that it was our old friend. Later in the season the male was trapped, but he was without a band. It is of course possible the band had been lost, but after an intimate study we were convinced it was another individual. The male of the first summer, as already intimated, took no part in the tasks of raising the young, and never as far as we could determine did he offer to feed them. But the first food delivered to the young of the second summer was brought by the male, and he continued to give the young great attention. If this episode had taken place in human life, we would be prone to think that the wife had good reason to divorce her first husband.

The same female Nighthawk returned in 1923 and again in 1924, making a record of nesting for four seasons on the same roof. It is interesting to speculate of the long journeys this bird made to her winter home in South America, a hazardous flight of thousands of miles, and then returning to the same little Maine Village to nest on the same roof for four, and possibly several years before I began to make records of her nesting. I have never recovered any of the other banded birds because since the first summer the time spent in Brunswick was not sufficient to trap the other adults. Last year on June 14 (1925), I trapped a female which had nested on the roof of the High School, but it was an unbanded bird. My bird may have gone elsewhere to nest, but I am inclined to believe that she has been lost somewhere on that long journey to or from her winter home.

To those who have the opportunity, Nighthawks offer excellent material for banding operations, and the author hopes that his experience may be repeated and enlarged by others. A more comprehensive article, including all of the details of the life history study of the Nighthawk, is to be published in another journal.

TREE SPARROW MIGRATION: A COMPARISON

BY RICHARD E. HORSEY

A REMARKABLE parallel is to be seen between the experience of Mr. Wendell P. Smith at Wells River, Vermont, with the Tree Sparrow (*Spizella m. monticola*) and mine at Rochester, New York, with the same species. This parallelism surely tends to uphold his contention that his "migration records

appear too consistent year after year to be accidental," as noted in this Bulletin for April, 1926.

My station at Rochester, New York, is situated seven miles south of Lake Ontario on the southern slope of the Pinnacle Range of hills, in the edge of Highland Park. The bird life of Highland Park is typical of the Alleghanian faunal area of the transition zone. The surrounding lowlands, however, receive a slight admixture of Carolinian forms, which would be greatly augmented were it not for the barrier of highlands extending across the state to south of this low plain bordering Lake Ontario.

Mr. Smith states that his station is near the tip of a narrow tongue of the transition zone which extends up the Connecticut Valley in Vermont and lies about seventy miles south of the international boundary.

Tree Sparrows appear near both stations in late October, and I agree with his suggestion that these first arrivals appear to be birds of passage, although I am unable to fix definitely the departure dates for these passing birds as he has done. They do not visit my traps until the winter residents arrive, but I have obtained the dates of arrival of this species in the vicinity of Rochester from the Park Department Bird Chart compiled by Mr. Wm. L. G. Edson and myself.

The tabulation below is a combination of the reports from the two stations:

	Wells River, Vermont		Rochester, New York	
	First arrivals.	Later arrivals (Winter residents	First arrivals.	Later arrivals (Winter residents
1920	Oct. 28	Dec. 12		
1921	Oct. 24	No winter residents		
1922	.....	.....	Oct. 26	Dec. 17
1923	Oct. 22	Dec. 23	Oct. 24	Dec. 16
1924	Oct. 24	Dec. 21	Oct. 22	Dec. 29
1925	Oct. 23	Dec. 10	Oct. 24	Dec. 12

In the spring a number of birds of passage are banded at both places and the same difficulty is experienced in separating winter residents from passing birds, but the last appearing dates of each are given as nearly as possible.

	Wells River, Vermont		Rochester, New York	
	Winter residents (Last Repeat)	Spring arrivals (Last seen)	Winter residents (Last repeat)	Spring arrivals (Last seen)
1923	April 11	April 12	April 22	April 25
1924	April 4	April 25	April 16	April 25
1925	March 31	April 15	April 5	April 13

Mr. Smith suggests "these facts tend to support the theory that in migration those individuals occupying the southern part of the breeding range migrate to the more southern part of the winter range, and that those individuals nesting in the northern part of the breeding range migrate to the northern part of the winter range." This problem, however, can be solved only by cooperation in banding by stations north and south of us, and until a large amount of data is obtained by banding observation this will remain an interesting theory, which we sincerely hope will be supported by facts.

The return records of both stations are so nearly identical as to be astonishing. I banded 88 birds to Mr. Smith's 50 in the same period of time, so my proportion of returns was less than his. It may be more birds of passage were marked at Rochester.

For comparison the return records from both places are given below:

Winter Seasons, Wells River, Vermont, 1922-23 to Jan. 29, 1926.

Band No.	1922-23		1923-24		1924-25		1925-26	
39025	b.*	3/27/23	rt.†	1/28/24	rt.	2/10/25	rt.	12/29/25
39026	b.	3/23/23	rt.	11/27/24				
39028	b.	4/ 2/23	rt.	1/19/24				
39066	b.	3/ 8/23	rt.	3/ 8/24				
43553			b.	1/26/24	rt.	1/10/25	rt.	12/27/25
43555			b.	1/26/24			rt.	12/15/25
43559			b.	1/28/24			rt.	12/27/25
43560			b.	2/ 1/24	rt.	1/ 1/25	rt.	12/27/25
43561			b.	2/ 4/24	rt.	2/17/25		
43567			b.	2/15/24			rt.	1/29/26
127125					b.	1/31/25	rt.	12/15/25
127126					b.	2/ 8/25	rt.	12/27/25
127128					b.	2/10/25	rt.	1/ 3/26
127134					b.	2/23/25	rt.	12/23/25
127135					b.	3/ 3/25	rt.	1/ 9/26
127136					b.	3/ 3/25	rt.	12/19/25
127114					b.	1/ 6/25	rt.	1/14/26

* b. equals banding date.
† rt. equals returning date.

Winter Seasons, Rochester, New York 1922-23 to March 20, 1926.

Band No.	1922-23	1923-24	1924-25	1925-26
65630	b. 12/17/22	rt. 12/16/23		
65637	b. 12/25/22	rt. 12/25/23		
65647	b. 1/30/23	rt. 12/25/23	rt. 12/29/24	rt. 1/10/26
65648	b. 2/ 6/23	rt. 12/25/23	rt. 12/23/24	
118523		b. 12/16/23		rt. 3/20/26
118524		b. 12/16/23	rt. 1/ 6/25	
118526		b. 12/18/23	rt. 12/26/24	
118527		b. 12/23/23	rt. 1/ 8/25	rt. 2/14/26
118528		b. 12/23/23	rt. 1/ 1/25	rt. 12/20/25
118532		b. 12/25/23	rt. 12/25/24	
142376			b. 12/31/24	rt. 12/30/25
142377			b. 1/ 1/25	rt. 3/16/26
142381			b. 1/ 9/25	rt. 1/14/26
142386			b. 1/16/25	rt. 12/ 3/25
142390			b. 1/19/25	rt. 12/ 1/25
142401			b. 3/ 5/25	rt. 1/12/26
142403			b. 3/22/25	rt. 1/24/26

The similarity will be seen in the following, although Mr. Smith may have a few returns after Jan. 29, 1926 that are not recorded:

Returned once, 14 at Wells River and 13 at Rochester; one three times at both places; and two at Wells River with three at Rochester coming back twice, the total being 17 returning birds in each case.

The conditions governing migration appear to differ greatly at the two stations. Wells River, Vermont, is in a river valley which would be expected to be the course followed. Rochester, New York, except for the Pinnacle range of hills is a plain with the broad waters of Lake Ontario to the north with nothing apparently to confine migration to a given route from the north. The Genesee River runs through flood plains for several miles south and would seem to have little influence on migration routes of a northern breeding species. Therefore, the results described must be characteristic of the species and not due to local conditions. One fact at least is proven by these return records. That is, the same individual birds do often occupy the same winter home year after year and under normal conditions return with remarkable accuracy to a local restricted feeding area, after an annual six months absence.

That individual breeding birds do use the same local nesting grounds, season after season, is well established and it is not strange that they become attached to their breeding haunts.

Through bird banding it is found that this is also true of their wintering habitat.

Birds of passage, however, seldom stop in the same restricted trapping areas and do not appear to use the same feeding places enroute year after year or they would be more often retaken.

This has been my experience with other species also that true migrants are seldom seen after leaving a station. It is the summer or winter residents that come back.

Rochester, New York, June 14, 1926.

RETURN RATIOS IN THEIR RELATION TO ANNUAL MORTALITY AMONG BIRDS

BY CHARLES L. WHITTLE AND HELEN G. WHITTLE

It is quite generally agreed among ornithologists that the annual bird mortality normally takes place largely among those less than a year old. If we assume in the case of a New England species just holding its own that the number of birds on August 1st is twice that on May 1st, i.e. half adults and half birds-of-the-year, and further assume that 20% of the young and 80% of the adults survive until the following year, we can say by this token that the number of surviving young just equals the annual loss of adults. Of course these percentages are purely fanciful, but they seem to be useful at this time, and if they are not too far wrong, then at banding stations operated during the nesting season we should expect in case of the Purple Finch (*Carpodacus p. Purpureus*), for example, say on May 1st, a return ratio of four adults to one immature bird (bird born the preceding year).

As it happens, the proportion of birds-of-the-year among our returns of this species at Peterboro, New Hampshire, for two years approximates this assumed ratio of four adults to one bird-of-the-year. In the case of a third year's records (to June 5th) the ratio is nine adults to one bird-of-the-year. The figures are: returns in 1924, 25, of which seven were young birds when banded; in 1925, 64, of which 13 were young when banded; returns in 1926, 44, of which 5 were young when banded.

On account of the fact that our banding station in Cohasset, Massachusetts, is operated all the year round, Purple Finches