

THE BIRDS OF SEYMOUR ISLAND, ANTARCTICA

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Resumen. – Las aves de la Isla Seymour, Antártida. – Durante Enero–Febrero de 2000, obtuvimos información sobre la abundancia y distribución de las aves marinas de la isla Seymour, Antártida. Seis especies nidifican en el área: Pingüino de Adelia (*Pygoscelis adeliae*; 28,255 parejas), Petrel de Wilson (*Oceanites oceanicus*; 22), Skua Pardo (*Catharacta antarctica*; 30), Skua Polar del Sur (*C. macormicki*; 33), Gaviota Cocinera (*Larus dominicanus*; 296) y Gaviotín Antártico (*Sterna vittata*; 107). Además, fueron registradas en la isla cinco especies no nidificantes: Pingüino Emperador (*Aptenodytes forsteri*), Pingüino Papúa (*P. papua*), Petrel Gigante del Sur (*Macronectes giganteus*), Cormorán Antártico (*Phalacrocorax bransfieldensis*) y Gaviotín Ártico (*S. paradisea*). Los datos son comparados con los dados por otros autores. El área investigada es importante desde el punto de vista ambiental debido a las poblaciones de aves marinas que nidifican en la isla y en áreas cercanas. Esta es la primera investigación completa acerca de las aves que se reproducen en la isla Seymour y provee información básica para futuros trabajos en el área.

Abstract. – During January–February 2000, we obtained information on the abundance and distribution of seabirds in Seymour Island, Antarctica. Six species breed in this area: Adélie Penguin (*Pygoscelis adeliae*; 28,255 pairs), Wilson's Storm-petrel (*Oceanites oceanicus*; 22), Brown Skua (*Catharacta antarctica*; 30), South Polar Skua (*C. macormicki*; 33), Kelp Gull (*Larus dominicanus*; 296) and Antarctic Tern (*Sterna vittata*; 107). In addition, five non-breeding species were recorded in the island: Emperor Penguin (*Aptenodytes forsteri*), Gentoo Penguin (*P. papua*), Southern Giant Petrel (*Macronectes giganteus*), Antarctic Cormorant (*Phalacrocorax bransfieldensis*) and Arctic Tern (*S. paradisea*). The data are compared with those reported by others authors. The surveyed area is important from an environmental view point due to the seabirds populations which breed in the island and the surrounding area. This is the first complete survey of breeding birds in the Seymour island and it provides an useful baseline information for future works in this area. *Accepted 28 May 2002.*

Key words: Seabird, breeding population, Seymour island, Antarctica.

INTRODUCTION

Birds occurring in south polar regions have attracted much attention for long due to their importance in the functioning of the marine Antarctic ecosystem. The great abundance of these few species makes them play a significant role in the economy of energy of the Southern Ocean (Croxall 1984).

From the 80's, several studies pointed out the occurrence of large fluctuations in seabird populations in Antarctica and the Southern Ocean, stressing the need for monitoring studies aimed to allow the management and protection of the living resources (e.g., Croxall *et al.* 1981, Jouventin & Weimerskirch 1990, Woehler 1993). However, with the exception of penguins (see Croxall & Kirkwood 1979,

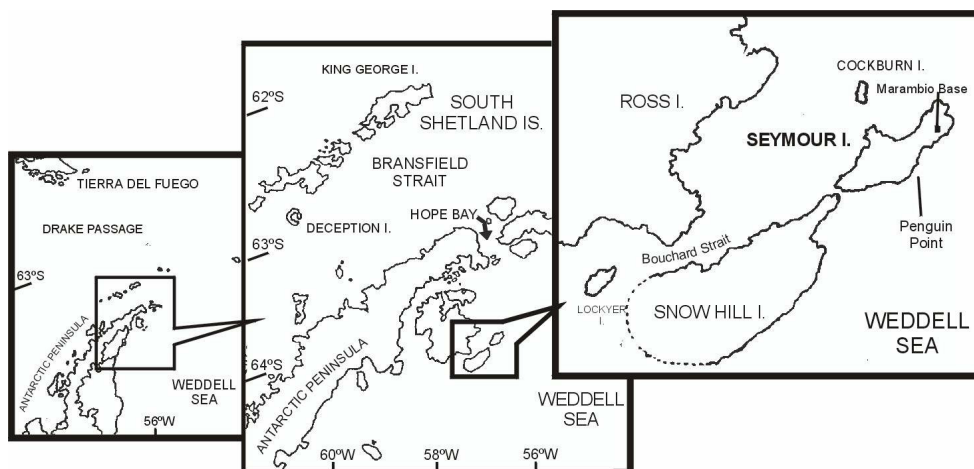


FIG. 1. Location of Seymour Island in the Antarctic peninsula.

Woehler 1993), the database on the breeding distribution of Antarctic seabirds is very poor (Croxall *et al.* 1995). As a consequence of this situation, the Bird Biology Subcommittee of the Scientific Committee on Antarctic Research (SCAR-BBS) is encouraging the documentation and publication of available data on distribution and abundance of Antarctic seabirds.

The northeastern part of the Antarctic peninsula constitutes an important breeding area for seabirds, and particularly for penguin populations (Elliot *et al.* 1978, Croxall & Kirwood 1979, Woehler & Croxall 1997). Several detailed studies were conducted at Hope Bay (e.g., Cordier *et al.* 1983a, 1983b, 1983c; Coria & Montalti 1993). However, for Seymour Island, the earlier information was provided by Andersson (1905). The only available quantitative data for Adélie Penguin (*Pygoscelis adeliae*) populations, the main species reproducing on this island, was provided by Myrcha *et al.* (1987). There are, however, no recent published records of the avifauna of Seymour Island.

The aim of this work is to assess the breeding population size and distribution of

seabird colonies as well as the non-breeding species at Seymour Island.

METHODS

This study was carried out at Seymour Island (64°14'S, 56°43'W) where the Marambio Base (Argentinean Base) is situated (Fig. 1). The island, which integrates part of the James Ross archipelago, is situated 60 km to the east of the northern extreme of the Antarctic Peninsula (Fig. 1). We conducted our study from 18 January to 6 February 2000. Seymour Island (approximately 100 km²) has an extensive coast with sandy beaches. The northern part of the island mainly consists of lower Tertiary (Eocene) sedimentary rocks, most of them accumulated in estuarine and associated paleoenvironments. Its southern part shows lower Tertiary (Paleogene) and upper Cretaceous (Maastrichtian) sedimentary rocks of continental and marine origin, including the Cretaceous/Tertiary boundary settled in marine rocks. These rocks are easily eroded by water. Seasonal water-streams have cut the entire island in a dense net of valleys and ravines deeply penetrating the substrate. The

sandy-mud composition of the substrate also causes the loose distribution of breeding bird species. Most of the island possesses an ice-free area inhabited by an important bird population during the summer (Rinaldi *et al.* 1978).

We surveyed the entire coastal area on foot and by aerial censuses. The aerial censuses were performed from an helicopter (in areas where it was difficult to access) at a height of 250 feet and a constant velocity of 60 knots. Breeding population size and location of the breeding colonies were determined. The census methods used were direct counts of adult birds and/or active nests.

In the case of Adélie Penguin, censuses dealt only with chicks counted during the crèche period (error ± 10 to 15% coded C3, Croxall & Kirwood 1979). Penguins groups not exceeding 500 chicks were counted twice, larger ones on the basis of triple counting, and those exceeding 1000 chicks on the basis of four counts. The mean values of these counts were then considered the actual number of chicks.

Wilson's Storm-petrel (*Oceanites oceanicus*) breeding population was estimated by nest-cavity count. Numbers of breeding South Polar Skuas (*Catharacta maccormicki*), Brown Skuas (*C. antarctica*), and Kelp Gulls (*Larus dominicanus*) were estimated on the basis of occupied nests. The Antarctic Tern (*Sterna vittata*) population was estimated by adult counts over the reproduction sites (error ± 10 to 15% coded N3 of Croxall & Kirwood 1979).

RESULTS AND DISCUSSION

At the study area, five breeding flying birds species and one penguin species were recorded: Adélie Penguin, Wilson's Storm-petrel, South Polar Skua, Brown Skua, Kelp Gull and Antarctic Tern.

In addition five non breeding species

were recorded at the zone: Emperor Penguin (*Aptenodytes forsteri*), Gentoo Penguin (*Pygoscelis papua*), Southern Giant Petrel (*Macronectes giganteus*), Antarctic Cormorant (*Phalacrocorax bransfieldensis*), and Arctic Tern (*S. paradisea*).

Breeding species

Adélie Penguin. The colony is located on the southeast coast of the island (Penguin Point, Fig. 1). The geomorphological structure of the area may constitute one of the factors causing the division of this rockery into a relatively high number of small breeding groups. A total of 20,061 chicks were counted, constituting the most abundant breeding species on Seymour Island.

Adélie Penguin reproductive success in the Hope Bay area averaged 0.71 chick per pairs during the last three breeding seasons (1997–1999) (unpubl.). Taking into account this average, the number of breeding pairs on Seymour Island would be in the order of 28,255 pairs. This number is higher than that of 21,954 pairs suggested by Myrcha *et al.* (1987).

Wilson's Storm-petrel. An estimated number of 22 pairs of Wilson's Storm-petrels bred on Seymour Island. Obviously, the total population was underestimated due to their nocturnal activity patterns, but the presence of only a few suitable sites for nesting explains such a low number of breeding pairs.

South Polar and Brown skuas. A total of 33 South Polar Skuas and 30 Brown Skuas nests were counted. All nests were near the penguin colony. Only one non-breeding group (club) (12 individuals) was recorded in this area and non breeding mixed pairs were recorded like in South Shetland Islands (Reinhardt *et al.* 1997).

Kelp Gull. An estimated number of 296 pairs bred on Seymour Island. This estimation

resulted from counts of nests and adults in the four principal colonies of the island. A total of 12 breeding groups were found. The mean number of nests per group was 25 (range 10–96), all of them situated in the eastern part of the island, north of Penguin Point.

Antarctic Tern. An estimated number of 107 (\pm 10 to 15%) pairs bred on the island. The breeding groups ($n = 14$) were distributed both in the inner part and coast of Seymour Island.

Non-breeding species

One young Emperor Penguin, born the year before, was recorded in the surroundings of the Adélie Penguin colony. Myrcha *et al.* (1987) did not record this species for the island, but its presence is not strange considering that Coria & Montalti (2000) found the most northern breeding colony of this species at Snow Hill Island, close to Seymour Island (Fig. 1).

Only one Gentoo Penguin was recorded in the northern coast of the island. Myrcha *et al.* (1987) did not mention this species as visitor and, according to them and Croxall & Kirwood (1979), we discard the possibility of considering Gentoo Penguins as breeding on Seymour Islands.

The Southern Giant Petrel was observed frequently, but not as a breeding species on Seymour Island. We believe that this species should be breeding on nearby islands.

Large number of Antarctic Cormorants were observed flying near the coast of Seymour Island. The species is breeding on Cockburn Island (del Valle R. pers. com.) (Fig. 1).

We observed groups of Arctic Terns together with Antarctic Terns feeding at sea close to the coast.

The Pale-faced Sheathbill (*Chionis alba*) was frequently observed in the past near the Marambio Base (pers. obs.), but was not regis-

tered during the study period. The species is known to feed on organic wastes which constitute their main food sources (Burger 1996). Their current absence from Seymour Island could be due to the fact that organic wastes are not thrown any more at sea as in the past, but transported to the continent. On the other hand, according to Myrcha *et al.* (1987), the lack of suitable breeding places is one of the principal reasons for which this species is not breeding at the island.

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