

June 29th—The youngster, now seven days old, was two inches long. The quill-casings were blue-gray and the tiny gray-brown feather-tips of the primaries and secondaries were unfurling. The lower portion of the ventral tracts were sulphur-yellow and the upper parts gray-brown like the wings. The feathers which had appeared in the capital and spinal tracts were dark brown, and the feather tips in the caudal tract were unsheathed.

On June 30th, eight days after hatching, the young left the nest.

ADDITIONAL EXPERIENCES IN BANDING TERNS AT TERN ISLAND, CHATHAM, MASS.

BY CHARLES B. FLOYD

OUR *Bulletin* for October, 1925, published the results of my banding work during a period of six days on a small island of fifty-four acres lying close to the shore off Chatham, Massachusetts. From July 4th to July 18th, 1926, I continued this work for a much longer period than during the previous year. The banding work has been of special interest because opportunity was offered to make a close estimate of the response made by a Tern colony to genuine protection from both man and other enemies. The Common Tern, possibly also the Arctic Tern, on the Massachusetts coast, and, in fact, on all the Atlantic coast, was in 1890 in danger of extermination by wing and tail hunters who sold these parts to the millinery trade. Now all this has been changed. The earliest move to save these birds was in 1886 by a Committee on bird-protection appointed by the American Ornithologists' Union. A more recent organization, The Federation of the Bird Clubs of New England, in 1924 began purchasing islands off our coast on which Terns bred or had once done so, and has presented them to the State of Massachusetts to be used as bird reservations in perpetuity. The Federation for the present supplying warden service. The process of purchasing them was to obtain options and then make direct appeals to public-spirited citizens for funds to buy them, a method which has been signally successful. The effect of the publicity attained has been to encourage direct gifts of several islands and interior tracts to the Federation, which in

turn have been or will be turned over to the State as bird sanctuaries.¹

The actual number of Terns breeding on an area like Tern Island is, in the nature of the case, difficult to determine, and estimates at the best may vary considerably. However, based on the number of young banded, and remembering that many were flying before we began the work, it seems safe to place the figure at eight to ten thousand Wilson, and two to three thousand Roseate Terns. These two species comprise the sole inhabitants of the island (bird-wise). We looked in vain for Spotted Sandpipers or Piping Plovers along the beaches, or Sparrows of any kind on the marsh or sandy portions of the island, and except for the meadow mice, whose runways are everywhere, we found the Terns the sole owners. Several times we found the remains of adult Terns that were partly devoured. The work appeared to be that of an owl.

At all hours of the day and night there is great activity on the part of the adult birds. In all directions they fly out to sea for food, and in all directions they can be seen returning, with their catch, small fish, "bait" the fishermen call them (sand-lance and sparring). These are carried by the middle and fed whole to the young, who come out from the shelter of the grass when an incoming parent appears with food, and with fluttering wings and open bill rush up to be fed. There is a constant flying to and fro over the island; the adult birds seem not to remain in one place, but alight and then restlessly take wing again to settle perchance on the beach, head into the wind. I have personally remained in the colony up to midnight, and landed there at daybreak, to find the same restless movement of the adult birds. Mr. E. H. Forbush tells me that he spent two nights on the island and witnessed the same activity all night.

The nests are constructed by the females in the open sand by scraping it out with their feet and fitting their bodies to the hollow. Some of the nests are lined with bits of seaweed or dried grass, but "depressions in the sand" best describe them. The brooding birds sit closely on the nests, and as one passes along, banding the young, they rise a few feet ahead to return almost immediately. Thus one can work all day in the colony if he moves slowly, without danger of spoiling the eggs or chilling the young.

¹I feel sure that the same method employed by the Federation in Massachusetts would be met by a similar response in every State in the Union. The strength of its appeal lies in the fact that no members in the organization receive any compensation whatever.

Many different notes other than the "tee-ar-rr, tee-ar-rr" of the Wilson, and the "kack-kack-kack" of the Roseate are heard as the infuriated parents dash at the intruder's head in defence of their young. The rush is swift and direct, but when the bird is within striking distance it generally swerves and passes.

During the two weeks spent in the colony this year we found only two dead Roseates, while several hundred of the other species died. The deaths were caused, as nearly as we could determine, either from starvation or what seemed to be a white diarrhoea that is common among young chickens. Indeed, the question of securing sufficient food, and the distance the birds are compelled to travel to obtain it, are of great importance. Toward the last of our stay, when more young birds died than at any other time, and when they were well-fledged and nearly able to fly, we did not see the adults catching fish near the island. Their flight as they came in was over the land and from a considerable distance. It was evident that food was obtained with the least effort when the tide was high and pouring in over the sand-bars or when it was just ebbing. Schools of small fish are pursued by bluefish, mackerel, or other species that feed on them, and, in their endeavor to escape, the small fish rush into shallow water or rise to the surface and "mill." Here they are found by the Terns, which hover over them in constantly increasing numbers, screaming and literally bombarding the surface of the water as they plunge into it, and, rising with their prey, shake the water from their feathers and depart for the home island.

The parent birds are very valiant in defence of their nests and young. Warden Patterson states that when they are incubating, or when the young are very small, he does not venture upon the island without a large stick held well over his head; otherwise the birds would not hesitate to strike him constantly and with some force. Near the island, but on the mainland, is a small fresh water pond from which the Terns drink and where they congregate to bathe. An almost continuous stream of birds journey to it, often dipping their bills into the water and drinking on the wing. We also witnessed the feeding of the grown birds on the wing. The action was so rapid that even through field-glasses a certain amount of luck is necessary to observe the action. As near as we could determine, the parent held the food until the young dashed up and seized it. This was quite in contrast to the manner in which the juvenile received its food upon the

ground. Then the parent delivered it by a quick jab into the mouth of the expectant young and in a flash dinner was served and over.

The actual work of banding the immature birds is very simple. Number three bands are the proper size and can be opened and closed with the fingers. The bands when ordered in large quantities are sent a thousand on a wire. The first of the serial numbers is recorded before commencing to work, and it is easy to determine the number of birds banded for the day by noting the last unused number in the series. The work is also simplified by opening several hundred bands in advance and carrying them loose in one's pocket. The young of almost any size can be banded, for the bands fit perfectly when closed and will never press too hard upon the tarsus or slip over the toes.

In 1924 I was on the island for one day and so banded comparatively few birds. During 1925 I spent six days there, and in 1926 two weeks. The following is the record of birds banded:—

| | <i>Common Tern</i> | <i>Roseate Tern</i> |
|-------|--------------------|---------------------|
| 1924 | 500 | — |
| 1925 | 2500 | 217 |
| 1926 | 4057 | 752 |
| Total | 7057 | 969 |

RECOVERIES

It should be borne in mind that it is difficult to obtain records from birds like the Gulls and Terns that spend practically their entire lives about the water and are not shot for food or sport. A method of trapping the adults at nesting-time has not been perfected. Therefore, in order to secure even a few recoveries, a great number of birds must be banded. The following are the interesting reports to date.

Common Tern, 280464, banded at Chatham, Mass., July 12, 1924, came on board the S.S. Prince on August 1, 1924, when sixty to seventy-five miles out of Boston, en route to Yarmouth, Nova Scotia. The bird was greatly exhausted, but later flew away.

Roseate Tern, 383419, banded at Chatham, Mass., July 6, 1925, found dead on Ipswich Beach, Mass., about August 30, 1925, by Warden Carl E. Grant. The bird had probably been shot.

Common Tern, 382247, banded at Chatham, Mass., July 4, 1925, was "captured by some boys" near Caribe on the north

coast of Venezuela on April 24, 1926. Reported by the American Consul at Trinidad, British West Indies, through the United States Department of State.

Auburndale, Massachusetts.

RECENT HISTORY OF A PAIR OF WHITE-BREASTED NUTHATCHES, NOS. 117455♂ AND 117456♀

BY HELEN GRANGER WHITTLE

IN the *Bulletin* for October, 1925, I reported a pair of Nuthatches (*Sitta c. carolinensis*) which had remained together a winter and a summer, and which had brought a family of young to our Peterboro station in July, 1925. These parents have been under observation for another year. They have now spent at least two winters and two summers constantly in each other's company, and they have raised two families which we know about. Keeping "tabs" on these birds has been simplified by the fact that both are banded on the left tarsus. All our other Nuthatches have been banded on the right tarsus.

None of the banded young of the 1925 brood has ever appeared at our station since their disappearance therefrom in July, 1925. The parents continued to make frequent visits throughout the autumn of that year, until the closing of the station on November 12th. During the same period they visited a neighbor's feeding-station about one-half mile distant, and continued visits to that station during the winter of 1925-1926. The banded young were also reported at that station during the fall and winter. I myself saw the parent Nuthatches at the neighbor's feeding-station on March 21, 1926, and on April 16th they were again at our banding-station, where regular feeding had been resumed. (Some sunflower seed and suet had been available there during much of the winter.) After April 16th, through the remainder of the spring, they neglected the neighbor's station almost wholly, and were constantly at ours. The only apparent reason for this was the fact that other Nuthatches (including their own young?) visited that station. About the 10th of May the female Nuthatch ceased to visit the station for a time. Presumably the nest was at some distance, and she did not leave the eggs long enough to make the journey. The male continued his visits. No observations were made the first week