

**Early Stages in Postfledging Dispersal of Common Terns.**—Post-fledging dispersal is an important phase in the lives of birds because it is the period when juveniles learn to forage for themselves and often is a period of significant mortality. This note describes the dispersal of juvenile Common Terns (*Sterna hirundo*) away from the colonies where they were raised and reports three early recoveries of banded juveniles.

Juvenile Common Terns disperse widely in the period after fledging and before southward migration which starts in late August. Banded chicks have been recovered up to 400 km away from the natal colonies in various directions during July and August (Austin, *Bird-Banding*, **23**: 39-54, 1953; Radford, *Bird Study*, **8**: 174-184, 1961; Langham, *Bird Study*, **18**: 155-175, 1971). Family groups usually remain together at this period, and the juveniles are dependent on parental feeding for at least six weeks after fledging. I have seen an adult feeding a juvenile as late as 31 October, the latest date on which I have watched family groups in Massachusetts.

By watching marked chicks of known age in colonies in Massachusetts, I found that juvenile Common Terns usually remain attached to their natal colonies for at least 10-15 days after fledging. During the first 3-4 days they spend most of their time in their parents' territories, making only short flights and usually returning quickly. About 3 days after fledging they start to appear on the shoreline and spend increasing amounts of time there in succeeding days. At first they usually return to their territories to be fed, but as time passes they are fed increasingly frequently on the beach. About 5 days after fledging they make their first short flights over the sea and begin to learn to fish. After 9-10 days they start to accompany their parents to the fishing grounds and may be found as far as 2-6 km away from the colony during the daytime, returning in the evenings. As late as 10-12 days after fledging some juveniles still spend most of the day in their territories and receive most or all of their food there. I have seen color-marked juveniles being fed in their territories as late as 19-23 days after fledging.

The age at which the young terns break their attachment to their colonies and disperse to new areas is difficult to establish because very few birds of known age have been recovered. Austin (*ibid.*, pp. 42, 49) reported three juvenile Common Terns recovered 50-120 km away from the colony of banding 10, 18, and 18 days after banding. He also listed a juvenile recovered in New York only 3 days after banding in Massachusetts, but the accuracy of this report seems questionable because my observations indicate that Common Terns are not strong on the wing 3 days after fledging and rarely even venture as far as the shoreline.

I recently obtained three early recoveries of juvenile terns of known age away from the natal colonies. All three were recovered at the same place: on the edge of a tern colony at Nauset Inlet, Eastham or Orleans, Massachusetts (41° 48' N, 69° 57' W). All three were found dead near the tideline, with their heads missing but with their bodies otherwise intact, a characteristic sign of predation by a Great Horned Owl (*Bubo virginianus*) (Nisbet, *Condor*, **77**: 221-226, 1975). I infer that they had been killed while roosting on the shore at night. Their apparent presence at night at Nauset presumably indicates that they had broken their attachment to the natal colonies.

The first juvenile Common Tern (band no. 782-82129) was the older in a brood of two raised in a plot I had fenced for detailed study (Nisbet and Drury, *Bird-Banding*, **43**: 97-106, 1972) within a large colony at Monomoy Island, Chatham, Massachusetts (41° 38' N, 69° 58' W). The two chicks were hatched on 22 and 23 June 1974; a third sibling was hatched on 24 June but died within 2 days. The surviving chicks were banded and checked daily until the evening of 17 July, when they weighed 108 and 111.5 g and appeared almost ready to fledge. Because of bad weather, we were unable to visit the colony on 18 or 19 July. On the morning of 20 July both chicks were absent and presumably fledged on the 18th or 19th. Watching from a blind on 24 July, I noted that neither chick was present in the study plot, although most chicks from neighboring broods were flying in and out and were being fed there, including several that had fledged as early as 14-15 July.

On 26 July I found 782-82129 dead at Nauset, 19 km north of the Monomoy colony. The fresh carcass indicated that the bird had been killed during the previous night. Its body was fat and there is no reason to suppose that it had

become separated from its parents. At the time of its death it was 33-34 days old and had probably been on the wing for only 6 or 7 days.

The second bird (band no. 1103-19422) was also raised at Monomoy. It was not a pure-bred Common Tern but the offspring of a female Common Tern and a male Common Tern x Roseate Tern hybrid (*Sterna hirundo* x *S. dougallii*). The only chick this pair raised, it was hatched on 12 June and fledged on 4 July 1975. I caught it again on 6 July and it was probably still present on 8 July, when I was vigorously attacked by the hybrid parent. It was not seen again at Monomoy despite daily checks, but it had been color-marked and was seen by V. Laux at Nauset Inlet on 9, 13, and 14 July. On 24 July it was found dead there by A. G. Brown. It had already been dead for several days; to judge from its wing length (216 mm, versus 172 mm on 6 July, when it was growing at 4-5 mm per day) it had been killed about 16 July. It would then have been about 34 days old and have been on the wing for about 10 days: it was first seen at Nauset only 5 days after fledging.

The third bird (band no. 1103-19272) was a Common Tern, raised at Bird Island, Marion, Massachusetts (41° 40' N, 70° 43' W) in 1975. I banded this bird as the older of two chicks in a nest with a hatching egg on 10 June 1975, and judged that it had been hatched on 8 June. It was not encountered again until I found it dead at Nauset on 24 July. It appeared to have been dead at least a week, but its wing length (247 mm) suggested that it was at least 40 days old. Hence the date of its death can be placed close to 17 July. Since Common Terns usually fledge at 23-27 days of age (Nisbet and Drury, *ibid.*, Table 3, and unpublished observations), it would have been on the wing for roughly 13-17 days when it was killed at Nauset, 67 km ENE of Bird Island.

Together with the three early recoveries reported by Austin and cited above, these three recoveries indicate that some juvenile Common Terns disperse away from their colonies as early as 5-18 days after fledging. The records of birds at Nauset only 5-6 days after fledging represent unusually early dispersal, since my observations summarized earlier in this note indicate that most juvenile Common Terns remain attached to their natal colonies for 10-15 days after fledging.

Adult terns can gain obvious advantages by moving their families away from large colonies to less crowded feeding areas, but the fate of the three juveniles described above illustrates that very early dispersal may be hazardous. At 33-40 days of age a juvenile tern's wings are not fully grown and it may well be ineffective at avoiding a predator. It is also likely that juvenile terns are more vulnerable to predation when roosting in an unfamiliar place than in their own colony: although several hundred terns of four species were raised to fledging at Nauset in 1975, the only fledged juveniles found dead and decapitated were the two that I had banded in other colonies. Earlier in the 1975 season the Great Horned Owl apparently took a number of Common Tern chicks from the Nauset colony, but I found no evidence that it killed any locally raised juveniles after they had fledged.

I thank V. Laux and A. G. Brown for records of 1103-19422, and B. W. Massey, H. S. Wehle, M. A. Davis, K. A. Wilson, and W. Broad for help in the field. Field work was supported by the Frederick W. Beinecke Fund. This note is Contribution no. 128 from the Scientific Staff, Massachusetts Audubon Society. —I. C. T. NISBET, *Massachusetts Audubon Society, Lincoln, Mass. 01773*. Received 10 December 1975, accepted 16 January 1976.

**Capturing and Banding Limpkins in Florida.**—As part of a study of the ecological impact of the proposed Cross Florida Barge Canal we captured and color marked Limpkins (*Aramus guarana*) to determine the size and movements of the population in the area of Lake Oklawaha (Rodman Reservoir), Marion and Putnam counties, Florida. Between 6 October and 11 November 1975, 46 Limpkins were caught at night from an air-boat with a handheld spot light and a large dip net; they were weighed, measured, color-marked and released. Capture was most successful on moonless or overcast nights. Average capture success was 2.5 birds per hour of effort from time of arrival to time of departure from the study area.

Average weight for 31 adult Limpkins was  $1.08 \pm 0.11$  kg within a range of 0.90 to 1.27 kg. Weights for 15 chicks captured during this study appear in Table 1. All chicks weighing less than 0.88 kg were flightless.