BIRD-BANDING

A JOURNAL OF ORNITHOLOGICAL INVESTIGATION

VOL. III JULY, 1932 No. 3

TREE SPARROW MOVEMENTS ON CAPE COD[1]

By O. L. AUSTIN, JR.

ON Cape Cod the Tree Sparrow, *Spizella arborea arborea* (Wilson), is a common spring and autumn transient, and a common winter visitor. The species comes so readily to grain bait that comparatively few individuals venture onto the Station grounds and fail to enter one or another of the many traps in operation. Hence the numbers of birds appearing daily in the traps is an excellent indication of the numbers present. A study of the data thus acquired since 1930 at this Station reveals several points of interest.

The Station was operated continually throughout the autumn of 1930 to the end of the year. It was closed from January 1, 1931, until it reopened on March 20, 1931, after a period of seventy-eight days. The first Tree Sparrow appeared on October 27, 1930, the next on November 22d, and then a small wave appeared between the 10th and 14th of November, after which none were taken until November 22d, when the main flight appeared. The first two individuals taken never reappeared, and of the nine birds that comprised the first small wave, but two wintered in the region. During the autumn and before operations ceased on December 31st, 80 Tree Sparrows were banded, of which 35 were still present when the station reopened in March. Of the 80 sparrows banded, three were casualties before the station closed, one suffering a brain injury in a trap, the other two being killed in the traps by shrikes. Thus 45 per cent of the banded birds remained through the winter until spring. During the spring 41 more Tree Sparrows were banded, and the total "takes" for the season, the number of times birds were handled, was 1993, an average of 16.5 times per bird, or, if we subtract from each figure the 25 birds that appeared but once, at the time they were banded, and never reappeared, 20.5 times per bird.

[1]Contribution No. 9 from the O. L. Austin Ornithological Research Station.

It is evident from the data that 80 Tree Sparrows spent the winter of 1930-31 at or very near the Station. While a few birds left each day from March 19th on, the first definite wave of departing birds left on April 9th, and at that time one new bird appeared, evidently a migrant from the south. The next marked departure, which was also heralded by another new bird coming in, left between April 19th and 21st. This left but four individuals present at the Station, one of which had had a foot amputated to study an abnormal growth on the tarsus, which had weakened and bent the leg out of shape. This bird lingered until May 17th, but the other three reported for the last time, two on May 1st, and one on May 5th.

Of the 117 birds that flew away that year (one more casualty occurred in April, a bird killed in a government trap by a rat), 21, or 18 per cent returned during the winter of 1931-32. The Station was operated continually, with the exception of five days at Christmas time, from the time the first Tree Sparrow appeared, until the last one left. One hundred and sixty-nine were taken, and these birds were handled a total of 3,245 times, an average of 19.2 times per bird. If we eliminate the 41 birds that appeared but once each, the remaining 128 birds were handled an average of 25 times apiece.

Although the average number of times each bird was handled was higher during 1931-32 than during 1930-31, the birds did not come to the traps so readily. The past winter was much milder and more open than the preceding one, and there was hence more natural food available. A comparison of the average numbers of birds taken daily for the two winters gives a better picture of the facts. Eliminating the "stragglers" on each end of each season, and reckoning from the advent of the first wintering individuals until the last marked departure, in 1930-31 Tree Sparrows were handled 1951 times during 68 days of trapping, an average of 28.7 times per day. In 1931-32, the birds were handled 3188 times during 158 days of trapping, an average of only 20.2 times per day.

But the percentage of birds banded early in the season that remained through until spring is almost identical for the two years. Of the 89 that were banded during the autumn and winter before January 1, 1932, 38, or 43 per cent, were still present after March 20, as against 45 per cent for the preceding year. Thus it is obvious that the cessation of trapping operations for seventy-eight days during the spring of 1931 had very little, if any, effect on the movements of the birds. The corollary is also evident, that the trapping had no noticeable effect on the movements.

During the autumn of 1931, the first Tree Sparrow appeared on October 22d, five days earlier than the preceeding year, and another new bird passed through on each of the next two days. The first "wave" came in on October 30th, and during the next eleven days twenty birds were taken, of which four eventually wintered. During the sixteen days between November 11th and 26th, inclusive, not a single Tree Sparrow was either observed or taken at the Station. The bulk of the wintering birds began to come in on November 27th, five days later than the preceding autumn, and they slowly drifted in until January 1st, after which the population remained fairly stationary for five weeks.

Between February 5 and February 10, 1932, twenty-one birds appeared for the first time during the 1931-1932 season. Seven of these, 33 and one-third per cent were returns from the preceding winter. Three of the seven, during the preceding winter had been "wintering birds," coming in late November or early December, and remaining until April, but the other four had been spring transients. This wave may have signalled the first northward movement of the species, but the sudden influx of birds may equally well have been due to the exceptionally inclement weather. One of the few snowstorms of the winter occurred on February 5th. Only two birds left at this time. The first period of departure started on February 25th, when two more birds appeared in the traps for the last time. During the last week in February and the first six days of March, nineteen individuals departed.

Then followed a period of little movement. During the twenty-two days from March 7th to March 29th, six new birds came in, and thirteen of the wintering birds left. April ushered in the heavier movements. During the first seven days of this month eleven birds departed, and on the 8th, 9th, and 10th, eleven more. One or two Tree Sparrows now made their "last appearances" each day, but, as during the previous spring, a marked wave left on the 19th, 20th, and 21st, when twenty-one birds departed, leaving present only five of the wintering birds. Two of these lingered until April 29th, one until May 8th, another until May 9th, and the fifth, a bird which suffered a broken radius on April 24th, lingered (although it flew well eight days after its accident) until May 15th.

There was a late flight of non-wintering birds, which came to the station on April 23d, after most of the wintering birds had departed. In the next six days, sixteen new birds came in, to remain about a week before leaving. Twelve of them left between May 1st and May 4th, and the remainder on May 8th.

A comparison of the data for the two seasons shows several interesting features. The advent of the autumn birds was marked in both cases by the irregularity of the earliest arrivals. Each year a few Tree Sparrows passed through the region a week to two weeks in advance of the main flight. A few individuals from this early flight wintered in the region each year, but the bulk of them passed on. The lateness of the advent of the wintering birds in the autumn of 1931 perhaps may be explained by the mild and warm tenor of the weather. But neither the arriving nor departing waves can be correlated with meteorological conditions, except in the vaguest and most general ways. The closest correlation seems to be with temperature. Barometric pressure, precipitation, and wind direction and velocity have no apparent immediate effect on the migratory movements, except in the extremes of bad weather. During periods of high gales, there is no apparent movement among the birds, but waves have been observed to arrive and to leave in the face of brisk winds. Rain and snow have a tendency to drive the birds to the traps for food.

In neither year could the arrival of the birds be synchronized with temperature, except that each wave was usually either preceded or followed by a drop of several degrees in the daily minimum. The more definite spring departures, however, were in each case accompanied by marked rises in the temperature. In 1931, for instance, after a daily maximum average of 45° F. for two weeks, on April 9th the temperature suddenly jumped to 55° F., and on the following day to 60° F. During this warm spell, twenty-six Tree Sparrows departed. The temperature then dropped, and daily averages of 50° F. continued until the 19th of April, when the thermograph rose to 61° F. On April 20th it reached 72° F., and the next day 69° F. These three days witnessed the departure of all but four of the remaining birds. The spring of 1932 was uniformly cold and raw. On February 25th, accompanying the first departing movements, the temperature rose to 45° F. for the first time. There was much freezing weather in March, and the daily maximum averaged 40° F. until the end of the month, when it rose to 50° F. Birds slowly filtered out daily, until on April 3d the mercury suddenly rose to 65° F. to provide a stimulus for more rapid movement. The temperature averaged 45° F. from April 6th to April 19th, during which period the exodus was desultory, and then rose again to 50° F. On April 20th the mercury climbed to 60° F., on the 21st to 62° F., and on the 22d to 66° F. Twenty-one birds departed in these three days. The spring continued cold and raw, however, and 50° F. was the daily maximum until

early May, when it again rose to 60° F. It averaged between 55° F. and 60° F. for the first two weeks of May, and the first 70° F. temperature of the year was not recorded until May 15th. To this long, drawn-out, cold spring, can be attributed the gradual movement of the birds.

To date but one of the Tree Sparrows we banded has been picked up elsewhere. This bird was banded December 3, 1931, and never repeated. It was found dead at Portland, Maine, on April 21, 1932, evidently well on its way to its northern breeding grounds, at the time when most of the wintering birds were just leaving the Cape.

U. S. Bureau of Biological Survey,
North Eastham, Cape Cod, Mass.

INDIANA BRONZED GRACKLE MIGRATION

By SAMUEL E. PERKINS, III

THE whole State of Indiana is a breeding ground for the Bronzed Grackle (*Quiscalus quiscula æneus*), which throughout the summer is very numerous. It nests principally in groups of evergreens, both as planted by nature and when grouped by man. Park groves of white pines have been occupied by this race in such numbers per tree that they may well be called colonial nesters. In the same trees Robins and Mourning Doves often build and rear their broods successfully without molestation from the Grackles.

The east and west Indiana watershed is situated about two-thirds up-state, the southern drainage area falling toward the Wabash and Ohio Rivers. The Ohio River flows in a general southwesterly direction till it joins the Mississippi River, which takes a more southerly course. The largest tributary to the Ohio south of Indiana is the Tennessee River, which flows substantially northwest, across western Kentucky to Paducah after flowing west across Alabama and the northeast corner of Mississippi and due north across Tennessee.

Numerous bird-banding stations are in operation in the State where hundreds of adult Bronzed Grackles, or Crow Blackbirds, have been banded. Some fledglings have also been tagged. Banding stations in Indiana which have reported southern recoveries of this race that have come to my attention (the first being in 1925) are well distributed over the State and are located as follows (see also map I), the column of capitals refers to location of stations shown on map: