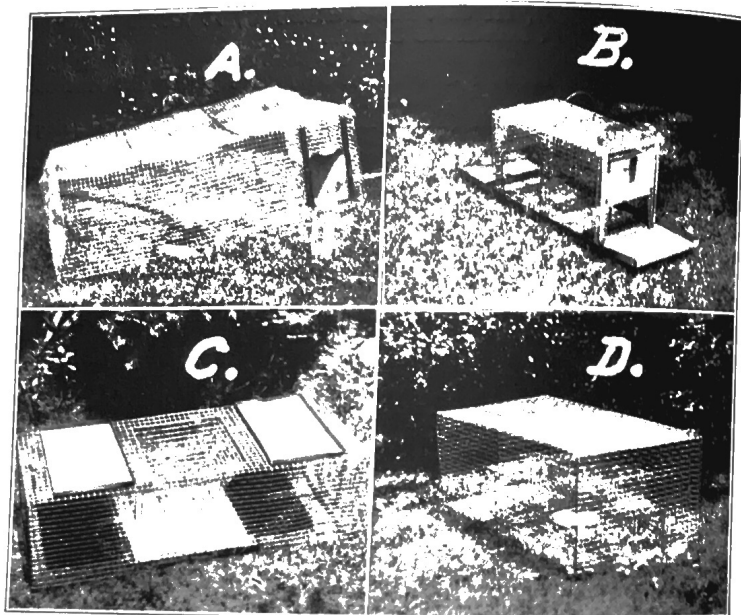


# PRELIMINARY REPORT ON FIELD SPARROW MIGRATION

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Mr. F. C. Lincoln of the United States Biological Survey in an article on Bird Banding says: "The bird-banding method of study, particularly the application of systematic trapping, has opened new fields of investigation and enlarged the scope of others." Handling numbers of living birds of a species daily, marking them by means of numbered, aluminum bands attached to the tarsus that they may be recognized as individuals, recording their movements as they are



Photographs by Dr. Jesse M. Shaver.

Fig. 1. Some Traps Used in Capturing Field Sparrows. A. Drop trap. Note the water spray in the trap for luring Field Sparrows during the months of drought, and the string at the right used for dropping the trap. The string leads through a window of the home so that the trap can be operated from inside the house. B. The two-celled Potter-type trap. The entering bird steps on a tread which releases the door. C. The top-opening funnel trap. The two white pans above and the one below are for bait. The birds enter through the funnel between the two upper white pans. D. The modified government sparrow trap. The entering funnel is short in this trap.

retrapped or reported as casualties, and compiling this data in tabulated form, reveals to the bird student facts from which hitherto unknown situations may be deduced or proven. The most careful field worker may observe a flock of birds daily, note their plumage, their habits, and the length of time they frequent a given territory, but can he know definitely the personnel of that group has not changed since yesterday? It is impossible without some distinguishing mark discernible to the human eye. Therefore, placing a numbered or a colored band on each bird is a tangible means of identifying the individuals of a species and by daily systematic trapping the movements of these avian groups may be noted.

Beginning August 5, 1931, with only a pull string trap, but gradually increasing the equipment, a bird-banding station was started in a garden, already providing sanctuary to many birds. Later, two substations were added, one a mile west, the other four miles west by south. Of the forty-five species banded, Field Sparrows (*Spizella pusilla pusilla* (Wilson)) led the list. By March 31, 1933, a period of nineteen months, 620 individuals had been banded. Of this number 273 were not retrapped after banding nor were there any further reports concerning them. The remainder, 347, were rehandled more than 3,000 times during the nineteen-month period and from that group this study has been made. These little birds are easily trapped, for they respond quickly to the lure of a water spray in Tennessee summers of drouth, and an abundance of millet seed the rest of the year. Thus the station operator is fairly certain of obtaining records of practically all Field Sparrows in the vicinity of the station and though these "repeat" records often become monotonous to handle and tax the strength of the one attending traps almost daily in all types of weather, they yield data which shed new light on dispersal problems.

In this area of Tennessee, the Field Sparrow is considered a permanent resident, for they may be found every month in the year. However, banding records of these birds, when tabulated month by month, show certain rhythmic peaks and valleys suggestive of migration movements. In the latter part of February new birds coming to the station increase the numbers greatly, reaching a high point in March. In April there is a decrease and a low level occurs in May. But May is a difficult month for the eager trapper. Since insects are plentiful, Field Sparrows are not enticed by millet, and water in the creek is usually plentiful. In June the number trapped takes an upward trend, for then the immature birds are seeking food, and water is scarce; the June (1932) records showing 44 immature banded and only 8 adults. In July the ratio was 21 immatures to 9 adults. August and September were "valley" months for only a few of each stage were banded. October begins the upward trend, for in 1932 sixty-six birds were banded. The autumn molt having been completed, immature birds have acquired plumage so similar to adults that it is not practical to even attempt to list them separately. November reached the autumn peak with 72 banded. On through the winter numbers dwindle

TABLE I  
Banding Records of the Field Sparrow (*Spizella pusilla pusilla* (Wilson))

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR GRAND TOTAL
1931: 1 Adults								2	3	26			31
Immature								1	3				4
1932: 2 Adults		20	57	23	5	8	9	2	5	66	7.2	23	290
Immature													
1933: Adults	13	60	145			44	21	8	4				77
Immature													77

<sup>1</sup>All captures in 1931 were made in a beginner's flat trap with water bait. There was a drought that autumn.

<sup>2</sup>During the period from November to February, the sparrow, the one and two-cell trap door and other traps were gradually acquired, but it took about three months of experimenting to learn the attraction of millet seed to sparrows. From the middle of May until the end of August, all but nine Field Sparrows were trapped in a drop trap with water spray. Two juveniles were caught by hand.

led to the low figure of 13 in January, then parallel to the previous year, the high spring peak was reached in March, 1933, when 145 were banded.

Reference to the records of the 347 banded Field Sparrows which were retrapped strengthens the theory of a spring and a fall migration as is indicated by table I. The records of repeats indicate great numbers of these birds entering the traps for food once daily or oftener over a period of several days or possibly several weeks in the fall and spring, then disappearing. During February and March, 1932, 51 of these "repeaters" were banded; by the end of March all were gone but 9; by April 16, 7 more departed, leaving but two to spend the summer and early autumn in this immediate vicinity. It is interesting to note that from September 6 to December 14, 1932, twelve of the 51 banded in February and March were again trapped at the banding station, seven of which are known to have remained throughout the winter. During October and November the ratio of banded birds which repeated was smaller than the February and March group (autumn, 40.5%; spring, 66%) which may indicate an urge to reach warmer sections quickly in the autumn and a hesitancy in the spring to leave the abundant supply of food for the rigors of the colder or more barren sections. Of the 56 individuals trapped in October and November, 1932, 11 remained until March, 1933; 11 disappeared during November, but returned in late February or March with others which had been banded in 1931.

A study of these records indicates that while a few individuals remain throughout the year, there is a rhythmic seasonal shifting in the Field Sparrow population which may be summed up thus:

(1) Incoming flocks in the spring, which show a variation in plumage coloring from those that have wintered here, pause for a few days or longer.

(2) Then they, with most of the wintering birds, leave.

(3) During the summer, wanderings or possibly a definite movement of immature Field Sparrows occur.

(4) In the fall an influx of birds, presumably from the north seeking winter quarters, takes place; some of these find this section suitable, but others continue on their way.

This theory of migration is further substantiated by a file of 50 "return" cards, showing that out of the 347 from which these deductions have been made, 50 Field Sparrows have made stops at the banding station after an absence of the summer or winter months or both periods. Very likely, Blossomdell Bird Banding Station, located in an open suburban section, is on a migration route of Field Sparrows.