

(4) Season. I do not yet have a sufficient body of data to determine the effect of this factor.

(5) Weather. It seems reasonable to suppose that weather which interferes with feeding will tend on the whole to postpone repeats. Weather which only interferes with migration would permit repeats to occur without altering their spacing.

(6) Decoying. I apply this term to the tendency of birds to approach, and even to enter, a trap in which there is already a bird. The effect is non-specific to a large degree. It may tend to cause a bird to repeat a little sooner than it otherwise would.

(7) Aggregation. It is well known that some birds occur in groups which maintain their composition for an appreciable period. Birds prone to trap may serve as decoys for others of their group. Aggregation will also tend to bring all the members back to the trapping station collectively rather than individually.

(8) Accidental Factors. An occasional bird escapes during handling or squirrel, jay or hawk frightens off a group which might yield some repeats. We expect the response on the part of the bird to be as though it had repeated.

Evidently the time between repeats tends to be lengthened by the factors of trap avoidance, unfavorable weather, and accidental factors. It tends to be shortened by decoying and aggregation. The remaining factors including favorable weather would not appear to have any biased effect on elapsed time. The direction of their effects will vary with the individual bird, with the operator, and with the time of year. It cannot be assumed that the two groups of biased effects will cancel one another.

In spite of the fact that the effects and the discrimination of these factors are not yet certain, it seems useful to put these ideas on record so that banders generally will be stimulated to make and analyze the needed detailed records which will finally clarify the matter so that we will have a basis for the solution of further problems such as length of stay of migrants and the mid-winter wanderings of winter visitants.

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BANDING DATA FROM WILTON, NORTH DAKOTA

By HANNAH R. GRAY

My station was started in 1931 and up to the end of 1946 approximately 28,066 birds of 118 species had been banded. These were nearly all small birds trapped in our yard. Wilton is a town of 1,000

population, located about 25 miles north of Bismarck and ten miles east of the Missouri River in prairie country typical of the region. Our house is on the southwest edge of town with U. S. Highway 83 passing scarcely five rods in front of it.

The yard has a number of trees, shrubs and a small garden. During the drought years of 1934 and 1936 the larger cottonwood trees (*Populus deltoides*) died and birds became less abundant. Six traps have been operated most of the time. These include two Brenckle water traps, three sparrow traps and a house trap. The house trap was used at first with good results but seemed to take few birds after the trees grew up. The past year it has taken a few birds again. The traps have been operated chiefly during the migration seasons.

In three years, 1944-46, 7761 birds were banded. The totals for species with the largest numbers were: Tree Sparrow, 1591; Harris's Sparrow 789; Lincoln's Sparrow, 738; Clay-colored Sparrow, 618; Slate-colored Junco, 538; Yellow Warbler, 446; White-throated Sparrow, 444.

RETURNS AND RECOVERIES

PINTAIL (*Dafila acuta tzitzihoo*) — 18 banded.

1 juv., banded July 9, 1936; recovered Oct. 15, 1938 at Buffalo Center, Iowa.

FLICKER (*Colaptes auratus*) — 96 banded.

1 juv., banded July 27, 1933; returned May 18, 1934.

EASTERN KINGBIRD (*Tyrannus tyrannus*) — 53 banded.

1 ad., banded July 10, 1936; returned May 24, 1942 to same trap.

CATBIRD (*Dumetella carolinensis*) — 464 banded.

1 banded Aug. 23, 1936; recovered Sept. 12, 1936 at Madison, Minn.

BROWN THRASHER (*Toxostoma rufum*) — 378 banded.

1 banded May 7, 1943; returned May 15, 1944; May 18, 1945; May 17, 1947 at Wilton.

4 banded May; returned May or June next year at Wilton.

1 banded Aug.; returned June next year.

1 banded May 17, 1934; recovered May 7, 1936, 6 mi. south of Wilton.

1 banded May 18, 1941; recovered June 29, 1942 at Crosby, N. D., 120 mi. nw.

1 banded May 29, 1934; recovered July 12, 1937 at Harvey, N. D., 65 mi. ne.

ROBIN (*Turdus migratorius*) — 537 banded.

1 banded June 17, 1931; returned May 4, 1933 and May 27, 1934 at Wilton.

1 banded May 10, 1932; returned May 16, 1933 and May 7, 1934 at Wilton.

1 juv., banded July 25, 1932; returned Aug. 1, 1936 and April 18, 1937 at Wilton.

1 banded Sept. 24, 1932; returned Apr. 11, 1933 and April 4, 1934 at Wilton.

18 banded Apr.-Aug.; returned Apr.-July, 1-3 yrs. later at Wilton.

2 banded Aug.,-Sept.; recovered May-Sept., 2 and 3 yrs. later at Wilton.

1 banded July 4, 1933; recovered Feb. 25, 1934 at Lake Providence, La.

1 banded Aug. 15, 1933; recovered Feb. 14, 1934 at Coahoma Co., Miss.

1 banded Aug. 15, 1935; recovered Mar. 3, 1936 at Rosenberg, Tex.

1 banded Aug. 28, 1935; recovered Feb. 4, 1936 at Caldwell, Tex.

1 banded Aug. 28, 1938; recovered Jan. 18, 1940 at Harper, Kan.

1 banded Aug. 25, 1939; recovered July, 1940 at Windsor, N. D., 100 mi. s e.

OLIVE-BACKED THRUSH (*Hylocichla ustulata swainsonii*) — 596 banded.

- 1 banded May 11, 1943; returned Oct. 3, 1943 at Wilton.
- 1 banded May 30, 1932 at Northville, S. D.; trapped May 12, 1934 at Wilton.

YELLOW WARBLER (*Dendroica aestiva*) — 905 banded.

- 1 ad., banded June 10, 1945; returned June 9, 1946 at Wilton.
- 1 ad., banded June 21, 1945; returned June 2, 1946 at Wilton.
- 1 ad., banded Aug. 3, 1946; returned July 2, 1947 at Wilton.

MYRTLE WABLER (*Dendroica coronata*) — 758 banded.

- 1 banded Sept. 25, 1939; recovered Jan. —, 1940 at Leola, Ark.

YELLOW-THROAT (*Geothlypis trichas*) — 412 banded.

- 1 banded May 24, 1945; returned Aug. 24, 1947 at Wilton.

RED-WINGED BLACKBIRD (*Agelaius phoeniceus*) — 143 banded.

- 1 juv., banded Aug. 14, 1932; recovered Feb. 4, 1939 at Arden, Ark.
- 1 ad., banded Sept. 24, 1942; recovered Dec. 10, 1943 at Rush, Tex.

BRONZED GRACKLE (*Quiscalus quiscula aeneus*) — 459 banded.

- 4 banded Apr., May; returned April at Wilton.
- 5 banded May, July; recovered 1, 3 and 4 yrs. later at or near Wilton.
- 1 banded Sept. 24, 1942; recovered 1944 at Parshall, N. D., 85 mi. nw.
- 1 banded May 3, 1933; recovered Feb. 25, 1935 at Humnoba, Ark.
- 1 banded May 2, 1933; recovered Feb. 23, 1935 at Walnut Grove, Miss.
- 1 banded July 7, 1939; recovered Feb. 1, 1942 at Tyler, Tex.
- 1 banded Sept. 10, 1939; recovered Jan. 5, 1940 at Lacomtee, La.
- 1 banded Sept. 10, 1939; recovered Jan. 29, 1940 at Litroe, La.
- 1 banded Oct. 7, 1939; recovered Apr. 16, 1940 at Cosmos, Minn.
- 1 banded Apr. 23, 1942; recovered June (?), 1945 at Alix, Alberta.
- 1 banded Sept. 24, 1942; recovered March —, 1945 at Wathena, Kansas.
- 1 banded April 20, 1946; recovered May 30, 1946 at Malta, Mont.
- 1 banded Sept. 14, 1946; recovered Feb. 24, 1947 at McCurton Co., Okla.
- 1 banded Sept. 3, 1944; recovered Mar. 1, 1947 at Pine Bluff, Ark.

BALTIMORE ORIOLE (*Icterus galbula*) — 171 banded.

- 7 ad., banded May, June, Aug.; returned May, June at Wilton; 2 at 2 yrs. others 1 year.
- 1 juv., banded Aug. 10, 1934; returned June 4, 1935 at Wilton.
- 1 ad., banded May; recovered Aug. next year at Wilton.

COWBIRD (*Molothrus ater*) — 90 banded.

- 2 banded May, June; returned May at Wilton; 1 and 2 yrs. later.

GOLDFINCH (*Spinus tristis*) — 976 banded.

- 1 ad., banded July 30, 1944; returned June 9, 1946 at Wilton.
- 1 ad., banded June 3, 1940; recovered summer of 1945 at Barton, N. D., 100 mi. ne.
- 1 ad., banded May 20, 1939; recovered Nov. 14, 1939 at Lockhart, Tex.
- 1 ad., banded May 25, 1934; recovered June 4, 1935 at Northville, S. D.

SLATE-COLORED JUNCO (*Junco hyemalis*) — 1807 banded.

- 1 banded Oct. 5, 1933; recovered Feb. 5, 1934 at Cove, Ark.
- 1 banded Apr. 14, 1938; recovered Sept. 29, 1939 at Winnetka, Ill.
- 1 banded Oct. 22, 1944; recovered Apr. 27, 1945 at Macrarie, Sask.

TREE SPARROW (*Spizella arborea*) — 4435 banded.

- 1 banded Oct. 10, 1936; recovered Dec. 13, 1939 at Boise City, Okla.
1 banded Oct. 9, 1945; recovered Jan. 16, 1946 at Gracemont, Okla.

CHIPPING SPARROW (*Spizella passerina*) — 1508 banded.

- 3 juv., banded Aug., Sept.; returned July, Sept. at Wilton; 1 at 4 yrs., others 1 yr.

CLAY-COLORED SPARROW (*Spizella pallida*) — 2444 banded.

- 6 banded May-Aug.; returned May, June at Wilton 1 yr. later (3 ad., 3 juv.).
4 banded June-Aug.; returned May, Sept. at Wilton 2 yrs. later.

HARRIS'S SPARROW (*Zonotrichia querula*) — 2861 banded.

- 1 banded May 11, 1933; recovered winter of 1935-36 at Ozawkie, Kan.
1 banded Oct. 22, 1943; recovered Dec. 12, 1944 at Elk Point, S. D.
1 banded May 17, 1934 at Jamestown, N. D.; trapped Sept. 23, 1934 at Wilton.

WHITE-CROWNED SPARROW (*Zonotrichia leucophrys*) — 164 banded.

- 1 banded Oct. 4, 1933; recovered Dec. 15, 1933 at Lamesa, Tex.

GAMBEL'S SPARROW (*Zonotrichia leucophrys gambeli*) — 1044 banded.

- 1 banded Sept. 29, 1935; recovered Nov. 8, 1936 at Spur, Tex.
1 banded Sept. 16, 1937; recovered Oct., 1940 at Paxton, Nebr.
1 banded Sept. 22, 1937; recovered Jan. 17, 1938 at Roby, Tex.
1 banded Sept. 25, 1937; recovered Dec. 28, 1938 at Roby, Tex.

WHITE-THROATED SPARROW (*Zonotrichia albicollis*) — 1190 banded.

- 1 banded Sept. 23, 1937; recovered Nov. 23, 1937 at Plauchville, La.

LINCOLN'S SPARROW (*Melospiza lincolni*) — 1626 banded.

- 1 banded Apr. 24, 1945; returned Sept. 24, 1945 at Wilton.

SONG SPARROW (*Melospiza melodia*) — 820 banded.

- 1 banded Oct. 2, 1939; recovered Nov. 9, 1940 at Rose Valley, Sask.

As at other stations, few re-traps have been secured on transients, but there was one Lincoln's Sparrow, banded in the spring and re-trapped in September. A Harris's Sparrow banded at Jamestown, N. D. in May was caught in September and an Olive-backed Thrush banded at Northville, S. D. in May, 1942 was trapped two years later.

There have been a comparatively large number of returns from birds banded as juveniles. The only returns of Chipping Sparrows were three of these. Three out of ten Clay-colored Sparrow returns had been banded as juveniles. One Flicker and one Baltimore Oriole banded as juveniles returned. Of 22 Robins which returned to the station and two found dead nearby, seven were definitely juvenile when banded. Of the Robins, ten returned after one year, six after two and four after three years. Nearly all of the return records were secured in April, May and June.

Wilton, North Dakota.