DISTRIBUTION AND SEASONAL MOVEMENTS OF THE HOUSE SPARROW

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FROM January, 1930, to October, 1933, 450 House Sparrows were banded at Garden City, New York. Adult House Sparrows are notoriously trap-shy, seldom repeating or returning. Such scattering repeats and returns as there have been to date do not, in themselves, prove much as to the local movements of the species.

However, adults were banded on the right leg, and recognizably young birds on the left leg, thus dividing the population into six groups easily recognizable at the trapping station by sight. The varying proportions of these groups present by observation are shown in percentages in Table 1.

We will begin by summarizing the most obvious and best grounded conclusions based on this table:

(1) Young birds as a class leave the trapping station immediately if they are strong on the wing and independent of their parents. Their leaving seems to be due to lack of place memory, correlated with a general lack of memory which causes them to repeat much more freely than the adults. It is not that they are crowded out by the adults or seek a different environment, for at the same time the proportion of birds of the year at the station rises, as would be expected at that season. It is rather a matter of chance, with a drifting population, chance which will later bring a small proportion of them back to the station again.

(2) The proportion of banded adult males at the trapping station has risen rapidly since 1930 with continued banding, and is subject to wide seasonal fluctuations, which can only be explained by a more or less regular return of birds from outside to the station. Under the same circumstances the proportion of banded adult females has remained almost constant, with comparable seasonal fluctuations of less magnitude. The female population seems to be less mobile from month to month, but less stable from year to year.

(3) Right-banded males as compared with unbanded males may be considered old as compared with new birds at the station. The percentage of the former in the two groups taken together will give an indication of seasonal return of males (Table 3). There is a definite summer maximum percentage of right-banded males in June (1933), July (1931, 1932), or

August (1930), and a fall or winter maximum in November (1932), December (1931), or January (1930 and 1933). It is uncertain how one should interpret the fall and winter return of old birds—possibly as a different, established winter population—but returns (recaptures) of 14 different males suggest that summer and winter birds are the same individuals; and that right-banded males return to the station from late January into June, comparable to a vernal migration. It is a pure hypothesis that a good many males return and are regularly present for a short time in the fall or winter, and are irregularly absent seeking mates in spring, and back again in summer.

About equal numbers of males, females, and young were banded. At the close of April, 1932, the respective total percentages stood 37 ♂, 36 ♀, 27 juv. At the close of September, 1933, they stood 32 ♂, 33 ♀, 35 juv. This reversal of percentages is presumably caused by the decreasing proportion of unbanded adults available, owing to banding.

The first striking thing about Table 1 is the small number of birds present that were banded as young. Instead of the about 30 per cent (banded), in twenty-seven of the forty months of observation, they were below 10 per cent; in eleven months more from 10 per cent to 25 per cent; in two months only over 30 per cent of the banded birds present (see Table 2). In June, 1932, 40 young were banded, the largest number of any one group banded in any one month, yet this did not materially raise the percentage of left-banded birds in June, July, and August. Young birds as a class must, then, leave the vicinity of the station almost immediately. On the other hand, birds of the year from the outside seem to be sufficiently abundant to affect materially the proportion of unbanded female-plumaged birds. Note the peaks in that group (Table 1) of 41 and 42 in August and September, 1930; of 55, 67.50, 49, July to September, 1931; of 81 in August, 1932; of 53.50 in July, 1933. Birds from the outside later bring back with them a certain number of these left-banded individuals. Thus none that had attained male plumage was noted until January, 1932, after two years of banding, and from then on such males were present in somewhat increasing numbers.

A second point to notice in Table 1 is the seasonal increase in birds banded as adults. Peaks for right-banded males occur in August, 1930; January, July, and December, 1931; March, July, and November, 1932; January and May, 1933, reaching as high as 40 per cent of the population at the last. Right-banded females show peaks in July, 1930; January and May,

1931; February, May, and October, 1932; June, 1933, but only reach 26 per cent of the population (May, 1931), not increasing as the males do with total number of birds banded.

TABLE I

HOUSE SPARROW PERCENTAGES

July, 1930	42♂unb.	10♂rt.	..	34♀(j)unb.	14♀rt.	..	=100
Aug., 1930	37♂unb.	16♂rt.	..	41♀(j)unb.	6♀rt.	..	=100
Sept., 1930	47♂unb.	5♂rt.	..	42♀(j)unb.	5½♀rt.	½♀(j)lft.	=100
Oct., 1930	46♂unb.	8½♂rt.	..	35♀(j)unb.	10½♀rt.	..	=100
Nov., 1930	42♂unb.	14♂rt.	..	32♀unb.	11♀rt.	1♀lft.	=100
Dec., 1930	40♂unb.	17♂rt.	..	30♀unb.	13♀rt.	..	=100
Jan., 1931	32♂unb.	20⅔♂rt.	..	29♀unb.	18♀rt.	⅓♀lft.	=100
Feb., 1931	37½♂unb.	15♂rt.	..	32♀unb.	15♀rt.	½♀lft.	=100
Mar., 1931	38¼♂unb.	16½♂rt.	..	28¾♀unb.	16¼♀rt.	¼♀lft.	=100
Apr., 1931	39♂unb.	18♂rt.	..	31♀unb.	12♀rt.	..	=100
May, 1931	25♂unb.	23♂rt.	..	26♀unb.	26♀rt.	..	=100
June, 1931	17♂unb.	20½♂rt.	..	37♀(j)unb.	21♀rt.	4½(j)lft.	=100
July, 1931	13♂unb.	27♂rt.	..	55♀(j)unb.	4♀rt.	1♀(j)lft.	=100
*Aug.,1931	10♂unb.	12♂rt.	..	67½♀(j)unb.	9♀rt.	1½♀(j)lft.	=100
Sept., 1931	23½♂unb.	14½♂rt.	..	49♀(j)unb.	12♀rt.	1♀(j)lft.	=100
Oct., 1931	25♂unb.	32½♂rt.	..	26½♀(j)unb.	16♀rt.	..	=100
Nov., 1931	26♂unb.	32♂rt.	..	26♀unb.	16♀rt.	..	=100
Dec., 1931	16½♂unb.	39½♂rt.	..	29½♀unb.	13½♀rt.	1♀lft.	=100
Jan., 1932	27♂unb.	28♂rt.	1♂lft.	26♀unb.	18♀rt.	..	=100
Feb., 1932	24♂unb.	24♂rt.	2♂lft.	30½♀unb.	19♀rt.	½♀lft.	=100
Mar., 1932	21♂unb.	34♂rt.	1♂lft.	25♀unb.	18¾♀rt.	¼♀lft.	=100
Apr., 1932	25♂unb.	27♂rt.	3♂lft.	29♀unb.	15♀rt.	1♀lft.	=100
May, 1932	22♂unb.	25♂rt.	..	29♀unb.	22♀rt.	2♀lft.	=100
June, 1932	22♂unb.	32♂rt.	1♂lft.	26♀(j)unb.	15♀rt.	4♀(j)lft.	=100
July, 1932	15♂unb.	39♂rt.	1♂lft.	32♀(j)unb.	7♀rt.	6♀(j)lft.	=100
Aug., 1932	7♂unb.	3♂rt.	4(j)♂lft.	81♀(j)unb.	5♀rt.	..	=100
*Sep., 1932	16♂unb.	6½♂rt.	..	48½♀(j)unb.	10♀rt.	19♀(j)lft.	=100
Oct.., 1932	25♂unb.	22♂rt.	3♂lft.	31♀(j)unb.	14♀rt.	5♀(j)lft.	=100
Nov., 1932	25♂unb.	25♂rt.	2♂lft.	35♀unb.	10♀rt.	3♀lft.	=100
Dec., 1932	38♂unb.	14½♂rt.	5½♂lft.	34♀unb.	8♀rt.	..	=100
Jan., 1933	31♂unb.	22♂rt.	½♂lft.	36½♀unb.	10♀rt.	..	=100
Feb., 1933	33♂unb.	11♂rt.	1♂lft.	40♀unb.	15♀rt.	..	=100
Mar., 1933	32♂unb.	23♂rt.	1½♂lft.	31½♀unb.	12♀rt.	..	=100
Apr., 1933	15♂unb.	35♂rt.	4♂lft.	32♀unb.	14♀rt.	..	=100
May, 1933	4♂unb.	41♂rt.	9♂lft.	27♀unb.	19♀rt.	..	=100
*June,1933	..	38♂rt.	..	41♀(j)unb.	21♀rt.	..	=100
*July, 1933	10½♂unb.	23♂rt.	6♂lft.	53½♀(j)unb.	7♀rt.	..	=100
Aug., 1933	17♂unb.	20♂rt.	5♂lft.	42♀(j)unb.	11♀rt.	5♀(j)lft.	=100
Sept., 1933	18♂unb.	29♂rt.	10♂lft.	35♀(j)unb.	8♀rt.	..	=100
Oct., 1933	22♂unb.	28♂rt.	12♂lft.	30♀(j)unb.	8♀rt.	..	=100
Nov., 1933	18♂unb.	30♂rt.	10♂lft.	35♀unb.	7♀rt.[1]	..	=100

[1]This paper was read at the 1933 New York meeting of the American Ornithologists' Union, since which figures for November, 1933, have been added to the foot of this table.

From June to October, in feeding birds, females could not be differentiated from birds of the year and the figures there marked (j), are for these two groups combined.

Counts were not sufficiently high for the percentages to be satisfactory in four months marked with a (*) in the tables (August, 1931; September, 1932; June and July, 1933).

TABLE II

PERCENTAGE OF LEFT-BANDED BIRDS IN BANDED BIRDS

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
1930	..	..	..	..	..	..	0	0	5	0	4	0
1931	1	2	1	0	0	10	3	7*	4	0	0	2
1932	2	5	2	9	4	10	13	33	52*	18	12	20
1933	2	4	4	8	13	0*	17*	24	21	25	..	..

TABLE III

PERCENTAGE OF RIGHT-BANDED MALES IN RIGHT-BANDED AND UNBANDED MALES

	Feb.	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Jan.*	
1930	..	..	..	..	..	19	30	10	16	25	30	39	1931
1931	29	30	32	48	55	67	55*	38	57	55	71	51	1932
1932	50	62	52	53	59	72	30	29*	47	50	28	42	1933
1933	25	42	70	91	100*	71*	54	62	56	..	..	..	..

TABLE IV

A table of the number and interval of recaptures of birds banded as ♂'s, ♀'s, and juvs., shows how much more readily the juvs. repeat, and adult ♂'s return.

House Sparrow Repeats and Returns

Repeats one week or less	0♂	2♀	17 juv.	
One week to 1 month	3♂	3♀	4 juv.	4- 7-24
One month to 3 months	1♂	2♀	3 juv.	
Returns 3 months to 1 year	8♂	8♀	5 juv.	14-10-5
Over 1 year	6♂	2♀		

INTERESTING RETURNS AND RECOVERIES

Whereas, as has been said, banded adult House Sparrows are trap-shy, there is individual difference in this respect, as in other species, and two banded adult males have been in the trap several times: No. A189504, April 25 and May 25, 1930; June 19, 1931; and February 19, 1933; No. B139623, April 30, May 13, June 12, 1931; January 31 and March 7, 1932.

No. B139692, a female, and probably a bird of the year, banded August 14, 1931, was recovered six or eight miles northwest of the station June 20, 1932 (reported to the Biological Survey by Miss Ida F. Fowler), which gives some idea of the distance to which the birds move.

No. C137162, a male, banded May 1, 1933, was recovered May 30, 1933, upwards of a half-mile south of the station (Dr. H. Kimball)—direct evidence that males are not all established at their breeding places in May.

Band No. 51464, placed on a male January 26, 1930, was found in an old owl pellet (D. G. Nichols) in May, 1931.