra sacra* (Kotuku)

A common bird around the beaches and reefs. After our experience in Rarotonga, we were agreeably surprised to find the white phase almost as numerous as the grey. Highest tallies in any one day were: grey 26, white 17, and mottled 4.

One grey-phase bird seen near the whimbrels on 30 August was so large that we wondered at first if it were another species, but there was no other feature to suggest so. Mayr (1945) stated that birds from further west (New Caledonia and the Loyalty Islands) are larger, subspecies *albolineata*. Could a straggler have reached Aitutaki?

GREY DUCK *Anas superciliosa pelewensis* (Mokora)

During the mudflat survey on 2 September, we flushed one flock of 10 and a single bird from the shelter of coastal vegetation out into the lagoon shallows. Features noted in comparison to the NZ subspecies (*superciliosa*) were the more contrasty head-stripes, bold patterning of the upperparts, and the overall smaller size of the bird.

LAND BIRDS

PACIFIC LORIKEET *Vini peruviana* (Nun-bird, Kuramo'o)

Although said by some locals to be hard to find, we recorded this bird as reasonably common. Flights of one, two, or three birds could be seen among the bananas and palms on most parts of the main island, and at other times calls were frequently heard. They were observed eating the flowers of both coconut palm and mango tree. We could not ascertain from local people whether this lorikeet is native or introduced — DuPont (1976) says "possibly introduced." This is the only island in the Cook group where it occurs.

LONG-TAILED CUCKOO *Eudynamys taitensis* (Karavia)

Alarm calls were heard from two separate birds in tall scrub on Maungapu track on 31 August; one was seen by the roadside later the same day. On 1 September, one flew out from bushes on the islet of Moturakau and returned to the same spot.

INDIAN MYNA *Acridotheres tristis* (Government bird, Manu kavamani)

Abundant, especially around settled and cultivated areas. A few were noticed on the SE motus. Upon return to Rarotonga on 4 September, we found that the government had just decided to impose a bounty of 10 cents per beak on this bird because of the damage it is causing to fruit and vegetable crops. It is also blamed for the alarming decrease in native forest birds on Rarotonga. (The myna was introduced 50 years ago to control white aphids and other insect pests of citrus orchards.)

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SHORT NOTE

CHATHAM ISLAND PIGEON AND POSSUM SHARE FOOD

The Chatham Island Pigeon (*Hemiphaga novaeseelandiae chathamensis*) survives as a precariously small population on the main Chatham Island. Competition for food with the introduced possum (*Trichosurus vulpecula*) could be a contributing factor. The following observations were made in late August and early September 1980 in the Tuku Valley, while I was a member of a party led by D. E. Crockett searching for the nesting area of the Taiko.

The Chatham Island lancewood (*Pseudopanax chathamicum*) was fruiting profusely and Pigeons were seen on several occasions feeding on the berries. All Pigeon droppings found under these trees consisted entirely of lancewood seeds in a purplish matrix (the colour of the ripe berries). Many possum droppings were found in the same area, each containing between 25% and 50% by volume of lancewood berries and the rest macerated plant material. There appeared to be no shortage of berries at the time, but this may not always be the case at other times and for other foods.

An island flora has fewer species than an equivalent area of mainland, and on the main Chatham Island plant diversity has been further reduced by introduced mammals. Competition for the remaining succulent fruits and shoots may therefore be acute.

DEREK BETTESWORTH, c/o Post Office, Omapere, Northland

A NEW SANDPIPER FOR SAMOA

On 7 February 1980, at the sand and rock shoreline in front of the village of Malua in Western Samoa, we saw a small sandpiper foraging among the rocks and driftwood at the water's edge. We were immediately impressed with its resemblance to the familiar Spotted Sandpiper (*Tringa macularia*) in winter plumage, which is found throughout North America.

We watched the bird for over an hour under cloudy skies along the 300-metre shoreline. It was flushed from time to time but always resumed feeding after flying only a short distance. Its feeding activity was quite animated and brisk, with characteristic bobbing and dipping of the neck and tail. Occasionally it paused, motionless.

It was about two-thirds the size of nearby Wandering Tattlers (*T. incana*), and was judged to be about 18 cm (7 inches) in length. The back was uniform brownish, slightly lighter on the nape and crown, and even lighter on the sides of the head. The sides of the breast were also light brown and faded into the pure white of the belly and flanks. It had a rather distinct white orbital ring but no outstanding white eyestripe. The legs were grey-green. The bill was dark brown and slightly longer than the head. In flight, white wingbars were visible on the mid-wing and the outer tail feathers were barred. Its flight was stiff and the wing-beats shallow. It did not call.

A second bird was seen flying up the shoreline later, while the first bird was perched on a concrete pile. On subsequent visits we did not find the birds, but on 15 February we saw two birds in flight at the Mulinu'u Lagoon near Apia, some 24 km from Malua. Both birds seemed to have the same markings as the sandpiper but could not be positively identified.

The birds were clearly either the Common Sandpiper (*Tringa hypoleucos*) or the Spotted Sandpiper of America. The two are very alike in winter plumage, differing only slightly in the pattern on the wing coverts and the coloration of the legs. We agreed that, based on the literature we had, the location and the field markings, the birds were probably Common Sandpipers. Most authorities to whom we have shown our field notes and slides have agreed with our opinion.

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[New Zealand authorities, to whom text and photographs were shown, agree that the bird was either Common or Spotted Sandpiper, almost certainly Common Sandpiper, appearing to have the length of tail of this species. See Prater, Marchant & Vuorinen, **Guide to the identification and ageing of Holarctic waders**. BTO guide 17, 1977. Plate 14. — Ed.]

**NOTES ON MOULT AND SEASONABLY
VARIABLE CHARACTERS OF THE
ANTARCTIC BLUE-EYED SHAG
*Phalacrocorax atriceps bransfieldensis***

By NEIL P. BERNSTEIN and STEPHEN J. MAXSON

ABSTRACT

A summary of timing and patterns of moult is presented for adult *Phalacrocorax atriceps bransfieldensis* based on 14 months of continuous observation. Changes in flesh characters are also noted. Observations differ from reports in the literature, and the significance of the new data on taxonomic studies of the blue-eyed shag complex is discussed.

Differences in plumage patterns and eyelid colour of the blue-eyed shag complex (*Phalacrocorax atriceps*, *P. albiventer*, *P. verrucosus*, *P. carunculatus*, and *P. campbelli*) have been used for taxonomic classifications (e.g. Murphy 1936, Jouanin 1950, Behn *et al.* 1955, Voisin 1970, 1973, and Watson 1975).^{*} More recently, Devillers & Terschuren (1978) also used these morphological characters in proposing evolutionary relationships within this species complex, basing their conclusions on breeding characters while paying little attention to non-breeding plumage patterns or the fact that the eyelid colour is variable throughout the year. This paper summarises 14 months of observations on the plumage and flesh characters of *P. atriceps bransfieldensis* at Cormorant Island near Palmer Station, Anvers Island, Antarctica (64°46'S 64°03'W). The results of the study indicate that the current literature on timing and extent of moult does not adequately describe *P. atriceps bransfieldensis* and that, although classifications based upon morphological characters may be true, they are ill-founded.

From 16 January 1979 to 13 March 1980, 78 female and 92 male Cormorant Island shags (800 birds resident most of the year) were caught and hand-inspected for moult of wings, tail, breast, back, and head (Table 1), and also for colour of the eyelids and nasal caruncles. Special attention was given to moult of the dorsal patch of white feathers located between the wings and to the moult of the wing bars.

Capture was not possible in August owing to adverse ice conditions and was not attempted during the shags' courtship period in September and October. Since birds immediately before and after this time exhibited moult, we can only conclude that moult had not been completed.

^{*} Although the genus *Leucocarbo* is also used for this group, for ease of comparison with recent literature, we prefer to use *Phalacrocorax* in this paper.

In summarising the work of past researchers (e.g. Murphy 1936), Watson (1975) writes the following regarding the moult of *P. atriceps*:

Twice per cycle. A complete molt begins during breeding and lasts into June. This produces the elongated crest plumes and leaves the back and wings entirely black. Another partial molt takes place in the spring just after courtship and involves loss of the crest plumes and rapid growth of the white middorsal patch and wing bars.

Despite the fact that Watson states that the timing and extent of these two moults need further study, his description is widely quoted and implied as being valid.

At the Cormorant Island colony, the heaviest moult of all feather tracts occurred between the last week of March and mid-April (Table 1). No differences in moult were noted between sexes and, as Owre (1967) reported for *P. auritus*, an irregular and often unilateral moult of remiges and rectrices often occurs. If an orderly sequence of moult occurred in Cormorant Island shags, it was not apparent.

Although moulting slowed noticeably during the austral winter from mid-April on, a bird showing light breast moult still retained old and worn remiges as late as July, probably indicating that a complete moult had not occurred in June. All but 11 of the many birds examined throughout the 14-month study showed some form of moult; old and worn remiges were usually present with new ones. Shaw (pers. comm.) observed that 2- and 3-year-old *P. atriceps bransfieldensis* often retain juvenile primaries and secondaries on Signy Island, and Potts (1971) has noted the same in *P. aristotelis*. It appears that, like *P. aristotelis* (Potts 1971) and *P. capensis* (Berry 1978), *P. atriceps* does not have two separate moults but rather a multicycle moult or *Staffelmauser* (see Stresemann & Stresemann 1966). Potts (1971) cites other incidences of multicycle moult in seabirds and believes that conservation of energy is a primary reason for the slow moult, especially the winter pause which occurs when food resources are often depressed.

By mid-May, the Cormorant Island shags had well-developed nuptial crests, which they retained until the third week in December. Back moult was found in 96 of the shags examined. Contrary to Murphy's (1936) and Watson's (1975) description, in all but three (1 male, 2 females) white feathers had replaced other white feathers in the dorsal patch and wing bars. No reduction in the size of the dorsal patch was evident, and with the exception of a single female (31 January 1980), none of the 96 lost these white areas. In agreement with the above authors, however, 2 males and 5 females had incoming black feathers emerging in the dorsal patch between mid-February and March 1980. At most, 25% of the patch contained black feathers.

It is important to note that even at the species level the presence of a dorsal patch is used to distinguish *P. atriceps* and *P. albiventer*,

TABLE 1 — Monthly summary of moult for *Phalacrocorax atriceps bransfieldensis*

Date	Sex	N	No. With No Moulting	Primaries*		Secondaries		Tail		Breast			Back			Head		
				1-3	4-6	1-3	4-6	1-3	4-6	lgt	mod	hvy	lgt	mod	hvy	lgt	mod	hvy
1979																		
Mar	M	38	3	20	1	9	3	9	8	11	6	3	10	7	10	5	6	17
	F	35	2	18	4	14	2	20	3	10	4	5	10	9	8	5	6	19
Apr	M	7		6		4		3	1	5	2		4	1	2		2	4
	F	4		4		1		4		3			3	1		1	1	2
May	M	7		2		3		3	3	4	3		3	4		3	2	1
	F	7		7		3		4	2	6	1		4	1	2	4	3	
Jun	M	20	2	6		9		13		9	1		1	2		6	1	
	F	9		7		4		6		6			4			4		
Jul	M	1								1								
	F	0																
Nov	M	2	2															
	F	2					1						1					
Dec	M	10	2	3		3	2											
	F	6	1	2		2	3	3									5	
1980																		
Jan	M	4		4		4	3	2		1			2					1
	F	5		3		3	1	1					1			1		
Feb	M	3		3		3	2	1	1	2			2			1	2	
	F	10		9		2	3	3		4	2		4	4		3	2	4

*Numbering of feathers indicates absolute number of feathers that are moulting.

which are sympatric in part of their ranges and which Devillers & Terschuren (1978) believe to be conspecific. Our data indicate that descriptions of moult for the dorsal patch and wing bars in *P. atriceps atriceps* do not apply to *P. atriceps bransfieldensis* at Cormorant Island. Further study is needed from other locales to reveal geographic variances that may exist.

Colour of the shag eyelids and nasal caruncles has also been used to distinguish species of the blue-eyed shags with no regard to intraspecific variability within the yearly cycle. At the onset of courtship in the third week of September, the eyelid is a deep shade of cobalt blue, the enlarged caruncles a bright orange-yellow. By the peak time of egg laying in mid-November to mid-December, both the eyelids and the then shrunken caruncles fade in colour. Many years ago Clarke (1913) mentioned a change in caruncle size, but apparently these changes have gone unnoticed by most recent researchers (but see Williams & Burger 1979). Although taxonomic classifications are often based on differences in colour of the eyelids and caruncles, most researchers observe shag colonies only for brief periods in making their comparisons. This may lead to false conclusions since the characters are highly variable during the year and rapid changes occur between courtship and egg laying.

In conclusion, if taxonomic or evolutionary distinctions are to be based on morphological characters within this group, cursory observations at breeding colonies are inappropriate. Our study indicates that moult is poorly understood for this group and that additional studies are needed to discover how widely applicable our observations regarding retention of the dorsal patch and wing bars and multicycle moult are to other members of the *Phalacrocorax atriceps* complex. To establish relationships of the blue-eyed shags, the birds should be examined throughout the year, including early and late stages of the breeding season.

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SHORT NOTE

PREDATION ON STARLINGS (*Sturnus vulgaris*) IN NEST BOXES IN HAWKE'S BAY

In Hawke's Bay nearly 2000 wooden nest boxes were erected along fences to investigate whether or not it was possible to increase starling numbers for grass grub control. The nest boxes, 205 x 105 mm and 305 mm high, as described by Moeed & Dawson (1979, NZ J. Zool. 6: 613-618) were nailed to vertical wooden battens (7.5 x 5.0 cm) attached to the top of concrete or wooden fence posts about 1 m high. The bottom of each box was 50 cm above the top of the post. The centre of the entrance hole was 25 cm above the bottom of the box and 6 cm from the top and side.

Two study areas 5 km apart are referred to as Gull Rd and Poporangi Rd (Table 1). Up to 19 October 1976 all boxes were examined each week, then a group (A) of only 97 boxes at Gull Rd and another 101 at Poporangi Rd examined regularly. All Gull Rd boxes were examined once at night between 29 October and 1 November, except for group A. By 29 November, when it was obvious that a predator, probably a stoat, was visiting boxes over an increasing area, all boxes at Gull Rd were again examined weekly (Table 1).

On 19 October, 49% of 41 boxes on a particular fence (group B) at Gull Rd and 60% of the remaining 387 boxes at Gull Rd had eggs. However, by the end of the month only 7% of group B boxes were occupied (1 or more eggs or young). Eggs in these occupied boxes were broken and empty and the expected young were missing. By comparison, 47% of group A boxes and 46% of the rest of Gull Rd boxes (group C) were occupied (Table 1). Group A boxes also

TABLE 1 — Occupancy of nest boxes during the breeding season.

	No. of boxes	Percentage occupancy									
		October				November			December		
		19	26	31	8	15	22	29	6	13	20
Gull Road:											
A	97	52	56	47	42	23	19	13	22	5	2
B	41	49	-	7	-	-	-	2	2	0	0
C	290	63	-	46	-	-	-	27	18	6	0
Total	428	59	-	43	-	-	-	22	18	5	0
Poporangi Rd											
	101	30	37	38	43	45	31	31	43	42	25

became affected by predation during the next three weeks. Of 46 boxes occupied at the beginning of November, 59% failed completely, as shown by the disappearance of nest contents before the young were 17 days old. Only 13% of the 38 occupied boxes at Poporangi Rd failed completely.

From 29 November to 20 December the area affected by predation increased to include all fences at Gull Rd over an area of about 1 km². Percentage occupancy declined rapidly relative to Poporangi Rd ($X^2 = 48.6$; $P < 0.001$) and was only 5% on 13 December compared with 42% at Poporangi Rd. However, at this time occupancy rate was still high (45%) in the boxes at Gull Rd, furthest (0.7 km) from where the predator was first active.

It is not known how many predators were visiting the nest boxes at Gull Rd. However, on 20 December an adult male stoat was found in a nest box that had fallen to the ground a week before. In December 1979 a litter of stoats was found in a standard nest box at Gull Rd. Stoats show great agility while climbing to nests of native birds in trees (P. J. Moors, pers. comm.) and also, remarkably, to starling nests which are 4 m from the ground in vertical concrete walls (J. E. C. Flux, pers. comm.). Boxes put up to attract starlings can obviously attract local predators as well. Predation can greatly reduce the breeding success of the starlings and thereby negate the purpose for which the boxes were provided. It is also likely that predator populations may increase locally and seek other prey when the starlings have finished breeding. To protect breeding starlings from mammalian predators, sheet metal or perhaps polythene could be fitted snugly over each support batten and stretched down tightly over the top of the fence post to prevent a stoat jumping from that point.

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SEABIRDS FOUND DEAD IN NEW ZEALAND IN 1979

By C. R. VEITCH

During 1979, 3478 kilometres of coast were patrolled by 133 members of the Ornithological Society of New Zealand and their friends. 5876 dead seabirds were found. There were no major wrecks, although high numbers of Sooty Shearwaters (*Puffinus griseus*) from the November/December 1978 wreck continued to be found. Unusual finds were three Erect-crested Penguins (*Eudyptes sclateri*), three Sooty Terns (*Sterna fuscata*), three White-tailed Tropic Birds (*Phaethon lepturus*), and one Wedge-tailed Shearwater (*Puffinus pacificus*).

INTRODUCTION

This paper records the results of the Ornithological Society of New Zealand's Beach Patrol Scheme for 1979. The coastline of New Zealand is divided into 15 sections (Imber & Boeson 1969) with an additional grouping "OI" for Outlying Islands, which this year includes patrols from the Chatham Islands. This year patrols were carried out on all sections of coast except East Coast NI and Fiordland. 586 Beach Patrol Cards and 14 Specimen Record Cards were filed.

RESULTS AND DISCUSSION

The numbers of birds found and kilometres of beach travelled and covered per month are recorded in Table 1. The total length of beaches patrolled (3478 km) is about average for recent years. The total number of birds found (5876) is the lowest since 1972. The average number of birds found per kilometre of coast covered monthly (1.69) is lower than the previous 19 years' average of 2.25. Kilometres travelled (Table 1) are the total lengths of coast patrolled; kilometres covered are the lengths of coast covered monthly. Hence, if a kilometre of beach is patrolled three times in one month, three kilometres have been travelled but only one kilometre covered per month.

Monthly and coastal distribution of the less common birds is given in Table 2 and of the more common birds in Tables 3 and 4.

There were no large wrecks this year.

High numbers of Sooty Shearwaters (*Puffinus griseus*) continued to be found during January and February as a result of the large wreck in November and December 1978. Very low numbers of Sooty Shearwaters were found during the rest of 1979.

TABLE 1 — Numbers of dead seabirds recorded and kilometres patrolled on each coast in 1979.

COAST	CODE		MONTH												TOTALS KM	BIRDS	BIRDS/KM /COAST
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
AUCKLAND WEST	AW	KM	183	183	123	141	180	123	125	146	53	72	49	60	1438	2193	1.53
		BIRDS	746	308	107	90	408	70	53	197	21	59	94	40			
TARANAKI	TA	KM	38	36	22	10	-	9	11	15	6	6	8	-	161	352	2.19
		BIRDS	129	139	21	10	-	3	4	27	5	3	11	-			
WELLINGTON WEST	WW	KM	26	105	47	14	77	18	21	15	43	14	21	49	450	1572	3.49
		BIRDS	208	801	249	10	35	8	20	8	54	37	35	107			
WESTLAND	WD	KM	10	-	-	1	1	-	2	-	5	1	4	8	32	28	0.87
		BIRDS	8	-	-	1	3	-	0	-	5	0	1	10			
AUCKLAND EAST	AE	KM	105	28	28	19	57	67	48	63	49	46	50	44	604	716	1.19
		BIRDS	294	55	48	13	36	42	22	32	7	9	112	46			
BAY OF PLENTY	BP	KM	14	10	9	22	13	-	3	20	4	24	7	7	133	119	0.85
		BIRDS	29	18	4	11	5	-	3	12	0	12	4	21			
WAIRARAPA	WA	KM	5	3	-	-	-	-	-	-	-	-	-	10	18	28	1.56
		BIRDS	9	14	-	-	-	-	-	-	-	-	-	5			
CANTERBURY NORTH	CN	KM	10	1	4	15	1	5	1	4	-	-	-	-	41	65	1.59
		BIRDS	15	16	5	11	3	5	10	0	-	-	-	-			
CANTERBURY SOUTH	CS	KM	8	7	6	10	6	6	8	4	7	6	8	8	84	236	2.81
		BIRDS	14	65	44	28	10	4	18	1	21	9	3	19			
OTAGO	OT	KM	1	4	18	25	10	25	-	-	-	-	-	1	84	75	0.85
		BIRDS	1	4	16	33	5	12	-	-	-	-	-	4			
SOUTHLAND	SD	KM	8	1	13	11	-	13	13	7	6	-	-	11	83	57	0.69
		BIRDS	23	2	12	2	-	15	0	0	2	-	-	1			
WELLINGTON SOUTH	WS	KM	10	7	30	22	24	23	25	12	19	26	19	6	221	273	1.24
		BIRDS	24	10	27	16	29	24	11	17	37	48	25	5			
NORTH COAST SI	NS	KM	6	-	-	-	1	-	-	1	-	-	-	-	8	26	3.25
		BIRDS	18	-	-	-	4	-	-	4	-	-	-	-			
OUTLYING ISLANDS	OI	KM	83	8	23	1	6	-	-	-	-	-	-	-	121	136	1.12
		BIRDS	82	18	23	5	8	-	-	-	-	-	-	-			
TOTAL KILOMETRES TRAVELLED			580	461	369	329	448	321	273	329	264	250	193	248	4065		
TOTAL KILOMETRES COVERED			507	393	323	291	376	289	257	287	191	195	165	204	3478		
TOTAL SEABIRDS RECORDED			1600	1450	556	230	546	183	141	298	152	177	285	258	5876		
BIRDS/KM COVERED/MONTH			3.16	3.69	1.72	0.79	1.45	0.63	0.55	1.04	0.76	0.91	1.73	1.26			1.69

No patrols were reported from East Coast NI or Fiordland.

TABLE 2 — Seabirds of which 1 to 9 specimens were found dead in 1979.

SPECIES OR SUBSPECIES	NUMBER FOUND	COAST(S)	MONTH(S)
<i>Megadyptes antipodes</i>	9	OT(7),SD(2).	JAN,MAR,APR(6),JUN.
<i>Eudypetula minor albosignata</i>	5	CN(2),CS(3).	FEB(2),MAR(2),APR.
<i>Eudypetes spp*</i>	1	OT.	MAR.
<i>sclateri</i>	3	OT(2),OI.	MAR(2),APR.
<i>Diomedea exulans</i>	4	AW(3),CS.	MAY(2),AUG,SEP.
<i>epomophora</i>	4	CN,WS,I0(2).	JAN(2),FEB,APR.
<i>bulleri</i>	5	AW(2),TA,SD,WS.	APR,JUL,AUG(3).
<i>cauta subsp*</i>	5	AW(5),	MAY,AUG(3),NOV.
<i>cauta</i>	9	AW,TA(2),WW(4),OT,SD.	JAN(2),FEB(2),MAR,AUG,SEP,OCT(2).
<i>salvini</i>	8	AW(2),WW(2),WS(4).	JAN,MAR(2),OCT(5).
<i>eremita</i>	3	OI(3).	JAN(3).
<i>Phoebastria palpebrata</i>	6	AW(6).	JAN,FEB(2),JUN,AUG,OCT.
<i>Thalassoica antarctica</i>	1	AW.	MAY.
<i>Pterodroma spp*</i>	4	AW,WW,AE(2).	JAN(2),FEB,JUN.
<i>brevirostris</i>	1	AW.	AUG.
<i>nigripennis</i>	8	AW(7),WW.	JAN(2),FEB(3),MAR,APR(2).
<i>Procellaria parkinsoni</i>	6	AW(3),AE(3).	JAN,MAY(2),JUN,NOV(2).
<i>westlandica</i>	7	AW(3),WW,WS(3).	JAN,AUG(2),SEP,OCT,DEC(2).
<i>aequinoctialis</i>	4	AW(3),WS.	JAN,FEB,MAR,DEC.
<i>Puffinus spp*</i>	9	AW(7),WW(2).	JAN(2),MAY(3),MAR,JUL,OCT,NOV.
<i>pacificus</i>	1	AW.	DEC.
<i>Phaethon lepturus</i>	3	AW(2),TA.	FEB(2),JUN.
<i>Phalacrocorax spp*</i>	3	AW,WW,WS.	MAR,MAY(2).
<i>sulcirostris</i>	1	AW.	MAR.
<i>brevirostris</i>	9	AW,TA,WW(2),AE,BP(2),CN,WS.	JAN,APR(3),MAY,JUL,SEP,OCT,NOV.
<i>Leucocarbo carunculatus onslowi</i>	4	OI(4).	JAN,MAR,MAY(2).
<i>Stictocarbo punctatus featherstoni</i>	3	OI(3).	JAN(2),APR.
<i>Stercorarius skua lomnbergi</i>	1	WW.	NOV.
<i>Larus spp*</i>	1	OT.	MAR.
<i>Sterna fuscata</i>	3	AW(2),WW.	FEB(3).

TOTAL 131

* Species or subspecies could not be identified by the patroller.

TABLE 3 — Coastal distribution of the more common seabirds found dead in 1979.

SPECIES OR SUBSPECIES	COAST															TOTAL BIRDS
	AW	TA	WW	WD	AE	BP	WA	CN	CS	OT	SD	WS	NS	OI		
<i>Eudyptula minor</i> subsp* 208	20	20	69	1	108	11	1	1	-	4	9	20	1	40	493	
<i>Diomedea</i> spp* 6	2	5	-	-	-	-	-	-	-	2	1	-	-	-	16	
<i>melanophrys</i> 7	2	-	-	-	1	1	-	-	-	-	1	-	-	-	12	
<i>chrysostoma</i> 16	-	2	-	-	-	-	-	-	-	-	1	-	-	-	19	
<i>Macronectes</i> spp* 20	2	3	-	-	8	-	-	1	1	-	1	-	-	-	36	
<i>Fulmarus glacialisoides</i> 4	4	-	-	-	-	-	-	1	-	-	1	-	-	-	10	
<i>Daption capense</i> 19	4	4	-	-	4	3	-	-	4	-	10	-	1	-	49	
<i>Pterodroma macroptera</i> 10	-	-	-	-	13	6	-	-	-	-	3	-	-	-	32	
<i>lessonii</i> 29	3	1	-	-	2	-	-	-	-	-	2	-	-	-	37	
<i>inexpectata</i> 12	3	1	-	1	-	-	-	-	-	-	-	-	-	-	17	
<i>cookii</i> 12	1	4	-	-	9	-	-	-	-	-	-	-	-	-	26	
<i>Halobaena caerulea</i> 16	1	-	-	-	-	1	-	-	-	-	1	-	-	-	19	
<i>Pachyptila</i> spp* 61	8	397	2	3	-	-	-	-	-	-	5	4	-	4	484	
<i>vittata</i> 11	1	12	2	-	-	-	-	2	10	-	-	2	-	7	47	
<i>salvini</i> 13	-	1	1	3	-	-	-	-	-	-	-	-	2	-	20	
<i>desolata</i> 10	-	-	1	-	-	2	-	-	-	-	-	2	-	-	15	
<i>belcheri</i> 46	3	2	-	2	3	-	-	-	4	-	-	-	-	1	61	
<i>turtur</i> 123	90	674	2	29	6	13	2	1	-	-	39	1	10	-	990	
<i>Puffinus carneipes</i> 21	1	1	-	83	6	-	-	-	-	-	1	-	-	-	113	
<i>bulleri</i> 40	9	20	-	37	2	-	1	-	-	-	1	-	-	-	110	
<i>eriseus</i> 938	67	115	5	82	15	3	4	19	5	6	41	3	25	-	1328	
<i>tenuirostris</i> 77	22	40	4	44	13	-	-	4	2	16	-	-	2	-	220	
<i>gavia</i> 94	20	38	-	112	9	1	3	8	-	1	18	9	-	-	313	
<i>huttoni</i> 13	2	12	-	-	-	-	5	-	-	-	-	-	-	-	32	
<i>assimilis</i> 3	-	1	-	13	1	-	-	-	-	-	-	-	-	-	18	
<i>Pelagodroma marina</i> 1	-	-	-	2	5	-	-	-	-	-	1	1	-	-	10	
<i>Pelecanoides urinatrix</i> 64	17	37	1	34	9	-	1	-	-	2	4	1	1	1	170	
<i>Sula bassana</i> 116	5	9	-	37	4	-	-	-	-	-	1	1	-	-	173	
<i>Phalacrocorax carbo</i> 10	1	1	-	1	-	-	-	-	-	-	3	-	-	1	17	
<i>varius</i> 8	-	-	-	11	2	-	-	-	-	-	1	-	-	-	22	
<i>Leucocarbo chalconotus</i> -	-	-	-	-	-	-	-	-	-	15	4	-	-	-	19	
<i>Stictocarbo p. punctatus</i> 6	-	-	1	3	3	-	27	140	14	-	-	-	2	-	196	
<i>Larus dominicanus</i> 69	24	89	4	30	5	3	8	26	15	3	57	5	25	-	363	
<i>novae-hollandiae</i> 25	33	10	-	24	6	2	4	1	8	1	24	1	1	-	140	
<i>bulleri</i> -	-	-	2	-	-	-	1	15	1	16	-	-	-	-	35	
<i>Hydroprogne caspia</i> 7	-	-	-	4	-	-	-	-	-	-	-	-	-	-	11	
<i>Sterna striata</i> 25	2	8	1	11	4	5	-	3	1	1	6	-	5	-	72	
TOTALS	2140	347	1556	28	710	117	28	61	232	63	53	26	26	123	5745	

* Species or subspecies could not be identified by the patroller.

TABLE 4 — Monthly distribution of the more common seabirds found dead in 1979.

SPECIES OR SUBSPECIES	MONTH												TOTAL BIRDS
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
<i>Eudiptula minor</i> subsp* [*]	99	85	59	43	77	20	7	35	7	8	21	32	493
<i>Diomedea</i> spp*	4	5	1	—	—	—	2	1	—	1	1	1	16
<i>melanophrys</i>	1	—	—	3	4	—	—	2	—	1	1	—	12
<i>chrysostoma</i>	2	—	—	—	—	—	—	8	3	4	2	—	19
<i>Macronectes</i> spp*	10	—	—	2	1	4	2	15	—	2	—	—	36
<i>Fulmarus glacialisoides</i>	7	1	1	—	—	—	—	—	—	1	—	—	10
<i>Daption capense</i>	4	1	2	1	—	—	2	18	8	7	4	2	49
<i>Pterodroma macroptera</i>	10	3	2	—	—	2	1	9	2	1	1	1	32
<i>lessonii</i>	6	6	3	1	3	—	3	6	5	1	2	1	37
<i>inexpectata</i>	7	5	2	—	—	—	—	—	—	—	—	3	17
<i>cookii</i>	—	—	3	12	1	—	—	1	4	—	5	—	26
<i>Halobaena caerulea</i>	—	—	—	—	—	—	3	9	—	7	—	—	19
<i>Pachyptila</i> spp*	113	142	147	2	27	2	5	14	13	6	4	9	484
<i>vittata</i>	15	2	—	—	5	—	2	—	—	—	1	22	47
<i>salvini</i>	7	—	—	2	2	2	2	4	—	1	—	—	20
<i>desolata</i>	—	—	—	2	8	2	2	1	—	—	—	—	15
<i>belcheri</i>	4	22	1	—	2	1	8	18	4	1	—	—	61
<i>turtur</i>	89	673	54	6	8	3	12	27	32	35	26	25	990
<i>Puffinus carneipes</i>	22	15	15	1	2	3	1	—	—	2	42	10	113
<i>bulleri</i>	32	22	9	5	11	6	1	2	2	3	9	8	110
<i>eriseus</i>	659	143	44	23	251	45	10	10	13	18	65	47	1328
<i>tenuirostris</i>	116	38	6	1	18	2	—	1	—	17	12	9	220
<i>gavia</i>	112	40	25	12	13	8	11	26	5	23	19	19	313
<i>huttoni</i>	6	2	1	1	1	—	—	1	1	2	16	1	32
<i>assimilis</i>	1	—	1	1	2	1	1	—	1	—	9	1	18
<i>Pelagodroma marina</i>	6	—	—	—	—	—	—	—	—	3	1	—	10
<i>Pelecanoides urinatrix</i>	93	20	1	—	3	2	3	13	5	1	10	19	170
<i>Sula bassana</i>	29	17	40	11	19	16	8	23	1	1	5	3	173
<i>Phalacrocorax carbo</i>	1	3	—	2	2	4	2	1	1	—	—	—	17
<i>varius</i>	3	2	4	5	1	1	1	4	—	—	—	—	22
<i>Leucocarbo chalconotus</i>	—	—	6	7	1	2	—	—	—	—	—	3	19
<i>Stictocarbo p. punctatus</i>	9	63	35	25	9	6	18	2	11	9	1	8	196
<i>Larus dominicanus</i>	58	65	54	26	44	22	18	22	20	6	13	15	363
<i>novaeollandiae</i>	32	35	10	6	12	10	9	7	6	2	7	4	140
<i>bulleri</i>	6	5	3	4	—	12	1	—	2	—	—	2	35
<i>Hydroprogne caspia</i>	—	1	—	—	—	1	2	3	1	1	1	—	11
<i>Sterna striata</i>	14	17	11	9	5	1	1	3	1	2	1	7	72
TOTALS	1577	1433	540	214	532	178	138	286	148	166	279	254	5745

* Species or subspecies could not be identified by the patroller.

1981

SEABIRDS 1979

45

The number of Fairy Prions (*Pachyptila turtur*) found on Wellington West beaches in February appears to be high. However, mortality can be expected at this time of the year when the young fledge. The number of Fairy Prions found during the whole year (990 at a rate of 0.28 per kilometre) is lower than the average of previous years (0.31).

Erect-crested Penguins (*Eudyptes sclateri*) have been recorded on five previous occasions (1963, 3; 1974, 2; 1975, 2; 1976, 1; 1977, 1). Most of these birds were found on Canterbury South and Otago beaches in March and April. The three birds found this year were on Otago Peninsula and Chatham Island in March and North Otago in April.

There are five previous records of Sooty Terns (*Sterna fuscata*) totalling 14 birds. The three birds found this year were on Dargaville (AW), Muriwai (AW), and Ohau (WW) beaches in February.

This is the fourth year a Wedge-tailed Shearwater (*Puffinus pacificus*) has been found. Previous records are 1978, AW, April; 1966, AW, November; 1962, WW, January and June.

The three White-tailed Tropic Birds (*Phaethon lepturus*) are second, third and fourth records for the Beach Patrol Scheme. The previous record is from Bay of Plenty in January 1973 (Brown 1973). This year's birds were found on Oakura Beach (TA) in February (Medway 1979), Dargaville (AW) in February and Muriwai (AW) in June. These were all immature birds.

Miscellaneous birds recorded, but not considered to be seabirds, totalled 174. These were: 28 Magpies, 24 Black Swans, 19 Rock Pigeons, 19 Mallards, 12 Blackbirds, six Grey Ducks, six geese, five White-faced Herons, four each of Variable Oystercatchers, Pied Stilts and Starlings, three each of SI Pied Oystercatchers, Paradise Shelducks, unidentified ducks, Pukekos, Harriers, Moreporks, Kingfishers and Song Thrushes, two each of Pheasants, California Quail, Reef Herons, NZ Pigeons, Buff Wekas, and Mynas, one each of Shoveler Duck, Spine-tailed Swift, Skylark, Cattle Egret, Long-tailed Cuckoo, Shining Cuckoo, Yellowhammer, House Sparrow and Spur-winged Plover.

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The success of the Beach Patrol Scheme in 1979 is due to the 133 people listed below, who are known to have taken part, and all the others who participated.

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E & O E

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C. R. VEITCH, *NZ Wildlife Service, P.O. Box 2220, Auckland.*



SHORT NOTE

LEG COLOUR AND DOMINANCE IN BUFF WEKAS

During a 6-week stay on the main Chatham Island, casual observations were made of the Buff Weka (*Gallirallus australis hectori*). Buff Wekas, introduced to the Chatham Islands in 1905, are now very common over most of the main island. The following observations were made at a campsite in the Tuku-a-tamatea Valley between 15 December 1978 and 30 January 1979.

Up to 16 wekas could be seen at a time near the dining shelter at the camp, and considerable variation in plumage and leg colour was noted. Several of the birds were distinctive enough to be individually identified, and it soon became apparent that there was a definite pecking order among the camp's weka population.

About half-way through my stay, I realised there was a relationship between dominance and leg colour in the wekas around camp. The three most dominant wekas in camp had the most intense leg colour, that of the "top" bird reaching a strong pink-red. From this there was a continuous gradation through to pale orange-pink, the leg colour of the most lowly birds. Young birds were noted as having brownish-pink legs.

Once I had seen this relationship, I made a point of noting the leg colours of any wekas involved in fights. Out of many such incidents, only twice did birds with paler leg colour come out on top, but in both cases the difference in leg colour between the two birds was slight.

The possibility that leg colour and dominance have an indirect relationship was considered, but appears unlikely. Firstly, assuming that the oldest birds were the palest in plumage colour (recently fledged chicks were noted as being the darkest), there was no apparent relationship between plumage and leg colour, and thus dominance, in the older birds. Obviously, very young birds will be low in the pecking order, and they also have dull legs. Secondly, leg colour is unlikely to be related to quality or quantity of food consumed by each bird because often the most dominant birds spent more time chasing other wekas than feeding, and so birds with less intense leg colour appeared to get more food (at least in the form of kitchen scraps, the main food of the camp wekas).

I have been unable to find any reference to such a relationship in the literature; books describe wekas' legs as being brown or reddish. Oliver, in "New Zealand Birds" (1955), gives more detail, describing *G. a. greyi* as "feet brown," *G. a. australis* as "feet reddish brown, darker brown behind," and *G. a. scotti* as "feet pink, brownish on hind part of tarsus." The leg colour of *G. a. hectori* (which Oliver treats as a full species) is described as "reddish brown, hinder aspect . . . brown," with immatures described as "bill and feet paler."

This may be only a localised phenomenon caused by the high-density weka population around the camp site, but observations on the Chathams and in places where other weka subspecies are found may reveal that this relationship occurs more widely.

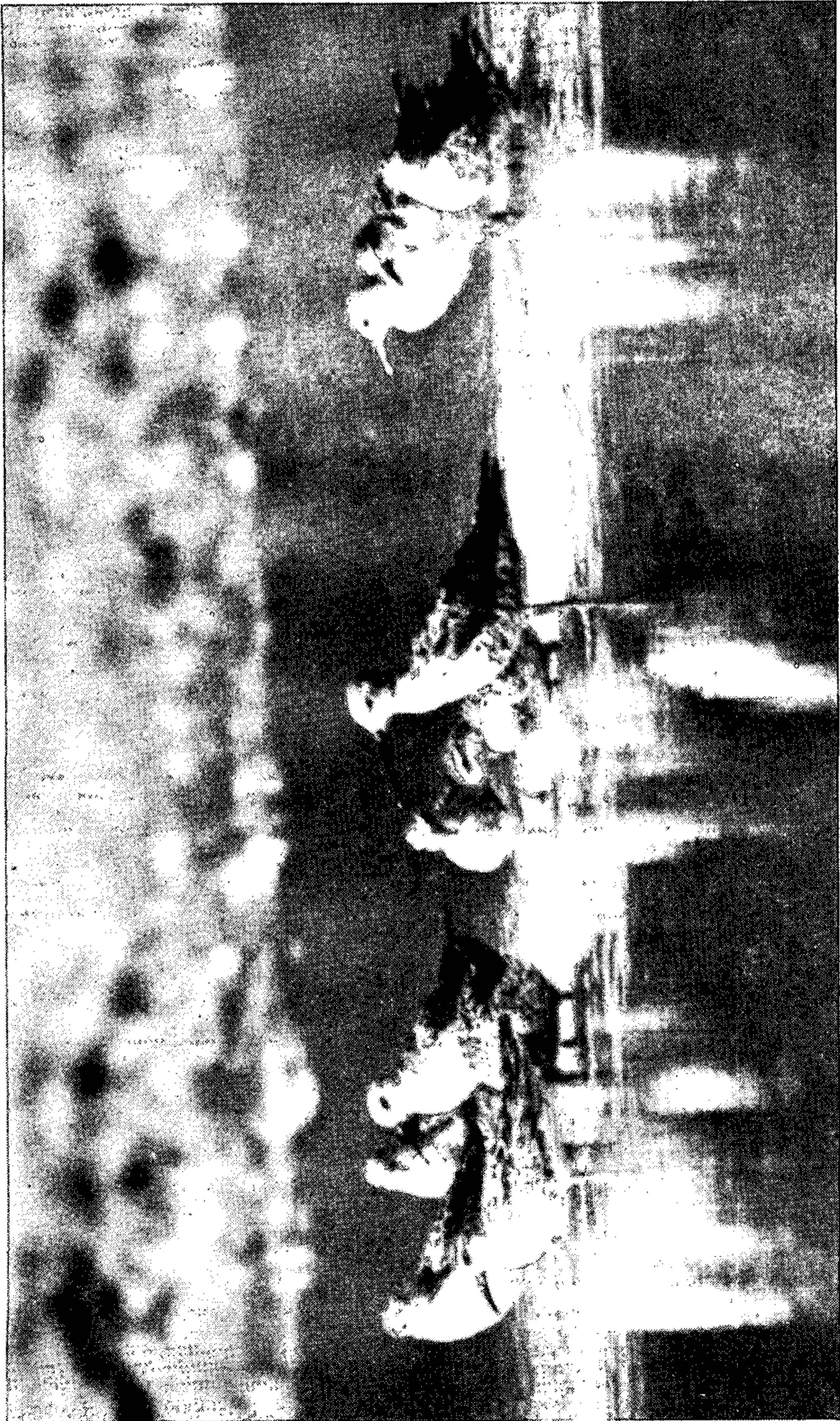
C. M. MISKELLY, 3 Castleton Drive, Howick, Auckland



FIRST RECORD OF THE STILT SANDPIPER FROM AUSTRALASIA

A Stilt Sandpiper (*Micropalama himantopus*) was present at the Sanderson Sewerage Ponds, Darwin, NT, from 30 August 1980 to 4 September 1980. The bird, in partial breeding plumage, is shown in the accompanying photograph among a group of Sharp-tailed and Curlew Sandpipers. The Stilt Sandpiper, a likely candidate for the New Zealand list, was first located by J. L. McKean, A. L. Hertog and N. Marr. The photograph was taken by H. A. F. Thompson (courtesy Limosa Agency). A full account will be published in the *Northern Territory Naturalist*.

JOHN L. MCKEAN, CSIRO, PMBag 44, Winnellie, NT, Australia



NORFOLK ISLAND NOTES 1971 to 1980

By JAMES L. MOORE

These notes have been compiled from observations made by New Zealand ornithologists during occasional visits to Norfolk Island between September 1971 and November 1980.

The records were submitted mainly in response to a request for information published in the March 1980 issue of *OSNZ News*.

Data have been received from eight observers relating to ten visits to the island varying in duration from 3 to 15 days. The dates of these visits are given below in chronological sequence together with the names of the observers.

1971	September	F. J. Taylor
1976	July	M. F. Soper
1977	October	M. F. Soper
1978	March/April	P. Dormon
1978	July	E. G. Turbott
1978	September	M. F. Soper
1979	October/November	R. & N. Peachman
1979	November	J. L. & M. Moore
1980	November	J. L. & M. Moore
1980	November	R. & N. Peachman

The species list which follows contains those records which appear to be of significance in the light of existing published data. In addition, a further 22 species which are resident, or are regular breeding species, were recorded during all, or a majority of visits. A number of *unconfirmed second-hand records have been omitted.*

To assess the significance of the data received, a comparison has been made with other published information regarding Norfolk Island, particularly that relating to the past 20 years. The published record for the island is, however, limited and contains gaps of several years. The statements included with some species regarding the extent of previous occurrence should therefore be regarded as tentative and subject to revision should a more complete knowledge of the island's bird life become available.

Of the 68 species for which records have been received 12 are not listed in previous publications as occurring on Norfolk Island. These 12 species are identified with an asterisk in the species list. For a further 11 species the published data show only three or fewer occurrences.

Although a number of these little-recorded species are clearly vagrants, it is evident that migrant waders (Charadrii) have been

under-recorded in the past, and of the 16 wader species listed here, only five have been recorded on more than three previous occasions.

The value of this information considerably exceeds original expectations, amply justifying its retrieval and publication, and confirming that valuable data can be obtained during casual visits to small Pacific islands.

It has become evident during the preparation of this summary that valuable information obtained from such visits is likely to be irretrievably lost where, as in the case of Norfolk Island, no recognised ornithological or scientific body provides permanent facilities for its collection and eventual publication.

New Zealand appears to be well situated to provide such a facility for the islands of the SW Pacific, and the setting up of a depository for such records, with the object of publishing summaries whenever the accumulated data warrant, is something to which New Zealand scientific societies such as the OSNZ could well give serious consideration.

In keeping with other recent publications on Norfolk Island ornithology, Australian vernacular names have (with minor exceptions) been used in the species list.

SYSTEMATIC LIST

*BLACK-BROWED ALBATROSS *Diomedea melanophrys*

A juvenile seen off Puppy's Pt in July 1976 (MFS). Although this species is known to occur regularly at this latitude this appears to be the first record from Norfolk Island, the nearest published occurrence being one reported by Macdonald and Lawford about 145 km (90 miles) to the east in July 1951.

BLACK-WINGED PETREL *Pterodroma nigripennis*

One at Anson Bay on evening of 20 Nov 1979 (JL & MM).

WEDGE-TAILED SHEARWATER *Puffinus pacificus*

Several recently killed carcasses of well grown fledglings in Mar 1978 (PD). Birds arriving at nest holes by 30 Oct 1979 (R & NP) and rafts of several thousands offshore by 14 Nov (JL & MM).

LITTLE SHEARWATER *P. assimilis*

A freshly killed, part eaten carcass at Kingston in Nov 1980 (JL & MM, R & NP).

*BROWN BOOBY *Sula leucogaster*

Single birds in flight off Pt Hunter on 11 July 1976 and Puppy's Pt on 13 Sept 1978 (MFS) and Cook memorial on 12 Nov 1980 (JL & MM).

GREAT CORMORANT *Phalacrocorax carbo*

One in flight off Pt Hunter in July 1978 (EGT) still present on 10 Sept (MFS). There is only one other published record of this species.

*LITTLE PIED CORMORANT *P. melanoleucos*

One near Cook memorial on 3 Nov 1979 (R & NP).

*LESSER FRIGATEBIRD *Fregata ariel*

A female passing south off Anson Bay on 20 Nov 1979 made a half-hearted attack on rafting shearwaters (JL & MM). Although there are a few previous records of "frigatebirds" these have not been specifically identified.

WHITE-FACED HERON *Ardea novaehollandiae*

Four in Sept 1971 (FJT), eight in July 1976 and also recorded in Oct 1977 (MFS), three in Mar 1978 (PD), present in Sept 1978 (MFS), two in Oct and Nov 1979 and six in Nov 1980 (R & NP, JL & MM). Mainly around Kingston but two near the Melanesian Mission in 1978 and one here in 1980.

*WHITE-NECKED HERON *A. pacifica*

One at Kingston in July 1978 (EGT) still present on 10 and 12 Sept 1978 (MFS).

WHITE HERON *Egretta alba*

One at Kingston in July 1976 (MFS). This species has been recorded on only one (possibly two) previous occasion.

*CATTLE EGRET *Bubulcus ibis*

Single birds near Kingston in July 1978 (EGT) and from 14 to 17 Nov 1980 (R & NP, JL & MM).

WHITE IBIS *Threskiornis mclucca*

One at Kingston in July 1976 (MFS) may have been the same bird as that seen in Nov 1975 and reported by McKean *et al.* as the first to be recorded on the island.

ROYAL SPOONBILL *Platalea leucorodia*

Single birds at Kingston in Sept 1971 (FJT) and July 1976 (MFS) comprise only the third and fourth records for this species.

MALLARD *Anas platyrhynchos*

A male and three females (plus a *platyrhynchos* X *superciliosa* hybrid) at Kingston in Sept 1971 (FJT) and seven in July 1976 (MFS). Also recorded here in Oct 1977 (MFS), July 1978 (EGT), Sept 1978 (MFS), two here in Oct 1979 (R & NP) and up to six in Nov 1980 (JL & MM, R & NP). The 1971 record appears to be the first for Norfolk I., pre-dating the only previously published record by over 4 years.

BLACK (GREY) DUCK *A. superciliosa*

Recorded during all visits with five at Kingston in Sept 1971 (FJT), eleven near Headstone Pt. in Mar 1978 (PD), four at Kingston in Nov 1979 (JL & MM) and five here and two at the Melanesian Mission in Nov 1980 (JL & MM, R & NP).

*BROWN GOSHAWK *Accipiter fasciatus*

One at Puppy's Pt in Sept 1978 (MFS).

NANKEEN KESTREL *Falco cenchroides*

Three at Kingston and two at Ball Bay on 17 July 1976 and at least two present in Oct 1977 (MFS). Single birds at Mt Pitt, Rocky Pt and between Kingston and Middlegate in Mar 1978 (PD). Two above Kingston in July 1978 (EGT) and a pair recorded in Sept 1978 (MFS). Singles at Headstone Pt, Stockyard Rd, and Anson Bay in Oct/Nov 1979 (R & NP, JL & MM). Single birds at Anson Pt, Steels Pt, and Selwyn Pine Rd in Nov 1980 with two near Kingston and also in the Cook memorial/Bird Rock area (JL & MM, R & NP). These records indicate a recent change in status from occasional vagrant to resident.

SPOTLESS CRAKE *Porzana tabuensis*

One at Cascade Creek, by New Cascade Rd, on 19 Nov 1980 in response to taped calls (JL & MM). This record, the first for many years, is of particular interest in view of recent conjecture by both Fullagar and de Ravin that the Norfolk Island population may have been exterminated by rats.

SWAMPHEN *Porphyrio porphyrio*

Recorded to the north of the airport in Sept 1971 (FJT). Present at the Melanesian Mission in July 1976, Oct 1977 and Sept 1978 (MFS), an adult with one chick here in Oct/Nov 1979 (R & NP) and two adults with two chicks in Nov 1980 (JL & MM, R & NP). One near Headstone on 10 Nov 1980 (JL & MM).

*COOT *Fulica atra*

One at Kingston Common ponds in July 1978 (EGT).

*SPUR-WINGED PLOVER *Vanellus miles novaehollandiae*

One near the Melanesian Mission from 7 to 18 Nov 1980 (JL & MM, R & NP).

LESSER GOLDEN PLOVER *Pluvialis fulva*

Two on 11 July 1976, eight on 9 Oct 1977 and 20 on 6 Sept 1978, all at Kingston (MFS). Very common at Kingston and also about the airfield, with flocks of up to 200, during Mar 1978 (PD). Up to 30 at Kingston from 28 Oct to 24 Nov 1979 (R & NP, JL & MM) with c.10 at the airfield in Nov (JL & MM). At least 120 at Kingston on 5 Nov 1980, reducing to c.50 by 20 Nov with c.20 at the airfield (JL & MM, R & NP).

DOUBLE-BANDED DOTTEREL *Charadrius bicinctus*

Eighteen at Kingston on 12 July 1976 (MFS) appears to be the only sighting since Wakelin's 1967 records.

MONGOLIAN DOTTEREL *C. mongolus*

One with *C. bicinctus* at Kingston on 12 July 1976 (MFS) is the second record for this species.

JAPANESE SNIPE *Gallinago hardwickii*

Two at Kingston from 6 to 16 Nov 1980 with three here on 10 Nov (JL & MM, R & NP). Extremely close views were obtained,

permitting identification by the tail pattern. Two at the Melanesian Mission in Mar 1969 is the only previous record (Disney & Smithers).

WHIMBREL *Numenius phaeopus*

Five in Sept 1971 (FJT), five on 11 July 1976, six on 9 Oct 1977 and two to five from 6 to 15 Sept 1978 (MFS), one on 7 Nov 1979 (R & NP), and up to three from 16 to 23 Nov (JL & MM). Present from 5 to 20 Nov 1980 with max. of four on 10 and 11 Nov (JL & MM, R & NP). All records from Kingston/Slaughter Bay area, except one calling at Pt Howe on 22 Nov 1979.

EASTERN CURLEW *N. madagascariensis*

One at Kingston on 6, 7 and 12 Nov 1980 (JL & MM). Although stated by Disney & Smithers (1972) to be seen regularly on Norfolk Island, the only previous record is of two seen by them in Nov 1968 (Smithers & Disney 1969).

***HUDSONIAN GODWIT** *Limosa haemastica*

One at Kingston from 5 to 17 Nov 1980 (JL & MM, R & NP). Although occurring regularly in New Zealand this appears to be the first recorded occurrence elsewhere in Australasia.

BAR-TAILED GODWIT *L. lapponica*

One to two on 11 and 12 July 1976, two on 9 Oct 1977 and two on 14 Sept 1978 (MFS). Present also in Mar 1978 (PD), six on 29 Oct 1979 and up to four until 20 Nov (R & NP, JL & MM). At least ten from 5 to 20 Nov 1980 with c.20 on 8 to 10 Nov (JL & MM, R & NP). All records from the Kingston area.

WANDERING TATTLER *Tringa incana*

Two on 9 Oct 1977 (MFS) and one at Pt Hunter on 15 Nov 1980 (JL & MM) identified by their call appear to be only the second and third records for this species.

GREY-TAILED TATTLER *T. brevipes*

One in Sept 1971 (FJT), one to two on 11 and 12 July 1976 and three on 16 Sept 1978 (MFS). One to three from 15 to 23 Nov 1979 with six on 20 Nov (JL & MM). One or two from 6 to 18 Nov 1980 with three on 8 Nov (JL & MM, R & NP). All records from the Kingston/Slaughter Bay area. The 1971 bird, identified by its call, pre-dates previously published records for this species.

***TEREK SANDPIPER** *Xenus cinereus*

One at Kingston from 5 to 8 Nov 1980 (JL & MM).

TURNSTONE *Arenaria interpres*

Twelve in Sept 1971 (FJT), nine on 11 July 1976, 50+ on 9 Oct 1977 (MFS) and a few still here in Mar 1978 (PD), 60 to 70+ on 14 and 15 Sept 1978 (MFS). Present from 28 Oct to 7 Nov 1979 (R & NP) and up to 50 from 15 to 23 Nov (JL & MM), c.50 from 5 to 20 Nov 1980 with a maximum of c.90 on 9 and 10 Nov (JL & MM, R & NP). All records from Kingston/Slaughter Bay area except one at Flat Rock and four at Rocky Pt in 1980.

KNOT *Calidris canutus*

Two at Kingston and Slaughter Bay on 28 Oct (R & NP) and 20 and 21 Nov 1979 (JL & MM). Two at Kingston from 5 to 16 Nov 1980, one until 18 Nov (JL & MM, R & NP). Before these sightings, there appears to be only a single very old record.

SHARP-TAILED SANDPIPER *C. acuminata*

One at Kingston Common on 19 and 22 Nov 1979 (JL & MM) and two from 5 to 20 Nov 1980 (JL & MM, R & NP). There is only a single published record, although McKean *et al.* quote a statement by Southwell that the species occurs annually in small numbers.

RED-NECKED STINT *C. ruficollis*

At Kingston Common one from 16 to 21 Nov 1979 (JL & MM) and three to five between 5 and 20 Nov 1980 with eight on 10 Nov (JL & MM, R & NP). Apparently only two (possibly three) previous records.

SILVER GULL *Larus novaehollandiae*

Two or three present during Mar 1978 (PD).

NORFOLK ISLAND PARAKEET***Cyanoramphus novaeseelandiae verticalis***

Recorded in July 1976 and Oct 1977 (MFS), one in Mar 1978 (PD), present in July 1978 (EGT), up to four in Sept 1978 (MFS), present in Oct 1979 (R & NP) and three in Nov 1979 (JL & MM), up to nine in Nov 1980 (R & NP, JL & MM). All records from Mt Pitt Reserve/King Fern Valley area, except for one seen near Selwyn Pine Rd in July 1978 and birds heard at Rocky Pt Reserve in Oct 1979. Seen by EGT eating fruits of wild guava.

SHINING BRONZE CUCKOO *Chrysococcyx lucidus*

Heard on 18 Sept 1978 (MFS), on 21 Nov 1979, and 9 and 10 Nov 1980 (JL & MM).

BOOBOOK OWL *Ninox novaeseelandiae*

A "feeding table" containing remains of White Terns (*Gygis alba*) seen at Rocky Pt Reserve in Oct 1977 (MFS) was believed to be used by this species.

WELCOME SWALLOW *Hirundo tahitica neoxena*

Two seen on 9 July 1976 (MFS). Six at Mt Bates in Mar 1978 (PD), at least 50 over Kingston Common, and also seen at Mt Pitt in July 1978 (EGT), still quite common in Sept 1978 with 20+ at Kingston on 7 Sept (MFS). One to two at Kingston from 8 to 18 Nov 1980, and one near the Melanesian Mission on 18 Nov 1980 (JL & MM). Seen carrying mud, Sept 1978. There are only two published records for this species.

SCARLET ROBIN *Petroica multicolor*

Observations of families with fledged chicks in Oct 1977 (MFS) and Mar 1978 (PD) appear to indicate quite a prolonged breeding season.

LONG-BILLED WHITE-EYE *Zosterops tenuirostris*

Small parties, sometimes in company of *Z. lateralis*, seen in both original forest and secondary growth, lantana scrub, etc. (PD, JL & MM, MFS).

WHITE-BREADED WHITE-EYE *Z. albogularis*

Two seen on the saddle between Mt Pitt and Mt Bates on 11 Sept 1978 (MFS), and three seen and heard near Mt Bates between 15 and 19 Nov 1980 (JL & MM).

*INDIAN MYNA *Acridotheres tristis*

Recorded in Sept 1971 at Kingston and at the Settlement (FJT).

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JAMES L. MOORE, 32 Brook Street, Lower Hutt.



SHORT NOTE

STOAT WITH KIWI CHICK

On 19 September 1980, Mr R. Dawson of Te Anau was hunting in the Tutu Burn, South Fiord, Lake Te Anau, when he saw a stoat (*Mustela erminea*) dragging a dead kiwi chick by the neck. When approached the stoat dropped the bird and ran off. The kiwi smelt badly and R. Dawson thought the bird had been dead for a few days. There were no signs to show how the kiwi died nor did Mr Dawson know where or how the stoat had got the bird.

This observation was made in beech forest on the side of the valley (375 m a.s.l.) grid reference NZMS 1 S140/589266.

The kiwi chick, identified as South Island Brown Kiwi (*Apteryx australis australis*) is now in the National Museum collection. An examination of the bird has not established the cause of death (J. A. Bartle, pers. comm.).

KIM MORRISON, Fiordland National Park, Box 29, Te Anau

CLASSIFIED SUMMARISED NOTES 30 June 1979 to 30 June 1980

Compiled by R. B. SIBSON

First of all, a word of thanks to the 140 observers who contributed these notes, to the RRs who sifted and assessed them and to Brian Ellis who in my absence started to collate them. It is perhaps a little sad that the results of an arduous day in the field or in a bobbing boat may seem to end up as a few words on paper; but the satisfaction of finding something of note should live on in the mind of the finder. Moreover, as experience shows, well-documented notes gain in significance and acquire added value with the passage of time.

In the course of some 40 years, CSN have recorded not only the comings and goings of many migrants but also the changing status of many species, both endemic and neocolonial. White-faced Herons and Welcome Swallows are no longer headline news. Grey Teal and Coots do not evoke the excitement which once accompanied their discovery. Even Royal Spoonbills, Little Egrets and Cattle Egrets have lost something of their glamour, much as we still love to find and study them. In the South Island, the Spur-winged Plover is now accepted as part of the rural scene; in the North Island, it is greeted as a welcome stranger and proudly added to the local lists. Where will the Black-fronted Dotterel go next? Are Australian Little Grebes, and perhaps Hoary-headed Grebes, establishing themselves in an empty niche in the South Island on small lakes and farm dams where there are no native Dabchicks? What happened to the Australian Pelicans and Kestrels that visited us? When will the Tree Martin or perhaps some other enterprising invader start to breed in New Zealand?

These notes must be selective. Among other things, they should try to indicate how our breeding species are faring. Hence the need to count the gregarious birds such as terns, plovers, waders and some passerines, e.g. Brown Creeper, when they migrate or wander after the breeding season. Valuable information may also come from the study of birds where they are near the limits of their natural ranges, e.g. Caspians in Southland; White-fronted Terns in the Chathams; Yellow-nosed Albatrosses in the Bay of Plenty; Wrybills and SI Pied Oystercatchers in Northland to name but a few obvious examples.

The very informative distribution maps in the Provisional Atlas 1969-1976 may be complemented by CSN. Thus, a casual browser could well think that the Pipit, map 151, is common in northern N.Z., whereas north of the Volcanic Plateau he might easily travel far, including stretches of coast, and end the day pipitless and dispirited. An examination of maps 152-155 draws attention to the need to report Tuis in the lowlands east of the Southern Alps and Bellbirds on the mainland north of Cambridge. To mappers, an advancing species such as the Spurwing, map 87, poses a perpetual problem.

May I remind all would-be loggers that another year for CSN is well on the way.

Abbreviations: BoP = Bay of Plenty; C = clutch; est. = estuary; F.P. = Forest Park; FoT = Firth of Thames; N.P. = National Park; o.p. = oxidation ponds; pen. = peninsula; R.P. = Regional Park; S.F. = State Forest; S.P. = sewage ponds; W.R. = Wetland Reserve.

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E & O E

BROWN KIWI *Apteryx australis*

N.I.: Bay of Islands, Parua Bay, calling in scrub 30/12; Urquhart's Bay, calling 25/4 (TGL). Opoutere, called after electrical storm and heavy rain on 31/12. Waikaremoana on 20/10, heard (PCML). Matawai, killed by cyanide (EJJ).

S.I.: Breaksea Sound, pr calling on 7/3. Haast Pass, 1 (?sp) in car headlights on 22/7 (KM).

Stewart I.: Rakeahua Valley, frequently heard at night, 1-3/2 (WAW).

GREAT SPOTTED KIWI *Apteryx haastii*

Heaphy Track, 2 prs calling near Mackay Hutt on 26/3 (KM).

Red Jacks, young bird ran across road on 2/11 (CSL). Heard (?sp) Arthur's Pass on 6/4 (R&GPG).

YELLOW-EYED PENGUIN *Megadyptes antipodes*

Hakaterere Beach, 4/3/78, moulting 2 yellow-eyed, 2 white-flipped, 3 erect-crested, 2 Little Blue (ML). Papanui, 25 on 18/8 (P&KM). Boulder Bay, 6+1 chick on 8/1 (CM). Codfish I., Sealers' Bay, pr incubating 29/10-4/11 (EC).

BLUE PENGUIN *Eudyptula minor*

S. Westland, Wanganui est., breeding under flax in sand-dunes (CFO'D). Doubtful Sound, Hall's Arm, 6 on 6/1 (CM). Codfish I., 12 in surf on 29/10 (EC).

FIORDLAND CRESTED PENGUIN *Eudyptes pachyrhynchus*

Jackson Head, 1 on 31/12 (CM). Secretary I., adults ashore, eggs and small chick found on 23/8 (JVM). Andrew Burn area, single birds moulting in caves, Feb 80 (KM). Codfish I., only 3 seen, 30/10-2/11 (EC).

CRESTED GREBE *Podiceps cristatus*

Te Awamutu, 2 reported seen on farm dam (JHG). Kaikoura, L. Rotorua, 2 diving near a colony of nesting shags on 19/9 and 13/10 (BE). Ashburton lakes, 78-79, 53; 79-80, 57; of 37 eggs laid only 8 hatched and only one young bird reached independence (CFO'D). L. Pearson, pr at south end on 11/5 (SCS). L. McGregor, 3 prs on 8/11 (P&KM); 14 on 28/2 (CFO'D). L. Murray, 1 pr (P&KM). Adults feeding young on L. Brunner 24/3 and L. Poerua 19/4 (CS). L. Ianthe, 1 on 22/12 & 27/4 (RW). L. Moeraki, 1 on 31/12 (CM). Te Anau and Manapouri, a small population tending to stay close to favoured areas (KM, JVM). L. Thomas, 3 ad 2 juv on 5/4 (MLB). L. Monowai, 4 on 31/5 (DC).

NEW ZEALAND DABCHICK *Podiceps rufopectus*

Far northern Lakes Survey, 7 on 26/1 (MPK). Dargaville and Pouto lakes, 67 during March '80, 21 being on Humuhumu (WJC). Waiwera ponds, 6 on 4/8 (TJL). Straka's pond, 8 (MJT). S. Auckland, a few casuals on farm ponds and sand-dune lakes. Tuakau S.P., pair nest-building in Oct (BB, DAL, AH, RBS). BoP, scarce. Muriwai, both the dune lakes and the dabchick/scaup population are shrinking (SMR). Hamilton lake, 2 on 15/4 (MAB). Taupo, c.30 at Tokaanu on 7/7 (PCML). Marton S.P. 44 on 24/5 (JL & MM); 53 on 26/4, only 6 clearly juv (BDH). Foxton No. 1, 3 on 25/5 (LJD).

HOARY-HEADED GREBE *Podiceps poliocephalus*

No proof of breeding this season. Redcliff W.R., Southland, 2 on 3/2 and 1/3 (MLB).

AUSTRALIAN LITTLE GREBE *Tachybaptus novaehollandiae*

Rehutai, 1 Dec-Jan; 2 on 15/6. Pond near Bayly's Beach, 1 on 7/3 (WJC). Nelson, Druggen's Lagoon, 2 on 18/10 (AC). St Anne's Lagoon, 6 adults and 4 young on 18/2 (BE). L. Brunner, pr carrying nesting material; 1 egg on 20/1/79; 2 chicks on 18/2. A year later, 3 in May (SCS).

WANDERING ALBATROSS *Diomedea exulans*

Several off Cuvier I. Aug 79 (TGL). Muriwai, juv ashore alive on 6/4. Nursed, and released a week later off C. Colville (CM).

BLACK-BROWED MOLLYMAWK *D. melanophrys*

Outer Hauraki Gulf and around Cuvier I., noted frequently, winter '79 (TGL). Foxton, 1 passing N on 24/5 (JL & MM).

YELLOW-NOSED MOLLYMAWK *D. chlororhynchos*

Outer Hauraki Gulf and BoP, now seems to be in similar numbers to Blackbrow (TGL). 512 miles W of Manukau Heads, 1 adult on water on 25/10; 1 mile S of Channel I., 1 ad and 1 imm on 27/5 (NGC).

SHY MOLLYMAWK *D. cauta cauta*

Foxton Beach, several N on 22-23/9; c.10 N on 25/5. (JL & MM). Tasman Bay, 12 miles out c.25 on 3/6 (JMH). 60 miles west of Westport during August 'solid line stretching for at least one mile behind the big trawler' (BH). In Tasman Bay only one *salvini* was noted among typical *cauta*.

CHATHAM ISLAND MOLLYMAWK *D. cauta eremita*

Pitt Strait, several logged on 14/9; a few seen off S.E. Island Sept-Oct (TGL).

LIGHT-MANTLED SOOTY ALBATROSS *Phoebastria palpebrata*

Lumsden and Wendon, 2 blown inland on 12/6 (SAS).

GIANT PETREL *Macronectes* sp.

C. Colville, 3 on 20/11. Foxton Beach and Ngauranga up to 5 on various dates (JL & MM). Kaikoura, 6 on 26/10 (BE).

CAPE PIGEON *Daption capense*

Hauraki Gulf and around Cuvier I., often seen July-Aug (TGL). Kaikoura, 100+ on 8/9 & 26/10 (BE). 60 miles W of Westport, large numbers Aug 79 (B&JMH).

GREY-FACED PETREL *Pterodroma macroptera*

Cuvier I., thousands at dusk on 30/7, forming a dense ring several miles deep; egg shells outside burrows on 24/8; a few adults still coming in to feed young on 27/11. Scores offshore from Tutukaka to Rimiriki Is on 19/4 (TGL).

WHITE-HEADED PETREL *P. lessonii*

Foxton Beach, 1 N on 25/5 (JL & MM).

KERMADEC PETREL *P. neglecta*

Cuvier I., one, dark phase, visiting Red-billed Gull colony nearly every afternoon in late Nov-early Dec. It would appear c.4 pm and circle the lighthouse promontory till dusk, often calling, but apparently not landing. Sometimes it chased the gulls; occasionally it was harried by White-fronted Terns. Possibly the same bird as noted in 1976 (*Notornis* 23: 259-262) (TGL).

GOULD PETREL *P. leucoptera*

Port Waikato, 1 ashore on 11/5 (KB, AH, DMW).

COOKS PETREL *P. cookii*

Great Barrier, heard overhead at Karaka Bay and Kaikohe est. 18-25/11 (DAL). Cuvier I. heard overhead Nov-Dec; 1 dead below the light. Many cookilarias between Chickens and Groper Rock on 17/11; some with darker upperparts, perhaps being *pycrofti*. Many between C. Colville and Cuvier on 20/11; some Little Barrier to Hen I. on 7/4 (TGL).

BLACK-WINGED PETREL *P. nigripennis*

S.E. Island, none coming in by 20/10 (TGL).

CHATHAM ISLAND PETREL *P. axillaris*

S.E. Island, none coming in by 20/10 (TGL).

BLUE PETREL *Halobaena caerulea*

BoP, Papamoā, 1 ashore alive but exhausted on 25/7 (PCML).

BROAD-BILLED PRION *Pachyptila vittata*

S.E. Island, incubation well under way by mid-Sept; first chicks early Oct; large flocks visible offshore by day (TGL).

PRION (sp?) *Pachyptila* ?sp

Cuvier I., hundreds at sea on 29/7 (TGL). Foxton Beach, thousands passing S before strong north-westerlies on 1/12 at 7.30 am. None at evening nor next morning (JL & MM).

BLACK PETREL *Procellaria parkinsoni*

Seems to be an easy species to log during summer between Cuvier and the Barriers to Takatu Pen. e.g. 5 on 20/11; c.20 on 2/4; several on 7/4 (TGL). N.E. of Thumb Pt., Waiheke, c.4 miles out, 1 on 3/4 and 9/4, right alongside (AJG). Hamilton, one brought in alive by cat from airport and released from cliffs near Waiuku on 20/6 (culmen 43) (JHS). Gisborne, 1 dazzled on porch of Tatapouri Hotel on 19/2; released at sea next day by *Spirit of Adventure* (EJJ).

WESTLAND BLACK PETREL *Procellaria westlandica*

Inter-island ferry, 1 seen at 7.45 pm on 20/1 (CM). c.60 miles W. of Westport, Aug 79, some among Shy Mollies and Cape Pigeons. Tasman Bay, a few seen, e.g. off Stephens I. early Nov. (B&JMH).

FLESH-FOOTED SHEARWATER *Puffinus carneipes*

3 miles off Waiheke on 9/4, c.400; the biggest flock seen this year on eleven trips. Waiheke to Great Barrier (AJG). Disappear from Tasman Bay during May, returning Oct-Nov (JMH).

SOOTY SHEARWATER *Puffinus griseus*

Near Greymouth, a small breeding colony (CSL). Codfish I., moaning in burrows mid-morning 31/10 (EC). S.E. Island, first seen en masse about end of first week of October (TGL).

FLUTTERING SHEARWATER *Puffinus gavia*

Wellington Harbour — recorded July-Nov and March-April; max c.200 on 5/10 (JL&MM).

HUTTON'S SHEARWATER *Puffinus huttoni*

Wellington Harbour, 5 on 12/10, close to wharf (JL&MM). Kaikoura, 1000+ on 29/9; many thousands in Oct. Mt. Fyffe hut,

heard coming in 11.30 to midnight; many flying back to sea between 4.30 and 4.50, mid-Dec (BE). Hundreds per minute flying N ahead of rising southerly on 25/11 with occasional nellies, mollies and muttonbirds (R&GPG).

LITTLE SHEARWATER *Puffinus assimilis*

Channel I., Cape Barrier to Cuvier I., scattered 17/7-16/8 and 20/11. Bream Bay to Tutukaka 19/4, a few (TGL).

GREY-BACKED STORM PETREL *Garrodia nereis*

Manapouri Motor Inn, 2 dazzled and grounded on 12/2 (KM). S.E. Island, moderate numbers; remains found in skua middens (TGL).

WHITE-FACED STORM PETREL *Pelagodroma marina*

Cuvier I., 1 dead below light, Dec '79 (TGL). FoT, Motuakino, c.50 on 26/1, apparently feeding well-feathered young (CM). S.E. Island, enormous numbers burrow-cleaning late Sept (TGL).

DIVING PETREL *Pelecanoides urinatrix*

Numerous at sea between Channel I., C. Barrier and Cuvier I. July-Aug. S.E. Island, breeding commonly, Sept-Oct '79 (TGL).

RED-TAILED TROPICBIRD *Phaethon rubricauda*

90 miles SW from C. Reinga, 1 adult on 10/2; 143 miles SSW from Lord Howe I., one on 10/3 (NGC).

AUSTRALASIAN GANNET *Sula bassana serratior*

Tasman sightings: 260 miles W of C. Reinga, 1 ad; 300 miles W, 1 juv on 9/3. 125 miles W of C. Reinga, 1 ad on 10/6 (NGC). 5 miles W of Happy Jack, 1 juv on water 29/1 (AJG). Muriwai, 5 nests with eggs on mainland on 18/11 (IN). 170 nests, 60 chicks on Pillar Rock (The Stack) on 9/12 (SMR). Foxton, recorded all months, 13 on 13/12. Wellington Harbour, max 4 on 10/9 (JL&MM). Golden Bay, 65 off Pakawau on 29/3 (JMH). Kaikoura, up to 3 (BE). Grey est., 1 Dec '79 (AVB).

BROWN BOOBY *Sula leucogaster*

Muriwai, 1 dead on 6/4 (CM). Picton, 1 seen from ferry on 22/2 (R&GPG).

BLACK SHAG *Phalacrocorax carbo*

FoT, 309 on 20/4 (BB). Tukituki est., c.40 on 18/4; Ngaruroro est., c.80 on 10/5 (KVT). Forge Flat, Routeburn, 1 at 640m on 13/4 (PC).

PIED SHAG *Phalacrocorax varius*

Cuvier I., c.15 birds and 5 occupied nests, July '79 (TGL). Whitianga, c.9 nests on 6/6 (ABJ). Upper Waitemata, Paremoremo, 30 nests on 8/2; 155 birds in two roosts on 15/6 (GMHP). Muriwai lakes, 10 nests at Kuwakatai on 14/10 (SMR, DWW). S. Manukau, Hingaia colony growing; 31 nests, 132 birds on 29/7 (BB). Kaituna Cut, 86+ on 13/5 (KF). Wairau est., providing nests for Royal Spoonbills (RH).

LITTLE BLACK SHAG *Phalacrocorax sulcirostris*

Lakes of Far North, 56 end of Jan (MPK). Mangonui, regular, up to 50 in June. Kerikeri inlet, seasonal; up to 50 June-July (ATE).

Kuwakatai on 14/10, 3 prs at nests (SMR). Paremoremo, 10 nests (DWW). Waikato est., 170 pack-feeding on 6/3 (AH). Taupo, Hatepe, 1 tired on beach on 6/4 (WAW). H.B. numerous, e.g. Wairoa R. 7 in May (GEF); Tukituki est. c.60 on 18/4; Ahuriri c.70 on 2/2 (KVT). Manawatu, 17 on 20/4; 27 on 15/6 (LJD). Wellington, max 24 on 10/8 (JL&MM). Wairau est., 1 on 15/1 (RBS). Waimea set., 3 on 16/4. Atawhai, 1 in June with 2 Little Shags (JMH).

LITTLE SHAG *Phalacrocorax melanoleucos brevirostris*

Whitianga, 120 on 20/6 (ABJ). Hagley Park, max 17 on Victoria Lake on 30/5 (R&GPG). S. Canterbury, Maori Lakes, 30-50 roosting on stumps of niggerheads (CFO'D).

KING SHAG *Leucocarbo carunculatus carunculatus*

Duffers Reef, c.24 adults, 11 young and 1 occupied nest on 29/7 (PJ).

STEWART ISLAND SHAG *Leucocarbo carunculatus chalconotus*

A few visit Oamaru breakwater, e.g. 5 on 5/4. Moeraki, c.15 roosting near colony of Spotted Shags (CFO'D). Katiki and Shag Pt, 21 on 10/6 (P&KM).

CHATHAM ISLAND SHAG *Leucocarbo carunculatus onslowi*

A few fishing near Port Hutt. Odd birds seen at S.E. Island Sept-Oct; but they do not breed there. c.20 at N.E. Reef, Pitt I. on 20/10 (TGL).

SPOTTED SHAG *Stictocarbo punctatus punctatus*

S. Kaipara Heads, 3 flying past to inside waters on 5/3 (AH). Mangere S.P., 1 on 2/4 (SMR). Haumoana, 2 on 3/5; Napier S, 2 on 10/5 (KVT). Manawatu, 1 22-23/6 (JL&MM). Pelorus Sound, ad in full breeding dress, carrying nesting material on 29/7 (PJ).

PITT ISLAND SHAG *Stictocarbo punctatus featherstoni*

Nest building and some incubating on S.E. Island, mid-Sept, in small colonies. Often seen in feeding flocks with White-fronted Terns overhead, e.g. 20 shags and 50 terns on 10/10 (TGL).

WHITE-FACED HERON *Ardea novaehollandiae*

Assisted passage on CTV *Union Rotorua*; first seen on deck on 18/4, 435 miles W of C. Reinga. Remained for 650 miles till 8.00 pm on 19/4 when vessel berthed in Sydney; flew off across harbour (NGC). Kohukohu, nest used thrice in 79-80 season; a few sticks added before third clutch; 2 fledglings flew on 3/3 (KB). Kerikeri Inlet, 30 in loose flock in April (ATE). Farewell Spit, comparatively few in mid-May, c.100 (BDH). Ashburton lakes, up to 5 up to 825 m (CFO'D).

KOTUKU *Egretta alba*

Reported widely in winter from more than 30 'beats,' mainly coastal. Records of unusual interest are: Maori Lakes, 1 for 3 days at 700 m in November (CFO'D); Resolution I., 1 in rimu on 9/5 (KM). As usual, odd non-breeding subadults summered far away from Ōkarito (TGL, RBS).

LITTLE EGRET *E. garzetta*

A thin scattering from Hokianga to Foveaux St. Kohukohu, 1, July-Aug '79 (KB). Kaipara, 1 on 26/8 (DEC). Port Waikato, 2 most of March (DMW, AH). Little Waihi, 1 on 26/4-1/5 (PCML). Westshore, 1 on 8/3 (KVT). Manawatu and Foxton No. 1, at least 1, winter '79 and autumn '80 (LJD, JL&MM). Wairau Pa, 1 on 18/6 (RF). Waimea est., 1 on 21/1 (KB, BB, RBS); 2 on 9/5 (BE); 1 on 29/6 (TJT). Cobden Lagoon, 1 on 29/4; 2 on 6/5 (CSL). Riverton, 1 on 19/4 (PMM, OJL).

REEF HERON *E. sacra*

Singles and pairs widely reported around coastal bays and inlets N of roughly 38°S. Also recorded from Westshore (KVT), Mohaka est. (GEF). Motueka, 1 with group of SIPO (KLO). Dusky Sound, Petrel Is (KM). Bluff (JVM). Kaikoura (BE). Blumine I and Rosie Morn (JC).

CATTLE EGRET *Bubulcus ibis*

More non-breeders summered than ever before. The expected irruption was well under way by mid-April, as birds made their landfall from Northland to Southland. At Alexandra, 6 appeared on 14/6 and after a few days were frosted out (PC). A full report is being prepared.

NANKEEN NIGHT HERON *Nycticorax caledonicus*

Tarara, Owaka, Catlins, imm in 21/6, had already been present for a week. By night it went cray fishing. (Tim Jackson)

BITTERN *Botaurus poiciloptilus*

Waiotira, booming from early Sept, booms commonly in groups of threes (TGL). Northland, booming Oct-Dec, often around mid-day (WJC). Awatoto, often 'freezing' (KVT). L. Wairarapa, several booming strongly in the afternoon, 31/10 (RBS). Rakopi wetland, 3 on 26/3 (KLO). Ashburton lakes, common in raupo margins, less common in niggerheads; some still present in winter snows (CFO'D).

GLOSSY IBIS *Plegadis falcinellus*

L. Ngatu, up to 5, winter '79 (MH). Meremere, the over-winterer stayed from April to Nov (JC). Ahuriri, 1 on 11/11 and 24/11 (CS, LH, KVT). Ward, 1 flying along coast with SIPO on 18/1 (SMR). Pakawau-Puponga-Farewell Spit, 4-6 in Aug (JMH). 4 in October (JH&BHS), 3 in mid-May (BDH). Westport, 1 with Cattle Egrets on 27/12 (CM). Taieri Lake, 1 on 10/2 (PC).

WHITE IBIS *Threskiornis molucca*

Awanui, one during winter '79 (MH).

ROYAL SPOONBILL *Platalea regia*

Awanui, one wintering '79 (MH). Westshore, 1 on 2/6, stayed till 22/10 (KVT). Manawatu est., present Jan-June, max 21 on 25/3, 22 in April (LJD, JL&MM). Wairau lagoons, at least 3 prs bred; 12 on 18/5, including two clearly smaller (PJ). Waimea est., 8 on 27/2; 12 on 16/4, 1 with outer primaries blackish-brown (JMH); 11 on 7/5 (BE). Motueka, 7 on 25/8; 5 on 28/4; 8 on 13/5 (KLO, BE). Farewell Spit, 12 on 6/4 (K&JVM, RB); 13 on 12-17/5 (BDH).

YELLOW-BILLED SPOONBILL *P. flavipes*

Awanui, one still around Aug '79 (MH).

CANADA GOOSE *Branta canadensis*

L. Waikare, 18 on 26/8 (NP); 49 on 23/4 (F. Thompson). H.B., Ngamotu Lagoon, max 55, 10 occupied nests on shinglebar among driftwood and marram (GEF). Westshore, 44 on 7/11 (CS, MC). Nelson Haven, 27 arrived on 17/9 and stayed about a week (JMh). Kaikoura, occasional. St Anne's lagoon, 29 on 28/9 (BE). Elterwater, 38 on 29/12 (TJT). Horseshoe 1, Glynwye, 15 on 24/5 (JC). Rakaia riverbed, 2 nests on 12/10 (CFO'D). Te Anau, c.140 on 17/6 (JVM). Redcliff W.R., 146 on 1/3 (RRS).

PARADISE SHELDUCK *Tadorna variegata*

Far North lakes survey, Jan '80, 1365 (MPK). Paua, 42 on 8/11 (ATE). Muriwai lakes, max 8 on 18/11 (SMR). S. Auckland, marked increase, Karaka 18-19 during winter; FoT, 30 in March (JV, DAL, JW). Onewhero, c.100 on 3/5 (DMW). BoP, Matata-Awaiti, c.300 on 11/8 (PCML). H.B., Hurimoana Swamp, c.150 on 26/8 (KVT). Farewell Spit, 30+; now spread in ponds throughout where the explorers of 1961 (*Notornis* 9: 148) found none (BDH). Wakefield, c.24 among cattle. L. Rotorua, c.100 21/1 (KB, BB, RBS). Grey valley, 30 in Feb. Inland Kaikouras, c.150 moulting on farm pond, Jan '80 (AVB, IS). Catlins, increasing, 6 prs Owaka (JJ). Eglinton Valley, pr with 13 ducklings, possibly two families. Dead female nearby. Grace Burn, 5 prs at sea in a moderate swell on 6/2 (KM).

AUSTRALIAN WOOD DUCK (MANED GOOSE) *Chenonetta jubata*

Near Blenheim, 1 shot mid-April (W. Johnston per PJ).

MALLARD *Anas platyrhynchos*

Far North lakes survey, 175 in Jan '80 (MPK). Dargaville lakes, 483 in March (WJC). A comparatively new intruder in Northland.

GREY DUCK *A. superciliosa*

Far North survey, c.100 (MPK). Dargaville lakes, 460 in March (WJC). Muriwai lakes, max 10 on 18/11 (SMR). BoP, thinly distributed; Matata, max 100 on 11/5 (PCML).

GREY TEAL *A. gibberifrons*

Te Atatu, 2 on 4/5 (GMHP). Mangere S.P., max 23 on 13/5 (MGR). FoT, max 15 on 4/4 (AH); 12 on 7/5 (BB). Tuakau S.P., lower Waikato, a favoured resort; c.60 on 7/10; 253 and a brood of 6 on 6/1 (AH). Kawhia, L. Taharoa, 4 on 18/8 (JHS). Kaituna Cut, 10 on 15/12; c.200 on 26/4. Awaiti wetlands, 20 on 30/3; Rotopounamu, 6 on 8/7 (PCML). Patutahi, 27 ad and 3 broods on Dod's pond on 26/1 (EJJ). Ahuriri marsh, c.100 on 13/4 (KVT). Foxton Beach, 6 over sea on 3/5 (JL&MM). Farewell Spit, 2 in mid-May (BDH). Blaketon lagoon, 2 on 17/5; 2 reported Hokitika and 4 at Okarito (CSL). Kaikoura, L. Rotoiti, 6 on 12/1 (JLD). Christchurch S.P., 41 on 25/4 (R&GPG). Maori Lakes, duck with 11 ducklings, Dec '79 (CFO'D). L. McGregor, several on 8/11 (P&KM). Arrowtown pond, 6 + 3 juv on 18/2 (MLB). Alexandra, 35 on

20/7/80, biggest local flock (PC). Te Anau, at south end max 35 on 27/4 (JVM).

BROWN TEAL *A. chlorotis*

Omaunu, July '79, two streams provide habitats for sizeable populations (AHO). Parekura Bay, 25 in Nov (DBR). Whananaki, c.36 on 27/12 (WJC). Port Fitzroy, 27 in Jan (JV). Whangaparapara, mid-June, visiting lawn after dusk; alert and nervous; much quacking and piping (AJG). Riverton est., 1 shot on 22/4 (RRS).

NEW ZEALAND SHOVELER *A. rhynchotis*

Far North lakes survey, 15 in Jan '80 (MPK). Whau valley dam, 4 on 6/6. Dargaville lakes, 37 (WJC). Muriwai, max 12 on 18/11 (SMR). Tuakau S.P., 100+ on 7/10 and 14/4 (AH). BoP, flocks visit all suitable waters; Matata, c.250 on 26/4 and 11/5; Awaiti, c.150 on 28/7 (PCML). Miranda, 20+ on 4/4 (BB). Port Waikato, 500+ on 26/6 (AH). Patutahi, Dod's pond, 41 ad, 2 broods on 26/11 (EJJ). Ahuriri marsh, c.200 on 13/4 (KVT). Farewell Spit, 28 on 7/4 (JVM). Nelson Haven, 17 on 1/5 (JMH). Blaketown lagoon, 12 on 13/4. L. Poerua, 4 on 19/4 (CSL). Te Anau, max 60 on 15/5 (JVM).

BLUE DUCK *Hymenolaimus malacorhynchos*

Motu, over 80 km in early March, 80+ adults (EJJ). Aniwanui, 2 on 30/12 (MD). Hopuruahine R., pr on 21/10. West Coast, 10 Mile Creek, pr June '80 (AVB). Blue R., headwaters of Makarora, 1 pr on 5/1; Deep Cove, Lydia R., pr on 14/8 (JVM) and 17/10 (EC).

NEW ZEALAND SCAUP *Aythya novaeseelandiae*

Far North lakes survey, one in Jan (MPK). Dargaville and Pouto lakes, only 46 7-9/3. Single strays to Mimiwhangata and Whau Valley (WJC). L. Kereta, 15 on 16/8 (DWW). Tuakau S.P., 10 on 10/10 (AH, RBS); later perhaps 2 prs bred. BoP, small flocks wander; Awaiti, 7 on 22/7; Thornton lagoon, 10 on 4/8; Matata, max 20 in April; Matahina, 3 prs on 2/12 (PCML). Hamilton Lake, occasional, 2 on 1/3 & 27/4 (MHB). L. Kuratau, c.30 on 23/1 (BB, KB, RBS). Hurimoana swamp, c.80 on 26/8 (KVT). L. Poerua, c.120 on 21/4 (CSL). West Coast, regular on some waters; a visitor to others (AVB). Kaikoura, L. Rotoiti, 2 on 12/1 (LJD). L. Monowai, 12 on 1/2 (EC).

AUSTRALASIAN HARRIER *Circus approximans*

Glink's Gully, nest on 11/12 with 4 young of very different sizes (WJC). L. Brunner, 15 at communal roost on sandy spit with trees; some drinking at sunrise (CSL). Stewart Island, display flights with 3 birds, Aug '78 (CFO'D).

NEW ZEALAND FALCON *Falco novaeseelandiae*

An unprecedented spate of sightings from the Far North: Ahipara, June '79, one over golf centre (HAF); Mangamuka Gorge, 1 late '79 (DV); Russell S.F., one well seen on 14/12 at close range; one earlier reported at Kaiatea (KR). Several reports from Volcanic Plateau and eastwards: Murupara (WAW); HB to Taupo Rd 2 (KVT); Pureroa (R&GPG); Matawai, 2 on 7/3 (GEF); Gisborne Botanical Gardens, hunting sparrows in Phoenix Palms (EJJ). Ward, pr in residence after gap of 25 years; seen taking a Chukor and attacking a Harrier (TJT).

Numerous reports E of Alps. Kaikoura coast: 1 on 25/5 (BE); Kowhai R-Mt Fyffe 4 on 10/1 (LTD). Waipara, 1 on 17/11 (R&GPG). Arthur's Pass NP, 1; L. Pearson, 1 on 11/5 (SCS). Borland Lodge on 7/10 (EC). L. Onslow 1 at 2500ft on 4/11; Paerau, upper Taieri R. at 2500ft on 11/11, 1 took a skylark in high tussock country; W of L. Wanaka, nest 2 chicks at 3500ft on 12/12; Earnslaw Ridge above Kea Basin, 1 at 5000ft on 23/2; Matukituki Valley, 1 chasing a Harrier on 14/6; a small dark male seen to take a Song Thrush and a Silvereye. Old Man Range at 3500ft far above snowline on 19/7. Gillespie Pass, 1 at 4000ft on 9/5 (PC). Te Anau, 1 often at the township; once on 25/12 with Fantail catching insects within a metre of its perch (JVM). NW Nelson, Kahurangi Pt-Anaweka est., 5 on 15-16/4; logging in progress (KLO).

PHEASANT *Phasianus colchicus*

Old Man Range, cock amongst tussock at 3800ft on 27/10 (PC).

BROWN QUAIL *Synoicus ypsilophorus*

Northland, few reported '77-80 (ATE). Waiotira, calling on 8/9 (TGL). Clevedon, 6 on 28/5 dusting and preening (AJG). S. Auckland and BoP lowlands, thinly distributed (BB, AH, PCML). Kaituna Cut, 5 on 13/5 (KF).

PEA FOWL *Pavo cristatus*

Marohemo, some persisting (MEW).

BANDED RAIL *Rallus philippensis*

Numerous reports from northern inlets and estuaries, S to BoP and Kawhia (WJC, GMHP, JHS). Well distributed around the muddy margins of Golden Bay and Tasman Bay (KLO, JB, K&JVM).

WEKA *Gallirallus australis*

St Arnaud, several reported after some years' absence (PJ). Dusky Sound, Petrel Islands, heard on 10/5 (KM). Chatham Is, Port Hutt, pr (*hectori*) with two downy young on 20/10 (TGL).

MARSH CRAKE *Porzana pusilla*

Kaikoura, L. Rotorua, 4 on 13/2, briefly glimpsed. Motueka, 1 on 16/4; best seen at dawn and dusk (BE). Pearl Creek, Appleby, 5 on 20/3 (JB). Present, high country swamps up to 700 m a.s.l., e.g. Maori Lakes. Where do birds go in winter when vegetation dies? (CFO'D). Daffodil Bay, 1 on 9/4 (PMM, OJL).

SPOTLESS CRAKE *Porzana tabuensis*

Presence in suitable habitat widely confirmed from Northland to Marlborough. Dargaville lakes and Pouto Pen (WJC). Kawhia, Kiritehere, Ohaupo, Mangapehi (JH&BHS). Foxton (LJD, JL&MM). Flaxbourne, Elterwater (PJ, TJT).

PUKEKO *Porphyrio porphyrio melanotus*

Napier Harbour Board Marsh, c.200 on 2/6 (KVT).

TAKAHE *Notornis mantelli*

Nest with young chick and unhatched egg on 22/11 (KM).

AUSTRALIAN COOT *Fulica atra australis*

Northwards, both Coot and Spurwing have gone about as far as they can go. Te Pahi lake, 9 during Jan '80 (MPK). Ngataki, 1 in June '79. Hamilton Lake, still increasing; aggressive; long nesting season; nest C6 on 22/9; other nests already hatched (JHS, BHS). 82 including chicks and full-grown young on 27/4 (MAB). Okere, c.30 on 7/7 (PCML). H.B., Tuai Lake, 12 including 2 nests with sitting birds on 28/10 (GAF). Palmerston North, 1 on 8/9 (MD). Coastal pond near Paturau R., 1 on 8/4 (KLO). St. Anne's Lagoon, 12 on 15/12; Elterwater, 3 on 21/1 (BE). L. Heron, breeding and surviving spring floods much more successfully than Crested Grebes (CFO'D). Arrowtown pond, pr + 2 juv. on 18/2 (MLB).

SOUTH ISLAND PIED OYSTERCATCHER *Haematopus ostralegus finschi*

Whangarei Harbour, 1069 on 14/7; 1750 on 22/3 (MPK). Jordans, 2200 on 1/3 (BB). Upper Waitemata Harbour, now a regular winter visitor, sometimes in hundreds, max 440 in 1975 (AM). Manukau, 6479 on 4/11; 25 666 on 15/6 (BB, SMR, *et al.*). FoT, 984 on 25/11, summering; 10113 on winter census '80 (BB). BoP, Little Waihi, max 15 on 12/4 (PCML). Westshore, 17 on 8/3 (KVT). L. Wairarapa, N end, 5 on 24/11 (BDH). Manawatu est., present all months, max 75 on 9/3 (JL&MM). Farewell Spit, 2320, early Oct (BHS); only c.4000 in mid-May (BDH). Upper Buller, more than usual nesting (PJ). Westport, Orowaiti, c.300 on 14/7 (SCL). Ward, one with foot missing seen on ploughland for third year (TJT). Ashburton lakes, only 1, 26-27/7 (CFO'D). Benmore, 38 on 27/12, Wainono, 21 on 1/1 (LJD). Southland lagoons, 756 on 29/12 (RRS).

VARIABLE OYSTERCATCHER *Haematopus unicolor*

Mangonui, 26 during Dec '79. Taipa, 19 (BT). Great Barrier, pr on airstrip and another pr on nearby beach (TGL). Mangawhai, max 62 on 19/4; Muriwai to S. Kaipara Heads, 20 on 22/12 (SMR). Pairs visit bays on Waiheke and Browns Islands (GMHP). BoP, Tairua, 20 on 4/4 (DGB); Opoutere, 3-4 prs (J&BB); Sulphur Point, 5 resident prs, max 40 on 25/4 (KF); Kaituna Cut-Maketu, 5 prs breeding; autumn max 20 on 4/5; Little Waihi, max 48 on 2/4-22/6 (PCML, JH&BHS). Resident pairs at river mouths of Tarawera, Rangitaiki need both pluck and luck. Port Waikato, 6 on 7/10 (AH). Manawatu, max 8 (JL&MM). Farewell Spit, 40+ in Oct (JH&BHS). Nelson boulderbank, 6-8 prs (JMH). Westland, a few pairs scattered along coast (CSL). Marfell's Beach, 8 on 26/8 (TJT). Grace Burn Beach, pr and 2 young on 6/2 (KM). Southland lagoons, 12 on 29/12 (RRS). Codfish I., Sealers Beach, 7 on 4/11 (EC).

SPUR-WINGED PLOVER *Vanellus miles novaehollandiae*

Far North: Shenstone Farm, 9 in Jan '79 (MPK); Portland, 2 on mudflat on 26/9 (ATP). Karaka, near Hingaia Bridge, 1 on 27/9 (GV). FoT, max 4 (RC, DAL); 1 pr, resident; but nesting not proved (JW). S. Auckland & Hauraki Plains: reports from Mangatangi, pr on maize stubble. Kopuku, Meremere, Whangamarino, Nether-ton (IS, DAL, AJG, BB). Kiritihere Valley, heard on 19/4 (JHS, BHS). Ruakituri Valley, 3 on 23/7 (EJJ). Atiamuri, 1 on 20/12; Ahuriri, 8 on 24/11 (KVT). Iwitea-Whakaki Lagoon, numerous sightings, biggest group 7 (GAF). Manawatu, max 21 on 24/2 (JL&MM). New

Judgeford links, 6 on 11/1 (BB, KB, RBS). Farewell Spit, 14 on outer beach; nest C4, early Oct (JHS, BHS). Waimea est., 37 on 22/7 (PH, PM). Westland, now common and breeding, especially in the south (CSL). Whangamoia est., 5 on 11/1 (KLO). Wairau est. and Ward, a common bird now (TJT). L. Ellesmere, Kaituna, 31 on 27/5 (R&GPG). Benmore, 44 on 27/12; Wainono, 5 on 1/1 (LJD). Dart Valley, Kinloch, Southland lagoons, 218 on 29/12 (RRS). Stewart I., heard from cleared ground at Mason Bay on 5/2 (WAW).

GREY PLOVER *Pluvialis squatarola*

Southland, Waituna lagoon, 2 on 29/1 (PMM, OJL). Awarua Bay, 1 in breeding dress on 19/4 (MLB).

LEAST GOLDEN PLOVER *Pluvialis fulva*

Paua, 5 in Nov; 300 in Dec (ATE). Whangarei, 12 in Nov, 25 in March (MPK). Ruāwai, 11 in paddocks near Burgess I. on 23/10 (WJC). Oyster Pt, 37 on 1/3 (SMR). Karaka, max c.30, Dec-Feb; 20 on 8/4 (AH, BB). Mataitai, 5 on 26/1 (SMR) and 9/3 (GMHP). FoT, 110 on 25/11 (BB). BoP, Sulphur Pt, 6 on 6/4 (JHS, BHS); Maketu, 20 on 26/1 (PCML); Ohope spit, 18 on 16/3 (RW). H.B., Westshore, 36 on 1/12 (KVT). Manawatu, present Dec-April, max 13 (LJD, JL&MM). Farewell Spit, up to 12 in early Oct (JHS, WFC). Waimea est., 2 on 22/1 (KLO). Wairau est., 7 in mid-Jan (RBS).

NEW ZEALAND DOTTEREL *Charadrius obscurus*

Population apparently fairly stable in its heartland N of 38°S. Waipu, 7 Godwits attracted by distraction display near nest (AHG). Waiheke I., Te Matuku Bay, 13 on 19/6 (GMHP). Mataitai, 24 on 23/3. Coromandel Pen., Preece's Pt, 2 prs on 5/5 (AJG). Opoutere, 10 on 1/1 (JB). Miranda coast, max 8 (RBS). Upper Waitemata, max 4, Browns I., up to 3 prs (SMR). Mangere Airport, 13 on 18/3; Karaka, max 12 on 9/4. Manukau Harbour, 23 on winter census; 32 in summer (BB, DWW, BG). Kawhia, 12 on open beach on 17/2 (JC). BoP, Sulphur Pt, 5 + resident prs; autumn max 25 on 25/4; Maketu, 19 on 22/6; Little Waihi, max 13 on 12/4 (KF, PCML). Pt Ohope, max 49 on 6/4 (RW). Farewell Spit, 1 in mid-May (BDH). Motueka sandspit, 1 on 25/8; 1 on 8/2 (KLO). Awarua Bay, max 24 on 29/3 (MLB). Stewart I., Table Hill, 2 parties of 4 each on 2/2 (WAW).

BANDED DOTTEREL *C. bicinctus*

Paua, 50 in Jan, rising to c.750 in Feb; some hundreds till June (ATE, MPK). Whangarei Hr, 81 on 14/7; 3 on 10/11; 80 on 22/3 (MPK). Mangawhai, 22 on 22/1; 40 on 20/2. S. Kaipara Heads, nest C3 on 22/12 (SMR). Jordans, 26 on 1/3; 45 on 26/4 (GMHP). Upper Waitemata, Traherne I., 17 on 23/2; 191 on 10/5; Pollen I., 84 on 7/6 (GMHP). Manukau Hr, 927 on winter census (600 at Karaka on 4/5) (BHS). Port Waikato, 150 on 24/3 (AH). Whitford, 40 on 5/8; Mataitai, 48 on 6/1. Miranda, 6 on 25/11; 85 on 8/2; c.200 on 3/3 (GE, BB). Tairua, 42 on 15/12; 48 on 6/4 (DGB). Kaituna Cut, 1 pr bred, 10 on 4/5 (PCML). Port Ohope, 82 on 7/1 (MD). Tutakuri est., c.20 on 5/4 (KVT). Manawatu est., max 80 on 9/3 (JL&MM). Ohau est., 20 on 29/6 (BDH). Nelson Haven,

62 on 12/4; 100+ on 11/5; Moutere, 50+ on 19/2 (JMH). Farewell Spit, c.40 early Oct (BHS); c.500 in mid-May (BDH). Appleby, c.150 on 22/7 (PH, PM). Motueka sandspit, 12 on 20/8; W. Whanganui Inlet, 166 on 1/4. Marahau Inlet-Tinline, 27 on 31/1. The Kumeras, Staples Rd Inlet, 15 on 7/2 (KLO). Blaketown lagoon, c.80 on 17/5, Kokatahi, c.38 on pastures on 14/6 (CSL). Greymouth airfield, c.40 on 17/2; 35 on 28/5 (AVB). Hokitika, 65-70 on 10/2 (NW). Cass R., abundant on 8/11 (P&KM). Benmore, 24 on 27/12; Wainono, 40 on 1/1 (LJD). Southland lagoons, 517 on 29/12 (RRS). Stewart I., Table Hill, 2 on 2/2 (WAW). Chatham I., a few pairs in open country near Port Hutt on 22/10 (TGL).

MONGOLIAN DOTTEREL *C. mongolus*

Tapora, 1 on 22/3 (CM). Jordans, 1 edgily associating with c.20 Banded Dotterels on 18/12 (TGL, RBS). Karaka, 1 from 23/9 to 9/4 (BB, KJF, AH). Farewell Spit, 1 in fine breeding dress on 16/5 (BDH, HAR, MDD).

LARGE SAND DOTTEREL *C. leschenaultii*

Paua, 2 on 21/3 (ATE). Miranda, 1 on 27/11 (SMR). Karaka, 1 from 6/10 to 12/4; 2 on 4/11 and possibly 2/12. Shoulder tabs evident but little colour on 12/4 (BB, KJF, AH).

BLACK-FRONTED DOTTEREL *C. melanops*

Ruakaka, 1 on 13/10 (AHG). Miranda, 3 on 10/5 (DAL, BB). Karioitahi, 2 in mid-May (TRH, DAL). BoP, Mt Maunganui dump, 2 on 2/7 (KF); 4 on 18/8 (PCML) and 9/9 (JHS, BHS). Tutaekuri, 10 on 25/5; Te Hauke, c.46 on muddy tractor track (KVT). Longburn, 40+ on 24/5 (BHS). Nelson Haven, 1 wintered '79 till 7/10; 2 on 15/5 (JMH). Alexandra, 1 on 20/7, first record for Central Otago; still there a week later (PC). Aparima R., 3 at Thornbury on 13/1 (PMM, OJL). Lower Mararoa, 2 on 4/5 (K&JVM).

NEW ZEALAND SHORE PLOVER *Thinornis novaeseelandiae*

S.E. Island, territorial displays, but not found nesting by 20/10 (TGL).

WRYBILL *Anarhynchus frontalis*

Paua, c.100, March-April (ATE). Whangarei Hr, 154 on 14/7; 10 on 10/11; 137 on 22/3 (MPK). Mangawhai, 6 on 19/4 (SMR). Upper Waitemata, winter '79 max 15; 8 on 7/6/80 (GMHP). Manukau, c.24 over-summered; 1140 on 15/6. winter census. FoT, 98 on 25/11 over-summering; still 3000+ on 5/8 (MSF, AH); 400+ 31/12 (ARL); 2000 on 26/1; 3200 on 24/2 (AH, CM, RBS) but only 1903 on winter census, 8/7/80, the southward migration perhaps having begun (BB). BoP, Sulphur Pt, 146 on 14/7; 63 on 7/8; 5 on 11/12; 23 on 5/1; 107 on 22/3 (KF); 162 on 26/1; 70 on 25/4 (PCML). Gisborne, Muriwai Lagoon, 20 on 20/4 (AB). Napier, Westshore, 2 on 20/10 (KVT). Manawatu est., max 24 on 26/1 (JL&MM). Farewell Spit, 1 in Oct (JHS&BHS). Motueka, 3 on 20/8; Waimea est., 16-18 on 14/11 (KLO). Wairau est., 4 on 12/1 (WFC). Grassmere, 7 on 17/1 (PJ, RBS). Benmore, 3 on 27/12; Wainono, 17 on 1/1 (LJD). Matukituki, 8 on 28/10/78, renesting after flood; 1 nest C2. Makarora, 4 on 29/10, 2 nests, each C2 (PC).

FAR-EASTERN CURLEW *Numenius madagascariensis*

Paua, 3 on 9/9; 4 on 8/11; 3 or 4 on each of 7 visits till 18/4; none seen, June (ATE). Karakā, 1 from 23/9-4/11 (BB, AH). FoT, 2 on 27/8 (NG) & 29/9; 5 on 25/11 and 3/3; 2 on 20/6 (BB, GE, BAE). Sulphur Pt, 1 on 5/1, briefly joined Godwits and Stilts; not seen again (KF). Manawatu est., 3 Nov-Dec; 4 from 6/1 to 9/3 (LJD, JL&MM). Farewell Spit, 5 in early Oct (JHS, BHS); 1 in mid-May (BDH).

ASIATIC WHIMBREL *Numenius phaeopus variegatus*

Paua, 1 or 2 in Nov-Dec; 10 in Jan. Kerikeri Inlet, 1 in Nov; 2 on 7/2 (ATE). Whangarei, 3 on 14/7; 11 on 10/11 (MPK). Mangawhai, 1 on 27/10 (SMR). Jordans-Oyster Pt, 2 on 1/3; 2 on 3/5 (TRH, GMHP). Karaka, up to 5, not all identified subspecifically, between 27/9 and 31/5 (BB, BJB, AH, JT). Sulphur Pt, 1 on 1/10 (JHS, BHS). Farewell Spit, up to 8 in early Oct (JHS, BHS, WFC). Kaikoura, 1 on 22/12 and 5/1 (BE).

AMERICAN WHIMBREL *Numenius phaeopus hudsonicus*

FoT, 1 on 1/11 and 25/11 (AH, BB). Farewell Spit, 1 on 7/4 (RB, K&JVM). 4 in mid-May (BDH, HAR, MDD). Awarua Bay, 1 on 1/6 (PMM, OJL).

WHIMBREL sp.

Westshore, 2 on 6/12 (KVT). Southland lagoons, 1 on 29/12 (RRS).

ASIATIC BLACK-TAILED GODWIT *Limosa limosa melanuroides*

Manawatu est., 1 from 20-25 Jan (JL&MM). Ashley est., 2 on 25/11; 4 on 28/11 (J&JF).

BLACK-TAILED GODWIT sp.

Waituna Lagoon, 1 on 29/12 (RRS).

BAR-TAILED GODWIT *Limosa lapponica*

Paua, 1000+ on 8/11; c.100 Dec-Jan; 500 on 2/2; 200 on 4/3; c.100 on 17/6, overwintering. May be roosting elsewhere since more and more Black Swans are occupying some of the traditional high-tide roosts (ATE). Whangarei, 39 on 14/7; 1346 on 16/11; 3298 on 22/3 (MPK). S. Kaipara Heads, 2200 on 5/3 (SMR). Upper Waitemata, big flocks most years Jan-March, max 3500 (AM, GMHP). Manukau, 1264 on 15/6, following a summer census of 16 517 (BB, SMR). Port Waikato, 11 on 19/9, feeding among beach debris; first seen here since 18/3; just arrived? (AH). FoT, only 181 on 8/7; but 320 on 12/8; 8903 on summer census (BB). BoP, Tauranga Hr, 3000-4000 during summer (KF); Little Waihi, 200 on 24/1; 43 on 18/5 (PCML); Port Ohope, 350 on 7/1 (MD). Westshore, c.350 on 6/12; 24 overwintering on 2/6 (KVT). Manawatu est., some hundreds all summer, max 372; 30 on 20/4, 12 on 15/6 (LJD, JL&MM). Farewell Spit, 5500, early Oct (JH&BHS); c.800 in mid-May (BDH). Moutere-Motuoka, 1043 on 8/12 (KLO). Nelson Haven, up to 850 by 6/11 (JMH). Blaketown, a few drop in, max 11 (AVB). Martin's Bay, 1 on 9/1 (RB). Southland lagoons, 919+ on 29/12 (RRS); 1460 on 19/1 (MLB).

GREENSHANK *Tringa nebularia*

Rangitikei est., 1 on 23/12 (BDH). Awarua Bay, 1 on 29/12 (RRS), 12/1 and 15/3 (MLB).

MARSH SANDPIPER *T. stagnatilis*

Miranda, 1 found on 4/5 (AH) and stayed for some months (BB).

WANDERING TATTLER *T. incana*

Miranda, 1 on 27/10, full call heard (GH). Farewell Spit, 1 in mid-May (BDH). Whanganui Inlet, 1 on 1/4 (KLO). Flaxbourne est., 1 on 18/1 (BDB, CM).

SIBERIAN TATTLER *T. brevipes*

Miranda, 2 on 22/2 (LS); 1 on 17/3 (BHS); 1 on 17/5 (AH, CM). Farewell Spit, 1 on 7/10 (JHS, BHS, WFC). Nelson Haven, 1 on 4-18/3 (JMH). Kaikoura, Armer's lagoon, 1 on 8/7 and throughout Aug-Sept; 2 on 20/10; 3 on 29/10; 4 on 14/11; 3 over summer roosting together; but feeding apart; 1 on 17/5 (BE).

TATTLER sp?

Southland lagoons, 1 on 29/12; 3 on 12/1; 2 on 13/3 (MLB, RRS).

COMMON SANDPIPER *T. hypoleucos*

Ruakaka est., one Dec '79 (RP). Awhitu pen., Karioitahi, 1 on beach at creek mouth on 13/4 (DAL).

TEREK SANDPIPER *Xenus cinereus*

Port Whangarei, 1 on 9/11 with 12 Wrybills (WJC). Mangere S.P., 1 on 2/4 (SMR). Karaka, 2 on 26/9; 3 on 2/10; 5(?) on 24/3; 6 on 9/4; 2 on 4/5; 1 on 28/6 (BB, AH, GMHP). Miranda, 2 from at least 28/10 to 24/2; 1 on 3/5; 1 on 17/5 (AH, IS, CM, SMR, BHS). Manawatu est., 1 on 31/12, still present on 15/6 (JL&MM, LJD). Little Whanganui Inlet, 1 on 8/4 (K&JVM). Invercargill est., 3 on 29/12 (RRS); 2 on 30/1 (MLB).

TURNSTONE *Arenaria interpres*

Paua, 200 on 8/11; 2000 on 6/12; few in early Jan; 1000+ in Feb; usual March influx not noted; but 800 in April; 30 overwintering on 17/6 (ATE); 750 on 28/1 (MPK). Whangarei, 2 on 22/3. Manga-whai, max 16 on 16/3. S. Kaipara Hds, 50 on 22/12; Oyster Pt, 6 cannon-netted on 2/3 (SMR, CRV). Manukau Hr, 529 on 4/11, summer census; Kidd's, c.500 on 4/3 (KJF); 74 overwintering on 15/6 (BB). FoT, 93 on 25/11; 175 on 20/12 (JMcC); 150+ on 22/3 (RBS). BoP, a few all year, some overwintering; 8 on 21/7; 5 on 9/6 (KF); Maketu, 10 on 26/1; 6 on 22/6 (PCML). Westshore, 1 on 1/12 (KVT). Manawatu est., oddly scarce, max 4 (JL&MM); 1 on 17/2 (LJD). Farewell Spit, 1200 in early Oct (JHS, BHS); 300 in mid-May (BDH). Moutere-Motueka sandspit, 16 on 20/8; 36 on 25/8; 206 on 8/12; 345 on 8/2 (KLO); 48 on 13/3; 40 on 8/5 (BE). Grassmere, c.100 on 20/1. Kaikoura, max 90 on 30/12 (BE). Nelson Haven, passing visitor (JMH). Southland lagoons, 820 on 29/12 (RRS). Invercargill est., 706 on 19/1 (MLB). Waipapa Pt, 70+ on 20/10 (K&JVM).

CHATHAM ISLAND SNIPE *Coenocorypha pusilla*

Numerous on S.E. Island; commonly in pairs; most active at night and calling repeatedly, Sept-Oct (TGL).

KNOT *Calidris canutus*

Paua, apparently a poor season, max 70 in Dec (ATE). Whangarei, 1022 on 10/11; 826 on 22/3 (MPK). S. Kaipara Hds, 2000 on 5/12; 650+ on 5/3. Jordans, 6000 on 1/3 (SMR). Upper Waitemata, often in hundreds Jan-April; sometimes 1400-2000 (GMHP, AM). Manukau, 9430 on 4/11; still 3500 on 31/5 and 4371 overwintering on 15/6. FoT, 4070 on 25/11; c.100 overwintering. Oyster Pt, 463 cannon-netted on 2/3 (CRV). BoP, Sulphur Pt, 6 on 26/1 (PCML). Pt Ohope, 6 on 16/3 (RW). Ahuriri, 10 on 17/11 (KVT). Kawhia, 4 on 9/2; 2 on 29/6 (LS, BHS). Manawatu est., some from Sept, max 100+ in Dec, to 26/4; none overwintering (LJD, JL&MM). Farewell Spit, 17 000 in early Oct (JHS, BHS); c.600 in mid-May (BDH). Moutere-Motueka, c.40 on 8/12; 27 on 8/2 (KLO). Blake-town Lagoon, 21 on 19/10, stayed about a week (CSL). Nelson Haven, 9 in mid-Oct (JMH). Wairau est., 5 on 12/1 (WFC). Southland lagoons, 26+ on 29/12 (RRS).

GREAT KNOT *C. tenuirostris*

Manawatu est., 1 on 1/1 (JL&MM); 6/1; 17/2 and 3/3 (LJD).

SHARP-TAILED SANDPIPER *C. acuminata*

Paua, 3 in March; 10 in April (ATE). Tapora, 6 on 22/3 (SMR). Karaka, 8 on 8/2 (KJF). Miranda, present from Oct to April; max 25 on 31/1; 1 left on 22/4 (BB, AH). BoP, Sulphur Pt, up to 6 during summer (KF); Kaituna 4 on 26/4 (PCML). Westshore, 5 on 1/12 (KVT). Manawatu est., present Nov-April, max 12 (LJD, JL&MM). Wairau est., 8 on 12/1 (WFC, CM). Invercargill est., 2 on 30/1 (MLB). Southland lagoons, 24 on 29/12 (RRS).

PECTORAL SANDPIPER *C. melanotos*

Tapora, 2 on 1/3; 3 on 22/3 (SMR, CM). Miranda, 1 on 31/1 (BB, AH), 3/3 (GE), 23/3 (BHS). Westshore, 1 on 2/2 (KVT). Manawatu est., 1 on 31/12; 2 on 2/1 (JL&MM).

CURLEW SANDPIPER *C. ferruginea*

Paua, 1 in Dec; up to 13 in Jan; 10 Feb-March; 6 in April and on 17/6 (ATE). Whangarei, 1 on 22/3 (MPK). Karaka, 2 on 9/12 (AH); 4 on 8/2 (KJF); 5 on 9/4 and still on 28/6 (GMHP). Miranda, c.20 on 7/10; 31 on 8/2 (BB, AH); 21 on 22/4; 14 on 10/5; c.25 on 3/5 (5 well-coloured, 5 quite pale) (AH). Manawatu est., present Oct-April, max 8 (LJD). Farewell Spit, 4 on 7/10 (WFC); 3 (2 red) on 7/4 (K&JVM, BR); 1 in mid-May (BDH). Nelson Haven, 1 for some weeks in Jan (JMH). Southland lagoons, 42 on 29/12 (RRS). Awarua Bay, 12 on 12/1 (MLB).

DUNLIN *C. alpina*

Kidd's Bay, Karaka, 1 still black-bellied and red-backed, feeding among Wrybills and Knots on 15/8 (BB).

RED-NECKED STINT *C. ruficollis*

Paua, 9 in March; 10 in April (ATE). Mangawhai, 1 on 1/12 (SMR). Karaka, 7+ on 27/9; 26 on 18/12; 33 on 24/3; 35 on 8/4;

23 on 31/5 and 15/6 (BB, AH, BRK), a record count of overwinterers; 16 on 28/6 (GMHP). Miranda, present 28/10-20/4; max 8 (ARL, BB, AH, RBS). Tauranga, 1 on 28/7 (PCML); 3 Nov-April (KF). Westshore, 1 on 1/12 (KVT). Manawatu est., recorded from 30/11; 4 on 25/3 and 15/6 (JL&MM, LJD). Farewell Spit, 11-14 in early Oct (WFC, JHS, BHS); 27 in mid-May (BDH; MDD, HAR). Grassmere, 19 on 17/1 (IS, CM, RBS). Southland lagoons, 53 on 29/12 (RRS). Awarua Bay, 8 on 12/1; Invercargill est., 43 on 19/1 (MLB).

SANDERLING *C. alba*

Farewell Spit, 1 early Oct (WFC, JAS, BHS); 3 in mid-May (BDH, MDD, HAR). Awarua Bay, 1 on 15/3 (MLB).

PIED STILT *Himantopus himantopus leucocephalus*

Paua, max 400 in June (ATE). Whangarei, 502 on 14/7; 368 on 14/11; 666 on 22/3 (MPK). North Shore, Shoal Bay, 3 late C4 nests in December (GMHP). Manukau, 740 on 4/11; 4768 on 15/6. FoT, 1963 on 25/11; 1713 on 8/7/80, rather late for a winter census. Manawatu est., max 270 on 3/5 (JL&MM). Southland lagoons, 597 on 29/12 (RRS).

BLACK STILT *H. novaezealandiae*

Whangarei Hr, 1 at Hewlett's Pt on 14/5 (RP). Maungaturoto, 1 smudgy in damp pasture during Aug (AHG). Mangere airport, 1 all black on 20/5 (BG). FoT, 1 at Miranda on 22/2 (LS) and 22/3 (RBS) & near Waitakaruru at mid-winter (BB). Nelson Haven, 1 smudgy on 6/9 (JMH). Whanganui Inlet, 1 on 1/4 and over winter (KLO). L. Ellesmere, 1 at least 18/11 to 28/11 (GFO'D).

SOUTHERN GREAT SKUA *Stercorarius skua lonnbergi*

S.E. Island, trios & pairs at nests, Sept-Oct; first egg noted on 1/10 (TGL). Codfish I., 1 at Sealers' Bay on 3/11 (EC).

POMARINE SKUA *Stercorarius pomarinus*

Muriwai, 2 chasing Caspian Tern on 5/12 (CM). Karaka, 1 off Kidd's Bay on 9/4 (AH). Miranda, 1 off Taramaire on 17/5 (BB, SMR, CM).

ARCTIC SKUA *Stercorarius parasiticus*

Bay of Islands, common Dec-Jan; 6 at Marsden Pt on 19/4 (TGL). Auckland isthmus, numerous sightings at the usual places. Tukituki est., 1 on 18/4 (KVT). Foxton Beach, present Dec-May, max 4 on 23/2 (JL&MM).

BLACK-BACKED GULL *Larus dominicanus*

Desert Rd, summit tarn 23/1, 80+ including c.50 brownies, evidently locally bred (BB, KB, RBS).

RED-BILLED GULL *Larus novaehollandiae scopulinus*

Off Three Kings on 26/1, c.20 following ship; last left when 72 miles W (NGC). Cuvier I., c.450 nests in late Nov; more than half soon abandoned (TGL). Tukituki est., c.100 on 3/5 (KVT). Farewell Spit, c.200 on terminal shellbanks, early Oct (JHS). Grassmere, 186 nests; low breeding success, 19/1 (PJ). S.E. Island, a few dozen birds, unworried by skuas; no eggs by 20/10 (TGL).

BLACK-BILLED GULL *Larus bulleri*

Bayly's Beach, 1 with Red-billed, 1/6-22/6 (WJC). FoT, 69 on 25/11. The few pairs which nested at Taramaire, again failed. Only 82, most of which were at Kaiarau, on winter census. (RBS, BB). BoP, Tarawera est., 20 on 22/7 (PCML). Kawhia, 2 on 29/6 (BHS). H.B., Wairoa est., c.250 in mid-Oct; in Nov the birds dispersed without nesting (GAF). Tukituki est., c.300 on 3/5; L. Poukawa, c.120 on 7/10 (KVT). L. Wairarapa, 20 at N end on 24/1; L. Horowhenua, c.40 on 26/4 (BDH). Farewell Spit, only 2, early Oct '79 (JHS). St. Arnaud, 3 back on 30/9; local breeding success low. Upper Buller R., 75-80 nests; 1 juv left on 2/3 & 19/4 (PJ). Kaikoura, Kowhai est., first eggs before 29/10; colony deserted by 6/12, Kahutara est., 900 on 3/8 (BE). Benmore, 2 on 27/12 (LJD). Manapouri, raft of 1000+ on 9/1 (KM). Eglinton, c.400 ad and 400 chicks on 15/11 (K&JVM).

WHITE-WINGED BLACK TERN *Chlidonias leucopterus*

Mangere airport, 1 on 4/3 (BG). Westshore, 1 from 6/12 to 26/1 when it was harassed by Welcome Swallows (KVT). Manawatu est., 1 from 4 to 27/4 (JL&MM). Waimea est., 1 on 22/1 (KLO). Avondale, Aparima R., 1 on 14/6 (PMM, OJL).

GULL-BILLED TERN *Gelochelidon nilotica*

S. Kaipara Hds, Waionui lagoon, 1 on 5/3 (SMR). Tapora, 1 on 22/3 (AH, CM). Jordans-Oyster Pt, 1 on 1/3 (AH, NR).

CASPIAN TERN *Hydroprogne caspia*

Strong colonies at Kaipara Heads and Mangawhai reared many young. Manukau, 74 on 4/11; 165 on 15/6. FoT, 25 on 25/11; 142 on 8/7 (BB, SMR). Upper Waitemata, 2 isolated prs raised young (GMHP). Mataitai, 58 on 23/3 (AJG). Waikato est., c.40 prs on 7/10 and 12 nests with eggs; c.160 birds present on 22/11 (AH, TRH). Cuvier I., 1 on 26/7 (TGL). BoP, Sulphur Pt, 28 on 28/7; Tarawera est., 6 on 4/8; 12 on 7/6 (PCML). H.B., Westshore, 16 on 2/2 (KVT). Foxton Beach, max 15 in July & April (JL&MM). Farewell Spit, c.120 present, c.40 nests with eggs washed out on 7/10 (JAS, BHS); only c.10 in mid-May (BDH). Nelson boulder bank, 2 prs nesting on 6/11, 1 with 2 chicks, 1 with 2 eggs (JMH). Westport, Orowaiti lagoon, 5 on 14/7 (CSL). Greymouth and Blaketown, scarce (AVB). Wilberforce R., over 100 km inland, pr with nest near Black-back colony, Nov '78 (CFO'D). Benmore, 2 on 27/2 (LJD). Oreti est., 55 nests on 18/11 (MLB).

BLACK-FRONTED TERN *Sterna albostrata*

BoP, Tarawera est., first arrived 2 on 30/3; 26 on 21/5; c.48 in mid-May (PCML, WJC). H.B., 2 on 26/4; elaborate flying display, ? pair formation (KVT); Ngaruroro est., 32 on 17/5 (JLCS). Manawatu est., 2 on 14/6 (JL&MM). Farewell Spit, c.80 in mid-May (BDH). Moutere est., 26 on 18/2 (JMH); 10 on 7/5 (BE). Motueka est., c.40 hawking insects on 25/8; 3 on 7/2 (KLO). Nelson Haven, 1 on 18/4 almost in breeding dress; 4 (1 juv) on 22/4 (JMH). Wairau est.-Grassmere, very few in mid-Jan (RBS). Seddon, 6 on 9/4, day before heavy rain (TJT). L. Benmore, 27 on 27/12 (LJD). Cass R., common on 11/11 (P&KM). A distressing lack of reports from Wellington coast and much of South Island.

FAIRY TERN *S. nereis*

Mangawhai, max 5 on 21/10, nest C2 on 1/12; S. Kaipara Hds, 3 on 5/12; Waionui Inlet, 1 on 5/3 (SMR). Port Waikato, 2 on 6/1 small yellow-billed terns, flying as a pair and mobbing a juv. Black-back (AH). BoP, Sulphur Pt island, 2 around most of the year; 15/11, 1 pr mobbing visitors near colony of White-fronted Terns; 23/2, 2 *nereis* & 1 small tern with whitish head begging for food; possibly 1 Fairy chick was reared under umbrella of White-fronted Terns (KF).

LITTLE TERN *S. albifrons*

Paua, 1, Dec/March (ATE). Whangarei Hr, 5 on 10/11; 2 on 22/3 (MPK). Manukau, 1 on 27/9, some present all summer, max 12 on 21/11 & 16/3 (AH, CM, KJF). Waikato est., 10 on 6/3 (AH). FoT, apparently a poor year, max 5 (BB). Tauranga, 2-4 all summer, usually with *nereis* in attendance; 1 in breeding dress with typically coloured beak on 7/3 (KF). Manawatu est., 1 from 17/2 to 25/3 (LJD). Moutere est., 3 on 8/12; 7 on 22/1 and 19/2; 3 on 10/3; Motueka sandspit, 2 on 7/5; 1 on 13/5 (JMH, KLO, BE). Aramoana, 1 on 1/1 (K&JVM, RB). Invercargill est., 1 on 18/11; 2 on 30/1 (MLB).

WHITE-FRONTED TERN *S. striata*

Mangawhai, 20 (no juv) on 16/3; S. Kaipara Hds, 1000 on 17/11 & 22/12, a few chicks (SMR). Manukau & FoT, a poor breeding season (RBS). Waikato est., 215 on 11/5 (DAL, DMW). Sulphur Pt, large colony bred successfully (KF); of c.85 resting on sand island on 31/1, c.54 were juv (BHS). Tukituki est., c.40 on 18/4 (KVT). Farewell Spit, c.200 feeding; no eggs on 8/10 (JHS, BHS). Oreti est., 30 nests on 18/11 (MLB). S.E. Island, 100+ Oct (TGL).

SOOTY TERN *S. fuscata*

Bayly's Beach, imm. dead on 30/1 (WJC). Muriwai, N of Woodhill, one on 5/3 watched feeding over the breakers with c.50 White-fronted Terns (AH, SMR); 1 also on 9/3 (NR, SP). Later 3 found dead.

GREY TERNLET *Procelsterna cerulea*

Muriwai, 1 ashore dead in March (SMR).

NEW ZEALAND PIGEON *Hemiphaga novaeseelandiae*

Clevedon, attracted by guava tree; first hopeful visit on 12/4; 6 in rivalry; never more than three in tree at one time (AJG). Maungatautari, declining as White-backed Magpies increase (PCML). Gowan R., 9 in one tree 25/10 (PJ). Christchurch, up to 8 in well-berried hollies, July-Sept (SCS). Banks Pen., Price's Valley, c.20 in kahikateas on 14/4 (R&GPG). Mt Aspiring homestead, eating leaf-buds and catkins of willows, 6/10 (PC). L. Matheson, 11 feeding on clover, 31/12 (CSL). Andrew Burn, 4 on 8/2, eating pigeonwood fruits (K&JVM).

WHITE COCKATOO *Cacatua galerita*

Karioitahi, c.50 in clump of *C. macrocarpa* on 25/5; present for some weeks (DAL). Onewhero, 13 on 16/2 (LS).

KAKA *Nestor meridionalis*

Totatariki, 1 in bush remnant on 16/11, feeding on green fruit of kohekohe (WJC). Whangarei Hds, several reports: 5 at Reotahi; 1 feeding on erythrina chased by Tui (CWD). Great Barrier, quite numerous. Cuvier I., several Oct-Dec, but no nests found (TGL). Warkworth, occasional visitor in autumn and winter, mobbed by Rosellas and Mynas (WMH). Shakespeare R.P., 1 on 8/2 (DWW). Auckland suburbs, casual visitor; Papakura, Red Hill, 1 Sept-Oct (BB). Waikaremoana, only 2 heard on 21/10 (PCML). Gisborne, 1 in suburban plantation on 13/5 (AB). Hangaroa headwaters, common on 12/3 (EJJ). Tararuas, 1 Smiths Creek on 16/3; 1 Marchant Ridge 4/8 (MD). St. Arnaud, 5 in one tree on 5/10 (PJ). Crusington, 7 on 24/11 (CSL). Routeburn Track, 2 on 26/4 (RW). Manapouri, 5 near power station on 6/1 (CM).

KEA *N. notabilis*

S. Westland, Ouail Flat, upper Mueller, 65 on 20/6/79. Headwaters S. Young R., 16 on 9/5 (PC).

EASTERN ROSELLA *Platycercus eximius*

Continues to spread. Te Kuiti, prs feeding on ragwort flowerheads in March (R&GPG). Sightings in Tararuas and at Paekakariki (MD).

RED-CROWNED PARAKEET *Cyanoramphus novaezelandiae*

Reported in Northland from Mangamuka (DV); Opuawhanga (JFS); Waiotira (TGL). S. Westland, present in cutover forest (CFO'D). S.E. Island, abundant, often feeding, Sept-Oct on shoots of *Muehlenbeckia* (TGL).

YELLOW-CROWNED PARAKEET *Cyanoramphus auriceps*

Cuvier I., 2 on 26/8 (TGL). L. Heron, pr present all summer among willows; Douglas fir and Corsican pine (CFO'D). Resolution I., 2 on 10/5; Coal Island, 1 on 10/9 (K&JVM). Stewart I., present in low manuka, Freshwater Flats (CFO'D).

SHINING CUCKOO *Chrysococcyx lucidus*

Kohukohu, group of 12 playing in erythrinus in Feb (KB). Kerikeri, 1 killed at window in March (ATE). Warkworth, first song 13/9 (WMH). Clevedon, first song 30/9; by 10/10, several whistling by day and night (AJG). Nelson, up to 6 visiting plum tree in March every year to feed on larvae of sawfly (Tenthredinidae), considered unpalatable to other birds (CFO'D). Kaikoura, 1 fed by Riro on 13/2 (BE). Arahura Valley, an early arriver heard on 4/8 (CSL). Waihola, 1 on 9/9 (MLB).

LONG-TAILED CUCKOO *Eudynamys taitensis*

Karatia, 1 late Jan (MPK). Opuawhanga, heard daily 2/3-26/3 (JFS). Miranda coast, 1 on 24/2; Cuvier I., at least 1, Nov-Dec (TGL), 1 mid-Feb (JAF). Otarewainuku, c.8 calling loudly, displaying, flying from tree to tree late in afternoon (JHS, BHS). Hopuruahine landing, 1 on 21/10 (PCML). Boddytown, 1 calling for 40 min on 26/1; 1 on 9/2 (CSL). Christchurch, 1 in greengage tree on 6/11 (R&GPG). West Plains, an early bird on 23/9 (PMM, OJL).

MOREPORK *Ninox novaeseelandiae*

Crushington, taking moths in seven swoops over camp fire (CSL).
L. Manapouri, pr feeding mouse to young on sunny afternoon, 14/1.
Dusky Sound, Shag I., 1 on 12/1 (KM). Codfish I., heard frequently
Oct-Nov (EC).

LITTLE OWL *Athene noctua*

Ward, frequently calling in Aug (TJT). Reported from Delaware
Bay (KLO), Motueka (BE), Boddlytown (CSL).

SPINE-TAILED SWIFT *Chaetura caudacuta*

Cuvier I., 9+ over top of island on 11/12 apparently hawking
insects and uttering high pitched twittering sounds (TGL, CRV).
Muriwai, 1 picked up dead in March (SMR).

NEW ZEALAND KINGFISHER *Halcyon sancta vagans*

Ward, commoner than usual during winter '80 (TJT). Nelson
Lakes, Bull Creek, pr at 1370 m in May (CFO'D). Greymouth,
relatively common; often seen to rob starlings of worms (CSL).
L. Heron, present 27/7 (CFO'D). Benmore, 1 on 27/12 (LJD).
Alexandra, 1 along Clutha R. for some days in June. Cameron Flat,
Makarora, pr perhaps nesting on 4/1 (PC). Bligh Sound, 1 on
13/3 (KM).

KOOKABURRA *Dacelo gigas*

Two records, well away from the limits of its normally restricted
range in Northland. Raglan, 5/1, one on a rock on the shore following
westerly storm (MAB). Hastings, one on 13/1 (JL).

ROCK WREN *Xenicus gilviventris*

Mt Cobb, 2 near summit on 12/4 (JB). Rees Valley, 27-30/12/78,
pr feeding young; 4 other pairs. Wilkin, pr with well-grown youngster
on 25/1 (PC). McKinnon Pass, near summit, pr feeding unconcernedly
on 16/12 (SG). Homer Tunnel, 2 near E end on 4/1 (CM).

SKYLARK *Alauda arvensis*

Mt Luxmore, 1 singing at 975 m on 16/1 (KM).

WELCOME SWALLOW *Hirundo tahitica neoxena*

Poor Knights and Cuvier I., established and breeding (JMcC,
TGL). Great Barrier, Whangaparapara, 2 on 22/10; but more have
been reported; 29/10 nest ready under wharf (AJG). Central Auckland,
has bred successfully, 3 nestlings on 12/10; 5 on 11/12 (SMR).
BoP, Papamoia, pr feeding young on 29/9; flock 50+ on 29/6. Tarawera
est., c.50, April-May (PCML). H.B., Westshore, c.110 on 7/7 (KVT).
Westland, well established throughout (CSL). Kaikoura, L. Rotoiti,
4 on 12/1 (LJD). St Anne's Lagoon, 30+ on 25/12 (TJT). Wai-
makariri headwaters, 2 on 5/4 (JR). Ashburton lakes, 1 seen at
825 m Nov '79 (CFO'D). Te Anau, 10 sightings of 1-5 birds between
20/3 and 29/6 (JVM).

NEW ZEALAND PIPIT *Anthus novaeseelandiae*

Dargaville west coast, common but seldom inland (WJC). S. of
Waitotira, thinly distributed in the hills in July; pr Waitera ponds
on 4/8. Claris airstrip on Great Barrier, several (TGL). S. Kaipara
Hds, 3 on 5/3 (SMR). Jordans, 3 on 1/3 (NR). BoP lowlands,

rare; Te Whaiti-Ruatahuna, common among fern and scrub where bush has been removed (PCML). H.B., Tukituki R., 1 on 19/8; Te Mata Peak, 1 on 28/10; Taupo Rd, 4 on 15/12; Maraetotara, c.12 on 25/4 (KVT). Foxton Beach, 2 on 21/7 (JL&MM). Whangamoia est., 2 on 11/1 (KLO). St Arnaud, 2 at 5300 ft on 3/2; Seaward Kaikouras, 3 at 5200 ft on 16/12 (BE). Mt Fyffe, 3 on tops above bushline (LJD).

DUNNOCK *Prunella modularis*

Dargaville, broken song in mid-April (WJC). Cuvier I., a few pairs; some calling but no song in mid-Feb (RBS); males singing strongly by 27/7 (TGL). S.E. Island, common and in good voice Oct '79 (TGL).

FERNBIRD *Bowdleria punctata*

Rangaunu Bay, Okatakata I., plentiful (MH). Puhipuhi, 6 responding to taped calls on 25/3 (JFS). Dargaville coast and Pouto pen., widespread but retreating as swamps are drained. Whangarei, found in gullies behind Parahaki (WJC). Oyster Pt, 1 on 1/3 (TRH). Waioneke, 10 on 8/2 (DWW). Coromandel, heard at Preece's Pt on 5/5 (AJG). Tairua, 2 on 4/4 (DGB). Matata, numerous. Whakarewarewa F.P., present in many patches of swamp, even beside main road (PCML). Kawhia, in most suitable habitats, e.g. fringe of L. Taharoa (JHS, BHS). Mangapehi (R&GPG). Waiouru, Nov '79, 1 behind rifle range singing during firing (FT). Oronui R., seen 19/7 (EJJ). Tasman and Golden Bay, located in most suitable habitats (JMH, KLO, BE). Westland lowlands, widespread (CSL).

BROWN CREEPER *Finschia novaeseelandiae*

Ure (Waima) Valley, present in gullies (TJT, RBS). Lower Seaward Kaikouras (BE). Crushington, 1 on 24/11 (CSL). Kelsey's Bush, small flock on 10/11 (P&KM).

WHITEHEAD *Mohoua albicilla*

Green Lake, 5 squeak-bottled on 21/5; Whareorino S.F., 10 on 19/4 (JHS, BHS). Present in Pureora (R&GPG).

FANTAIL *Rhipidura fuliginosa*

Cuvier I., small flocks (12+) hawking insects in sheltered gullies on dull days (TGL); commonly in attendance on families of foraging Saddlebacks in Feb (RBS). Gisborne, taking minute insects flying up from ground but ignoring larger insects, on 14/8 (AB). Wellington, Port Howard, a pair of Blacks on 27/4; later 3 (GSD).

CHATHAM ISLANDS FANTAIL *Rhipidura fuliginosa penitus*

A few pairs at Port Hutt, 22/10. S.E. Island, scarce; loud song at dawn and dusk; otherwise seldom heard, Sept-Oct (TGL).

PIED TIT *Petroica macrocephala toitoi*

Dargaville forest remnants, e.g. Tutamoe, persisting (WJC). Gisborne, on 7/8, 1 visited a Wainui nursery (AB).

YELLOW-BREASTED TIT *P.m. macrocephala*

Westland, widely recorded (CSL). Te Anau, occurs in lakeshore scrub and *P. radiata* (K&JVM).

NORTH ISLAND ROBIN *Miro australis longipes*

6 near Raurimu Spiral on 7/12 (JHS, BHS). Tararuas, mid, Waiohine hut, 2 on 5/4 (MD).

SOUTH ISLAND ROBIN *M. a. australis*

Reports from Seaward Kaikouras (BE). Fiordland N.P., Borland Burn (EC); Hollyford valley, singles seen near McKerrow and Hokuri huts (RB); Rcuteburn track, 2 at Mackenzie hut on 26/4 (RW).

SONG THRUSH *Turdus philomelos*

First song, Auckland on 3/4 (RBS). Christchurch on 6/5 (R&GPG).

BLACKBIRD *T. merula*

First song, Christchurch on 30/6 (R&GPG). S.E. Island, capturing and eating skinks, which are common, Sept-Oct (TGL).

SILVEREYE *Zosterops lateralis*

Papakura, 4.45 a.m. on 30/9, pitch black; what seemed to be a flock calling and moving noisily through trees (AH). Gisborne, 14/8; taking larger insects in typical flycatcher manner (AB). Marlborough, L. Rotoiti, flocking by 9/2; Blenheim, first flock for winter in garden on 29/5 (PJ). Ward, Silvereye chased by Bellbird and both crashed into window; a pause and the chase continued, 9/4; 100-200 in rape paddock at midwinter (TJT). Riwaka, eating pate berries on 13/4; Fernleigh, 2 eating spiders at nest of nursery spider on 24/1; Oaru, 1 eating mahoe berries on 17/2 (BE). S. Westland at c.2500 ft on 23/1 feeding on ripe fruits of *Muehlenbeckia axillaris*; Mt Aspiring homestead on 6/10, feeding on catkins of pussy willows (PC).

STITCHBIRD *Notiomystis cincta*

Little Barrier, numerous in April. All three nectar-feeders attracted to fruiting mapou; also visiting orchard to lick ripening figs (TGL).

BELLBIRD *Anthornis melanura*

Coromandel, Preece's Pt, heard and seen on 5/5 (AJG). Gisborne noticeable increase in the suburbs (AB). Hatepe, common and vocal 22/12 to 5/1 (WAW). Turangi, 4 feeding among flowers of *Banksia collina* (PCML). St Arnaud, collecting dried grass on 26/12 and 13/1 (PJ). Hunderlees, many in flowering kowhais on 22/8, by far outnumbering Tuis (BE). Codfish I., abundant, vocal and aggressive in flowering rata, Oct-Nov (EC).

TUI *Prothemadera novaeseelandiae*

Whangamumu, common in manuka scrub on 29/12 (TGL). Mahurangi, 50+ very noisy and excited among profusely flowering kowhais on 8/9 (RBS). Waitakare survey, only 20 on 22/9 (SMR). St. Arnaud, nest at 12 ft in manuka raided by stoat which came back again on 18/11 (PJ). Fiordland, Hidden Lakes, 3 on rata on 23/1 (KM). Codfish I., competed with Bellbirds at twilight song (EC). S.E. Island, flocks of 10-12, Sept-Oct, on flowering flax (TGL).

YELLOWHAMMER *Emberiza citrinella*

Cuvier I., 1 singing on 22/11 (TGL). Kawhia, 1 singing, both

morning and evening on 18/8 (RBS). Ward, first song on 28/8 from a lightly coloured cock with tail almost white (TJT). Codfish I., 1 singing on 2/11 (KM).

CIRL BUNTING *E. circlus*

Carterton, male feeding on lawn among House Sparrows on 13/10 (CL). Ward, 10 sheltering from rain on 25/8. Several males calling consistently from perches 26-28/8; 4 in a loose sort of squabble; 1 pr returning to willows where female was giving calls similar to those made by males when they call from a perch (TJT). Atawhai, 1 on 21/1, singing repeatedly (JMH, BB, RBS). Barnicoat Range, present April-May; Kaikoura, up to 4, July-Oct (BE). Waiau township, pr frequented house section, Sept-Oct (JC). Waikuku beach, 2 prs on 27/8 (R&GPG).

CHAFFINCH *Fringilla coelebs*

Gisborne, first territorial song 15/8 (AB). Mt Cobb, 2 at 5600 ft on 12/4 (JB). S.E. Island, rather rare (TGL).

GREENFINCH *Carduelis chloris*

Dargaville west coast, more noticeable in winter and spring, when they are in flocks (WJC). Little Barrier, 50+ on 5/4 (BB). Miranda, hundreds in salicornia 18/5; Karaka, lower saline paddock 'a moving mass' on 4/5 (BHS); a favourite autumn habitat often shared with Banded Dotterels (RBS). Dusky Sound, Shag I., 4 on 12/5 (KM). S.E. Island, rare (TGL).

GOLDFINCH *C. carduelis*

Cuvier, several on 22/11 (TGL). Routeburn, 3 at 2200 ft on 13/4; Shovel Flat, at 1700 ft, 4 on 4/7 feeding on heads of browntop (PC). Resolution I., flocks in shore scrub on 9/5 (KM).

REDPOLL *C. flammea*

Dargaville west coast, more noticeable in summer (WJC). Cuvier I., 1 on 25/11. S.E. Island, common (TGL).

STARLING *Sturnus vulgaris*

Te Kawa, pr with mobile nest on battery-box of tractor (JHS). BoP, Motuotau (Rabbit I.), huge roost, hundreds of thousands (PCML). Chatham Is, at dusk thousands fly from Pitt I. across the strait to roost on S.E. Island, and soon after daybreak most return to Pitt (TGL, RBS).

NORTH ISLAND SADDLEBACK *Philesturnus carunculatus rufusater*

Cuvier I., 30 nests found Nov-Dec; first chicks on 30/11 (TGL). Later in Feb, population estimated at 700+ (EGT, CRV). Stanley I., 20 on 11/12, 14 being unbanded and locally bred (TGL, CRV).

NORTH ISLAND KOKAKO *Callaeas cinerea wilsoni*

Kawhia, Hauturu N, 1 feeding on ground and 1 calling from next ridge (RM). 1 pr with 1 juv and 2 other birds, end of Feb, Whareorino S.F. 1 heard on 19/4 (JHS, BHS, SG).

BLACK-BACKED MAGPIE *Gymnorhina tibicen*

Foxton, 1 on 1/6 (JL & MM). Singles reported from Kaikoura, Oaro, Hurunui, St Anne's Lagoon, Waiaua (BE, TJT).

WHITE-BACKED MAGPIE *G. t. hypoleuca*

S. Auckland and BoP, gaining ground. Maungatautari, some evidence that magpies are attacking N.Z. Pigeons (PCML). Taramakau, Rotomano, Matai, present 20 years; slow to increase (CSL). Te Anau, max. 3 on 15/12 (JVM). Bannockburn, 15 on 17/2 (MLB). Southland, scattered but regular sightings. Invercargill airport, 2 on 15/5 (PMM, OJL).

ROOK *Corvus frugilegus*

Te Poi, E of Matamata, 4 in July (ARL). Appleby, 3 sightings between 11/7 and 20/12 (KLO). Ward, 1, Sept-Nov (TJT). Kaikoura, up to 15, 21/6-7/12 (BE). Pebbly Hills, 2 with magpies on 18/3 (PMM, OJL).



SHORT NOTES

A MONGOLIAN DOTTEREL IN BREEDING PLUMAGE

The Mongolian Dotterel (*Charadrius mongolus*) is well known in New Zealand as a difficult species to identify with confidence. Too few reach New Zealand annually for many observers to learn not to be confused by some of the deceptive variants of the Banded Dotterel (*C. bicinctus*) out of breeding plumage.

Not so with a bird we saw at Farewell Spit on 16 May 1980. Seen at first from a distance as it fed in shallow water near a Banded Dotterel, it looked rather like a Knot (*Calidris canutus*) in oddly coloured breeding plumage. Seen closely by telescope, it gave a startling impression of rich reddish orange surrounding a striking pattern of black and white from face to chest. Field descriptions of the breeding plumage of the eastern races *C. m. mongolus* and *C. m. stegmanni* are few and mostly of birds seen in transit in partial plumage. Moreover, the painting in Plate 28 of *The new guide to the birds of New Zealand* (Falla *et al.* 1979), although generally accurate, is incorrect in several respects. Therefore, we give as full a description as we could take before the bird flew.

The bird was slightly larger and stood taller than the Banded Dotterel it was near. It had a broad black mask that extended from ear coverts to ear coverts across the face, enclosing the eyes, which did not stand out, and the base of the bill. Above and slightly to each side of the bill, a small sharply outlined white patch was set into the mask, the two patches separated by a narrow vertical black line, giving the bird a bizarre cross-eyed appearance.

Rich reddish orange extended broadly round the head above the black mask, down the sides of the neck, as a deep band across the chest, and back on to the flanks. In addition, the whole grey-brown upper surface seemed to be suffused with reddish orange.

A very narrow black line ran from the rear of the facial mask

down the side of the neck and across the chest, setting the reddish neck and chest off sharply against the white chin, malar regions and throat, which stood out prominently as a cleanly white half-shield below the black facial mask. The lower part of the chest band had no abrupt margin but faded gradually into the white of belly and under-tail. On the flanks, the chest colour extended well back and seemed to form vertical bands of bright reddish orange, interspersed with grey and white. The bill was black and, compared with the Banded Dotterel's, short and deep. The legs were slate grey.

When the bird flew, it repeatedly gave a monosyllabic call, very distinct in sound from a Banded Dotterel's, deeper, with a rather rail-like quality, and with a clear rolled *r* in it, reminiscent of but much less prominent than the rolled *r* in the normal call of the New Zealand Dotterel (*C. obscurus*). The bird joined the general movement of waders going to roost on the flats among the Ocean Beach dunes adjacent to the Mullet Creek catchment. It roosted near to but stayed apart from a scattering of quiet Banded Dotterels and a noisy party of brightly plumaged subadult Turnstones (*Arenaria interpres*), but it could not be approached closely again. It was not found there the next day, nor was it seen elsewhere on the spit between 12 and 18 May.

By its brilliant colour and its complete and black, not brown, facial mask and line down the neck and across the breast, the bird was a male. By its brilliant colour, the white patches in the facial mask, and the black line separating the white of the throat from the colour of the chest band, the bird was of one of the two eastern Siberian subspecies *mongolus* and *stegmanni*. The western subspecies *altifrons* and *pamirensis* have subdued colouring, a fully black facial mask, and no black line on the chest. Because the bird was noticeably larger than the Banded Dotterel, because its colour was strongly reddish and brilliant to well down the chest and back on to the flanks, and because the upperparts were distinctly suffused with reddish, it is highly likely to have been of the subspecies *stegmanni*. This subspecies breeds in north-eastern Siberia in the mountain valleys of Kamchatka, on the coasts of the Chukotskiy Peninsula, and on the sand dunes of the Commander Islands. The main month of northward migration of Mongolian Dotterels through the Malay Peninsula, Japan and eastern USSR is May.

Plate 28 of the *New Guide to the birds of New Zealand* is inaccurate in that the bill is too long and the narrow vertical black line from the bill to the black on the forecrown is omitted. Our bird differed also in that the black on the forecrown line and ear coverts was much broader; the reddish orange was much brighter, was broader above the facial mask, did not end sharply on the lower chest but extended further down and merged gradually into white, extended well back on to the flank, and suffused the brown upperparts.

B. D. HEATHER and H. A. ROBERTSON

SOME RAROTONGA BIRD NOTES

My wife and I studied the birdlife of Rarotonga on 23-29 August and 4-6 September 1980. The following observations should be read in conjunction with Turbott's (1977) summary about the status of Rarotongan birds.

PACIFIC PIGEON *Ducula pacifica*

RAROTONGA FRUIT DOVE *Ptilinopus rarotongensis*

RAROTONGA STARLING *Aplonis cinerascens*

RAROTONGA FLYCATCHER *Pomarea dimidiata*

In four sorties into the forest we saw or heard a few of the first three species on each occasion. None could be considered common. We could not, however, find any flycatchers although much of the habitat looked very suitable. It must now be very rare indeed. Mr G. Sawtell of Rarotonga (pers. comm.) stated that in 1973 Dr D. Holyoak of the University of Sussex estimated 50-100 birds remained, but our experience suggests that the number could be even lower than this.

KINGFISHER *Halcyon* sp.

The Rarotongan kingfisher is thought to be extinct. (Many locals blame the Myna for destruction of native birds.) However, a young man who spoke excellent English informed me he had seen a kingfisher about 24 August near the bridge over Takuvaine Stream in Avarua; he was surprised as it was the first he had seen since his schooldays (to the end of 1979) in New Zealand. We did not find it.

INDIAN MYNA *Acridotheres tristis*

This bird was introduced about 50 years ago to control insect pests in citrus orchards but has gradually developed into a nuisance. On 3 September the government introduced a bounty of 10 cents per beak to encourage its elimination, and had set aside \$5000 for that purpose.

SIBERIAN TATTLER *Tringa brevipes*

Tattlers are the commonest wader around beaches and reefs, but of 102 examined, many at very close range, only 3 were considered to be of this species. These were seen on 4 September on the outskirts of a high-tide roosting flock of 34 Wandering Tattlers (*T. incana*) on the islet of Motutapu. This is a new record for Rarotonga.

PACIFIC GOLDEN PLOVER *Pluvialis fulva*

The next most common wader. Evidently just arriving on southern migration: on 23 August we could find only three — these were on the airport runway and one was sitting down! By 5 September at least 22 were on the airport grass verges and several dozen were scattered around the beaches and reefs.

REEF HERON *Egretta sacra*

We could find no white-phase birds; of 43 herons observed all were grey-phase except two, which were mottled (possibly the same bird seen on two consecutive days).

TROPICBIRDS *Phaethon* spp.

Both White-tailed (*P. lepturus*) and Red-tailed (*P. rubricauda*) are present and, although both were calling, giving display flights, and hovering around cliff ledges and cavities at The Needle and Maungatea Bluff, there was no positive evidence of nesting during this time. Odd individuals or pairs of both species were also seen over the reef or forested valleys. We estimated that in all localities we saw a total of about 28 White-tailed and 11 Red-tailed.

The Red-tailed seems to be a new record for Rarotonga.

GREATER FRIGATE BIRD *Fregata minor*

23 August: 1 adult female near the golf course coming inland at dusk with a flock of noddies. 24 August: 1 adult female and an immature male overhead near Arorangi village. 4 September: 1 adult female overhead at Ngatangia Passage.

BROWN BOOBY *Sula leucogaster*

On 24 August a fully grown immature was flying overhead above the palms near the airport, with a string dangling from one leg. A local ship-captain told me that people sometimes bring pet boobies and frigates from islands in the northern group.

COMMON NODDY *Anous stolidus*

The only noddy recorded, but more common than suggested by Turbott. Single birds were seen over the reef every day, and in the evenings small flocks returned inland to forested valleys; the largest flock seen contained 43 birds.

HERALD PETREL *Pterodroma arminjoniana heraldica*

Following Turbott's lead, we visited the Muri/Ngatangia area several times in late afternoon and observed petrels which we attributed to this species (mostly light-phase), as described by King (1967) and Harper & Kinsky (1978). Some birds were clearly observed as low as 50 m (i.e. not much higher than the coconut crowns); in general, they showed dark brown upperparts, wedge-shaped tail, darkish breast with no sharp line of demarcation between it and the white belly, varying pale mottling on the sides of the head, and white subterminal underwing 'flashes,' with an irregular whitish median line. Observations were made on 26 August, 28 August, 4 September, and 5 September. On 28 August, after sighting some at sea, we recorded eight flying inland between 4.30 and 5.15 pm, all single birds at roughly 5-minute intervals. The general pattern was the same on the other days, except that on 5 September, three actually flew in the opposite direction. The general path of the incoming birds was towards the high forested ridges between the Avana and Turangi valleys.

REFERENCES

- HARPER, P. C.; KINSKY, F. C. 1978. Southern albatrosses and petrels. 116 pp. Price Milburn.
 KING, W. B. 1967. Preliminary Smithsonian identification manual: Seabirds of the Tropical Pacific Ocean. Washington, DC: Smithsonian Institution.
 TURBOTT, E. G. 1977. Rarotongan birds, with notes on land bird status. *Notornis* 24: 149-157.

PETER CHILD, 10 Royal Terrace, Alexandra.

REVIEWS

Tasmanian bird atlas, by David Thomas. Fauna of Tasmania Handbook No. 2, University of Tasmania. 1979. Aust. \$4.50 (plus postage A\$1.10).

Anyone contemplating a 'birding' trip to Tasmania would find this book a useful companion to Slater's field guide. All species recorded from more than ten 10 000 m grid squares plus another of very restricted distribution but known to be regularly breeding are shown on individual maps, 138 in all. A very useful feature is a pair of removable transparent overlay maps of vegetation zones and rainfall zones. The introduction includes a section describing the various vegetation zones. Each map includes an inset showing the distribution for the whole of Australia, and the caption includes a coded key to status, habitat, food and foraging method(s). The book is available from 'Fauna of Tasmania' Office, University of Tasmania, Box 252C, G.P.O., Hobart, Tasmania, Australia 7001.

D. H. BRATHWAITE

An annotated checklist of the birds of South Australia, by S. A. Parker, H. J. Eckert, G. B. Ragless, J. B. Cox & N. C. H. Reid. Published by the South Australian Ornithological Association. 1979. Aust. \$3.50 (plus postage).

The checklists published separately for each Australian State are a valuable complement to that for Australia, apart from the fact that the Passerine volume of the latter has not yet been published. The minor disadvantages of differing treatments so far as taxonomy and nomenclature are concerned are outweighed by the more detailed treatment of status and distribution. The example under review is Part I of a new list, and covers Emus to Spoonbills, taking some 30 pages. A further 18 pages provide four maps, an excellent gazetteer and an index. The authors claim that the accounts of distribution have minimised tacit assumptions and stick as closely as possible to the known facts, a commendable idea which should encourage observers to fill in the gaps where possible. The only taxonomic changes likely to raise New Zealand eyebrows to any extent concern the prions. The forms *desolata*, *salvini* and *vittata* are treated as conspecific, as are *turtur* and *crassirostris*. It is no part of a reviewer's task to argue the merits of such debatable innovations, but I question the wisdom of including them in a checklist in advance of their publication. The taxonomic treatment in a checklist should reflect what is at least widely, if not universally, accepted. I look forward with relish to the wordy warfare that is bound to ensue from this one. The inclusion of *Egretta* in *Ardea*, on the other hand, seems to have much to recommend it. On the whole, this is an excellent checklist and I look forward to seeing subsequent volumes.

It is obtainable from the South Australian Ornithological Association, c/o South Australian Museum, North Terrace, Adelaide, South Australia 5000, Australia.

D. H. BRATHWAITE

The island waterfowl, by Milton W. Weller. 1980. Iowa State University Press. pp. 121 and i-x. B/w photos, diags, maps. US\$10.95 (plus \$1 postage).

On a number of islands of various sizes and degrees of isolation are found endemic species of waterfowl, especially ducks. Dr Weller has concisely described how these endemic species differ from their mainland relatives, and how they have adapted in the face of reduced mobility, different food resources, climate, etc. Responses to island life include varying degrees of flightlessness, marine adaptations, reproductive rate, plumage changes (including tendency to loss of sexual dimorphism and to development of white eye-rings), changes in body size, and development of endemism.

Copies are obtainable from Iowa State University Press, South State Avenue, Ames, Iowa 50010.

D. H. BRATHWAITE

A sketchbook of birds, by C. F. Tunnicliffe, R.A. Hutchinson Grp (NZ) Ltd. NZ retail price \$26.75.

This book, which consists of a selection of pages from the artist's many sketchbooks in which he recorded his field observations, includes seabirds (gulls, terns, cormorants & alcid), waders, herons and spoonbills, waterfowl and birds of prey. Any ornithologist, especially a wader watcher, who would like to develop his ability to do field sketches of birds seen should find this book interesting. Each page includes not only the watercolour sketch, but also the rough pencil outlines which preceded it. There are 125 plates.

D. H. BRATHWAITE

Papua New Guinea bird calls, by Harold and Audrey Crouch.

This cassette is the first recording to be made available of the birds of Papua New Guinea in this form and the only one currently available. Two earlier recordings on disc have been unavailable for many years.

The list of species given with the cassette numbers 40 and includes the scientific names, which are also given in the spoken introductions on the tape. However, 41 are presented on the tape, the addition being a recording of the Emperor Of Germany's Bird Of Paradise (*Paradisaea giuelmi*) that became available after the original master tape had been prepared.

The narrations, which are both adequate and informative, are given by Audrey Crouch in a style that I would like used more often both here and on the international scene.

Three of the species are on the New Zealand list — the Sacred Kingfisher, the Sulphur-crested Cockatoo, and the Dollar Bird. Also on this tape is the Brown Quail (*Coturnix australis*), which is also on the New Zealand list as part of a hybrid stock now popular with cage bird people. Many more of the species presented are to be found in Australia as well as New Guinea in one form or another. However, the strictly Papua New Guinea species that make up the bulk of this recording have not so far as I know been released on tape or disc before.

Unfortunately, this tape has a high noise level (hiss) on it caused by the duplication methods used in transferring from master tape to cassette that can be distracting to listeners. If one can live with this above-average noise level, the tape is worth while as an introduction to the more common birds of Papua New Guinea.

The tape is available from two sources, Papua New Guinea Bird Society, P.O. Box 1598, Boroko, PNG, and from the Bird Observers Club, P.O. Box 185, Nunawading, Victoria 3131, Australia.

Harold and Audrey Crouch have produced at least three Australian cassettes and are to be congratulated for their enterprise in producing this material, which includes so many species not available elsewhere.

LES McPHERSON

Guide to Cook Island birds, by D. T. Holyoak. 1980. Published for Cook Islands Library and Museum Society Inc. Printed by Bascands, Christchurch.

This small book of 40 pages, plus map on inside front cover, and bird topography on inside back cover, is an excellent concise summary of the present knowledge of the birds in the far-flung Cook Island Group.

The foreword is by Taunga o te Tini Short. The introduction is followed by useful tips for beginners — and others — on watching and identifying birds, and tabular lists showing the islands where the seabirds and land birds nest. A note on conservation is followed by a systematic list, where breeding birds are marked with an asterisk, occasional visitors with a dagger, and those recorded tentatively — what we call a Suspense List — are inside square brackets.

Each bird listed is briefly but adequately described, with notes on calls, range, etc. Of the 15 good photographs in colour, nine are of seabirds, two of shore birds, two of land birds (that of kingfishers is from a painting of three subspecies) and two of habitat.

The book concludes with a useful bibliography.

The author makes it clear that a great deal of information is still to be gained about Cook Island birds. The Cook Island Group has only ten endemic species of land bird, but six of these are found nowhere else.

The introduction of the Myna, cats and rats has played havoc on some islands, as well as disturbance by man of breeding colonies of seabirds. It is the same sad old story.

I can recommend this book, even to those not going to the Cooks. Price is not stated, but it should be reasonable.

R. J. SCARLETT