

## An Analysis of Christmas Bird Counts in Northeastern Oklahoma, 1930-1953

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This is an analysis of the Christmas bird counts taken in the northeastern part of the state from 1930 to 1953 inclusive. This paper supplements the ten-year compilation of the reports, 1919-1929, by Mrs. Margaret Morse Nice in the 1931 edition of the "Birds of Oklahoma."

"The greatest value of the Christmas Bird Counts to the individual observer and to the ornithologists in general, rests in the accuracy which results from adherence to the regulations specified by the National Audubon Society. . . . If the census requirements are followed year after year in censusing the same area, the resulting data will show population trends, decreases and increases in the number of species due to weather conditions, cyclic fluctuations, or possibly man's destruction of, or improvement of wildlife habitat." (9)

To the best of my knowledge these national regulations have been faithfully adhered to in all of the northeastern Oklahoma counts. The majority of the counts (24) were taken at Tulsa where a large group of observers has participated each year. The other eleven counts include Catoosa, Rogers County; Sperry and Skiatook, Tulsa County; Locust Grove and Spavinaw, Mayes County; Afton, Ottawa County; Muskogee and Fort Gibson Reservoir area, Muskogee County.

A few changes in the method of recording certain species has resulted in slight discrepancies in the counts. For example, following the rules laid down by the National Audubon Society, the House Sparrow has sometimes been omitted or recorded only as "seen". Again it was not placed in the total list of species but was counted separately. Since 1931 it has been tabulated as a species. The same has been true of the Ring-necked Pheasant, recorded since 1938 on the Tulsa counts.

The grouping of species composing the large mixed flocks of blackbirds, especially in 1933 and 1952, leads to greater errors in the numerical totals of individual birds.

Because of changes in nomenclature the Eastern form is now called the Red-eyed Towhee and the Arctic has become the Spotted Towhee. In 1950 the Baldpate was listed as the Widgeon. These two have been counted as one species in the total. Because of possible errors in field identifications the subspecies have been disregarded in Grackles, Chickadees, Shrikes and Song Sparrows. Krider's and Harlan's Hawks have been counted as distinct forms since specimens were early submitted to the U. S. Biological Survey for identification.

The most frequently recorded birds on the 42 counts have been the Red-tailed Hawk, the Yellow-shafted Flicker and the Carolina Chickadee, each 36 times. The Downy Woodpecker, Carolina Wren, Eastern Meadowlark, Cardinal and Slate-colored Junco were each listed 35 times. Thirty-four counts listed the Hairy Woodpecker, Blue Jay, Crow, Tufted Titmouse, White-breasted Nuthatch, Eastern Logger-headed Shrike, Bluebird, and House Sparrow. Others seen 30-33 times were the Marsh Hawk, Belted Kingfisher, Red-bellied Woodpecker, Brown Creeper, American Robin, Common Goldfinch, Tree Sparrow, Field Sparrow, Harris's Sparrow and Song Sparrow. On the other hand it is surprising to note that the Carolina Chickadee was not recorded on six counts; the Downy Woodpecker, Eastern Meadowlark, Cardinal and Slate-colored Junco were overlooked on seven counts; the Blue Jay, American Crow and House Sparrow were not observed on eight counts

of the 42. As mentioned above the failure of the House Sparrow to show up on these counts probably can be explained by the fact that the species was disregarded during those years. These omissions of such common and conspicuous species suggest that the counts did not adequately cover the habitats found in northeastern Oklahoma. Comparing these results with Mrs. Nice's earlier 10 year census (Table II) the Blue Jay, Crow, Chickadee, House Sparrow and Slate-colored Junco were seen on 100 per cent of the earlier counts and the Cardinal on 90 per cent of them. In the later counts (Table I and II) these same birds appear only 74 to 83 per cent of the time. After preparing the comparisons in Table II Mrs. Nice (in a letter) summarizes, "On the whole it seems to me that the occurrence of the species probably has not changed much except for the gratifying increase in birds associated with water."

Referring to the rare birds, the first record of the Old-Squaw in northeastern Oklahoma was one seen on Dec. 26, 1936; another was seen on Dec. 22, 1940. The Henslow Sparrow was recorded once. Four were seen Dec. 22, 1940 by Orrin W. Letson and Edith R. Force in Mohawk Park, Tulsa. Some species have been recorded on only one count, suggesting that they have been weak stragglers which failed to reach their normal wintering grounds. The Eared Grebe was seen once. The Western Grebe was first found dead (Jan. 3, 1954), probably illegally shot by a hunter in Mohawk Park. December 28, 1947 gave the only Christmas count record of the White Pelican. On January 6, 1948 a wounded Pelican was captured from the Lake at Mohawk. The Lesser Canada Goose (1952) and the Blue Goose (1937 and 1945) were each recorded only once or twice although they are regular migrants. A male specimen of the White-winged Scoter found December 23, 1937 by Hugh Davis and Wallace Hughes was the first record of the species in the state. The Turkey and Black Vultures and Broad-winged Hawk, though expected, were recorded only once each. The two Ospreys were seen Dec. 30, 1945. On Dec. 16 of the same year a specimen was shot by a hunter on the Arkansas River and given to Hugh Davis. The American Woodcock recorded once in a Christmas count (1950) has been "a familiar visitor" (O. W. Letson) of early fall and winter from 1935 to the present, even spending weeks in the yards of several Tulsa Audubon members. The Road-runner, although never recorded on a Christmas count, can be expected as an all year around resident. It was seen Dec. 10, 1947, Jan. 4, 1948 and Jan. 3, 25, 31, 1951. The male Vermillion Flycatcher, believed to be the first record in Oklahoma, was seen daily by several observers from September to November 12 and also Dec. 1, 6, 20, 1949, and Jan. 1, 1950, but not on the day of the count—Dec. 26, 1949. It was a mild winter season with plenty of flying insect food.

The validity of the Olive-backed Thrush recorded once (Dec. 28, 1947) was properly questioned by the editor. The Hermit Thrush has been recorded on 10 counts singly and in small groups of 4 to 16.

The Sprague Pipit recorded on Dec. 24, 1932 by Robert Langenkamp may have wandered east of its normal range. Two species previously considered summer residents only were recorded on the counts. The Black and White Warbler was listed Dec. 20, 1942 by Professor H. D. Chase, Hugh Davis and Wallace Hughes. The Pine Warbler recorded Dec. 29, 1953, by Lea Davis and Mrs. Roy L. Ginter fed all winter in Locust Grove at Miss Davis' feeder.

A number of species have showed conspicuous fluctuations in numbers during this period of 24 years. For example, thousands of American Mer-gansers were noted regularly until 1950 in sharp contrast to the 600-800 individuals reported during the last three years. Perhaps the extended drought has affected their habitat unfavorably (See Table I). Red-headed Woodpecker populations have shown a marked instability (Table I). Counts on the species have varied from 0-379 individuals probably reflecting the availability of acorns and other mast foods from year to year. The count

in Blackbirds was 13,000 in 1933, 25,000 in 1951 and 78,000 in 1952. These counts can be compared with the low figures of 3 and 4 in 1942 and 1939 and with an average of 1099 birds. The large concentrations are believed to reflect the combination of favorable food and roosting grounds or perhaps are indicative of favorable weather conditions.

Table I for ease of comparison, is patterned after the earlier one by Mrs. Nice in the 1931 edition of "Birds of Oklahoma", showing the list of birds with the number of counts on which each was recorded and the average number of birds counted in 24 years. Table II, kindly prepared by Mrs. Nice (1954) shows the percentage of trips on which 27 species were recorded in Christmas counts in northeastern Oklahoma, comparing the 10 trips in 1919-1929 with the 42 trips in 1930-1953. (The itemized yearly tables in the manuscript are available for study by those interested but will not be presented for publication at this time.)

The Christmas bird counts have proved valuable to the people of Oklahoma in several respects. First of all, they have provided important information on the distribution and numbers of the species of birds wintering in the state.

Perhaps of greater significance has been the stimulation and encouragement of both amateur and professional scientists. My own experience indicates clearly the far reaching effects on the interest in bird study provided by the bird counts. An acquaintance and friendship with Dr. and Mrs. L. B. Nice beginning in 1923 stimulated me to make my first bird count at Okmulgee, Dec. 26, 1925. Three capable members of my first high school Field and Stream Club helped me take this count. The interest in the Christmas counts remained at about the same level from 1923-1929 as indicated by the fact that a total of only fifteen observers participated in these seven counts. From 1930 interest at Tulsa grew rapidly and has been sustained. For example from 1930-1954, 344 observers or an average of fifteen each year have participated in the Tulsa counts.

The far reaching effect of the participation of members of the Woodrow Wilson Junior High School Field and Stream Club can be illustrated by a personal incident. The year 1931 was an exciting one for me ornithologically. After taking the Tulsa count with Professor Chase and my students, I went to the A.A.A.S. meetings in New Orleans. Stopping off at Austin, Texas, a former Okmulgee Field and Stream Club student and I took the only published account in Texas. That really did cause a flurry! The only counts published from two states were contributed by Science Club members and their sponsor! Many of these high school students have continued their interest in birds and several have gone on in the field of Biology. A number have become members of the Oklahoma Academy of Science and have taken active part in the programs of the Academy.

The fact that only 31 counts were published by observers covering other sections of Oklahoma during this period is further evidence that the interest roused by the writer at Okmulgee and at Tulsa has resulted in very active participation on the part of a large number of people.

#### SUMMARY

An analysis of the 42 published Christmas bird counts taken in northeastern Oklahoma during the period 1930-1953 has provided worthwhile information on both the distribution of species and trends in numbers of individuals. Probably of greatest significance has been the encouragement and stimulation of a deep personal interest in bird study for hundreds of students and adults.

TABLE I

Birds Recorded on 42 Christmas Counts in Northeastern Oklahoma,  
1930-1953.

| Species                          | No. of Counts<br>in which each<br>bird was found | Av. No. Species<br>seen per count |
|----------------------------------|--|-----------------------------------|
| Eared Grebe .....                | 1  | 1                                 |
| Western Grebe .....              | 1  | 1                                 |
| Pied-billed Grebe .....          | 17   | 6                                 |
| White Pelican .....              | 1  | 10                                |
| Double-crested Cormorant .....   | 3  | 1                                 |
| Great Blue Heron .....           | 18   | 13                                |
| Lesser Canada Goose .....        | 1  | 1                                 |
| Blue Goose .....                 | 2  | 1                                 |
| Mallard .....                    | 22   | 2161                              |
| Black Duck .....                 | 10   | 6                                 |
| Gadwall .....                    | 15   | 3                                 |
| Pintail .....                    | 17   | 5                                 |
| Baldpate .....                   | 14   | 4                                 |
| Green-winged Teal .....          | 17   | 3                                 |
| Blue-winged Teal .....           | 4  | 11                                |
| Shoveler .....                   | 6  | 17                                |
| Wood Duck .....                  | 2  | 4                                 |
| Redhead .....                    | 10   | 10                                |
| Ring-necked Duck .....           | 14   | 33                                |
| Canvas-back .....                | 6  | 10                                |
| Greater Scaup Duck .....         | 4  | 17                                |
| Lesser Scaup Duck .....          | 14   | 23                                |
| American Golden-eye .....        | 16   | 10                                |
| Buffle-head .....                | 8  | 5                                 |
| Old-squaw .....                  | 2  | 2                                 |
| White-winged Scoter .....        | 1  | 1                                 |
| Ruddy Duck .....                 | 4  | 2                                 |
| Hooded Merganser .....           | 14   | 4                                 |
| American Merganser .....         | 23   | 1254                              |
| Red-breasted Merganser .....     | 5  | 7                                 |
| Turkey Vulture .....             | 1  | 1                                 |
| Black Vulture .....              | 1  | 1                                 |
| Sharp-shinned Hawk .....         | 10   | 1                                 |
| Cooper's Hawk .....              | 13   | 2                                 |
| Red-tailed Hawk .....            | 36   | 7                                 |
| Krider's Hawk .....              | 3  | 1                                 |
| Harlan's Hawk .....              | 14   | 2                                 |
| Red-shouldered Hawk .....        | 22   | 9                                 |
| Broad-winged Hawk .....          | 1  | 1                                 |
| American Rough-legged Hawk ..... | 8  | 2                                 |
| Golden Eagle .....               | 3  | 1                                 |
| Bald Eagle .....                 | 4  | 2                                 |
| Marsh Hawk .....                 | 33   | 6                                 |
| Osprey .....                     | 1  | 1                                 |
| Prairie Falcon .....             | 5  | 1                                 |
| Sparrow Hawk .....               | 29   | 3                                 |
| Greater Prairie Chicken .....    | 2  | 2                                 |
| Bob-white Quail .....            | 29   | 46                                |
| Ring-necked Pheasant .....       | 7  | 2                                 |
| King Rail .....                  | 3  | 2                                 |
| Virginia Rail .....              | 2  | 1                                 |
| Sora Rail .....                  | 2  | 1                                 |
| American Coot .....              | 17   | 56                                |

TABLE I (Continued)

| Species                        | No. of Counts<br>in which each<br>bird was found | Av. No. Species<br>seen per count |
|--------------------------------|--|-----------------------------------|
| Killdeer .....                 | 20   | 18                                |
| American Woodcock .....        | 1  | 1                                 |
| Wilson's Snipe .....           | 13   | 12                                |
| Herring Gull .....             | 19   | 12                                |
| Ring-billed Gull .....         | 19   | 139                               |
| Franklin's Gull .....          | 2  | 1                                 |
| Mourning Dove .....            | 15   | 12                                |
| Barn Owl .....                 | 4  | 2                                 |
| Screech Owl .....              | 5  | 1                                 |
| Horned Owl .....               | 11   | 2                                 |
| Barred Owl .....               | 21   | 4                                 |
| Short-eared Owl .....          | 7  | 1                                 |
| Belted Kingfisher .....        | 31   | 4                                 |
| Yellow-shafted Flicker .....   | 36   | 36                                |
| Red-shafted Flicker .....      | 5  | 1                                 |
| Pileated Woodpecker .....      | 27   | 3                                 |
| Red-bellied Woodpecker .....   | 32   | 14                                |
| Red-headed Woodpecker .....    | 28   | 39                                |
| Yellow-bellied Sapsucker ..... | 22   | 3                                 |
| Hairy Woodpecker .....         | 34   | 8                                 |
| Downy Woodpecker .....         | 35   | 23                                |
| Vermillion Flycatcher .....    | 1  | 1                                 |
| Prairie Horned Lark .....      | 17   | 33                                |
| Blue Jay .....                 | 34   | 70                                |
| Crow .....                     | 34   | 69                                |
| Carolina Chickadee .....       | 36   | 80                                |
| Tufted Titmouse .....          | 34   | 77                                |
| White-breasted Nuthatch .....  | 34   | 13                                |
| Brown Creeper .....            | 30   | 6                                 |
| Winter Wren .....              | 17   | 2                                 |
| Bewick's Wren .....            | 6  | 3                                 |
| Carolina Wren .....            | 35   | 12                                |
| Long-billed Marsh Wren .....   | 1  | 1                                 |
| Mockingbird .....              | 28   | 4                                 |
| Brown Thrasher .....           | 12   | 4                                 |
| Robin .....                    | 32   | 97                                |
| Hermit Thrush .....            | 10   | 3                                 |
| Olive-backed Thrush .....      | 1  | 1                                 |
| Eastern Bluebird .....         | 34   | 24                                |
| Blue-gray Gnatcatcher .....    | 2  | 3                                 |
| Golden-crowned Kinglet .....   | 22   | 9                                 |
| Ruby-crowned Kinglet .....     | 10   | 8                                 |
| Sprague's Pipit .....          | 1  | 1                                 |
| American Pipit .....           | 4  | 29                                |
| Cedar Waxwing .....            | 17   | 57                                |
| Loggerhead Shrike .....        | 34   | 4                                 |
| Starling .....                 | 29   | 494                               |
| Black and White Warbler .....  | 1  | 1                                 |
| Myrtle Warbler .....           | 8  | 9                                 |
| Pine Warbler .....             | 1  | 1                                 |
| House Sparrow .....            | 34   | 124                               |
| Eastern Meadowlark .....       | 35   | 124                               |
| Western Meadowlark .....       | 4  | 10                                |
| Red-wing .....                 | 27   | 2081                              |
| Rusty Blackbird .....          | 23   | 447                               |

TABLE I (Continued)

| Species                         | No. of Counts<br>in which each<br>bird was found | Av. No. Species<br>seen per count |
|---------------------------------|--|-----------------------------------|
| Brewer's Blackbird .....        | 12   | 139                               |
| Bronzed Grackle .....           | 23   | 517                               |
| Cowbird .....                   | 21   | 616                               |
| Cardinal .....                  | 35   | 51                                |
| Purple Finch .....              | 19   | 8                                 |
| Pine Siskin .....               | 8  | 7                                 |
| Eastern Goldfinch .....         | 35   | 56                                |
| Eastern (Red-eyed) Towhee ..... | 20   | 4                                 |
| Spotted (Arctic) Towhee .....   | 20   | 7                                 |
| Savannah Sparrow .....          | 12   | 3                                 |
| Leconte's Sparrow .....         | 5  | 4                                 |
| Henslow's Sparrow .....         | 1  | 4                                 |
| Vesper Sparrow .....            | 5  | 16                                |
| Slate-colored Junco .....       | 35   | 222                               |
| American Tree Sparrow .....     | 32   | 353                               |
| Chipping Sparrow .....          | 4  | 2                                 |
| Clay-colored Sparrow .....      | 4  | 2                                 |
| Field Sparrow .....             | 31   | 15                                |
| Harris's Sparrow .....          | 31   | 39                                |
| White-crowned Sparrow .....     | 15   | 8                                 |
| White-throated Sparrow .....    | 28   | 58                                |
| Fox Sparrow .....               | 29   | 3                                 |
| Lincoln's Sparrow .....         | 19   | 7                                 |
| Swamp Sparrow .....             | 16   | 4                                 |
| Song Sparrow .....              | 31   | 40                                |
| Lapland Longspur .....          | 5  | 143                               |
| Smith's Longspur .....          | 11   | 45                                |

TABLE II

Percentage of Trips on Which 27 Species Were Recorded in Christmas Bird Counts in Northeastern Oklahoma

| Species                       | 10 trips<br>1919-1929 | 42 trips<br>1930-1953 |
|-------------------------------|-----------------------|-----------------------|
| Red-tailed Hawk .....         | 70                    | 86                    |
| Marsh Hawk .....              | 60                    | 79                    |
| Kingfisher .....              | 0                     | 74                    |
| Yellow-shafted Flicker .....  | 80                    | 86                    |
| Red-bellied Woodpecker.....   | 80                    | 76                    |
| Hairy Woodpecker .....        | 50                    | 81                    |
| Downy Woodpecker .....        | 80                    | 83                    |
| Blue Jay .....                | 100                   | 81                    |
| Crow .....                    | 100                   | 81                    |
| Chickadee .....               | 100                   | 86                    |
| Tufted Titmouse .....         | 80                    | 81                    |
| White-breasted Nuthatch ..... | 70                    | 81                    |
| Brown Creeper .....           | 10                    | 71                    |
| Robin .....                   | 50                    | 76                    |
| Eastern Bluebird .....        | 90                    | 81                    |
| Carolina Wren .....           | 50                    | 83                    |
| Shrike .....                  | 60                    | 81                    |
| House Sparrow .....           | 100                   | 81                    |
| Eastern Meadowlark .....      | 80                    | 81                    |
| Cardinal .....                | 90                    | 83                    |
| Eastern Goldfinch .....       | 80                    | 79                    |
| Slate-colored Junco .....     | 100                   | 83                    |
| Tree Sparrow .....            | 0                     | 74                    |
| Field Sparrow .....           | 30                    | 74                    |
| Harris's Sparrow .....        | 90                    | 74                    |
| White-throated Sparrow .....  | 40                    | 66                    |
| Song Sparrow .....            | 40                    | 74                    |

\* Nice, Margaret M. Letter to writer, Dec., 1954.

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