

nest, eggs and adults. Also I corresponded with Mr. Widmann concerning my find. After some study I find myself convinced that the nests were those of the Least Flycatcher. The latter brood was banded on August 23, 1923.

Mr. Widman stated in my correspondence with him that this record not only confirmed the breeding of the species in southwestern Missouri, but also extended its breeding range some two degrees of latitude, from 39° to 37°. During this 1924 season I have heard and seen the adult birds occasionally, but have been unable to institute a close search for their nests, which I feel sure are located somewhere in the orchards in which they nested last season.—JOHNSON A. NEFF, *Marionville, Missouri*.

Decrease of the English Sparrow in Eastern Massachusetts.—

In checking statistical observations of *Passer domesticus* in eastern Massachusetts from November, 1914 to June 1922 inclusive, during which period I kept a careful and, so far as possible, accurate account of every bird seen at any time, I found that my records confirm, in striking fashion, conclusions derived from other sources. The following statistical chart will be self-explanatory but certain qualifications are necessary.

The average number of individuals seen per day when a species is observed I believe to be far more conclusive than the percentage of days seen unless one is devoting all one's energies to looking for a particular species. In other words the variable factor, *i. e.*, time in the field is to a large degree eliminated, and you do not count the same birds indefinitely.

Date	Days on which Sparrows seen	Total of individuals	Average per day
Nov. 20, 1914–Jan. 1, 1916	207	2705	13.7
1916	232	2488	10.7
1917	181	1478	8.2
1918	194	1311	6.8
1919	221	1343	6.2
1920	144	871	6.0
Jan. 1, 1921–June 28, 1922 ¹	101	570	5.6

From November, 1914 until July, 1918, most of my observations were confined to Weston, Mass., and in the summers to Brewster, Mass., with two or three intervals of a week or so outside the state, which have been discounted. From September, 1918 to June 1922, I lived in Cambridge with many trips in the vicinity of Boston and to Cape Cod. I have purposely excluded the summer records of 1921 for they covered portions of Rhode Island—although if included the general trend would only be accentuated.

Taking as an hypothesis that the English Sparrow has remained stationary in numbers one would expect to find that in the second period the number of times and the number of individuals seen per time would

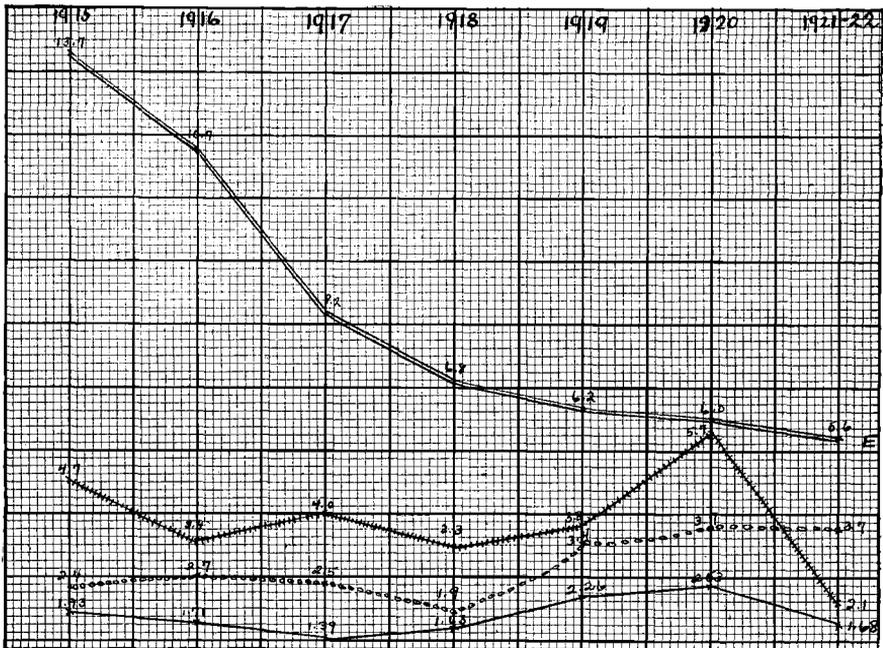
¹Summer of 1921, July–Sept., spent in Rhode Island.

increase rapidly as the country covered in the second period was much more favorable to the Sparrow to the exclusion of everything else.

On the contrary, a glance at the table will indicate that although the birds were seen more times in 1919 than in the two preceding years, yet the number seen per time was appreciably less. In other words the graph indicating the number of individuals seen each time the species was observed shows a steady but rapid decrease for eight years. That this decrease was unique and not due to variation in the number of times in the field is brought out by comparison with native permanent residents, the Blue Jay, Crow and Chickadee which are roughly as follows:—full details are omitted from lack of space—see graph.¹

	Blue Jay	Crow	Chickadee
1915-1917	1.74	4.05	2.56
1918-1919	1.86	3.47	2.61
1920-1922	2.13	4.04	3.69

It is clear, then, that using relative means of comparison, the English Sparrow has become much less common than three native and comparable species in the period and region considered. The decrease might roughly be placed at 50 per cent but, since the latter four years covered observations



¹ Uppermost curve, English Sparrow. Others in order, Crow, Chickadee and Blue Jay.

mainly in urban sections of Boston, Cambridge, Belmont, Brookline, Waltham, etc., I should estimate the loss at anywhere up to 75 per cent. In other words I believe that where I saw, in 1915, a flock of 13 to 14 birds together, I would have expected in 1922 to see only 3-4.

My conclusions are borne out by statements of others. In November, 1917, an observer in Weston, located on a poultry farm where feeding conditions were favorable, reported that there were "fewer Sparrows than formerly." An observer from Lexington commented in 1922 on the scarcity of this very common species which reached its climax, I believe, in the summer of 1922. At this time the down-town section of Boston was almost free from these pests so that on July 27, I considered it worthy of note that I had seen three in Winthrop Square. Since this time I have every reason to believe the birds have come back slowly and during the present winter I have watched for them carefully. In Weston, there are several flocks, not large or well distributed; in Boston I can usually find 25-30 without difficulty, but I do not believe they compare in numbers with, say, eight years ago.

My personal reaction to the cause of this change inclines toward the theory that some disease of overcrowding has attacked the species. Of course, the natural adjustment to the food supply would tend to cut down the numbers owing to fewer horses in the city. This removes a very fertile food supply but does not in the least account for the reduction in numbers on the hen farm. One would expect to find them more abundant on such a place if there were less food elsewhere.

I should be very interested to find whether the observations of others in this and in more distant localities agree with mine and to know if any diseased birds have been found or collected. It appears to me that there must be still a great abundance of food available—for example the flock of Pigeons on Boston Common is much more numerous than a few years ago and yet the Sparrows are not. Again, the Sparrows were less common a year and a half ago than now, although conditions of food and climate were probably the same. Is this one of those cycles in the bird world which for no apparent reason raises or lowers a species in relative abundance, or is it just the delayed and natural adjustment of an introduced species to American conditions?—WARREN F. EATON, *Weston, Mass.*

Notes on the Purple Finch (*Carpodacus purpureus purpureus*).—The following notes are based on my bird banding records made at Sault Ste. Marie during the years 1922-1924. During 1922 I banded 248 Purple Finches; during 1923, 1092 with 33 returns, while this year to date (July 20, 1924) I banded 697 with 83 returns.

Average date of first spring arrival at feeding station, nine records, April 7, earliest March 7, latest April 22.

Average date of last to leave in the fall, eight records, Oct. 28—earliest Oct. 18, latest Nov. 17.

Early in Feb., 1923, a small flock of about six was seen in town feeding