

DISTRIBUTION AND ABUNDANCE OF BIRDS IN THE ERRERA CHANNEL, ANTARCTIC PENINSULA, DURING THE 1992/93 BREEDING SEASON

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SUMMARY

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During the 1992/93 breeding season we surveyed the distribution and abundance of breeding birds in the ice-free areas of Errera Channel as part of a monitoring plan to assess the potential impacts of tourist activity in Antarctica. The survey included Cuverville, Danco, Orne, and Rongé Islands and Spigot Peak. We recorded the following species as breeders: Gentoo Penguin *Pygoscelis papua* (7885 breeding pairs), Chinstrap Penguin *P. antarctica* (2875), Pintado Petrel *Daption capense* (8), Wilson's Storm Petrel *Oceanites oceanicus* (50), Imperial Cormorant *Phalacrocorax atriceps* (206), Kelp Gull *Larus dominicanus* (82), skuas *Catharacta* spp. (81), Antarctic Tern *Sterna vittata* (20), and Greater Sheathbill *Chionis alba* (12).

INTRODUCTION

In 1991 the Instituto Antártico Argentino (Argentina) and the Scott Polar Research Institute (United Kingdom) began a joint monitoring study to assess the potential impacts of tourist activity in Antarctica (Stonehouse 1992, Acero & Aguirre 1994). Errera Channel (Fig. 1) is an area of outstanding scenery and biological diversity. As such, it is one of the most-visited tourist attractions in the Antarctic Peninsula region. Cuverville Island in the Errera Channel was one of the five most-visited tourist landing sites in the 1991/92 and 1992/93 seasons (Anon. 1994). In the 1992/93 season Cuverville Island received 35 visits from nine ships, landing c. 2500 passengers (Stonehouse 1993). Given the high degree of tourist interest in this area, Errera Channel, and particularly Cuverville Island, was selected as a monitoring site for the 1992/93 field season. Our research into the potential impacts of tourist activities on the environment included three stages: environmental monitoring and tourism activity analysis; theoretical guidelines (hypotheses) formulation and testing; and preparation of management plans and codes of conduct (Acero & Aguirre 1994). The first stage, environmental monitoring, includes a survey of bird populations at the ice-free areas

of Errera Channel. We visited all the ice-free areas of Errera Channel including Cuverville, Danco, Orne and Rongé Islands and Spigot Peak on the Antarctic Peninsula between 1 December 1992 and 10 January 1993 (Fig. 1). Here we report on the distribution and abundance of bird populations in the study area as a part of the environmental baseline study.

METHODS

The abundance and distribution of all the breeding avian species were recorded. At penguin colonies, breeding groups were mapped and nests counted. At Cuverville Island two observers counted each breeding group independently and averaged the counts. No counts differed by more than 5%, and we therefore assumed that the surveys at the other sites were done with similar accuracy. For all the nonpenguin species, nests containing eggs or chicks were plotted on a map. South Polar Skuas *Catharacta maccormicki* were not differentiated from Subantarctic Skuas *C. antarctica*. The penguin population of Cuverville Island was surveyed on 24 December 1992, and populations of flying birds were surveyed between 5 December 1992 and 5 January 1993. Danco

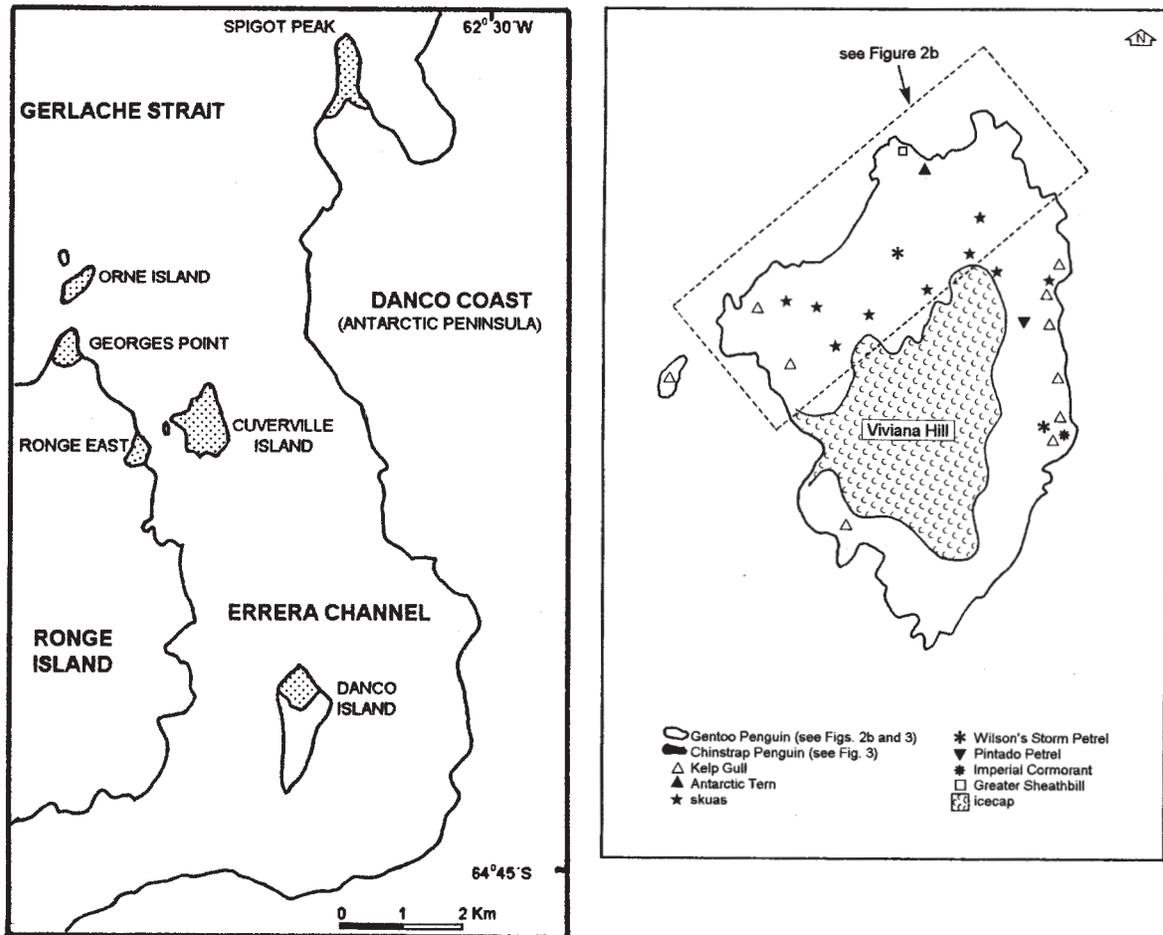


Figure 1. Errera Channel area showing surveyed (shaded) areas in the 1922/93 season.

Island was visited on 31 December 1992; Rongé East, Rongé Island on 29 December 1992; Georges Point, Rongé Island and Orne Island on 7 January 1993 and Spigot Peak on 8 January 1993.

RESULTS

Cuverville Island

On Cuverville Island (64° 41'S, 62° 38'W, Fig. 2a,b) we recorded 4294 pairs of Gentoo Penguins *Pygoscelis papua* breeding in two colonies at the north coast, 2739 pairs in the northeast (NE) colony and 1555 pairs in the northwest (NW) colony. At the NE colony we identified

Figure 2a. Flying bird breeding groups at Cuverville Island in the 1992/93 field season.

50 breeding groups and 57 solitary nests, at the NW colony these figures were 33 and 18, respectively. Three nests with chicks were found on the east coast inside an Imperial or Blue-eyed Cormorant *Phalacrocorax atriceps* colony. No Chinstrap Penguins *Pygoscelis antarctica* were found breeding at Cuverville Island, although several individuals were seen at the beach in January. On the east coast we found a colony of Imperial Cormorants with 128 nests, most containing two or three chicks. Fifty-four Kelp Gull *Larus dominicanus* breeding pairs and 19 old nests without signs of reproductive activity were recorded. Most (45) of the Kelp Gull nests were located on the east coast. Sixty-four skua *Catharacta* spp. nests were found, 10 associated with the NE Gentoo Penguin colony, 11 with the NW Gentoo



Figure 2b. Gentoo Penguin breeding groups at Cuverville Island in the 1992/93 field season. Symbols as in Fig. 2a.

Penguin colony, 41 at the top of Viviana Hill near a small ice cap, and two associated with a group of Kelp Gull nests. A small breeding group of Antarctic Terns *Sterna vittata* was present at the NE Gentoo Penguin colony. Only five Greater Sheathbill *Chionis alba* nests were found, three at the Imperial Cormorant colony, one

at the NE Gentoo Penguin colony and one associated with a group of Kelp Gull nests. Although Pintado or Cape Petrels *Daption capense* were frequently seen, only four nests could be located by the use of binoculars on the eastern side of Viviana Hill on a steep cliff. Two Wilson's Storm Petrel *Oceanites oceanicus* colonies were recorded: 25 nests on the northern slope of Viviana Hill between Gentoo Penguin colonies and 10 nests near the Imperial Cormorant colony. At Cuverville Island the regular nonbreeding presence of Adélie Penguins *P. adeliae*, Southern Giant Petrel *Macronectes giganteus*, Antarctic Fulmar *Fulmarus glacialis* and Snow Petrel *Pagodroma nivea* were recorded.

Danco Island

On Danco Island (64°44'S, 62°36'W, Fig. 3) we recorded 1573 Gentoo Penguin breeding pairs (33 breeding groups and 53 solitary breeders) in a single colony on the north coast, a few metres south of an abandoned British hut ("O" Base); nine Kelp Gull nests on the north coast, three of them on a coastal moraine, four associated with the hut and two at the Gentoo Penguin colony; a Greater Sheathbill nest on an abandoned coal depot at the hut and four skua nests among Gentoo Penguins.

Rongé Island

At Georges Point (64°40'S, 62°39'W, Fig. 3) on Rongé Island we counted 1631 Gentoo Penguin pairs in 29 groups and six solitary nests; 447 Chinstrap Penguin pairs in 10 groups and two solitary nests; four skua nests, two among Gentoo Penguins, one among Chinstrap Penguins and one associated with three Imperial Cormorant nests; one Greater Sheathbill nest among Gentoo Penguins; five Wilson's Storm Petrel nests (probably more were present) and three Imperial Cormorant nests on the northern coast of Georges Point.

At the northeast point (Rongé East, 64°41'S, 62°39'W, Fig. 3) of Rongé Island we recorded 384 Gentoo Penguin pairs in 10 groups and 18 solitary nests; 11 Kelp Gull nests, nine among Gentoo Penguins and two among Antarctic Terns; 17 Antarctic Tern nests on a lateral moraine; three Skua nests among Gentoo Penguins; and one Greater Sheathbill nest near a Gentoo Penguin colony.

Orne Island

On Orne Island (64°39'S, 62°40'W, Fig. 3) and a nearby small islet we recorded 521 Chinstrap Penguin pairs in

16 groups (one mixed with an Imperial Cormorant colony on the north coast; six skua nests, three of them among Chinstrap Penguins and three at the top of the Island; two Greater Sheathbill nests placed at the north coast near Chinstrap Penguins breeding groups; and 28 Imperial Cormorant nests on the NW coast.

Spigot Peak

At Spigot Peak (Danco Coast, Antarctic Peninsula, $64^{\circ}38'S$, $62^{\circ}34'W$, Fig. 3) we recorded 1907 Chinstrap Penguin pairs in three colonies, 206 in six breeding groups at the Northeast coast of the Peak, 901 in three large breeding groups at the top of the Peak and 800 on the southwest coast. On the northeast coast of the Peak we recorded 47 Imperial Cormorant nests in a small colony mixed with Chinstrap Penguins; four Pintado Petrel nests; two Greater Sheathbill nests among Chinstrap Penguins; eight Kelp Gull nests in coastal outcrops; and a small colony (less than 10 nests) of Wilson's Storm Petrels.

In summary, within the Errera Channel we recorded eight breeding taxa: Gentoo Penguins (7885 pairs), Chinstrap Penguins (2875), Kelp Gulls (82), Antarctic Terns (20), skuas (81), Wilson's Storm Petrels (50), Pintado Petrels (8), Imperial Cormorants (8), and Greater Sheathbills (12), making a total of 11 219 breeding pairs.

DISCUSSION

The Gentoo and Chinstrap Penguin breeding populations within the Errera Channel have varied significantly during the last two decades (Table 1). However, taking into account the variety of methods and times of year associated with surveys the interpretation of these changes is not clear. The Cuverville Island Chinstrap Penguin colony is the only one which has disappeared (Table 1); 37 nests were recorded in 1971 (Croxall & Kirkwood 1979), three chicks in 1986 (Poncet & Poncet 1987), but no nests were recorded in the 1987 and 1992 surveys. However, no recent counts are available from

early in the season; therefore, small numbers may still breed, albeit unsuccessfully. The record of 2535 nests reported by M.L. Tasker for the 1988 season (in Woehler 1993) might be a locality error or a misidentification.

The Errera Channel area holds a diverse bird community including more than 12% of the Antarctic Peninsula and South Shetland Islands' Gentoo Penguin breeding population (about 63 500 breeding pairs, Woehler 1993). The area also contains several other valuable attributes,

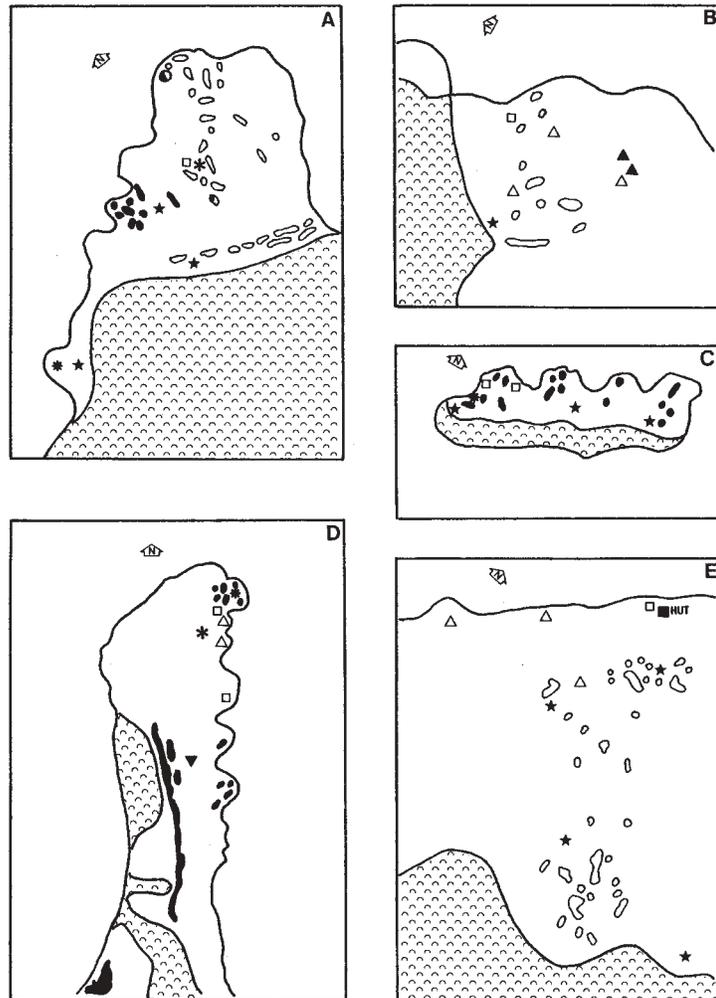


Figure 3. Flying bird and penguin breeding groups at A) Georges Point, Rongé Island; B) Rongé East, Rongé Island; C) Orne Island; D) Spigot Peak, Antarctic Peninsula and E) Danco Island, in the 1992/93 field season. Symbols as in Fig. 2a.

TABLE 1

GENTOO AND CHINSTRAP PENGUIN BREEDING POPULATION SURVEYS IN THE ERRERA CHANNEL AREA. FOR EACH LOCALITY THE NUMBER OF BREEDING PAIRS, NATURE AND ACCURACY OF THE COUNT AS CODED BY THE AUTHOR OF THE SURVEY AND THE YEAR THE DATA WERE COLLECTED ARE GIVEN

Locality	Gentoo Penguin			Chinstrap Penguin		
	Breeding pairs		Date	Breeding pairs		Date
Cuverville Island	1490	N3	1971	37	N3	1971
	3700	C3	1986	3	C1	1986
	3200	N1	1988	0		1987
	4294	N1	24 Dec 92	0		1992
Danco Island	350	A4	1962/64			
	229	N3	1971			
	800	C1	1986			
	1573	N1	31 Dec 92			
Orne Island				340	N5	1985
				860	N3	1987
				521	N1	7 Jan 93
Georges Pt. (Rongé Is.)				300	N3/N4	1984
	1100	N3	1988	600	N3	1988
	1631	N1	7 Jan 93	447	N1	7 Jan 93
Rongé East (Rongé Is.)	205	N3	1971			
	214	N1	1986			
	384	N1	29 Dec 92			
Spigot Peak (Danco Coast)	358	N3	1971			
				3000 1907	N4/N5 N1	1983 8 Jan 93

Sources: 1962/1964/1971= Croxall & Kirkwood (1979);
 1983 to 1987 = Poncet & Poncet 1987;
 1988 = Woehler (1993);
 1992/1993 = this paper.

including a well-developed plant community and many species of marine mammals (pers. obs.). Increasing levels of tourist visitations may have negative impacts on the area, particularly in the absence of any existing management. We hope that the information given here will serve as a valuable baseline.

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