BIRDS OF THE WESTERN CHAIN SNARES ISLANDS, NEW ZEALAND*

By P. M. SAGAR

ABSTRACT

Birds observed during a visit to Rima Islet of the Snares Western Chain on 21 November 1976 were counted. The results of previous landings on the five main islets of the Western Chain are discussed and a distribution of the four breeding species (Snares Crested Penguin, Salvin's Mollymawk, Snares Cape Pigeon and Fulmar Prion) is proposed. Their breeding cycles are discussed.

INTRODUCTION

The subantarctic Snares Islands (48°02'S, 166°36'E) lie 100 km south of the southern tip of Stewart Island, New Zealand. These islands support a large seabird population and three endemic landbird subspecies. Despite the short distance between the Western Chain and the main Snares group (Figure 1A) there are major avifaunal differences. Salvin's Mollymawks *(Diomedea cauta salvini)* and Fulmar Prions *(Pachyptila crassirostris)* breed on the Western Chain but not on Main Island, and the breeding cycle of the Snares Crested Penguin *(Eudyptes robustus)* is later on the Western Chain than elsewhere.

On 21 November 1976 the five members of the University of Canterbury 1976-1977 Expedition, based on Main Island, landed on Wha and Rima Islets of the Western Chain. These landings completed the initial exploration of the five main islets (Figure 1B), which were described and named by Fleming & Baker (1973). An updated list of birds is now presented. Wha and Rima are the southernmost islets of the chain, each rising steeply out of deep water to a height of 80 m. The geology and petrography of the Western Chain were described by Fleming (1953) and Watters & Fleming (1975).

HISTORICAL

The Snares were discovered in 1791 by Captain Vancouver (McNab 1907) and were probably visited by sealers during the nineteenth century. The first published account of a landing on the Western Chain was that of Falla on Rima Islet in 1947 (Fleming 1948; Stead 1948). Large numbers of Cape Pigeons *(Daption capense australe)* and "populous" Snares Crested Penguin colonies were recorded breeding, with White-capped Mollymawks *(Diomedea cauta)* breeding on adjacent islets. The next recorded landing was on Tahi,

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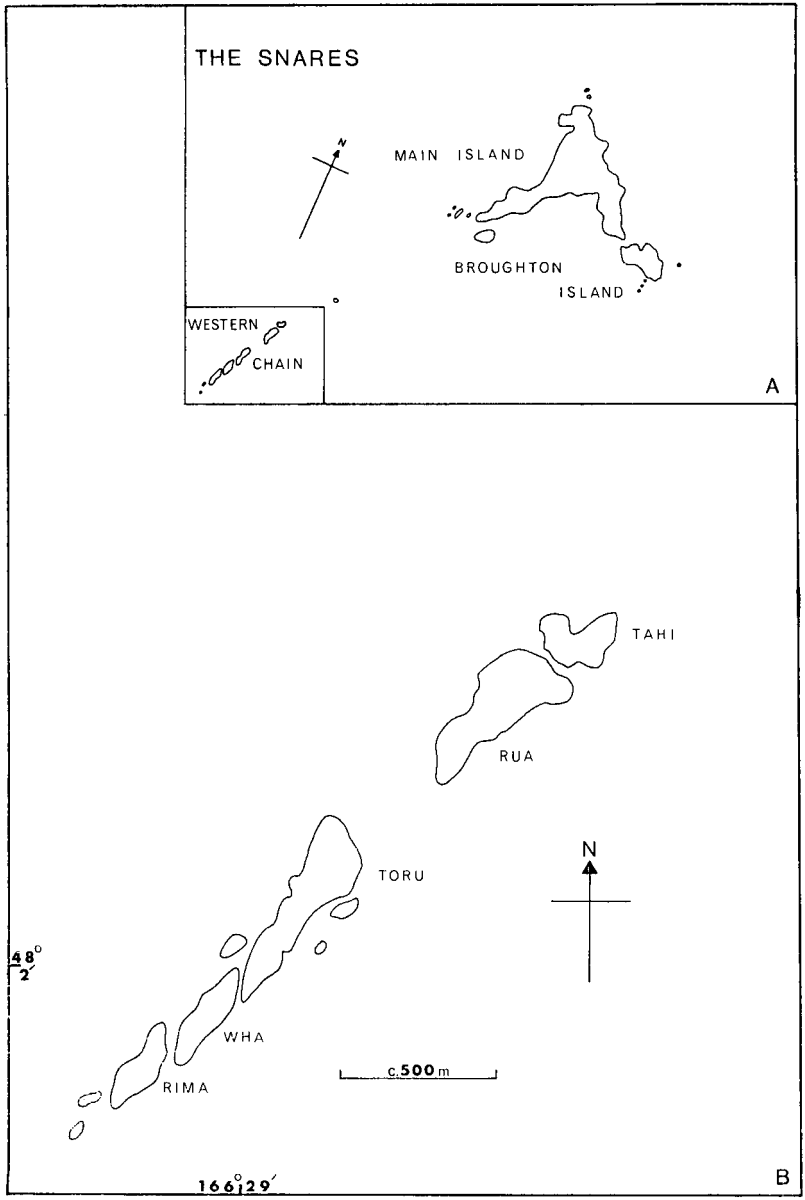

FIGURE 1 — The Snares Islands, New Zealand.
A. The Snares Islands, inset = Western Chain.
B. The Western Chain.

by Dawson and Singleton in 1964 (Dawson 1964), who confirmed the breeding of Cape Pigeons on this islet. Fleming & Baker (1973), after their landing on Toru in 1972, summarised the species breeding in the islets as follows: Snares Crested Penguins on Toru but not Tahi and Rua; Salvin's Mollymawks on Toru, Wha and Rima but not Tahi and Rua; Cape Pigeons on Toru, but not Tahi and Rua. They confirmed the breeding of the Fulmar Prion on Toru, originally proposed and queried by Mathews & Iredale (1913).

On 21 November 1976 the five members of the 1976-1977 University of Canterbury Snares Islands expedition (J. W. Early, G. D. Fenwick, D. S. Horning, P. M. Sagar and J. L. Woods) spent eight hours on Rima Islet. Observations made by Dr D. S. Horning on Wha Islet also on this date are included in this paper.

RESULTS AND DISCUSSION

SNARES CRESTED PENGUIN:

Adults and occupied nests were counted. However, because of the difficulty in locating nests this number is probably an underestimate. This species nested solitarily in caverns under large boulders, which were inaccessible to Salvin's Mollymawks and sheltered from prevailing winds. Nests were frequently found by sighting an unoccupied bird standing on a rock above the nest-site. Nests were formed from small quantities of granite chips (10-20 mm diameter) and granite dust.

The contents of occupied nests were examined by causing the sitting bird to rise. Sixty birds were incubating eggs, while 14 were on empty nests. Fleming & Baker (1973), on 2 December 1972, found incubating birds. Their observations represented a breeding season delay of at least 26 days over those birds breeding on the Snares Main Island (Warham 1974). My observations represent a breeding season delay of at least 15 days and, therefore, do not support the alternative explanation suggested by Warham (1974), that inclement weather before 2 December 1972 destroyed the eggs and/or chicks and that the remaining birds were sitting on infertile eggs. Warham also noted differences in chick development between Main Island colonies that he suggested could arise through different laying dates and/or the effects of varying degrees of exposure.

No breeding Snares Crested Penguins were seen on Wha Islet.

SALVIN'S MOLLYMAWK:

On Rima I counted 706 adults, 122 live chicks, 13 dead chicks and 9 eggs. Adults not at nests congregated in the more sheltered areas while nests tended to be in the most sheltered areas such as under rock overhangs and in crevices. Nest materials were weathered granite and guano. Two live adults were found caught between rocks by the wing or tarsus. Both were freed but were in such a weak state that they probably did not survive. How the birds became trapped

is not known. However, this situation probably represents a minor mortality factor in this species.

Chicks were estimated to be from 3 to 45 days old; all were in slate-grey down and being guarded by an adult. Five eggs were being incubated. This agrees well with the known breeding cycle of the same subspecies on the Bounty Islands (47°43'S, 179°05'E). Oliver (1955) reported that Falla's expedition to the Bounty Islands found pipped eggs and newly hatched young on 10 November 1950.

Eight eggs were measured on Rima and ranged from 96.1-109.0 x 65.2-68.6 mm with a mean of 102.6 ± 4.10 x 66.5 ± 1.00 mm.

A dead chick was collected and 837 ticks *(Ixodes ?uriae)* taken from it. Johnstone, Milledge & Dorward (1975) recorded heavy infestations of *Ixodes auritulus* on White-capped Mollymawk *(Diomedea cauta cauta)* chicks at Albatross Island (40°22'S, 144°40'E) and considered these to be a factor affecting chick mortality. These data support their consideration.

Salvin's Mollymawks were not found breeding on Wha.

The excess number of adults (706) over number of occupied nests (144 including those with dead chicks) indicates that a large proportion of the population had either failed to breed or were non-breeders. Fleming & Baker (1973) estimated that over 1000 pairs nest on the Western Chain. They saw " some hundreds on the SE side of Toru " and " 200 were visible on an air photo of Rima and the total population must exceed a thousand nests." No estimate was given for the number of birds they saw on Wha. However, Dr Horning's observations suggest that they would not have been breeding.

Taking egg and chick losses into account, not more than 200 pairs nest on Rima Islet. A careful count of the occupied nests on Toru is required before the total population is known accurately.

SNARES CAPE PIGEONS:

The numbers of this species breeding on Rima were too great to be counted in the time available. Nests, in crevices and under rock overhangs, were made of weathered granite and granite chips. Birds were continually visiting and leaving nest-sites while large flocks fed inshore.

Twenty eggs were measured and ranged from 57.5-66.5 x 40.4-44.6 mm with a mean of 60.6 ± 2.14 x 42.5 ± 1.08 mm.

Large concentrations were breeding on Wha.

FULMAR PRION:

On Rima nests were found in the NW and NE areas of the islet. Here large rocks formed a jumble over the solid rock foundations. Nests were deep under these rocks in an area inaccessible to both

Snares Crested Penguins and Salvin's Mollymawks. Nests were shallow scrapes in granite debris, occasionally lined with penguin feathers. Unoccupied birds were seen sitting on the rocks above the nest sites in both areas. Large flocks were feeding close inshore and there was movement from the flocks to the breeding areas.

Thirteen eggs were measured and ranged from 44.2-48.6 x 30.7-34.0 mm with a mean of 46.1 ± 1.14 x 32.9 ± 1.04 mm. This subspecies is recorded as breeding on Bounty Island (Oliver 1955).

No Fulmar Prions were observed on Wha.

OTHER SPECIES:

Five other species were recorded on, or flying over, the Western Chain. The skull of a Broad-billed Prion *(Pachyptila vittata)* was found on Rima; its condition indicated it had been preyed upon. Four Black Shags *(Phalacrocorax carbo)* were flushed from Rima at our approach. They flew NE along the Western Chain. A Southern Skua *(Catharacta lonnbergi)* was seen feeding on a carcass on Wha. It is surprising that more of this species were not recorded as Fulmar Prions would appear to be a readily accessible prey. Two Red-billed Gulls *(Larus novaehollandiae)* were seen on a rock platform just above mean high water on Rima. Finally, an Antarctic Tern *(Sterna vittata)* was seen flying over Rima.

CONCLUSIONS

The combined observations of Fleming & Baker (1973) plus those of this paper indicate that Snares Crested Penguins breed on Rua, Toru and Rima Islets; Salvin's Mollymawks breed on Toru and Rima Islets; Cape Pigeons breed on Tahi, Rua, Toru, Wha and Rima Islets and Fulmar Prions breed on Toru and Rima Islets.

; The precise delay in breeding of Snares Crested Penguins on the Western Chain over those on the Snares Main Island has yet to be determined. The total population of breeding Salvin's Mollymawks on the Western Chain has yet to be determined accurately.

ACKNOWLEDGEMENTS

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CORRIGENDUM

Due to a proof-reading lapse, a " fun " title for the review on page 144 of *Notornis* 24 (2), June 1977, appears as the true title of the volume reported on. " Wishbones for Wetmore " would be a librarian's nightmare ! We regret any confusion.