

BIRD-BANDING

A JOURNAL OF ORNITHOLOGICAL INVESTIGATION

VOL. XX

OCTOBER, 1949

No. 4

REPORT ON CONNECTICUT RIVER VALLEY CO-OPERATIVE EVENING GROSBEEK SURVEY¹

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On May 8, 9, and 10, 1946, the senior author banded 23 Evening Grosbeaks, *Hesperiphona v. vespertina* (Cooper), at Arcadia Wildlife Sanctuary, Northampton, Mass. The last five of these birds were banded with a red celluloid band as well as the regular aluminum one. This was done in the hope that the colored bands would be observed by persons operating feeding stations, and that some information might accrue as to whether the flock of birds visiting the sanctuary wandered to the nearby cities of Northampton or Easthampton. The grosbeaks did not stay long enough for observations to be made, our records showing that only five were noted at the Sanctuary on May 15; one was heard the 16th, and the final record of one bird was made on May 20.

¹The very nature of this co-operative study carried on by five banding stations and one sub-station, makes this report the work of all those who banded the birds, plus those who gave of their time and effort to observe the color-banded grosbeaks as they visited their feeding stations. We are especially indebted to Benjamin M. Shaub for assistance in the preparation of tables and graphs, and for his keen interest in all phases of the work since its inception.

With the return of the Evening Grosbeaks to Arcadia on December 14, when a flock of 40 was recorded, the embryo project of 1946 was expanded to include other banding stations located in the Connecticut Valley, so that the wintering Evening Grosbeak population in the Valley could be studied as a whole.

Eventually the following banding stations, listed from north to south, were brought into the Survey, each of which used a different color band as follows:

White. Alfred R. Tobey, Eaglebrook School, Deerfield, Mass.

Green. Frederick A. Saunders, South Hadley, Mass.

Orange. Lester W. Marland, Ware, Mass.

Red Left. Benjamin & Mary Shaub, Northampton, Mass. (Sub-station).

Red Right. Edwin A. Mason, Arcadia Wildlife Sanctuary, Northampton, Mass.

Blue. G. Hapgood Parks, Hartford, Connecticut.

In setting up this project, we drew upon the experiences of the Herring Gull Survey and the summary of the results obtained as outlined by Poor (1943); also the work done with chickadees and nuthatches by Wilbur K. Butts (1930) and George J. Wallace (1941). The Herring Gull Survey relied upon the observations of field ornitholo-

gists for post-banding records. In that respect it was similar to the project we were setting up. Actually, however, very little of the experience gained by the use of color bands in the past was of help in organizing and operating the Evening Grosbeak Survey.

We eventually learned of two instances where Evening Grosbeaks had been color-banded. A recovery trapped in Northampton that had been banded by Mrs. H. A. Drew of Barre, Vermont, was found to be wearing a buff band that had slipped inside the aluminum one. It has not been possible to learn from Mrs. Drew how many birds were released with color bands. It was also noted that an Evening Grosbeak was mentioned in the Maine Audubon Society Bulletin Vol. 3, Nos. 1-2, as wearing a green band. An inquiry addressed to Dr. Alfred O. Gross elicited the response that "some of my students banded a number of Evening Grosbeaks at Brunswick, Maine, on which they used green colored bands . . ." It is unfortunate that the exact number banded was not ascertained, but inasmuch as no trapped records were made of Brunswick, Maine, banded birds, it is not believed this project interfered appreciably, if at all, with ours.

The interest in the Evening Grosbeak invasion was such that it was comparatively easy for the banders to locate persons who were feeding and observing grosbeaks. These people were then supplied with a mimeographed postcard. Besides the stamped and return addressed card, an instruction sheet was sent to the observers in an attempt to obtain the highest degree of uniformity possible. This sheet contained information regarding where the different colors were being applied.

Table I gives the numbers of Evening Grosbeaks banded by months, and the sex ratios. The variations in the figures given of the numbers banded is not believed to be particularly significant except that the presence of desirable perching cover, which might be classified as a type of loafing grounds to which the birds repaired when their appetites were satiated, appeared to make the banding stations of G. Hapgood Parks, and the substation operated by the Shaubs, better able to hold flocks than the others listed.

TABLE I
TOTALS BY MONTHS OF EVENING GROSBEAKS COLOR-BANDED AT FOUR STATIONS
IN THE CONNECTICUT RIVER VALLEY, JAN.-MAY, 1947

1947	Northamp- ton	Deer- field	Ware	South Hadley	Hart- ford	Totals
Jan.	53	10	0	31	161 ¹	255
Feb.	40	0	0	25	65	130
Mar.	164	6	7	7	82	266
Apr.	89	14	1	1	68	173
May	39	0	2	1	58	100
	385 ²	30	10	65	434	924
Sex Ratios	216:262 ¹	19:11	—	30:35	140:403 ³	405:711 ³

¹Includes birds banded prior to Jan. 8, which were color-banded when they repeated during Jan.

²93 additional birds were banded in April with aluminum bands only.

³Includes birds banded with aluminum only.

The sex ratio of the 478 birds banded at Northampton in 1947 was 216:262. That obtained by G. Hapgood Parks at Hartford, Connecticut, in the same period was 140:403. This is an astonishingly high female ratio, higher than the one obtained at Northampton, and higher than the one obtained at Hartford in 1946, which was 387:478 (Parks 1947). The Northampton data bore out Parks' observation of the previous year; *i.e.*, that the overbalance of females was most pronounced towards spring. This could be taken as an indication that the males were leaving the wintering grounds ahead of the females to set up nesting territories, as might be expected. It could also be an indication that the males failed to penetrate as far into the wintering grounds as the females. The fact that a higher female ratio was present in Hartford, compared to the thirty-eight airline miles more northerly station in Northampton, gives some credence to this supposition, although the distance involved is relatively short. Thus the data presented do not necessarily mean that there exists an overbalance of females in the total population of *Hesperiphona vespertina*.

RECOVERIES

The recoveries taken during the course of trapping operations are of such interest that they are listed in full for the Northampton and Hartford stations. Table II records those birds taken as recoveries in Northampton that were banded elsewhere. Table III lists those birds banded in Northampton and taken as recoveries elsewhere.

TABLE II
EVENING GROSBEAKS BANDED ELSEWHERE AND TAKEN AS RECOVERIES
IN THE NORTHAMPTON, MASS., REGION

Band No. and Date Banded	By Whom and Where Banded	Date Recovered	Sex
44-223851 Jan. 1, 1946	G. Hapgood Parks, Hartford, Conn.	Feb. 25, 1947	
46-213015 Feb. 27, 1947	G. Hapgood Parks, Hartford, Conn.	Mar. 28, 1947	♂
44-224305 Jan. 17, 1947	G. Hapgood Parks, Hartford, Conn.	Mar. 7, 1947	♂
46-212213 Jan. 21, 1947	G. Hapgood Parks, Hartford, Conn.	Apr. 30, 1947	♀
43-147425 Feb. 9, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 20, 1947	♂
43-147410 Jan. 25, 1947	Frederick A. Saunders, So. Hadley, Mass.	Mar. 10, 1947	♂
43-147426 Feb. 9, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 13, 1947	♀
47-100101 43-147443 Mar. 2, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 15, 1947	♀
47-100160 43-147428 Feb. 9, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 23, 1947	♀

47-100178				
43-147440				
Feb. 23, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 26, 1947	♀	
43-147433				
Feb. 20, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 20, 1947	♂	
43-147406				
Jan. 21, 1947	Frederick A. Saunders, So. Hadley, Mass.	Apr. 22, 1947	♂	
45-202759				
Feb. 25, 1947	James F. Nields, Jr., Hardwick, Mass.	May 6, 1947	♀	
39-251891				
Apr. 27, 1940	Mrs. H. A. Drew, Barre, Vermont	Mar. 25, 1947	♀	
42-225292				
Apr. 4, 1944	Mrs. Ada Clapham Govan, Lexington, Mass.	May 9, 1947	♀	

TABLE III

EVENING GROSBEEKS BANDED AT NORTHAMPTON, MASS.,
TAKEN AS RECOVERIES ELSEWHERE

Band No. and Date Banded	By Whom and Where Recovered	Sex	Date Recovered
45-193281			
Jan. 13, 1947	G. Hapgood Parks, Hartford, Conn.*	♀	Mar. 3, 1947 May 6, 1947
46-130526			
Mar. 17, 1947	Edward Welch, Leeds, Mass. Dead	♀	Apr. 16, 1947
46-130546			
Mar. 23, 1947	Found sick, Leeds, Mass. Died	♀	Apr. 30, 1947
45-103328			
Feb. 3, 1947	James F. Nields, Jr., Hardwick, Mass.*	♀	Apr. 26, 1947
47-100163			
Apr. 23, 1947	Mrs. P. A. Gould, Saranac Lake, N. Y.*	♂	May 24, 1947 Jun. 2, 1947
45-103107			
May 8, 1946	Rene De-Jordy, "Captured," Clova, P. Q., Canada	♂	Jul. 4, 1947
46-131003			
Mar. 27, 1947	Peter McKenzie, Clova, P. Q., Canada "Trapped on Coo Coo River, P. Q."	♂	Aug. 12, 1947
45-103313			
Jan. 22, 1947	Alfred R. Tobey, Deerfield, Mass.*	♀	Apr. 24, 1947
45-103336			
Feb. 9, 1947	Alfred R. Tobey, Deerfield, Mass.*	♀	May 2, 1947
45-103283			
Jan. 13, 1947	G. Hapgood Parks, Hartford, Conn.*	♀	May 2, 1947

*Released alive.

TABLE IV
EVENING GROSBEEKS BANDED ELSEWHERE AND RECOVERED
IN THE HARTFORD REGION

Band No. and Date Banded	By Whom and Where Banded	Sex	Date Recovered
42-236189 May 9, 1946	Mrs. H. A. Drew, Barre, Vermont	♂	Jan. 21, 1947
45-204253 May 7, 1946	Mrs. G. E. Ramsdell, Lewiston, Maine	♀	Feb. 6, 1947
45-201027 (date unavailable)	Robert Allison, Athol, Mass.	♀	Feb. 15, 1947
40-159619 Jan. 5, 1947	Alfred R. Tobey, Deerfield, Mass.	♀	Apr. 24, 1947

Besides the above are the two records of Northampton banded birds, whose records appear in Table III. Mr. Parks also trapped in 1947, twelve returns of birds he had banded in 1946.

TABLE V
EVENING GROSBEEKS BANDED AT HARTFORD
AND RECOVERED ELSEWHERE

Band No. and Date Banded	By Whom and Where Recovered	Sex	Date Recovered
44-223871 Jan. 1, 1946	Frederick A. Saunders, So. Hadley, Mass.	♂	Apr. 9, 1947
44-223850 Jan. 1, 1946	Frederick A. Saunders, So. Hadley, Mass.	♂	May 6, 1947
46-211858 Jan. 18, 1947	"Trapped" by Peter McKenzie, Ottawa River, P. Q., Canada	♀	Aug. 12, 1947

Besides the above are the records of eight birds taken as recoveries within a 15-mile radius of Hartford, and the four birds whose records appear in Table II which were taken as returns in Northampton.

Besides the recovery records presented in Tables II, III, IV and V, Lester Marland in Ware, and James F. Nields, Jr., located in Hardwick, about six miles from Ware, had an interchange of birds between the two stations. Four birds banded by Mr. Marland in Ware were retrapped at Hardwick, and five birds banded in Hardwick were taken as recoveries in Ware. One of these birds proved that the interchange between these two points was quite rapid by being trapped in Ware the day following its banding in Hardwick. The seven birds banded in South Hadley and retaken in Northampton about five miles away in an airline over the Mt. Tom Range (Table II), also indicate the wandering habits of the Evening Grosbeak.

Two other recoveries are of interest. Both were banded by Alfred R. Tobey, at Deerfield, Mass. They are 40-159617, a male banded on Jan. 2, 1947, and trapped by Robert Allison in Athol on January 26, 1947; and 40-159615, a female banded Jan. 10, 1947, and taken as a recovery by Donald C. Alexander at Lowell, Mass., on April 25, 1947.

The most interesting of all the recovery records obtained are those from the nesting grounds. The two records listed in Table III from Clova, Province of Quebec, seem to indicate that there might have been some flock cohesion to account for two birds that had wintered in Northampton, Massachusetts, being present in the months of July and August following in the same general area of Quebec. The record contained in Table V of the Hartford bird which was reported from Ottawa River, Province of Quebec, on August 12, 1947, also probably indicates nesting territory. The Hartford bird, and one of the Northampton birds reported from Quebec, were said to have been "trapped." To ascertain if "trapped" might be an indication that the bird banded in Northampton was released alive, a letter was written to Peter McKenzie, who reported it from Clova, P.Q., but no reply was received. While it would seem rather late in the season for pelt trapping to be going on, there is no evidence that these birds were trapped by bird banders.

It was interesting to learn from G. Hapgood Parks, that 45-200002, a female, was trapped by James L. Peters at Harvard, Mass., on May 3, 1947. This bird was banded at Hartford, Conn., on Feb. 3, 1946, just a few minutes before 45-200003, a bird that showed up at Northampton on May 10, 1946.

DISCUSSION OF DATA FROM OBSERVERS

Due to the wide publicity given the Connecticut Valley Evening Grosbeak Survey in periodicals apt to reach the hands of persons interested in bird feeding, and by items in newspapers serving areas in which the banding stations were located, it is believed the observer-coverage obtained was as good as could be obtained for any similar study, probably even better than average, due to the spectacular qualities of the Evening Grosbeak as a subject for observation.

The map graphically portrays the geographical points from which observations numerically significant were received. It also shows the locations of the banding stations. The numbers given with a letter that signifies the color observed, were arrived at by totalling all the observations recorded under a given color classification. Thus, obviously, only one bird with a given color might have been present, or any number up to the actual number given. It was hoped that a truer value could be given the data on observations, but to date we have been unable to devise a formula. The numbers given with "All" after them, are arrived at by totalling the numbers reported to us in column 3 of the report postcard under the title of "No. in Flock." The numbers on the map are thus the totals of the flock counts as given for each day as observations. These numbers do not necessarily represent the numbers of grosbeaks present at the various locations, because of the great differential in observation intensity. After considerable consideration, it was felt that a no truer value would be reached if the totals given were divided by the number of observations made, and an average obtained. This in part is due to the differential in observation intensity and the erratic manner in which flocks traveled back and forth between nearby feeding stations. There seems considerable proof that Evening Gros-

beaks have a daily cruising range which very often includes several different feeding stations at distances up to several miles.

Graph I shows the banding and selected observational data. The chart is divided into five component parts and each shows data of five banding stations and the observing stations in their immediate vicinity. The dashed lines indicate the accumulative numbers by months of grosbeaks color-banded, the graph being read from bottom to top.

Observation stations located close to the banding stations were selected and the results plotted on the graph, reading from top to bottom. It is significant that the largest number of color-banded birds observed at the several observation points, correspond to the color being used by the local banding station, the exceptions being Deerfield and Ware around which the distribution density of birds from the larger banding stations appeared to be greater than the population density of birds locally banded, which, however, were few in number.

The large number of reports of birds banded with aluminum bands only, may be explained by the application of 93 aluminum bands without the accompanying red band at the Northampton substation in April, 1947, the banding in 1944, of 49 birds and in 1945-46 of 874 by Parks (1945 & loc. cit.) at his Hartford station, as well as banding in other parts of New England, New York, and Michigan not included in the color-banding project.

The unusually large numbers of red-banded birds observed at Northampton may be accounted for in part by the greater number of observers in that area, and partly by the conscientious and persistent record keeping by these observers. It is possible the numbers of grosbeaks in the Northampton region may have been appreciably greater than in the other parts of the Connecticut Valley, Hartford perhaps being a probable exception, but the actuality of this is difficult to determine from the present data.

Studying together the data presented in the map and graph, the impression received is that in general considerable stability in the populations existed within the daily cruising range of the banding stations. The high density of the observations of a banding station's color recorded from nearby points, is the chief reason for this statement. The appearance of birds at Mt. Herman carrying the colors of all five stations, at first glance appears to discount the statement that considerable population stability existed. However, it will be noted that the numbers of observations involved are low, and it was not until the end of April that all the banding stations were represented, at which time the exodus of the grosbeaks from the Valley had begun.

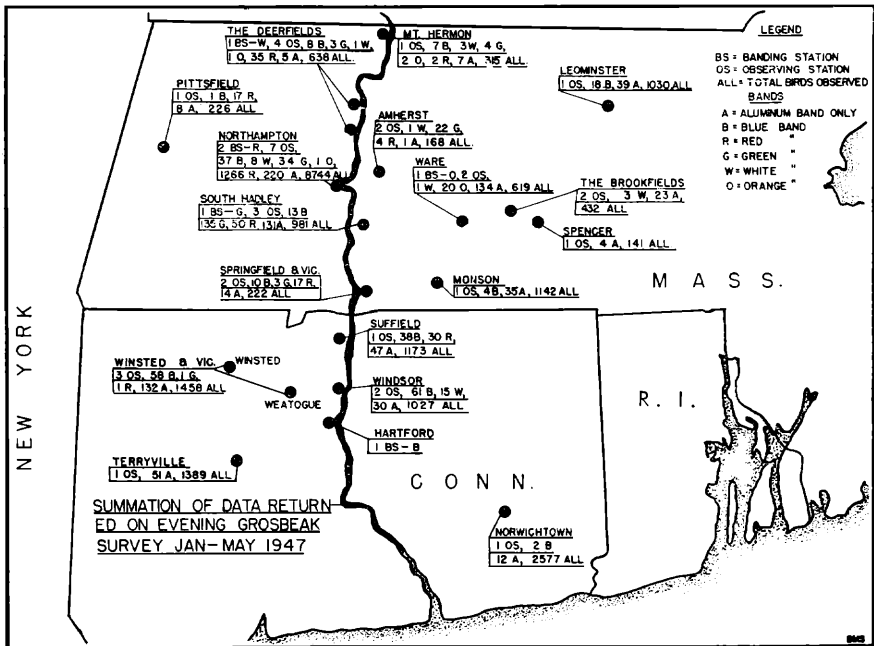
The sprinkling of several colors given for most of the observation stations seems to indicate a limited trading between flocks of individuals, or very small segments, in our opinion.

The behavior of Evening Grosbeak individuals is interesting to speculate about, and at this point attention is called to the phenomenon several correspondents referred to, and which was observed by both authors of this paper: that on occasion a lone Evening Grosbeak would arrive in the vicinity of a feeding station. It would usually perch at a high

level in a tree, where it would stay for a considerable period of time making a persistent call note. Sometimes the bird would eventually come down to feed, but more often it would depart without feeding. These lone birds were independently given the title of "scout" by different persons, who believed them to be surveying for the flock to which they normally belonged. The question posed is, were they really surveying for their flocks, or were they individuals that were for some reason or other temporarily "on the loose" and which eventually would join up with a new flock? If the latter were true, it would help to account for the pretty general distribution of small numbers of birds from all of the banding stations through the area of the Connecticut Valley indicated on the map.

During the period in which the study was in progress, Evening Grosbeaks were present in many other sections of eastern United States. The membership of the Eastern Bird-Banding Association was aware of our project, and contact was effected with several persons in areas where large numbers of Evening Grosbeaks were wintering. It is therefore believed significant that apart from the observations recorded on the above map and graph, plus the recoveries previously listed, we have only the following "outside" observations made during the 1946-47 wintering-ground occupancy period:

Amsterdam, N. Y., Mrs. Gerald Fitzgerald, April 23, 1 blue, 1 green, 2 red, 1 aluminum only; May 5, 1 aluminum only; May 7, 1 blue; May 11, 1 blue.



Saranac Lake, N. Y., Ruth Hagan (dates not available), 1 blue, 1 white, 1 red, 2 aluminum only.

Sturbridge, Mass., Mrs. Magure Lindsay (no date, but before March 9), one red.

West Simsbury, Conn., David Bartlett IV, Feb. 8, two blue among a flock of 15.

Thus, on the basis of the evidence accumulated and excepting the isolated records just mentioned, we feel justified in assuming that the Evening Grosbeak population that wintered in the lower Connecticut Valley in 1947 did not in the main move out of the Valley until the general exodus was made to the nesting grounds. The exodus apparently was made, so far as the great mass of the population was concerned, with considerable rapidity in the period May 1-10. The meager data from the nesting ground lends itself to the supposition that the exodus was made up the Valley in a generally N.N.W. direction.

FEEDING HABITS

While no special effort was made to gather data on the feeding habits of Evening Grosbeaks, items were received in the correspondence from observers. These in general bore out the well-established fact that sunflower seed is their almost exclusive diet at feeding stations. Mrs. Ralph Baker, of Florence, Mass., observed birds on April 17, 1947, eating the seeds of *Catalpa* (*Catalpa speciosa* Ward), as was also recorded by Parks (1947) in Hartford. Miss Eva Morrison of Gorham, N. H., wrote that the grosbeaks there preferred box elder seeds to sunflower seeds. A similar observation from Nipawin, Saskatchewan, stated that grosbeaks were not attracted to sunflower seeds while dried native cherries and box elder seeds were available. J. A. Sauer of Denville, N. J., states that he fed, along with sunflower seed and hemp, four gallons of cracked pecan nuts. At the Northampton substation the junior author observed a grosbeak definitely feeding on the swollen flower buds of flowering dogwood, *Cornus florida* Linn.

SUMMARY

During the months of Jan.-May, 1947, 924 Evening Grosbeaks were marked with color bands as well as the regular numbered aluminum ones at five stations in the Connecticut River Valley, the most northerly being at Deerfield, Massachusetts, the most southerly being at Hartford, Connecticut. An additional 192 birds were marked with aluminum bands only. A sex ratio of 405:711 was found to exist. Because there seemed some evidence that males left the wintering grounds before the females, or possibly failed to penetrate them as deeply, it was believed the above mentioned overbalance of females does not necessarily exist in the total population of *Hesperiphona v. vespertina*.

Thirty-one recoveries were obtained by the five participating stations. Three of these were birds banded outside the area involved; three were recovered in July and August 1947, presumably on the nesting grounds, in the Province of Quebec, two of these being reported from the same town. The balance were records of birds banded within the area and

subsequently recovered within it, in one instance on the day following banding.

An observer-corps which eventually totalled 75 persons was recruited to watch for the appearance of color banded grosbeaks at feeding stations. These observers were supplied with an instruction sheet and stamped addressed postcards as aids to uniform reporting. From the data returned it appeared that the grosbeaks in the main tended to stay within the general vicinity of the station at which they were banded. There seemed evidence, however, that individuals or small segments broke away from their original flock, to appear later at considerable distances, in some cases, from their point of origin. The exodus from the Valley toward the nesting grounds occurred with considerable rapidity in the period May 1-10.

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