

Abundance of Common Terns at Punta Rasa, Argentina; a Major Wintering Area

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Abstract.—The Common Tern (*Sterna hirundo*) breeds in North America and migrates to South America at the end of the northern summer. At Punta Rasa (Buenos Aires Province, Argentina) this species is present from November to April. Between December 1995 and March 1996, the peak numbers of 20,000 individuals were recorded in March. These numbers place Punta Rasa as one of the most important wintering sites in South America. The daily pattern of abundance was similar throughout the austral summer with a peak at dusk. Although tidal height did not alter this pattern, it determined the availability of roost sites, constraining the spatial distribution of terns. Received 27 September 2001, accepted 8 February 2002.

Key words.—Abundance, Argentina, Common Tern, Punta Rasa, *Sterna hirundo*, wintering area.

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In North America, the Common Tern (*Sterna hirundo*) breeds from the Atlantic coast to the Rocky Mountains, and is particularly abundant around the Great Lakes (Austin 1953). Reproductive biology and behavior of the Common Tern during its stay in the northern hemisphere, from May to August, have been well studied. In contrast, the ecology of the Common Tern outside the breeding season is almost unknown.

After breeding, the birds migrate to the southern hemisphere. Punta Rasa (Buenos Aires Province, Argentina) lies at the species' southernmost limit in the western hemisphere (Vila *et al.* 1994; Hays *et al.* 1997). In a banding program carried out in Punta Rasa, 480 out of 3,176 birds were individuals recaptured from the east coast of North America, and 250 from Great Gull Island, New York (E. Bremer, unpublished data). These data make Punta Rasa a critical location for the conservation of the North American population.

Common Terns use Punta Rasa as a nocturnal roosting site during the tourist season when thousands of tourists utilize the site for recreation (Hays *et al.* 1997). In this paper, seasonal and daily fluctuations in the abundance of Common Terns during the austral

summer at Punta Rasa are described. Such information is a prerequisite to developing management guidelines for the area that take into consideration the conservation of the Common Tern.

STUDY AREA AND METHODS

The study took place at Punta Rasa, Buenos Aires Province, Argentina (36°18'S, 56°47'W), a sand spit with variable shape and size depending on tidal height (Fig. 1). Located at the confluence of fresh and marine waters, the area presents a great biodiversity. Many authors have recognized the value of this zone as a strategic site to migratory seabirds and shorebirds (Scott and Carbonell 1986; Blanco *et al.* 1988).

We counted birds at three sites within the Punta Rasa area: Playa Punta Rasa (PPR), Playa Las Nutrias (PLN), and Playa Faro (PF) (Fig. 1). At low tide all three sites are available for the terns. At half tide parts of all three are available and all sites are almost completely covered with water at high tide (only some vegetated areas of PLN remain uncovered). High, half and low tides were defined according to the shore breadth available in PLN: high (<60 m), intermediate (60-144 m), and low (>145 m).

At these three sites, 212 counts of Common Terns were carried out: 52 in December, 60 in January, 63 in February, and 37 in March. We estimated the number of terns in large flocks by extrapolating a count of a group of birds to the rest of the flock. We undertook counts between sunrise to sunset, and grouped them into four time periods for the analysis: (1) 07.00-09.00 h, (2) 11.00-13.00 h, (3) 14.00-16.00 h, and (4) 17.00-20.00 h. Two counts were made daily in each of the four time periods. Counts at all three study sites were carried out

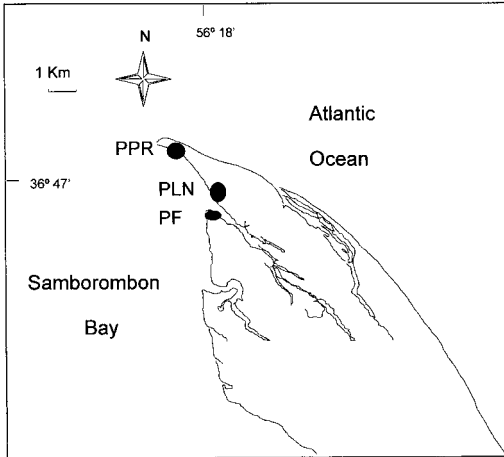


Figure 1. Study sites within Punta Rasa area, Argentina: Playa Punta Rasa (PPR), Playa Las Nutrias (PLN) and Playa Faro (PF).

simultaneously. Counts were not made during rain or on stormy days, or at exceptionally high tides. No counts were made when human disturbance prevented all or parts of the flock from staying at a locality.

The values of the simultaneous counts performed in each sampling site were summed within each time period to provide a measure of the number of Common Terns within the Punta Rasa area. The daily peak count was used as an estimate of the number of Common

Terns at Punta Rasa in order to analyze the seasonal variations. Daily variation in number of the birds was studied separately in each study period (i.e., December, January, February and March).

To assess how shore breadth influences the selection of roosting sites (among PPR, PLN, and PF) we grouped the counts for each sampling site at each period and under three tidal conditions (high, intermediate and low). This analysis was performed on data for January and February, because during these months observations were carried out under all tidal conditions.

RESULTS

The numbers of Common Terns at Punta Rasa ranged from a minimum of 3,000 in February, to a maximum of 20,000 in March. Mean number (\pm SE) of birds was $8,556 \pm 949$ ($N = 8$) in December, $8,277 \pm 1,179$ ($N = 9$) in January, $7,191 \pm 1060$ ($N = 9$) in February and $14,718 \pm 2,337$ ($N = 5$) in March. These values show an increase in the number of individuals in March.

The abundance during the day showed the same pattern in all study periods (Fig. 2). In all cases, tern abundance had diminished by midday, and increased again in the evening. In December, the maximum number of terns was observed at dawn (time period 1)

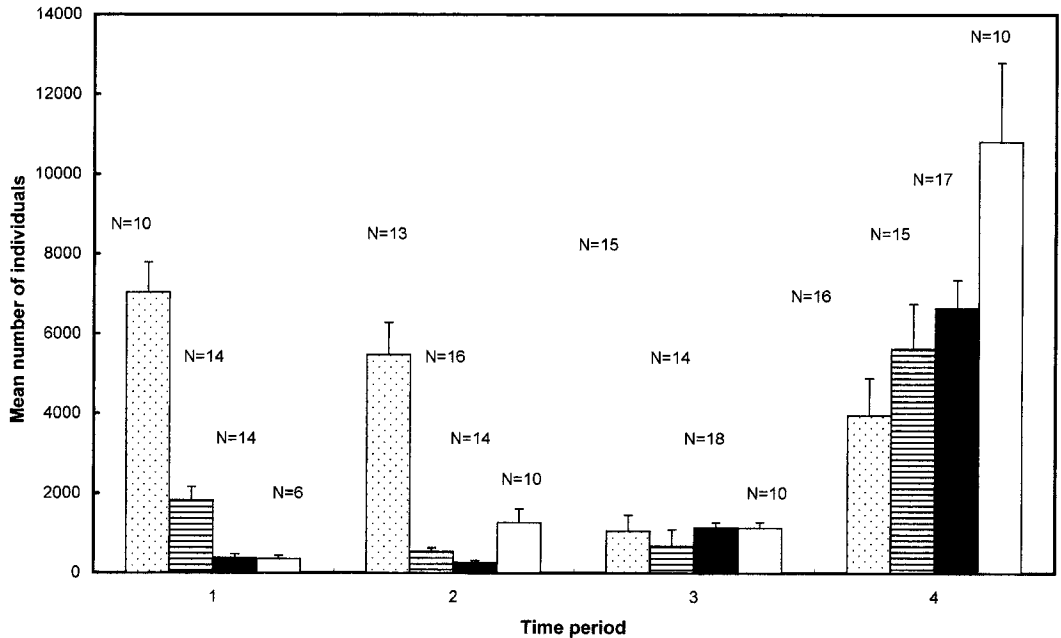


Figure 2. Daily variation in the abundance of Common Terns in Punta Rasa showing the mean (\pm SE) number of individuals present in the four time intervals during December (dotted), January (line shaded), February (black), and March (white).

with mean numbers (\pm SE) of $7,032 \pm 753$ individuals ($N = 10$). In January, February and March, the peak was recorded at dusk (time period 4), with mean numbers (\pm SE) of $5,524 \pm 625$ ($N = 17$), $6,368 \pm 723$ ($N = 16$) and $10,819 \pm 1,978$ ($N = 10$) individuals respectively.

During January and February, the high concentration of birds at dusk (period 4) at Punta Rasa as a whole was independent of the state of the tide (Fig. 3). At this time, terns were mainly concentrated in PPR during high tide; whereas during intermediate tides, they mostly occurred at PF and PPR. However, at low tide, terns were mainly at PF. Relatively few individuals utilized PLN.

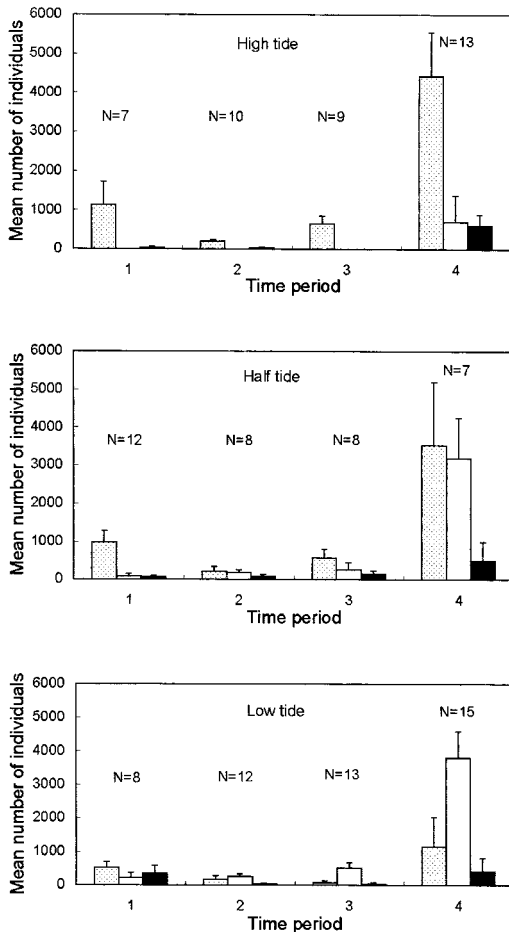


Figure 3. Occupation pattern of the different study sites in Punta Rasa, showing the mean number of individuals (\pm SE) present in PPR (dotted), PF (white) and PLN (black) at high, half and low tide.

DISCUSSION

The number of terns observed during the austral summer at Punta Rasa confirmed that this site is an important non-breeding area for the Common Tern in Argentina. In comparison with numbers recorded elsewhere [Trinidad (Blokpoel *et al.* 1984, 1987; Erwin *et al.* 1986), Guyana (Blokpoel *et al.* 1982), Surinam (Spaans 1978), and Brazil (Harrington *et al.* 1986; Lara Resende 1988)], Punta Rasa is the most important site for this species in South America. Our study underlines the importance of the area for terns during night and day as well.

The different trend observed in December, when peak abundance was recorded in the morning, would indicate that terns spent more time roosting during this month. Perhaps the birds were still arriving in the area from the north and they had not begun their regular schedule of leaving the roost early to feed in the ocean and returning late in the day. In March, terns spent more time fishing, perhaps in order to store enough energy to return to the Northern Hemisphere. Future studies about foraging patterns (feeding areas and duration of foraging trips) should help to address this question.

Tidal height created great variation in shore availability and appeared to constrain the spatial distribution of terns roosting at Punta Rasa. Although PPR offered roost space under all three tidal conditions, terns concentrated in this site only during high tide (when it was the only site available). During low tide, they preferred PF. This preference may be determined by the presence of tourists. PPR was used extensively by bathers and fishermen who parked their vehicles and hauled out their boats on the shore. In contrast, vehicles could not enter PF, which was only occasionally visited by people (Sapoznikow *et al.* 1998). Thus, competition for the use of space between terns and tourists was greatest in PPR. By roosting in PF, terns may be trying to avoid this conflict. Several studies have demonstrated that birds tend to change their roosting site if they are constantly disturbed (Burger 1981; Cayford 1993).

In summary, the movements of Common Terns in Punta Rasa showed a consistent pattern throughout the summer: higher abundance occurring at dusk, fishing departures in the morning, and the return late in the afternoon. Tides did not affect this temporal pattern. Punta Rasa appears to be the site with largest concentrations of terns in South America. Therefore, it is critical to implement management strategies, which may contribute to the conservation of an area of great importance for the Common Terns outside of the breeding season.

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LITERATURE CITED

- Austin, O. L. 1953. The migration of the Common Tern (*Sterna hirundo*) in the Western Hemisphere. *Bird Banding* 24: 39-55.
- Blanco D. E., G. D. Pugnali and H. Rodríguez Goñi. 1988. Punta Rasa: su importancia en la conservación de las aves migratorias. Informe Inédito. Asociación Ornitológica del Plata. Buenos Aires.
- Blokpoel, H., R. D. Morris and P. Trull. 1982. Winter observations of Common Terns in Trinidad, Guyana and Suriname. *Colonial Waterbirds* 5: 144-147.
- Blokpoel, H., R. D. Morris and G. D. Tessier. 1984. Field investigations of the biology of Common Terns wintering in Trinidad. *Journal of Field Ornithology* 55: 424-434.
- Blokpoel, H., G. D. Tessier and A. Harfenist. 1987. Distribution during post-breeding dispersal, migration, and overwintering of Common Terns color marked on the lower Great Lakes. *Journal of Field Ornithology* 58: 206-217.
- Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biological Conservation* 21: 231-241.
- Cayford, J. T. 1993. Wader disturbance: a theoretical overview. *Wader Study Group Bulletin* 68: 3-5.
- Erwin, R. M., G. J. Smith and R. B. Clapp. 1986. Winter distribution and oiling of Common Terns in Trinidad: a further look. *Journal of Field Ornithology* 57: 300-308.
- Harrington, B. A., P. de Tarso Zuquim Antas and F. Silva. 1986. Observations of Common Terns in Southern Brazil. 29 April-3 May 1984. *Journal of Field Ornithology* 57: 222-224.
- Hays, H., J. Di Costanzo, G. Cormons, P. de Tarso Zuquim Antas, J. L. X. Do Nascimento, I. De Lima Serrano do Nascimento and R. E. Bremer. 1997. Recoveries of Roseate and Common Terns in South America. *Journal of Field Ornithology* 68: 79-90.
- Lara Resende, S. M. 1988. Nonbreeding strategies of migratory birds at Lagoa do Peixe, Rio Grande do Sul, Brazil. Unpublished M.Sc. dissertation, Cornell University, Ithaca.
- Sapoznikow, A., A. Vila, J. Lopez de Casenave and P. Vuillermoz. *Boletín Técnico* No. 46. Fundación Vida Silvestre Argentina. Buenos Aires.
- Scott, D. A. and M. Carbonell. 1986. *Inventario de humedales de la región Neotropical*. International Wetlands Research Bureau, Slimbridge and Unión Internacional de Conservación de la Naturaleza, Cambridge.
- Spaans, A. L. 1978. Status of terns along the Surinam coast. *Bird Banding* 49: 66-77.
- Vila, A. R., R. E. Bremer and M. S. Beade. 1994. Censos de chorlos y playeros migratorios en la Bahía de Samborombón, provincia de Buenos Aires, Argentina. Informe final. *Boletín Técnico* Fundación Vida Silvestre Argentina No. 22, Buenos Aires.