

1992

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Recommended Citation

Hamilton, Thomas R. (1992) "Turnover Within a Population of House Finches in the Midwest," *North American Bird Bander*. Vol. 17 : Iss. 3 , Article 5.

Available at: <https://digitalcommons.usf.edu/nabb/vol17/iss3/5>

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Turnover Within a Population of House Finches in the Midwest

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Some researchers have used capture rates with mist nets as a way of comparing relative abundance of birds in a given area provided standardized methods are employed to allow a calculation of birds trapped per unit of time (Karr 1980). Marking birds with color coded leg bands is a useful way of determining the extent to which birds move about; however, this requires that sufficient numbers of birds are marked and later resighted or recaptured, and the process of capturing and marking the birds does not unduly disrupt their normal behavior. Here I report on a mark/resighting method used to document the turnover of House Finches (*Carpodacus mexicanus*) which occurred at feeding stations in Muncie, Indiana.

METHODS

During the period between January 1990 and May 1991, I banded 1,208 birds in Muncie, Indiana. Most birds were trapped at backyard feeding stations at two locations. I used three 12 x 3 m nets with 32 mm mesh at these sites. Occasionally, at the invitation of local homeowners, other locations were used, but these sites accounted for only 3.0% of the total birds banded. Also, 22 birds were banded as nestlings at various locations in the city.

After the most effective net configuration for the two primary sites was found, I arranged nets the same way for later banding sessions. After a few weeks I found that House Finches could most efficiently be trapped by flushing the birds into the nets soon after five or six had landed on a feeder. For the first month of banding, I simply tossed a hat in the direction of the birds but the hat was soon replaced by a frisbee which was even more effective and had the advantage of not becoming

snagged in the nets. Records were maintained of weather conditions, bird activity and other factors which might affect the frequency at which House Finches were captured.

Each bird was given a unique combination of numbered aluminum U. S. Fish and Wildlife Service leg band and three brightly colored, vinyl leg bands. The leg bands were visible from approximately 10 m with binoculars.

The ease with which House Finches were trapped varied with the seasons and weather conditions. Rain made the nets sag and probably more visible to the birds; strong winds made the nets so taut that finches flying into the nets often bounced out without becoming snagged. When weather conditions became unfavorable, trapping was discontinued even if House Finches were present.

An irregular watch for banded House Finches was conducted at the two primary feeding stations located approximately 2 km apart. The frequency of the observation periods was dependent upon the daily schedule of the observers and the activities of the finches.

RESULTS

The ease with which House Finches were captured is reflected in Figure 1 which shows capture rate for each month. Capture rate is defined as number of birds trapped per hour during a banding session; a banding session was timed by the interval between first and last captures. Trapping sessions that produced less than three birds (20 of 159 sessions) were not used in computing monthly capture rates. These excluded sessions were usually hampered

by poor weather conditions or the complete absence of House Finches for two or more hours.

Of the 1,208 birds banded in Muncie, only 13.6% were resighted within the city and fewer were recaptured (8.1%). The frequencies at which banded House Finches were resighted at the feeding station where they were originally banded are illustrated in the bar graph in Figure 2. These data are based on the percent of House Finches sighted within one to four and five to nine weeks of banding. Very few birds were resighted (<0.2%) more than ten weeks after banding.

DISCUSSION

The low resighting rate of 13.6% could be the result of any or all of the following: (1) House Finches remove their bands, (2) once trapped and banded the birds are so traumatized that many leave the area and do not return, (3) the population is huge and the banded birds represent a very small segment of the total population, and (4) the population is in a state of flux in which birds that leave an area are replaced by newcomers.

There is some evidence that House Finches can remove leg bands. Several residents of Muncie reported to me sightings of some birds with one or two vinyl bands, but it is also possible that these observers were unable to see the bird's legs clearly. I have seen at least six House Finches with one or two of their colored leg bands missing. On several occasions birds were recaptured with loose metal bands. The gap in some bands was up to 1.0 mm — not sufficient to remove the band but an indication that continued loosening could lead to removal. Stedman (1990) found clear evidence that House Finches can open and remove metal leg bands, though the proportion that do so is very small (0.4%). The degree to which House Finches in the present study removed metal bands is not known but probably removed at a rate higher than that found by Stedman. Vinyl band removal only minimally affected these resighting data because only rarely were birds sighted at a feeder with only a metal band.

The data illustrated in Figure 2 suggest that from October through February there is a decrease in

the frequency at which banded birds return to the same feeding station. Very few birds were resighted within four weeks of banding. Still many birds continued to come to feeders throughout the winter but were probably in the area for only a few weeks. If they had remained, they would have been resighted at a higher frequency. These observations suggest there is a frequent turnover of House Finches throughout the winter.

In contrast, the sudden increase in resightings in March noted in Figure 2 suggest House Finches became more sedentary as the breeding season approached. This pattern continued throughout the summer until October. During June there was a decrease in birds visiting the feeders which corresponded with the maturation of fruit on Mulberry trees (*Morus* sp.) in Muncie. At this time flocks of House Finches could be seen feeding in Mulberry trees and many birds trapped in June had sticky purple debris adhering to their bills.

From June through August, juvenile House Finches began to appear at the feeders. These birds were distinguished from adults by tufts of downy feathers on their heads. During these three months, juvenile birds accounted for 37.0% of the 529 House Finches captured.

Estimates of the size of the House Finch population in Muncie were not feasible because at times there appeared to be a very high turnover of birds at the primary feeders. McEntee (1976) reported a very high turnover of House Finches at her banding station in New Jersey and estimated that the 1000+ she banded represented 5-10% of the winter population in her area.

There is strong evidence that there is a general movement of House Finches in a southerly direction for winter months and, conversely, a movement in a northerly direction for the summer (Hamilton 1991). Since there does not appear to be an appreciable seasonal decrease in the size of the House Finch population in the Muncie area, it is possible that as some of the finches in the city move to the south for the winter they are replaced by other finches moving in from northern areas.

CONCLUSIONS

The House Finch population in the Muncie area has a high rate of turnover in the winter with very few birds remaining in the same area for more than four weeks. During the summer, House Finches appear to spend most of their time in the same general area; however, since the population is very large, only a low percentage of the birds observed at one of the primary feeding stations was likely to be banded.

ACKNOWLEDGEMENTS

Appreciation is extended to C. D. Wise and J. A. Hamilton who contributed many sightings. Without their help this study would not have been possible.

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Figure 1. Mean number of House Finches trapped per hour at two feeding stations in Muncie, Indiana, March 1990 to March 1991.

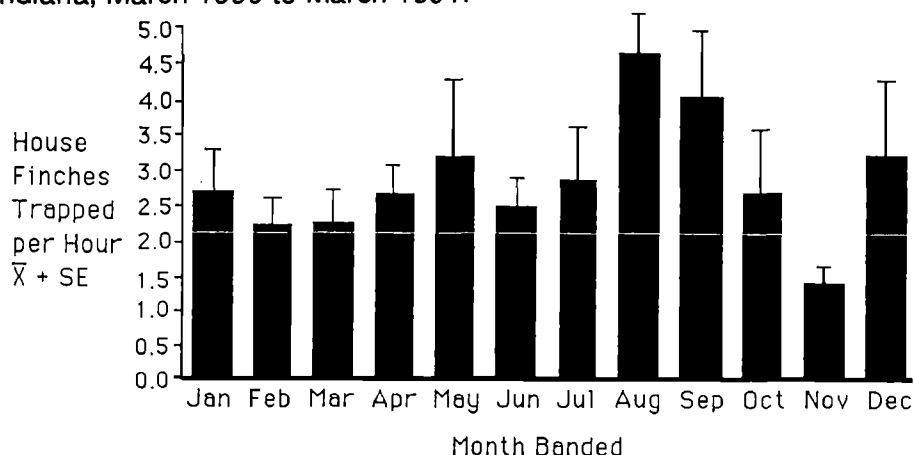


Figure 2. Percent of House Finches banded and resighted at two feeding stations in Muncie, Indiana, March 1990 to March 1991, within one to four and five to nine weeks after banding.

