

PREDATION BY A PEREGRINE FALCON ON COMMON AND ROSEATE TERNS ON BIRD ISLAND

by Ian C. T. Nisbet

Since 1970 I have been studying the breeding colony of Common Terns and Roseate Terns at Bird Island, Marion, Massachusetts. In three previous years (1986, 1989, and 1990) a single Peregrine Falcon has visited the island in early May and killed one or two terns before continuing on spring migration. In 1991, however, a Peregrine took up residence on the island for nearly three weeks and severely disrupted the colony at the time of settlement in May.

I first visited Bird Island on April 27, 1991, with a party of volunteers for the spring cleanup. On that date I saw the remains of one Common Tern that had evidently been killed and dismembered by a Peregrine. On the same day two other visitors found pellets and droppings on the lighthouse, although I did not learn of this until later.

On my next visit, on May 5, I saw a Peregrine perched on the lighthouse balcony and found remains of at least nine Roseate Terns on the balcony and three Common Terns in various places on the island. The lighthouse is about twelve meters high and has been decommissioned since the 1930s. The lantern has been removed, and the glass windows were replaced by plastic during the 1970s; one of the eight plastic windows was missing in 1991. The Peregrine had apparently been perching on the rail of the balcony and had dismembered the Roseate Terns on the rail or the floor of the balcony. It had apparently been roosting inside the plastic enclosure, entering through the missing window and perching on the lantern platform, which was surrounded by droppings and about twenty pellets.

Jennifer Boyce and I visited the island for one to five hours on most days from May 6 to 14, and we monitored the lighthouse by telescope from the mainland at other times. The Peregrine was present daily, perching on the lighthouse rail in the early morning and afternoon, but usually absent from the time when we first flushed it until midafternoon. On each day we found one to four freshly killed terns. Although Common Terns outnumbered Roseates by five or ten to one among the terns present at the island during the day, Roseates comprised twenty-four of thirty-one birds found dead. I speculate that the Roseates were less wary than the Commons in approaching the island, either in the evening to roost or in the morning to explore the nesting area.

The Peregrine thoroughly consumed most of the birds that it killed. We found only one intact carcass, a Roseate Tern apparently dropped from the lighthouse rail. Pellets contained only remains of terns; the only other birds found killed were a Northern Flicker and a Blue Jay, both of which are rare visitors to the island. We did not find all the terns that were killed, because the

Peregrine plucked and ate many birds below the high-water mark. Assuming that it killed about two Roseates and one Common each day from April 26 to May 13, it would have killed about thirty-six Roseates and about eighteen Commons. This would account for about one percent of all the Roseates that nested on the island in 1991 (1738 pairs). Because the birds killed were among the earliest settling on the island, they would have included some of the oldest and highest-quality breeders in the colony. Four bands were found on dead birds or in pellets; three of these had been placed on early-breeding adult Roseates in 1989-1990, while the fourth had been placed on a chick in 1986.

By plumage, the Peregrine appeared to be a subadult bird from an arctic population. Because it was clearly not a local breeder and was causing severe damage to another endangered species, the state Division of Fisheries and Wildlife granted permission to trap it and translocate it. Norman Smith of the Massachusetts Audubon Society attempted unsuccessfully to trap it on May 9, but trapped it on May 14. It was carrying a Danish band and proved to have been banded as a nestling in West Greenland on July 30, 1990. Smith released it at Plum Island later on May 14, and it did not return to Bird Island.

A second Peregrine Falcon was seen perched on the lighthouse balcony on May 10 and 14. Although the two birds were never seen together, the second bird was smaller and darker and easily distinguishable from the first. It may have been a bird that took up residence on the power station at New Bedford, twenty kilometers away, during April 1991. We saw what appeared to be the same bird flying past the island on May 16 and 24, but it did not settle on the lighthouse again, and we found no new kills after May 14.

In ordinary years, Common and Roseate terns settle on the island during the first half of May and start to lay eggs about May 9 and May 17, respectively. By May 14 we would have expected about two hundred pairs of Common Terns to have laid eggs, one thousand or more Common Terns and several hundred Roseates to be present on the island during the day, and two to three thousand Commons and one to two thousand Roseates to be roosting there at night. In 1991 the largest numbers of terns seen at any one time were 120 Common Terns and twenty-five Roseates on May 12. On this and other days at this period, most of the terns that were seen were flying around over the bay or flying high over the island, touching down occasionally for periods of less than a minute and performing only early stages in courtship display. At sunset on May 14 (after the first Peregrine had been removed), the only terns seen were a flock of forty Commons flying low in tight formation toward the east. Simon Perkins and Scott Hecker have reported that at this period (the first half of May), unusually large numbers of both species of terns were present in Vineyard Sound and on the east shore of Martha's Vineyard. As late as May 18 and 19, Perkins saw about two thousand terns at the east end of Martha's Vineyard and one thousand at the west end of Nantucket; more than half of these terns were Roseates.

Evidently, the Peregrine had kept most of the terns that would have settled at Bird Island in this period well away from the area.

The terns settled very rapidly onto Bird Island after May 14. The first Common Terns laid on May 17, and the peak of nest initiation (i.e., laying of the first egg in the clutch) was on May 28. Roseate Terns first laid on May 25, and the peak of nest initiation was about June 3. Common Terns were about eight days later than usual, while Roseates were about seven days later than usual. Intensive trapping of Common Terns produced unexpectedly few old birds (over fifteen years old), and the total number of nests in 1991 was about six percent lower than that in 1990. Hence, it is possible that many of the oldest birds (which ordinarily would have laid before May 14) stayed away from the island altogether in 1991. There was no evidence of a similar shortfall in Roseates, despite the heavy predation on the earliest birds.

The Roseate Tern was listed as a federally endangered species in 1987 because its population in the northeast had become dangerously concentrated into a few colony sites. In 1991, as in other recent years, Bird Island supported about half the North American population. The entire population could be jeopardized by a single predator at this site, as in fact happened in May 1991. Management plans for this population call for contingency plans to deal with severe predation, but it is difficult to foresee and plan for every eventuality. If I had not maintained surveillance of the colony during early May 1991, it could have been severely disrupted before anyone knew that anything had happened.

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