

HOUSE FINCH POPULATION STUDIES IN THE PHILADELPHIA AREA

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INTRODUCTION

The purpose of this paper is to present the results of an analysis of House Finch (*Carpodacus mexicanus*) banding data obtained at Feasterville, Pennsylvania, along with additional comments on variations in plumage and possible nesting records of this species in the Philadelphia area.

The introduction of House Finches in the eastern United States during the early 1940's was established by Elliott and Arbib (1953). They estimated the total eastern population in 1951 at 280 individuals. The establishment, growth, and behavior of this extralimital population was documented in the Long Island, New York, area by Gill and Lanyon (1965).

House Finches appeared in the Philadelphia area during the fall and winter seasons of the late 1950's. William Middleton (1957:21) banded one bird on November 26, 1955, at Wenonah, New Jersey; George Hitchner (1957:33) banded one House Finch on October 27, 1957, at Pitman, New Jersey; and Dr. E. Wayne Marshall (1957:33) banded one on December 29, 1957, at Ardmore, Pennsylvania. In addition, the late Louis Reichel banded 10 birds in December, 1959, and some House Finches each winter thereafter until his death in 1965 (Neumann, personal communication). Mr. Reichel trapped only a few birds each year for an educational program he conducted, and his totals are not fully indicative of the size of the winter population in his area. A good indication of the increase in the population of House Finches may be shown by noting that Gill and Lanyon (1965), in the five-year period 1958 through 1963, banded only 355 birds. Raymond Middleton, at his station in Norristown, Pennsylvania, banded only 38 House Finches from 1960 through 1963; from 1964 through 1967 he banded 134 (Middleton, letter of August 6, 1969). Finally, I banded 1588 House Finches at Feasterville, Pennsylvania during the period from 1965 through 1969.

There are no summer banding records of House Finches in the Philadelphia area until 1967 when Frank Neumann banded 16 birds at Huntingdon Valley, Pennsylvania (Neumann, personal communication).

During the fall of 1965, increasing numbers of House Finches were observed at my feeders in Feasterville. Ryan Walden obtained a banding sub-permit for me which enabled me to begin a banding investigation of these birds. In 1966 my Master Permit was obtained. The first bird was banded on November 19, 1965, and by the spring of 1969 a total of 1588 House Finches wore my bands. These included 882 females, 682 males and 24 birds of unknown sex.

The results of this study, when combined with other information, help to update our knowledge of the status of the House Finch in the Philadelphia area.

STUDY AREA AND RESEARCH METHODS

The trapping area was a yard in a Suburban residential area in Feasterville, Bucks County, approximately three miles north of the Philadelphia boundary and 15 miles west of the Delaware River. The yard measured 75 feet by 75 feet. Vegetation included two 30-foot sugar maples (*Acer saccharum*) and several smaller deciduous trees surrounded by grass. No doubt one advantage in attracting birds is an unoccupied area of 10 acres of deciduous woods (20 per cent) and overgrown fields (80 per cent) directly behind the trapping area. Most birds arrive at the traps from the two wooded acres approximately 50 feet from the traps. Only one other feeding station is maintained in the immediate neighborhood, and this is about 150 feet south of my station.

The feeders consisted of a table three feet by four feet, and a small platform feeder one foot by two feet placed five feet above the ground in a sugar maple. Much food was also placed on the ground, and most of the birds were trapped on the ground. The food was 100 per cent sunflower seeds which was most effective in eliminating most of the competition from House Sparrows (*Passer domesticus*).

My traps consisted of one combination three-cell Potter/pull trap, two Seth Low All-Purpose traps, and one eight-cell Potter trap. At times a two-door pull trap was also used.

Trapping was done primarily from 6:00 to 8:00 AM daily, and during all daylight hours on weekends. Very few House Finches came to the feeders during the late afternoon from 3:00 PM until dark. Continuous trapping was also conducted daily during the period December 25 through January 1.

A word is necessary here regarding sexing of the birds. Gill and Lanyon (1965) have demonstrated that some female House Finches exhibit slight red coloration on the rump and crown, and a small population of male birds in western studies (Van Rossem, 1936; Moore, 1939) were completely devoid of any red or gold coloration. Because of this considerable variation in color, many of my finches banded during 1965-1966 were sexed "U" (Unknown). Later in my study, I began cooperating with Elinor McEntee, of Ridgewood, New Jersey, in her House Finch plumage studies. All birds were arbitrarily assigned as either "M" (male) or "F" (female), followed by a numerical color code devised by Mrs. McEntee. It is hoped that, through many returns of these "color-coded" birds, conclusive information regarding the sexing of House Finches by plumage will be learned. The author believes at this time, however, that many birds cannot be accurately sexed by plumage when banding — an opinion based upon the studies by Gill and Lanyon (1965), Van Rossem (1936) and Moore (1939).

ARRIVAL AND DEPARTURE DATES

Arrival and departure dates of House Finches at my feeders are shown in Table #1. The earliest arrival date was September 9 (1967), and my latest departure date was April 22 (1967). From 1963 through 1967 they arrived earlier in the fall each year, but in 1968 this trend ended.

Figure #1 is a graph showing numbers of House Finches banded during the four-year study period, divided into ten-day periods. Although the traps were operated on a full-time basis during the ten-day period ending December 31 each year, this was *not* the period during which most House Finches were banded. In three of the four years, the peak number of birds was banded in the ten-day period ending December 10 and in the other year (1966) in the period ending December 20.

There is then a gradual decline of birds into the last half of February, but a discernible increase in March (Fig. 1). However, the numbers banded in March do not approach the numbers banded in December. I am uncertain whether this indicates that House Finches travel north via a different route than they follow south, or whether the Philadelphia area is at the present time generally the southern terminus of the winter migration from the northern New Jersey-Long Island area. I suspect, however, that it is the latter, although some birds certainly straggle further south. For example, a male House Finch was collected in North Carolina on February 26, 1963 (1964). No bander south of the Philadelphia area reports anywhere near the concentration of House Finches during the winter months that we have in this area. Although no record was kept of repeats (birds retrapped less than three months after banding), there were practically always banded finches at the feeders, and banded birds were reported to me throughout Feasterville. Only two of 41 recoveries of my birds were recovered south of the Philadelphia area. These two birds were not recovered during the same season they were banded, and so do not indicate that the birds necessarily moved south during the same migration period in which they were banded. Similarly, three of five birds recovered within ten miles of Feasterville were recovered during the same fall or winter they were banded, indicating they wintered in this area.

Table #1. Arrival and Departure Dates of House Finches at Feasterville, Pennsylvania

<i>Arrival</i>	<i>Departure</i>	<i>Total Banded</i>
Dec. 15, 1963	April 6, 1964	0
Nov. 1, 1964	April 5, 1965	0
Oct. 12, 1965	April 14, 1966	466
Oct. 10, 1966	April 22, 1967	278
Sept. 9, 1967	March 25, 1968	503
Oct. 28, 1968	April 5, 1969	341
		1588

RECOVERIES

There have been 41 recoveries of House Finches banded in Feasterville, with four birds being recovered more than once. This is a recovery rate of 2.5 per cent, which is high when compared with the study by McEntee (1969) which reported 23 recoveries from 2000 birds banded for a recovery rate of 1.15 per cent. Complete data on my recoveries are found in Table #2. Nearly one third, 13, of my birds were recovered by J. R. Cohen in Atlantic Beach, Long Island, New York. Interestingly, I have trapped 11 birds which he has banded. Figure #2 illustrates the dispersal of 41 recoveries of House Finches banded in Feasterville. Four birds were recovered more than once. This is unusual, and contributes a great deal more information concerning the birds' movements after banding than does one recovery. Number 56-70291 is particularly interesting. This bird was first retrapped at Huntingdon Valley, Pennsylvania, by Frank Neumann in March, 1966, and then retrapped in Atlantic Beach by Cohen in December, 1966. Surely, very few wild birds are held in the hand by three different banders during their lifetimes! It illustrates that one bird probably spent the winter in the Philadelphia area and returned to Long Island. Huntingdon Valley is only slightly over five miles southwest of Feasterville.

Number 56-70472 is an amazing coincidence. Cohen recovered this bird on March 8, 1966, at his station in Atlantic Beach. He then trapped it again three and one half months later, on June 26, 1966, at another station in Cedarhurst, New York. This is about three miles from Atlantic Beach.

Thirty-four of the 41 recoveries of my House Finches were made in the northern New Jersey-Long Island area, and only two of the 34 were recovered during the six-month period from September through February. Thus the House Finch population here is apparently a wintering population, and not merely a spreading out of the northern New Jersey-Long Island resident population. The birds regularly move back and forth between the Long Island and Philadelphia areas.

The only House Finch that was recovered in the Philadelphia area during a breeding season was number 74-78803, banded on December 23, 1967, and recovered by Neumann on August 4, 1968 in Huntingdon Valley. This bird may have remained in the area all summer (Neumann, personal communication). Perhaps it represents a part of the House Finch population which is expanding its range, as will be shown later in this paper. One fact about the recoveries which may prove helpful is that all were trapped and released by banders, except three which were found dead. Thus some of these House Finches may be retrapped again, since they are easily attracted to feeders. Although Mrs. McEntee's (1969) banding studies seem to point to the fact that Ridgewood, New Jersey, is a natural pivotal point in the spring move-

ment of House Finches, not one of my birds has been recovered by Mrs. McEntee in Ridgewood and then retrapped by Cohen in Atlantic Beach, New York.

Table #2. Recoveries of House Finches Banded in Feasterville

<i>Band No.</i>	<i>Date Banded</i>	<i>Date Recovered</i>	<i>Recovery Location</i>
56-70113	11-21-65	03-19-66	Atlantic Beach, N.Y. (Cohen)
56-70160	12-04-65	03-21-66	Atlantic Beach, N.Y. (Cohen)
57-70160	12-04-65	03-27-67	Atlantic Beach, N.Y. (Cohen)
56-70182	12-05-65	03-11-66	Great River, N.Y. (Terry)
56-70232	12-12-65	03-18-66	Atlantic Beach, N.Y. (Cohen)
56-70232	12-12-65	03-25-69	Atlantic Beach, N.Y. (Cohen)
56-70260	12-19-65	06-24-66	Atlantic Beach, N.Y. (Cohen)
56-70287	12-26-65	04-02-66	Ridgewood, N.J. (McEntee)
56-70291	12-26-65	03-05-66	Huntingdon Valley, Pa. (Neumann)
56-70291	12-26-65	12-03-66	Atlantic Beach, N.Y. (Cohen)
56-70342	01-01-66	07- ?-66	Rye, N.Y. (Dead)
56-70356	01-02-66	03-06-66	Huntingdon Valley, Pa. (Neumann)
56-70371	01-02-66	03-31-66	Atlantic Beach, N.Y. (Cohen)
57-70376	01-09-66	03-11-66	Ridgewood, N.J. (McEntee)
56-70437	01-18-66	06-06-66	Riverside, Conn. (Adams)
56-70472	01-23-66	03-08-66	Atlantic Beach, N.Y. (Cohen)
56-70472	01-23-66	06-26-66	Cedarhurst, N.Y. (Cohen)
73-30049	03-13-66	04-13-66	Ridgewood, N.J. (McEntee)
73-30072	03-27-66	04-12-66	Ridgewood, N.J. (McEntee)
74-64988	02-04-67	02-22-67	Philadelphia, Pa. (Pepper)
74-64972	01-21-67	03-22-67	Ridgewood, N.J. (McEntee)
74-64994	02-05-67	03-31-67	Ridgewood, N.J. (McEntee)
74-78453	03-19-67	04-21-67	Ridgewood, N.J. (McEntee)
74-64943	01-15-67	12-16-67	Doylestown, Pa. (Hendrick)
73-30134	11-26-66	03-11-67	Atlantic Beach, N.Y. (Cohen)
56-70264	12-19-65	04-13-67	Atlantic Beach, N.Y. (Cohen)
73-30155	12-04-66	05-04-67	Ridgewood, N.J. (McEntee)
56-70238	12-12-65	03-20-67	Arlington, Va. (Beach)
74-64998	12-05-67	01-09-68	Alexandria, Va. (Trott)
74-78803	12-23-67	08-04-68	Huntingdon Valley, Pa. (Neumann)
74-64975	01-29-67	02-17-68	Rye, N.Y. (Dead)
74-78882	01-07-65	03-20-68	Atlantic Beach, N.Y. (Cohen)
74-78879	01-07-65	03-22-68	Atlantic Beach, N.Y. (Cohen)
74-64954	01-15-67	03-24-68	Bellport, N.Y. (Dead)
74-64957	01-16-67	08-01-68	Greenwich, Conn. (Schmid)
74-78646	11-26-67	08-01-67	Greenwich, Conn. (Schmid)
56-70131	11-25-65	04-24-68	Fairfield, Conn. (Weibe)
74-78868	01-07-68	03-30-68	White Plains, N.Y. (Meleny)
74-78558	11-15-67	03-04-68	Ridgewood, N.J. (McEntee)
74-78770	12-16-67	03-19-68	Ridgewood, N.J. (McEntee)
75-93089	11-16-68	04-08-69	Ridgewood, N.J. (McEntee)

RETURNS

I have had 93 House Finches return to my station from 1439 banded (1588 less 149 banded between December 16, 1968 and March 16, 1969). A bird is classified as a "return" when it is retrapped at the same station more than three months after banding.

This is a return rate of 6.5 per cent, which is exceptionally high when compared with McEntee's (1969) study, which had 22 returns from 2000 birds, or 1.1 per cent. This suggests that their wintering area is locally very restricted, and that they tend to return to the same wintering area year after year.

It does not seem necessary to list data on all 93 returns. Five birds have returned to my station more than once, and data on these are shown in Table #3. Unfortunately, none of the 93 House Finches that have returned to my Feasterville station have been recovered elsewhere. The longest elapsed time between banding and returning was three years and four days. This was number 56-70213, banded December 8, 1965, and returned December 12, 1968. Her age was unknown when banded. She had also returned three previous times before December 12, 1968, as shown in Table #3.

Table #3. House Finches Which Returned to Feasterville More Than Once

<i>Band No.</i>	<i>Date Banded</i>	<i>Date of 1st Return</i>	<i>Subsequent Returns</i>
56-70213	12-08-65	02-12-67	11-23-67, 02-11-68, 12-12-68
73-30007	03-05-66	12-04-66	01-12-68
74-78735	12-08-67	03-17-68	12-08-68
74-78573	11-18-67	03-17-68	12-08-68
74-78716	12-07-67	03-15-68	12-24-68

FOREIGN RETRAPS

Twenty-four House Finches have been trapped at Feasterville that were banded elsewhere. Two of the 24 I have trapped more than once. Table #4 gives complete data on all 24 foreign retraps. Eleven were banded at Atlantic Beach and three at Ridgewood. Only three birds were banded south of the Philadelphia area, and the elapsed time between banding and recovery is too long for one to arrive at any conclusion as to the seasonal movements of these birds.

Four House Finches have wintered in Feasterville and have returned to Atlantic Beach, New York, at least once, and one bird made this trip twice. The banding and recovery records of these four birds are shown in Table #5. The travels of these four House Finches help to point out the fact that this is a true seasonal migration, and not just a post-breeding dispersal of the species. Number 67-23214 is a remarkable record in that two banders, 100 miles apart, kept such close watch on the movements of one bird. Cohen has had this bird in hand at least four times, and I handled it twice.

(J. R. Cohen, 133 Broome Avenue, Atlantic Beach, N. Y. 11509, has been color banding hatching-year House Finches in Atlantic Beach since 1967, and if anyone observes a House Finch with a color band, please note the date and exact location of the sighting and notify Cohen at the above address).

Table #4. House Finch Foreign Retraps at Feasterville

<i>Band No.</i>	<i>Date Banded</i>	<i>Date Retrapped</i>	<i>Banding Location.</i>
67-23214	06-04-65	01-02-66*	Atlantic Beach, N.Y. (Cohen)
72-93871	08-07-66	02-14-67**	Atlantic Beach, N.Y. (Cohen)
72-93748	07-13-66	02-19-67	Atlantic Beach, N.Y. (Cohen)
75-06120	07-04-67	12-01-67	Atlantic Beach, N.Y. (Cohen)
74-22724	04-04-67	12-09-67	Atlantic Beach, N.Y. (Cohen)
75-07538	07-19-68	12-24-68	Atlantic Beach, N.Y. (Cohen)
75-07891	08-19-68	12-27-68	Atlantic Beach, N.Y. (Cohen)
75-07830	08-15-68	03-01-69	Atlantic Beach, N.Y. (Cohen)
73-67936	04-08-66	12-25-66	Ridgewood, N.J. (McEntee)
65-26205	04-18-65	02-19-67	Ridgewood, N.J. (McEntee)
73-78627	03-29-67	12-23-67	Ridgewood, N.J. (McEntee)
67-34736	10-03-66	03-19-67	Washington Crossing, Pa. (Fluck)
67-34745	10-03-66	11-23-67	Washington Crossing, Pa. (Fluck)
73-56023	10-21-66	12-24-67	Philadelphia, Pa. (Murton)
73-21532	12-01-67	02-04-68	Philadelphia, Pa. (Pepper)
56-53548	08-26-65	12-27-65	Brookhaven, N.Y. (Terry)
69-57018	04-09-64	01-08-66	Riverside, Conn. (Geis)
73-86150	12-31-66	11-21-67	Poolesville, Md. (Church)
73-87987	06-25-67	11-23-67	Sayville, N.Y. (Terry)
67-34559	11-26-66	12-10-67	Titusville, N.J. (Fluck)
74-36667	08-27-67	12-31-67	Huntingdon Valley, Pa. (Neumann)
51-40933	03-05-66	12-31-67	Dayton, Md. (Baysinger)
72-94514	12-02-66	02-11-68	Towson, Md. (Lubbert)
73-97474	08-31-67	02-16-69	Highlands, N.J. (Rosche)

* Repeated 11-06-67

** Repeated 12-23-67, 02-01-69

Table #5. House Finches Banded in Atlantic Beach, N.Y. That Were Retrapped in Feasterville and Subsequently Returned to Atlantic Beach

<i>Band No.</i>	<i>Date Banded in Atlantic Beach</i>	<i>Date Retrapped in Feasterville</i>	<i>Date Returned Atlantic Beach</i>	<i>Date Retrapped in Feasterville</i>
67-23214	06-04-65	01-02-66	03-09-66 to 08-04-66	11-06-67
72-93748	07-13-66	02-19-67	07-29-67	
75-06120	07-04-67	12-01-67	04-21-67	
75-07538	07-19-68	12-24-68	03-27-68 to 06-05-68	
			03-15-69 to 06-06-69	

PLUMAGE NOTES

The Micheners have done a thorough study on variation in color of male House Finches (1931). I can add little to their conclusions except that it may be helpful to note the number of House Finches that I banded that had two unusual color variations.

Forty-eight, or three per cent, of the birds I banded had gold coloration somewhere in their plumage. It was usually on the rump, but sometimes it was scattered throughout the feathers on head, back, and breast.

The second unusual color characteristic which I have noticed is pronounced white wing bars on 10 banded birds. These wing bars are quite conspicuous, even at a distance. Two of these birds were banded in 1966 and the other eight during the winter of 1968-1969. There were a few other birds observed with white wing bars in 1968-1969 that were not trapped. The ten trapped birds do not form a significant part of my total birds banded during the four-year period, but eight of these birds appeared during the winter of 1968-1969. During that winter I banded 341 House Finches, and these eight with white wing bars comprise over two per cent of that figure. I can find no published record of this color characteristic of House Finches. Several specimens of individuals with white wing bars collected at Feasterville are now preserved in the collection of the William Penn Memorial Museum, Harrisburg, Pennsylvania.

POSSIBLE PHILADELPHIA AREA NESTING

The author could find no published nesting record of the House Finch in Pennsylvania. Poole (1964) reports that it was "presumed to have nested at Wyncote in 1962 when a male, present since June, was joined by a female with young just out of the nest on August 6." Several people have reported observing House Finches present during the summer months in this area. Although my feeders are kept full through June each year, I have never seen a House Finch at my station from April 23 through September 9, and only during one year (1967) did I see them as early in the fall as September. Reports of House Finches being observed during the summer months have been made to me by Frances Naas, at Feasterville; David Cutler, at Wyncote; and Frank Neumann, at Huntingdon Valley.

Frances Naas observed House Finches at her feeders in Feasterville on May 31, 1966, and they have been present during each summer since then. During the first week of July, 1969, she reported that she had seen a female carrying nesting material into a 20-foot Colorado spruce (*Picea pungens*) for three days. During that week I observed two males and three females at her feeders, but did not see them carrying nesting material. A nest was begun in the spruce, but was not completed.

On May 31, 1969, Neumann reported that a male House Finch was feeding four young birds at his feeder. He also reported adult House Finches feeding young on peaches in his yard during August, 1968.

Neumann's 1968 summer banding records of House Finches at Huntingdon Valley are interesting. He banded the following totals for the months shown:

May	—	6 birds banded
June	—	12 birds banded
July	—	35 birds banded
August	—	12 birds banded

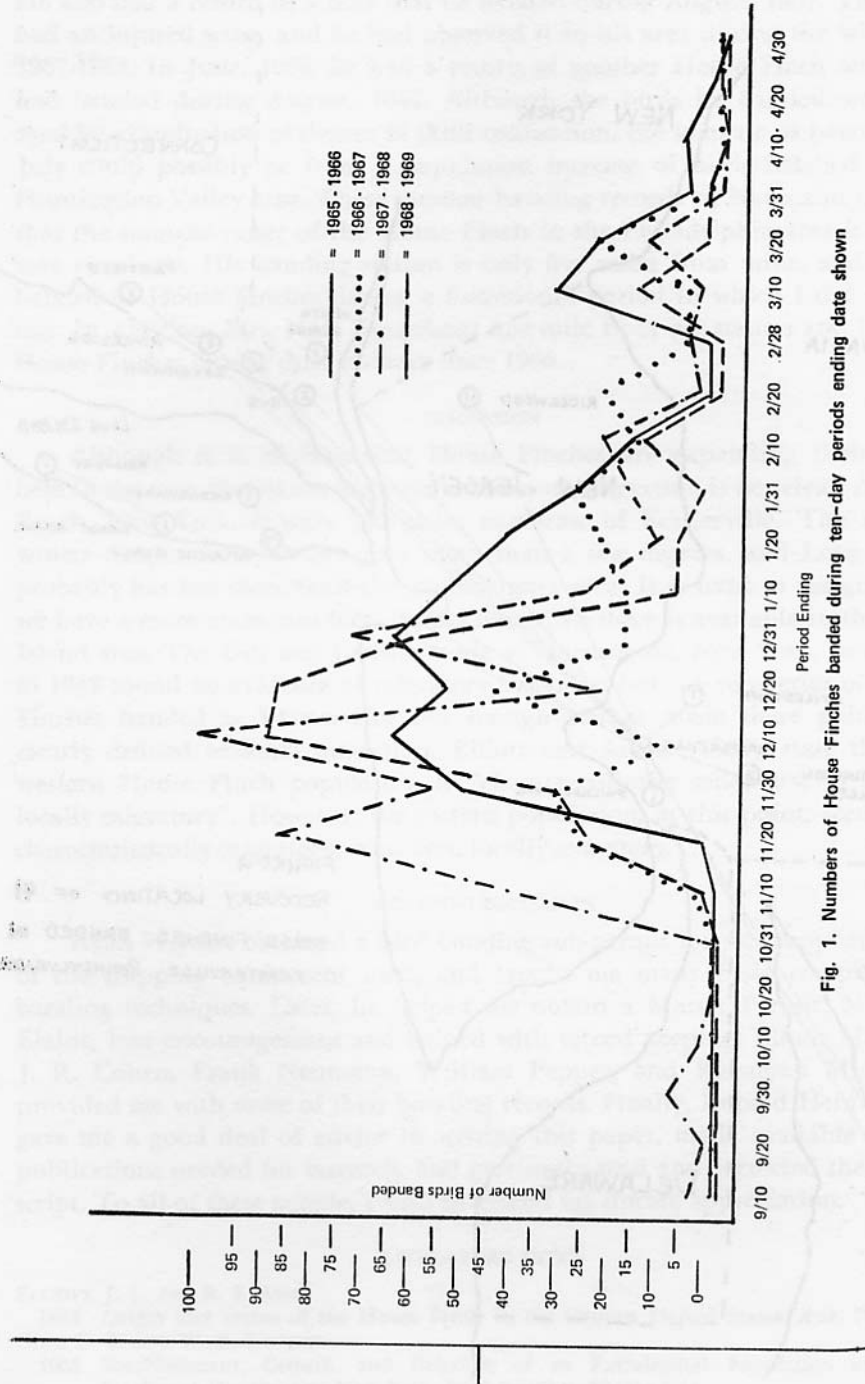
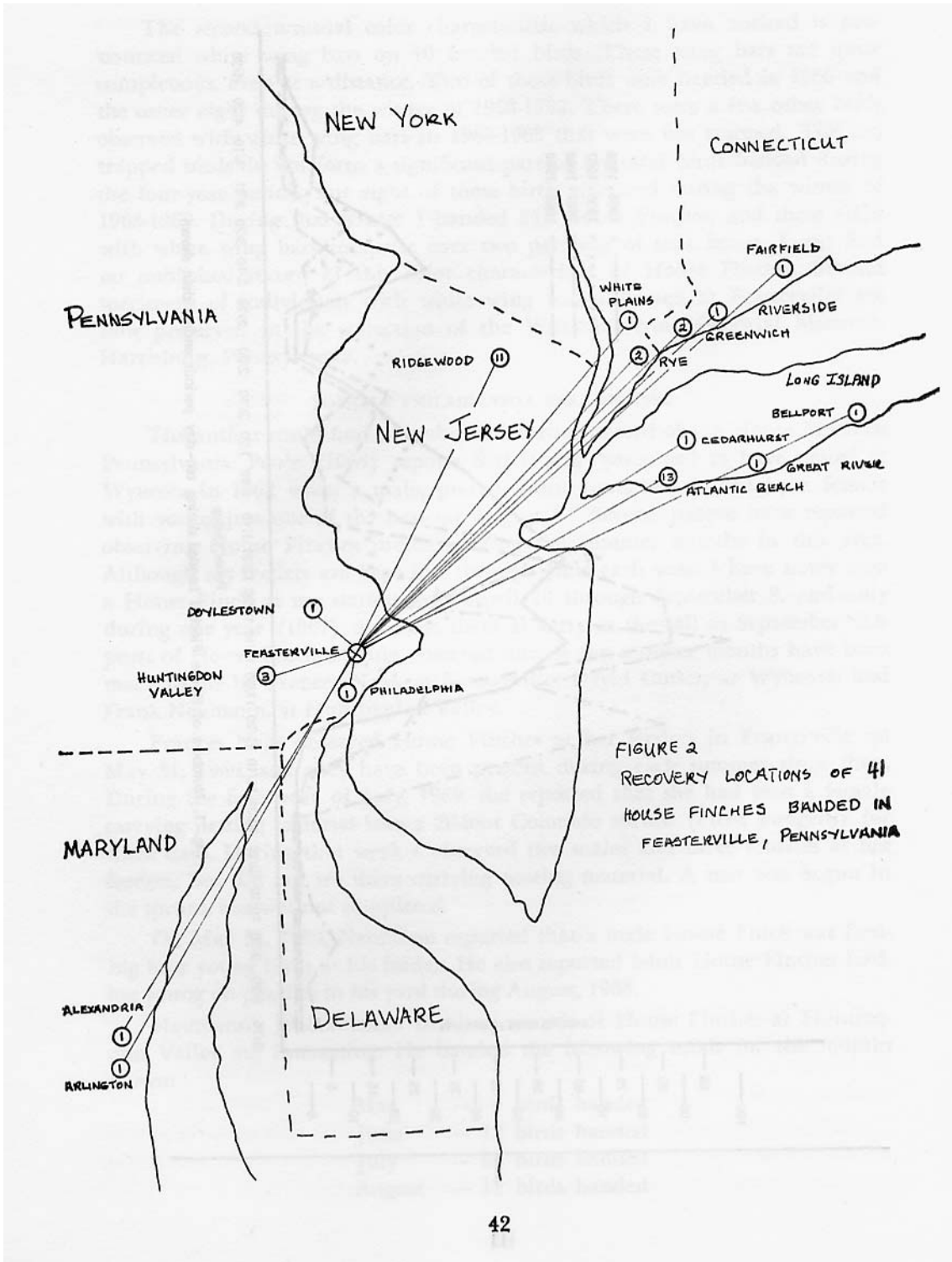


Fig. 1. Numbers of House Finches banded during ten-day periods ending date shown



He also had a return of a bird that he banded during August, 1967. This bird had an injured wing, and he had observed it in his area during the winter of 1967-1968. In June, 1968, he had a return of another House Finch which he had banded during August, 1967. Although the birds he banded were not aged by examination of degree of skull ossification, the increase of bandings in July could possibly be from a population increase of birds hatched in the Huntingdon Valley area. These summer banding records by Neumann indicate that the summer range of the House Finch in the Philadelphia area is locally very restricted. His banding station is only five miles from mine, and yet he banded 65 House Finches during a four-month period in which I did not see one. In addition, Mrs. Naas lives about one mile from my station and has had House Finches during each summer since 1966.

DISCUSSION

Although it is obvious that House Finches are expanding their range here in the east, the reason for their north-south migration is not clear. Atlantic Beach, New York, is only 100 miles northeast of Feasterville. The average winter temperatures do not vary more than a few degrees, and Long Island probably has less snow than the Philadelphia area. It is hard to imagine that we have a more abundant food supply here than there is available in the Long Island area. The Gill and Lanyon study at Huntington, New York, from 1958 to 1963 found no evidence of migratory behavior, but the recoveries of House Finches banded at Feasterville and foreign retraps made there point to a clearly defined seasonal migration. Elliott and Arbib (1953) state that the western House Finch population is "characteristically sedentary, or at best locally migratory". However, the eastern population, at this point, seem to be characteristically *migratory*, or at best, locally *sedentary*.

ACKNOWLEDGMENTS

Ryan Walden obtained a bird banding sub-permit for me, supplied much of the trapping equipment used, and taught me many basic trapping and banding techniques. Later, he helped me obtain a Master Permit. My wife, Elaine, lent encouragement and helped with record keeping. Elinor McEntee, J. R. Cohen, Frank Neumann, William Pepper, and Raymond Middleton provided me with some of their banding records. Finally, Donald Heintzelman gave me a good deal of advice in writing this paper, made available certain publications needed for research, and graciously read and corrected the manuscript. To all of these people, I wish to extend my sincere appreciation.

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EDITOR'S NOTE

The Editorial Committee hopes to have the next issue of *Cassinia* out by January 1, 1971. Articles, notes, or manuscripts intended for publication should be in the hands of the Editor or any member of the Editorial Committee no later than August 15, 1970.

A summary of field notes for the years 1968 and 1969 will be included in the next issue. A membership directory will also be published.