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First-known record of breeding for the Black Skimmer (*Rynchops niger*) in a mixed colony in Ibicuí River, Rio Grande do Sul state, southern Brazil

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Abstract

There are few records of breeding for the Black Skimmer (*Rynchops niger*), in Brazil. We obtained the first known record of reproduction by this species in Rio Grande do Sul state, in a mixed colony with the Large-billed Tern (*Phaetusa simplex*), the Yellow-billed Tern (*Sterna superciliaris*), and the Collared Plover (*Charadrius collaris*), occurring in the Ibicuí River, Manoel Viana township. Nesting occurred in three areas of the Ibicuí River, known as Manoel Viana Island, Margem do Meio and Gaivotas Island. Incubation began on 16 October 1998. During two field trips, we measured 36 eggs of the Black Skimmer, 56 of the Yellow-billed Tern, six of the Large-billed Tern and 25 of the Collared Plover. We also banded 31 nestlings of the Black Skimmer, one nestling of the Large-billed Tern, five nestlings of the Collared Plover and 41 nestlings of the Yellow-billed Tern. The nesting period ended at the end of November, except for the Collared Plover, which probably had active nests until the middle of December.

Key words: *Rynchops niger*, *Sterna superciliaris*, *Phaetusa simplex*, *Charadrius collaris*, breeding, mixed-colonies, Rio Grande do Sul state, Brazil

Introduction

There are few published data on the nesting biology of Large-billed Terns, Yellow-billed Terns or Black Skimmers in South America (Krannitz 1989). The Black Skimmer (*Rynchops niger*), is widespread throughout the Americas, inhabiting coastal and inland environments. Frequently, it is seen in small groups when fishing or displaced. According to Belton (1984), in Rio Grande do Sul state, south Brazil, it is common to see groups of Black Skimmers at the oceanic beaches, sandbanks of the Lagoa Mirim and Lagoa do Peixe and, occasionally, in rivers and great large reservoirs.

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According to Murphy (1936), the breeding cycle of the Black Skimmer in South America is influenced by the annual rainfall pattern and the increased water level of the local rivers. In Brazil, there are few reports of their reproduction. Krannitz (1989) and Sick (1997) mentioned breeding occurring in the Amazon. Belton (1984) recorded the species, probably breeders, in sandbanks of the Ibicuí River in 1971, but he did not obtain confirmation of nesting and presented no specific reproductive information in Rio Grande do Sul state. Sick (1997) commented that, with the exception of the Collared Plover (*Charadrius collaris*), it is common to find the Large-billed Tern (*Phaetusa simplex*) and the Yellow-billed Tern (*Sterna superciliaris*), reproducing together with the Black Skimmer in mixed colonies. This was also observed by Krannitz (1989) in Amazonian Brazil.

This paper presents the first known record of reproduction by the Black Skimmer in Rio Grande do Sul state, and provides new information on the poorly known reproductive biology of the Large-billed Tern, the Yellow-billed Tern and the Collared Plover.

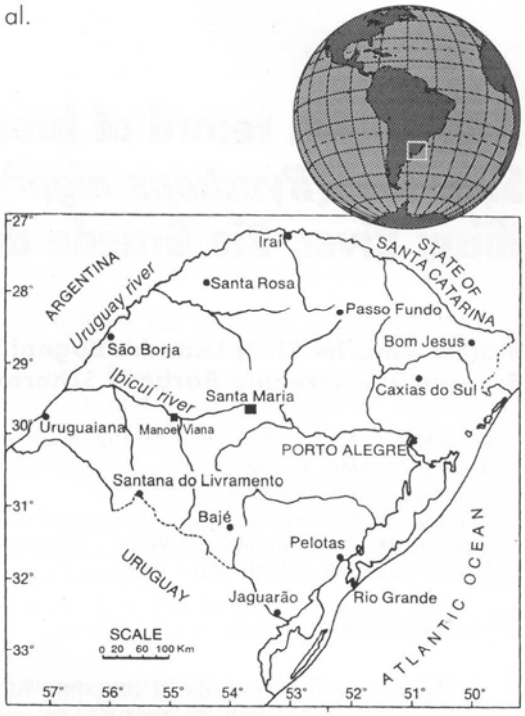

Figure 1 - Location of the study area.

Study Area and Methods

The Ibicuí River runs through the townships of Manoel Viana, Alegrete, Itaqui and Uruguaiana in western Rio Grande do Sul state, emptying into the Uruguay River (Figure 1). In 1998, due to a severe drought, several fluvial islands and extensive bare marginal areas appeared along the Ibicuí River (Figure 2). Nesting occurred in three of these areas: Ilha Manoel Viana (29°35'45" S - 55°29'27" W), Margem do Meio (29°37'16" S - 55°31'27" W) and Ilha das Gaivotas (29°35'02" S - 55° 36'10" W).

On 11 and 21 November, 1998, we collected biometric data from eggs (length, width and mass) and nestlings (length of culmen, tarsus, wing and tail, and body mass). We also banded some of the nestlings with metal tags, provided by CEMAVE/IBAMA. We measured, in the three locations, 36 eggs of the Black Skimmer, 56 eggs of the Yellow-billed Tern, six eggs of the Large-billed Tern and 25 eggs of the Collared Plover (Table 1).

Results and Discussion

The incubation period began on 16 October 1998, when we found the first two nests of the Black Skimmer. On the first trip, we verified the existence of nests of the other three species. On this occasion, the nests contained eggs and/or recently hatched nestlings. On 11 and 21 November the majority of eggs had already hatched.

We also banded 31 nestlings of the Black Skimmer, one nestling of the Large-billed Tern, five nestlings of the Collared Plover and 41 nestlings of the Yellow-billed Tern. The biometric data of the recently hatched nestlings are presented in Table 2.

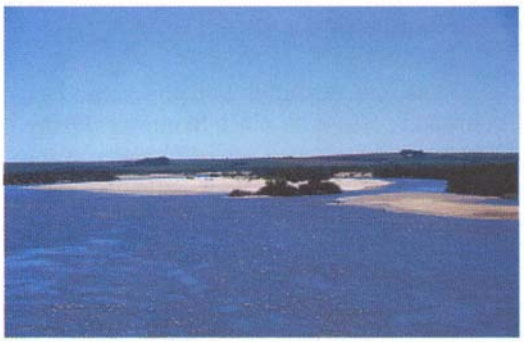

Figure 2 - Fluvial islands in Ibicuí River, Rio Grande do Sul state, Brazil.

Photos: M. A. Efe

Figure 3 - Eggs and nestlings of *Rynchops niger*.

Figure 4 - Egg and nestling of *Sterna superciliaris*.

Figure 5 - Feigning display of *Rynchops niger*.

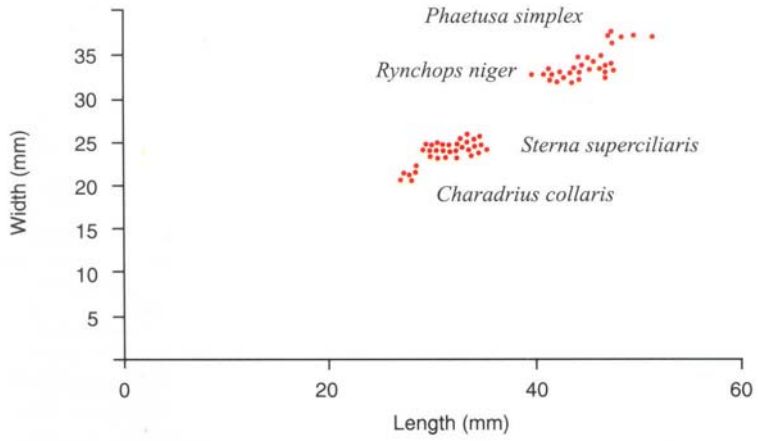

Figure 6 - Dispersion of the measures of the eggs of *Phaetusa simplex*, *Rynchops niger*, *Sterna superciliaris* and *Charadrius collaris*, in Ibicuí River, Rio Grande do Sul state, Brazil, showing the size variation among the different species.

- Black Skimmer

Eggs are beige-coloured with black stains and are placed in a small depression in the sand (Figure 3). According to Sick (1997), each clutch consists of two or three eggs. However, in 16 nests in our study area, we found a range of one to four eggs ($\bar{x}$=3.38 ± 0.96). The recently hatched nestlings had a plumage pattern similar to the egg coloration (Figure 3), were nidifugous, but in the first days of life kept in the nest or close to them. They appeared to be semi-buried in the sand, due to strong winds in the region, blending in well with the substrate. Murphy (1936) described this tendency as characteristic of Charadriiformes.

Erwin (1977), Burger and Gochfeld (1991), Groom (1992) and Sick (1997) assert that it is common for the Black Skimmer to reproduce close to colonies of other species, such as the Large-billed Tern, the Common Tern (*Sterna hirundo*), the Herring Gull (*Larus argentatus*) and the Laughing Gull (*L. atricilla*), species that tend to protect others. Sandbars in the Trombetas River, a tributary of the Amazon, provide nesting sites for terns and skimmers (Krannitz 1989). The mobbing behavior of terns serving to protect the Black Skimmer's eggs and nestlings was also verified in our study (see below).

- Yellow-billed Tern

Eggs and nestlings had the same cryptic color and pattern as Black Skimmer (Figure 4). However, there was a size difference (Table 1; Figure 6). The eggs were placed in small depressions in the sand. Clutch size ranged from one to three eggs ($\bar{x}$=2.18 ± 0.77, n = 38). Adult birds engaged in aggressive behavior, swooping on intruders and calling loudly.

- Large-billed Tern

Shape and coloration of eggs and nestlings were the same as the previous species, but were the largest of all species measured (Table 1; Figure 6). In the study areas, we found two nests with three eggs each. This species engages in aggressive behavior similar to the Yellow-billed Tern

- Collared Plover

Nestlings and eggs similar to the previous species, but smaller (Table 1; Figure 6). Nests were also placed in a small depression in the sand. We found from one to three eggs ($\bar{x}$=2.27 ± 0.9) in the 11 nests studied. This species did not nest close to the others, locating nests in more remote areas,

Table 1. Biometric data of eggs of *Rynchops niger*, *Sterna superciliaris*, *Phaetusa simplex* and *Charadrius collaris* in Rio Ibicuí, Rio Grande do Sul state, Brazil. n = sample size, $\bar{x}$ = mean, sd = standard deviation.

		Eggs					
		length (mm)		width (mm)		mass (g)	
Species	n	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
Rynchops niger	36	44.26	2.17	33.03	0.81	23.44	2.71
Sterna superciliaris	56	31.71	1.63	24.16	0.58	9.59	1.00
Phaetusa simplex		6	48.43	1.63	36.82	0.44	31.33
0.82							
Charadrius collaris	25	27.87	0.58	21.08	0.45	6.48	0.65

Table 2. Biometric data of newly hatched nestlings of *Rynchops niger, Sterna superciliaris* and *Charadrius collaris* in Rio Ibicuí, Rio Grande do Sul state, Brazil. n = sample size, $\bar{x}$ = mean, sd = standard deviation.

		Nestlings							
		beak (mm)		wing (mm)		tarsus (mm)		mass (g)	
Species	n	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
Rynchops niger	3	10.73	0.29	23.43	6.53	14.77	0.85	20.0	2.0
Sterna superciliaris	5	8.12	1.00	18.40	3.50	12.04	1.30	7.60	1.14
Charadrius collaris	1	6.6	–	10.8	–	17.4	–	5.0	–

suggesting that their use of the areas may be more related to habitat availability than the presence of other species.

We recorded some defense behavior by the birds. When noticing our approach, the Large-billed Tern was the first species to take flight towards us, flying low and vocalising loudly. It was joined soon after by the Yellow-billed Tern, with similar behavior. Black Skimmers, in North America, are defended from predators by the more antagonistic Common Terns (Erwin 1979). Last came the shier Black Skimmer, which limited themselves to fly in circles, with passes lose to the researchers. While we collected biometry and banding data on this species, it was common to observe individuals engaging in displays whereby they dove in the direction of the sand and feigned injury (Figure 5), crawling in the sand before they took off again when we approached. This behaviour was also observed by Burger and Gochfeld (1990).

The nesting period for most of the species in the Ibicuí River islands ended at the end of November, except for the Collared Plover, which probably reproduced until the middle of December. The population of the Collared Plover breeding in the Ibicuí River differs from the population studied by Rodrigues and Lopes (1997), where reproduction was recorded for May and June.

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