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RETURNS OF SONG SPARROWS IN 1931

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IN 1930 there were forty-seven adult nesting Song Sparrows and ninety-nine fledgelings banded on Interpont—the flood plain extending three fifths of a mile between the Doddridge Street and Lane Avenue bridges east of the Olentangy River in Columbus, Ohio. For my purposes I divide this region into three districts: North Interpont, about ten acres in extent, all waste land growing little else but weeds, blue grass, and elders, ideally suited to *Melospiza melodia beata*; Central Interpont, about thirty acres, with some trees and partly cultivated; and South Interpont, about ten acres, mostly to the south and west of a city playground. Central Interpont is the scene of my special studies, but this past winter I have spent much time on North Interpont also, because of the settling there of a number of my banded juveniles.

From late January on, I devoted several hours a day (except for an absence April 3d and 4th) covering Central and North Interpont, attempting to trap the birds and watching for new arrivals. Some trips were made to South Interpont, and occasional visits to the west side of the river, and also below the lower bridge for an eighth of a mile and above the upper one for half that distance to study every Song Sparrow for the discovery of banded individuals. I believe that I have found every banded bird on Interpont and in the immediate vicinity.

The adult male Song Sparrow goes directly to his territory, affording no chance of trapping him at a central point. His arrival on his land is advertised far and wide by his persistent singing; the coming of his mate is signaled by his sudden lapse into silence. All nestlings have been banded on the right leg; all birds trapped in the fall on the left. Nestling adults are furnished with colored celluloid bands in addition to the government bands.

COMPOSITION OF THE POPULATION

At the beginning of the nesting-season of 1930 Interpont was filled practically to full capacity with Song Sparrows, but in 1931 this was no longer true.

Table I gives the number of pairs found April 6th in both years.

TABLE I
NESTING PAIRS OF SONG SPARROWS FOUND ON INTERPONT

	April 6, 1930	April 6, 1931	Average Size of Territory, 1930
North.....	16	17	.66 acre
Central.....	38	31	.78 acre
South.....	14	12	.71 acre
	68	60	

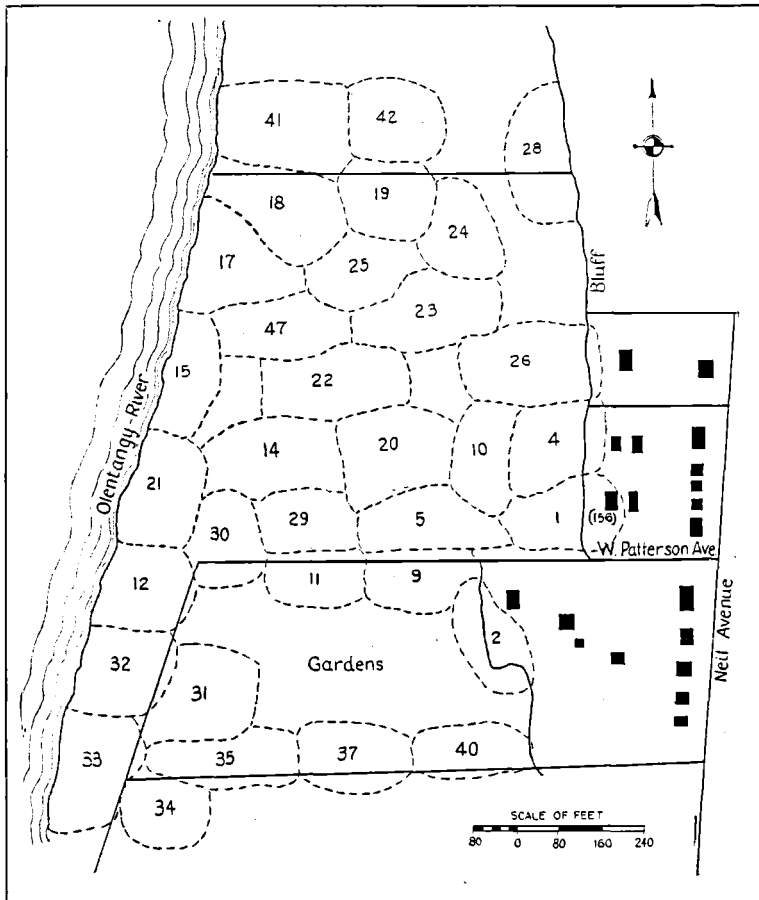
The greatest decrease occurred in Central Interpont, where there was a loss of 18 per cent. Conditions for nesting both on Interpont and the vicinity were not different this spring from last. The only explanation is that there were not as many Song Sparrows available to nest here as a year ago. Despite what seemed to me a fairly successful nesting-season¹, the Song Sparrow population did not maintain itself from 1930 to 1931.

Nearly half the male Song Sparrows here are permanent residents, this being true of twenty-five to twenty-seven of the sixty birds on Interpont, April 6, 1931. Each adult resident male stays on or near his own territory throughout the year. Three factors last winter helped me in individualizing those resident males that had not been banded. First, the number of winter visitants of this species was abnormally low. Second, unseasonably warm weather the last of January caused the residents to come out of the weeds and proclaim their territories in true late-February fashion. Winter visitants sing comparatively little. Finally, the fact that resident birds are darker than those that have wintered farther south is often a help in determining the status of an individual.

TIME OF ARRIVAL

The Summer Resident Males. Dates of arrival of twenty-three summer resident males follow, a number in parenthesis being placed before a date when more than one bird appeared: February 8, 18; March 2, (3) 4, (3) 17, 19, 20, (5) 20-22, (3), 23,

¹Wilson Bulletin, XLIII, June, 1931.



MAP I
Song Sparrow Territories on Central Interpoint, June, 1930.

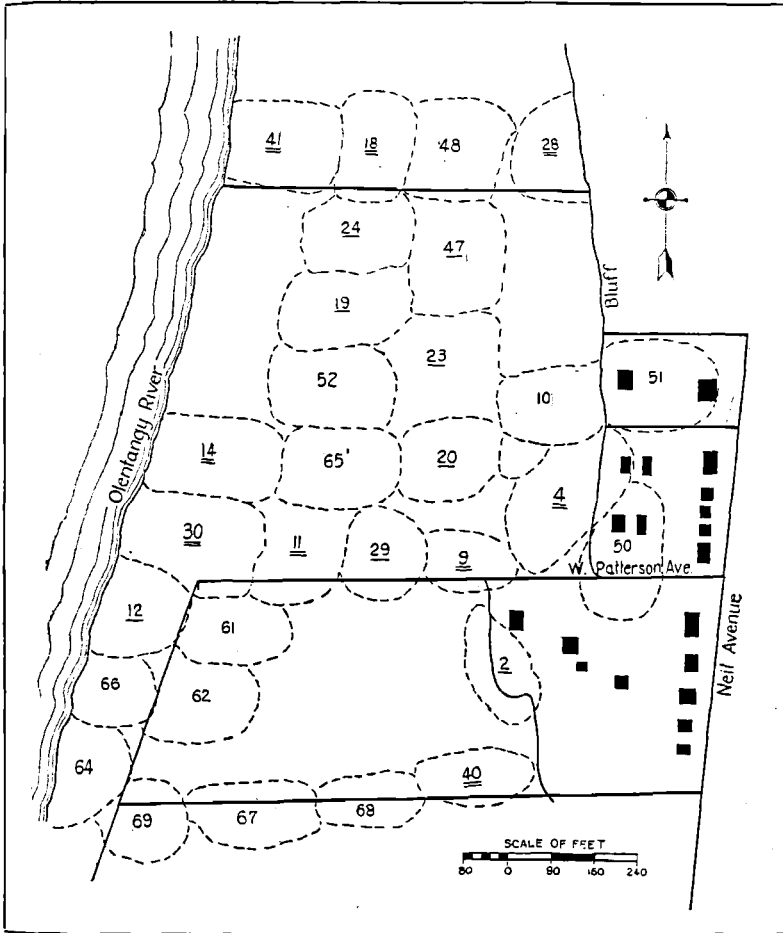
25, 26; (2) April 3-5. A small migration occurred from March 2d to 4th, but the chief increase in numbers took place from the 17th to the 26th. On March 5th there were thirty-seven nesting males on Interpont, or 62 per cent of the total found a month later; on March 16th there were forty-six, or 77 per cent; on March 25th fifty-five, or 92 per cent. This is strikingly different from 1930, when sixty-four were counted March 5th and 6th, or 94 per cent of the early-April population.

As to the banded males, in only two cases were the dates of arrival in both 1930 and 1931 known. No. 19 (see Map II) was banded near our house March 5, 1930, but appeared on his territory two hundred fifty yards northwest at the astonishingly early date of February 8, 1931. (He could not have been overlooked before, for all adult resident males had been singing freely since January 24th, I had been over this area daily, several of his songs were familiar to me, and, finally, he was banded with celluloid as well as aluminum.) No. 10 arrived on his territory, one hundred yards west of the house, March 15, 1930, but did not appear this spring until April 3-5. Dates of arrival of other banded adult males in 1931 were February 18, March 17, 19, 20, (2) 23; April 3-5.

Of the eight males banded as nestlings in 1930 that survived to establish territories on or near Interpont (one settled just above the upper bridge), seven were resident birds. The other arrived March 30th.

The Females. Both in 1930 and in 1931 the appearance of a small number of females the third week in February has been a puzzle to me. In 1930 one (recorded as a dark bird) joined her mate February 21st, and another settled on a neighboring territory February 22d. Both came to their ends early in the nesting-season. This year there were five of these early dark females on Interpont—two at the north end, three near the center. The latter joined males 14, 9 and 12 on February 21st, 22d, and 24th respectively. One of the north birds was present February 25th, but I believe had been with her mate as early as February 8th. She disappeared the middle of March. The other was not seen until March 7th, but this pair had probably been overlooked before that. It occurred to me that these females might be permanent residents, so I made a special effort to band the four as soon as possible. In April two of them were shot by boys, so my chance of settling the status of these birds is slim indeed.

No summer-resident female appeared before March 17th. The dates of arrival of twenty-five others were as follows: March 20, (2) 22, (5) 23, (3) 24, 26, 27; (3) April 1, (6) 3-5,



MAP II

Song Sparrow Territories on Central Interpoint, April 6, 1931. Males known to be the same as last year underlined: summer residents once, residents, underlined twice.

(3) 6. In 1929 four females came between March 11th and 21st; in 1930 five summer residents (I noted the earliest as light in color) appeared between March 1st and 15th.

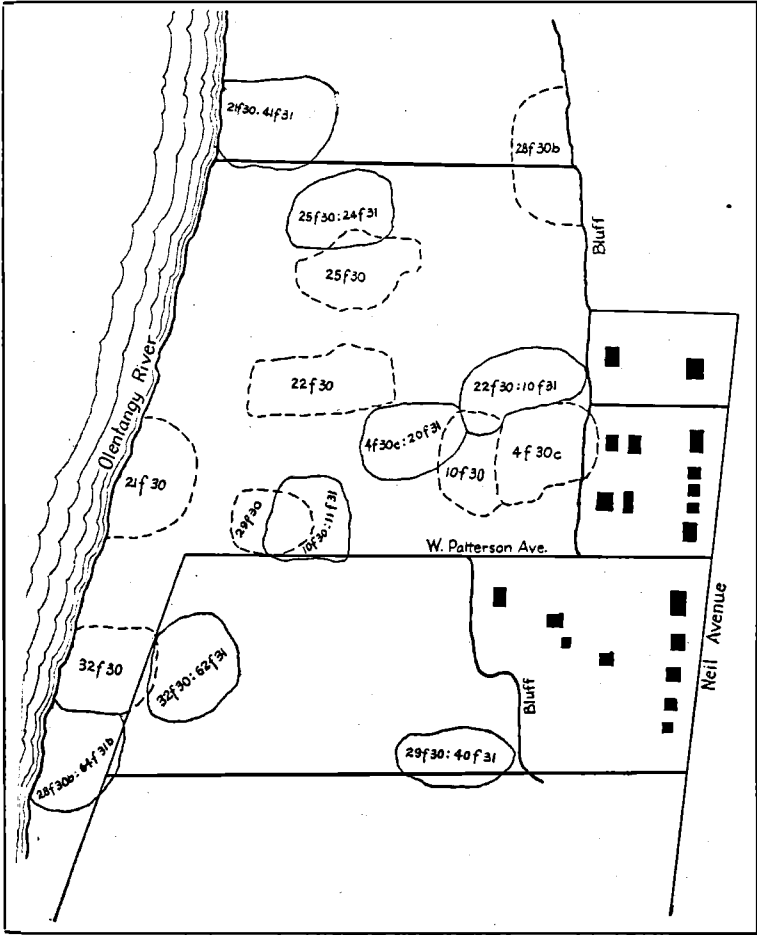
Banded adult females returned March 23; (2) April 1, (2) 3-5, 6. A banded juvenile female was found at the south end of Interport March 26. I do not know how long she had been present.

The Migration and the Weather. It was not only the nesting Song Sparrows that were slow in arriving. In 1929 the transients of this species were recorded from March 11th to 27th, the height of the migration coinciding with a warm spell from the 21st to the 24th. In 1930 I noted a few on March 5th and 14th, a great migration March 15th, and a few March 22d and 27th. In 1931 scattering birds were observed March 3, 6, 14, 15, and fair numbers March 23 to 25; the majority came March 26 to 31, while a few were still present April 5th. As to other species, of twelve March migrants for which I have records for four years, three came on an average three days early, one appeared on time, while eight averaged five days late.

TABLE II
WEATHER IN COLUMBUS

	Mean Temperature		Maximum Temperature		Difference Between Maximum and Minimum	
	February	March	February	March	February	March
1929.....	26.2	47.4	33.9	55.9	15.4	17.1
1930.....	40.4	38.6	47.9	47.7	14.9	18.2
1931.....	36.8	37.3	43.7	43.2	13.8	11.8
Normal....	30.9	39.1	38.0	48.0	16.0	17.0

Table II gives the mean and maximum temperatures and also the difference between the maximum and minimum of February and March in 1929, 1930, and 1931, and also of the "normal", *i.e.* the mean of the last fifty-one years; these are taken from the records of the United States Weather Bureau for Columbus. 1929 was characterized by a remarkably warm March throughout the month; 1930 by an extraordinary warm wave from the 18th to 26th of February and mild weather again from the 5th to 24th of March. But in 1931, although the mean temperature of February was high, the temperature range was small. March was persistently cool, with even less temperature range than February. The consistently cold weather of this month was apparently responsible for the delayed migration. It would appear that the arrival of Song Sparrows in this region depends to a considerable extent upon the presence or absence of warm waves.



MAP III

Territories of Banded Females that Returned in 1931: 1930 territories shown with broken lines; 1931 with solid lines.

RETURNS OF BANDED BIRDS

The Adults. On April 6, 1930, there were on Central-Interpont thirty-one males whom I knew (twenty-seven from bands; four from distinctive songs). A year later seventeen survived, 55 per cent. Fourteen of the thirty-one were residents; twelve were summer residents only, while the status of five was unknown. Nine of the survivors were residents and eight were summer residents. Six of the casualties occurred in the breeding-season, seven during the winter, and the other perhaps in the fall. Twenty-five males were known to have survived the summer; 68 per cent of these were present at the beginning of the following nesting-season. Twelve summer residents were seen in the fall; four of these, one third, failed to return.

Of the twenty banded females, eight returned in 1931—40 per cent. Since five had been killed in May or June, the return percentage of possible survivors was 53. Nine of the banded females were recorded in the fall, and of these only four returned.

Fifty-one known adults were present at the beginning of the breeding-season in 1930; of these twenty-three, or 45 per cent, survived to begin the following nesting-season.

The Juveniles. Of the ninety-nine banded nestlings that left the nest in safety, eight males established territories and one to three females returned. Five of the resident males took up their territories the following number of yards from their birthplaces: 150, 250, 250, 500, 550. Two birds that were nest-mates settled 150 and 350 yards respectively north of their home. The summer-resident bird lives 300 yards south of his birthplace.

Three females banded on the right and hence presumably juveniles, returned to Interpont. One of these disappeared with her mate before I had time to trap her; perhaps they moved east into town, having been disturbed by a clean-up campaign that involved their territory. I made many efforts to trap another, but she came to her end in early May with her identity unsolved. The third is nesting 200 yards from her birthplace.

RETURNS TO TERRITORIES

The Males. The Song Sparrow territories in Central Interpont in June, 1930, are shown in Map I. In Map II the territories on April 6, 1931, are given; on the former date there

were thirty-two males; on the latter, thirty-one males. I know that 50, 51, 52, 64, and 65 are new birds, the first four being juveniles, but how many of the other "sixties" were listed in 1930 in the "thirties" I do not know: 48 is probably 42, but I have no way of proving it. This year I hope to have every adult Song Sparrow nesting on Central Interpont banded.

It will be noted that six males have almost exactly the same territories this year as last—2, 40, 12, 20, 41, and 28. Three have spread out a little because of more room—4, 9, and 10. Others have moved somewhat because of death of old neighbors and arrival of new—14 and 23. 29 and 11 have shifted their relative positions.

More change is shown by 18, 19, 24, and 47 than any of the others. I do not know why 18, a resident, elected to move north. 19 on his early arrival February 8th found a clear field to choose from and evidently preferred his present position to his old one. 47 came next, and, finding 19 and 52 occupying his last year's territory, took up 24's. When that individual arrived, he adopted the piece of land recently vacated by 18.

It seems as if a pair needs a territory of about two thirds of an acre and does not usually occupy more during one nesting. If there is plenty of room they may spread over a larger area after the young have left the nest, and thus their season's territory may be greater than it would have been under crowded conditions.

The Females. Map III shows the territories both years of the eight banded females that returned. My scheme of nomenclature has already been explained in this journal,² but a few words on the main features may not be amiss. Each female is designated according to her mates—10f30 meaning 10's mate in 1930. In 1931 this bird mated with 11, therefore her whole name is 10f30:11f31. If a male has more than one mate in a season, each female receives a letter at the end of her name, —a, b, c, as the case may be.

In no instance does a banded female have the same mate as last year. Two of the males (22 and 25) did not return, one (21) had been shot by a boy in January, and three (4, 28, and 29) were already mated when their last year's mates appeared. 10 arrived so late this year (April 3-5), that it is possible that his mate of 1930 had reached Interpont before he did. I can

²*Bird-Banding*, 1930, I, pp. 177-181.

say nothing of 32, for he was not identifiable by me after the nesting-season of 1930.

Five of the females came back about as near to their former territories as circumstances permitted—4f30c, 10f30, 22f30, 25f30 and 32f30. 21f30 moved 250 yards from her old home, 29f30 moved 200 yards, and 28f30b moved 400 yards. 29f30 could have chosen a mate nearer home than she did, for there were four bachelors in that vicinity at the time of her arrival.

It is evident that the female returns to the region where she nested, and it seems reasonable to suppose that if her mate were present and unattached she would rejoin him. During one nesting-season she knows all of her mate's songs and responds to them; in the case where the second year she settles next door (as 4f30c did this season and 1f29 did in 1930) she has to ignore the old stimuli and learn to react to a new set.

CONCLUSIONS

It is a curious thing that half of the nesting male Song Sparrows in this immediate region are permanent residents, while the other half are summer residents. As to the females, most of them are certainly summer residents, but it is possible that a very small proportion are permanent residents.

Melospiza melodia beata is a home-lover and an individualist. Half the males in this region appear to spend all their adult lives within the space of a few acres. The other males and the females, although journeying south for the winter, return to their territories and remain on them from six to eight months out of the year. The Song Sparrow is an independent creature, not over fond of flocking, even in the winter, and not migrating *en masse*. The same bird may arrive at very different times in successive years; some of the females come before some of the males, and some of the adults come later than the juveniles.³

156 West Patterson Avenue, Columbus, Ohio, May, 1931.

³In order that our readers may receive a further account of Mrs. Nice's Song Sparrow studies at this locality we are mailing with this issue of *Bird-Banding* a paper dealing with the results of her last summer's work published in the current number of *The Wilson Bulletin*. It has been made possible to do so through the kindness and generosity of Mrs. Nice.