

## NOTES ON THE NUMERICAL STATUS AND MIGRATION OF THE BIRDS OF THE LAKE CARL BLACKWELL PROJECT IN NORTH CENTRAL OKLAHOMA<sup>1</sup>

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This paper is the first report on a long-time study of the effect of changes in land use upon bird population. The writers believe that a satisfactory method of determining the effects of land use upon bird populations requires first of all a careful analysis of the numerical and seasonal status of each species over a period of years.

In March 1939 the senior author began an intensive study of the ecology of the bobwhite on the Lake Carl Blackwell Project. In August 1940 the junior author commenced work on the status of the avifauna in general, giving special attention to the populations and nesting habits of predatory birds. In the fall of 1940 the lake was opened to waterfowl hunting. A complete record of the kill during the 1940 season furnished valuable data on the comparative abundance and time of migration of the ducks.

For every day spent in the field a species list was kept of the numbers of individuals seen. Only those lists that were representative for a given habitat were used. The habitats were divided into two main classes—upland and water. A table was made for each month of the year. On it were recorded the dates and numbers of individuals seen for every species. The frequency of occurrence and numbers of certain species which were considered unquestionably abundant, namely the mallard, the crow, and the chickadee, were noted. This information served as a yardstick for determining the status of other forms. Typical species for the grades of common, fairly common, uncommon, and rare were similarly selected to serve as standards of comparison.

The writers believe that their data on numerical status are sufficiently accurate to form a sound basis for indicating trends in population. Data on the seasonal occurrence of species that are not permanent residents are somewhat incomplete, particularly during the month of August.

The Lake Carl Blackwell Project is located eight miles west of Stillwater; lying principally in northwestern Payne County it extends north into southern Noble County. The project contains approximately 21,000 acres, 3,200 of which will be covered by water when the lake has reached full capacity. In the spring of 1938 the dam was closed, blocking Stillwater Creek and forming the lake. During the period of the study the area under water varied in size from approximately 1,000 to 2,000 acres. From 1935 to 1939 all of the farmers were removed from the area by the Federal government. Since that time there has been no agriculture. Grazing was limited to experimental goat farming on less than a square mile of land until June 1941 when many of the pastures were opened to cattle. All

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hunting was prohibited until 1940 when the college opened the lake to waterfowl hunting. The lake was also opened to controlled fishing in June 1941. The hunting of upland game and trapping have not been permitted since the land came into Federal ownership.

The habitats on the project fall naturally into five principal types: (1) abandoned fields grown up to weeds, especially ragweeds, fleabane, rosin weeds, and sunflowers; (2) little bluestem prairie; (3) blackjack-post oak woodlands; (4) timbered stream beds dominated by elm and hackberry; and (5) aquatic habitats lacking permanent shore line vegetation because of frequent changes in the lake level.

During the course of the study 203 species of birds have been recorded. No attempt has been made to identify subspecies since series of specimens were not available. Where no suitable species name was available, the common name of the probable subspecies was used.

Lake Carl Blackwell has provided suitable feeding and resting grounds for large numbers of shore birds, waterfowl, and other species that require aquatic habitats. The senior writer and Mrs. Baumgartner (1941) have reported a number of shore and water birds for which there were either no previous records or only a very limited number of observations for central Oklahoma. A comparison with the reports on the status of birds in Payne County before 1929 (Moore 1928, 1930) also strongly suggests that certain species now stop here more commonly. For example Professor Moore lists 14 species of shore birds for the county while 24 are recorded in this paper. Furthermore, the stilt sandpiper and the white-rumped sandpiper, which Professor Moore failed to find, are now classed respectively as uncommon and fairly common transients.

In 1939 the rodent population was extremely high. Cotton rats, cottontail rabbits, and other small rodents, with the exception of the wood rat, were unusually abundant. In January 1940 severe weather caused a marked decimation in their numbers. During the period of high rodent population many birds of prey were present in unusual abundance. Among those present in spectacular numbers were both species of rough-legged hawk, marsh hawk, red-tailed hawk, barn owl and short-eared owl.

The cessation of agriculture and grazing on the project has caused a change in the status of certain birds. Species typically associated with rural homes such as the mockingbird, the brown thrasher, and the English sparrow have definitely decreased in number since 1939.

The following annotated list gives the numerical status and seasonal occurrence of each species as well as pertinent information on the nesting habits of many birds.

1. Common Loon.—One individual seen and heard on Oct. 16, 1941.
2. Horned Grebe.—Occasional fall migrant—single birds seen Oct. 4, 1940, and Nov. 8, 1941.
3. Pied-billed Grebe.—Common spring and fall migrant—seen from Mar. 7 (1939) until Apr. 19 (1940) and from Aug. 20 (1941) until Dec. 17 (1939).
4. White Pelican.—Rare visitant—25 seen June 8, 1940; flocks seen Oct. 1, 1941, and Nov. 5, 1940.

5. Double-crested Cormorant.—Rare spring and uncommon fall migrant—seen from Apr. 3 (1940) until May 9, (1941) and from Sept. 21 (1940) until Nov. 13 (1941); largest flock composed of 25 birds.
6. Water-Turkey.—Accidental—2 seen July 29, 1940.
7. Great Blue Heron.—Uncommon resident; not known to breed here—more individuals seen in the fall.
8. American Egret.—Uncommon summer and fall visitant—seen from June 12 (1940) until Oct. 31 (1939); 35 seen Sept. 21, 1941.
9. Little Blue Heron.—Uncommon summer visitant—seen from July 5 (1939) until Oct. 4 (1941); 18 seen July 29, 1940.
10. Green Heron.—Uncommon summer resident—seen from May 10 (1940) until Oct. 4 (1941).
11. Black-crowned Night Heron.—Uncommon spring and fall transient—seen from May 17 (1941) to June 12 (1940) and from Sept. 17 (1940) to Oct. 8 (1940).
12. Yellow-crowned Night Heron.—Uncommon spring and fall transient—seen on May 10 and 15, 1941, and from July 3 (1939) to July 29 (1940).
13. American Bittern.—Uncommon spring and fall migrant—seen from Apr. 3 (1940) until May 31 (1941) and from Aug. 29 (1941) until Nov. 2 (1940).
14. White-faced Glossy Ibis.—Accidental—one seen June 5 and again on the 6th, 1940.
15. Canada Goose.—Fairly common spring and fall migrant—seen from Mar. 12 (1941) until Apr. 5 (1941) and from Oct. 13 (1939) until Nov. 7 (1940). Many flocks of dark-colored geese flew overhead without being identified to species; one such flock was seen on Oct. 3, 1941.
16. White-fronted Goose.—Uncommon spring and fall migrant—seen from Mar. 15 (1941) until Apr. 23 (1941). No definite fall record.
17. Snow Goose.—Fairly common spring and uncommon fall migrant—seen from Mar. 13 (1941) until Apr. 19 (1939); 20 seen Sept. 27, 1939.
18. Blue Goose.—Rare spring and fall migrant—15 seen Mar. 15, 1939; 1 killed by hunter Oct. 30, 1940.
19. Mallard.—Abundant winter resident—seen from Oct. 14 (1941) until May 15 (1941).
20. Black Duck.—Rare spring and fall migrant—seen Mar. 7 and 11, 1939, and from Oct. 16 (1940) until Dec. 9 (1941). Largest flock composed of 10 birds.
21. Gadwall.—Fairly common spring and fall migrant and uncommon winter resident—seen from Sept. 24 (1939) until May 28 (1940).
22. Baldpate.—Common spring and fall migrant and uncommon winter resident—seen from Sept. 23 (1941) until May 21 (1940); 33 seen Jan. 19, 1941; other winter records in Dec. and Feb.
23. Pintail.—Abundant spring and fall migrant and common winter resident—seen from Sept. 9 (1941) until May 13 (1940); 4 seen July 14, 1941.

24. Green-winged Teal.—Fairly common winter resident—seen from Aug. 15 (1941) until May 16 (1940).
25. Blue-winged Teal.—Abundant spring and fall migrant—seen from Mar. 14 (1939) until May 21 (1940) and from Aug. 15 (1941) until Nov. 17 (1940).
26. Cinnamon Teal.—Rare fall migrant—17 taken by hunters between Nov. 12 and Dec. 1, 1940.
27. Shoveller.—Fairly common spring and fall migrant—seen from Mar. 7 (1939) until May 21 (1940) and from Sept. 30 (1939) until Dec. 9 (1941).
28. Wood Duck.—Rare summer resident; fairly common fall migrant; not known to winter—seen from May 24 (1940) until Nov. 13 (1941). Probably occurs earlier in spring than our records indicate. Brood seen July 29, 1940.
29. Red-head.—Fairly common spring and fall migrant; occasional winter visitant—seen first on Oct. 8, 1940; 1 seen Jan. 18 and 19, 1941. No spring records although they have been seen on nearby lake in April.
30. Ring-necked Duck.—Common spring and fall migrant—see from Mar. 9 (1941) until Apr. 10 (1941) and from Oct. 8 (1940) until Dec. 14 (1940).
31. Canvas-back.—Uncommon spring and fall migrant and rare winter resident—seen from Oct. 16 (1940) until Mar. 28 (1941); 5 seen Jan. 19, 1941.
32. Greater Scaup.—Rare spring and fall migrant—specimen taken Apr. 6, 1941, and 4 seen Nov. 14, 1939.
33. Lesser Scaup.—Common spring and fall migrant—seen from Mar. 3 (1939) until May 22 (1939) and from Sept. 23 (1941) until Nov. 7 (1941).
34. American Golden-eye.—Rare spring and fall migrant—1 seen Mar. 24, 1941; 5 shot by hunters on Nov. 11, 1940, and 1 on Dec. 12, 1940.
35. Buffle-head.—Rare winter resident—seen from Oct. 16 (1940) until Apr. 27 (1940); 2 seen Jan. 19, 1941.
36. Ruddy Duck.—Uncommon spring and fall migrant—seen from Apr. 5 (1941) until May 9 (1941) and from Oct. 16 (1940) until Dec. 14 (1940).
37. Hooded Merganser.—Rare spring and fall migrant—seen in spring only on Mar. 9, 1940, and in the fall on Nov. 6, 1941, Nov. 6, 12, and 14, 1940, and Dec. 9 and 27, 1941.
38. American Merganser.—Fairly common winter resident—seen from Nov. 17 (1940) until Apr. 9 (1941).
39. Turkey Vulture.—Fairly common summer resident—seen from Mar. 22 (1939 and 1941) until Nov. 7 (1939); 2 fresh eggs found May 11, 1941.
40. Mississippi Kite.—Rare spring and fall migrant—seen on May 10 and 15, 1941, and June 2, 1941, and in the fall only on Sept. 7 and 8, 1939.

41. Sharp-shinned Hawk.—Uncommon winter resident—seen from Sept. 12 (1939) until Apr. 11 (1941).
42. Cooper's Hawk.—Uncommon resident—nest containing one egg observed Apr. 17, 1941.
43. Red-tailed Hawk.—Fairly common resident, more common in winter owing to influx of birds from other regions. Unusually numerous during fall and winter of 1939, when rodent population was at a peak. Decreased sharply in Jan. 1940 when extremely low temperatures and heavy blanket of snow almost wiped out rodent population. A census of nesting pairs carried out in spring of 1941 revealed a population of 18 pairs on area. Nests containing eggs were examined on Mar. 29, 30, and Apr. 5, 1941. An adult was flushed from a nest on Mar. 9, 1941. Five nests containing eggs were examined and all held two eggs each except one which held one fresh egg.
44. Red-shouldered Hawk.—Rare visitant—1 seen Apr. 10, 1939, and single birds seen Oct. 10 and 11, 1939. One banded.
45. Swainson's Hawk.—Uncommon spring and fall migrant—seen from Apr. 10 (1939) until June 2 (1939). One seen throughout summer of 1939. A single fall record, 1 seen Oct. 19, 1939.
46. Broad-winged Hawk.—Rare visitant—1 seen Apr. 13, 1939. A specimen taken just outside of area.
47. American Rough-Legged Hawk.—Rare winter resident—seen from Sept. 27 (1939) until May 3 (1939). Frequently seen in fall and winter of 1939 probably because of abundance of rodents.
48. Ferruginous Rough-legged Hawk.—Rare winter resident—seen from Oct. 18 (1939) until May 24 (1939). This hawk also was frequently seen in the winter of 1939.
49. Bald Eagle.—Rare visitant—an immature bird seen on Oct. 14 and 22, 1941.
50. Marsh Hawk.—Uncommon summer resident and common winter resident. Nest with one egg seen Apr. 26, 1941, in low grass on dry open prairie. Abundant in fall and early winter of 1939, when as many as 25 were seen per square mile.
51. Osprey.—Rare visitant—seen May 9, 1941, June 30, 1941, July 8, 1941, Sept. 15, 1941, Sept. 19 and 24, 1940, and Oct. 3 and 4, 1941.
52. Prairie Falcon.—Rare visitant—seen Jan. 9, 1940, Mar. 18, 1939, and Dec. 11, 1939.
53. Duck Hawk.—Rare fall migrant—1 seen Sept. 12, 1939. A few large unidentified falcons seen suggests that the species may be more numerous.
54. Pigeon Hawk.—Rare visitant—specimens Sept. 20, and Dec. 4, 1940.
55. Sparrow Hawk.—Fairly common spring and fall migrant and rare winter resident—seen from Aug. 15 (1941) until May 3 (1941).
56. Bob-white.—Common resident. Due to unfavorable weather and competition of rodents for food the number of bob-white sharply decreased in Jan. 1940.
57. Ring-necked Pheasant.—A few have been liberated on project, most

- recently in summer of 1939. None seen by writers since fall of 1939/
58. Sandhill Crane.—Rare visitant—4 seen Mar. 28, 1940, and 100 seen Apr. 2, 1941.
  59. Sora Rail.—Uncommon spring and fall migrant—seen from May 4 (1939) until May 15 (1941) and from Sept. 9 (1941) until Oct. 4, (1941).
  60. Florida Gallinule.—One seen Sept. 23, 1941.
  61. American Coot.—Abundant spring and fall migrant; uncommon winter resident and rare summer visitant.
  62. Piping Plover.—Three seen by A. M. and F. M. Baumgartner, May 15, 1940.
  63. Semipalmated Plover.—Rare visitant—3 seen May 22, 1940 and 2 on both Sept. 17 and 25, 1940.
  64. Killdeer.—Common spring and fall migrant and rare summer resident—seen from Mar. 8 (1940) until Dec. 17 (1939).
  65. Black-bellied Plover.—Rare spring and fall migrant—23 seen May 15, 1940; specimen taken Sept. 29, 1940; and 1 seen Nov. 25, 1940.
  66. Ruddy Turnstone.—One seen May 15, 1940.
  67. Wilson's Snipe.—Uncommon fall migrant—seen from Sept. 9 (1941) until Nov. 11 (1941).
  68. Long-billed Curlew.—Rare spring and fall visitant—1 seen Mar. 27, 1940; 2 seen May 15, 1940; 1 seen May 22, 1940; 1 seen Aug. 15, 1941.
  69. Hudsonian Curlew.—Three seen May 13, 1940.
  70. Upland Plover.—Rare spring and fall migrant—seen from May 4 to 25 (1939) and from July 4 (1939) to Aug. 15 (1941).
  71. Spotted Sandpiper.—Uncommon spring and fall migrant—seen from Apr. 25 (1941) until May 28 (1940) and from July 20 (1940) until Sept. 21 (1940).
  72. Solitary Sandpiper.—Uncommon spring and fall migrant—seen from Apr. 17 (1941) until May 4 (1939) and from July 24 (1941) until Sept. 13 (1941).
  73. Western Willet.—Rare spring and fall migrant—seen from Apr. 26 (1941) until May 22 (1939); 1 seen Aug. 29, 1941.
  74. Greater Yellow-legs.—Uncommon spring and fall migrant—seen from Mar. 27 (1940) until May 16 (1940) and from July 8 (1941) until Oct. 25 (1941).
  75. Lesser Yellow-legs.—Fairly common spring and fall migrant—seen from Mar. 20 (1940) until June 1 (1940) and from July 29 (1940) until Sept. 27 (1940).
  76. Pectoral Sandpiper.—Common spring and fall migrant—seen from Mar. 27 (1940) until May 24 (1940) and from Aug. 1 (1940) until Nov. 2 (1940).
  77. White-rumped Sandpiper.—Fairly common spring migrant—seen from May 12 (1940) until June 1 (1940).
  78. Baird's Sandpiper.—One seen June 28, 1940.

79. Least Sandpiper.—Rare spring and fall migrant—seen from May 15 to May 21 (1940) and on Sept. 17, 1940.
80. Dowitcher.—Rare spring and fall migrant—seen from Apr. 15 (1940) until May 15 (1940) and from July 29 (1940) until Nov. 14 (1939).
81. Stilt Sandpiper.—Uncommon spring migrant—seen from May 4 to 21 (1940).
82. Semipalmated Sandpiper.—Spring migrant; common in May, 1940—seen from May 3 (1939) until May 24 (1940).
83. Marbled Godwit.—Eight seen May 12, 1940.
84. Hudsonian Godwit.—One seen May 15, 1940.
85. Wilson's Phalarope.—Rare visitant—3 seen from May 13 to 21 (1940).
86. Herring Gull.—Rare visitant—seen from Mar. 11 (1941) until Apr. 8 (1939).
87. Ring-billed Gull.—Uncommon spring and fall migrant—seen from Feb. 4 (1941) until May 20 (1940) and from Sept. 12 (1939) until Nov. 8 (1941).
88. Franklin's Gull.—Abundant spring and fall migrant—seen from Apr. 15 (1940) until May 28 (1940) and from Sept. 27 (1939) until Nov. 8 (1941); 5 seen June 24, 1940.
89. Common Tern.—Rare spring and uncommon fall migrant—seen only on May 9, 1941, in the spring and from Sept. 23 (1941) until Oct. 25 (1941); 40 seen Oct. 25, 1941.
90. Least Tern.—Single birds seen May 13 and 15 and June 8 and 12, 1940.
91. Caspian Tern.—Eight seen Sept. 25, 1940.
92. Black Tern.—Fairly common spring and fall migrant—seen from May 8 (1940) until June 12 (1940) and from July 21 (1941) until Sept. 23 (1941).
93. Mourning Dove.—Fairly common summer resident—seen from Mar. 2 (1939) until Dec. 26 (1941).
94. Yellow-billed Cuckoo.—Fairly common summer resident—seen from May 8 (1940) until Aug. 15 (1941).
95. Roadrunner.—Rare resident—A few seen in 1939 and one record in both 1940 and 1941.
96. Barn Owl.—Resident. Fairly common in 1939. Rare after rodent population decreased sharply in Jan., 1940. At one nest site in 1939 a banded individual raised two broods in the spring and summer and a third set of eggs was laid by Oct. 1. The last set of eggs did not hatch.
97. Screech Owl.—Rare resident.
98. Horned Owl.—Uncommon resident. Nest containing 2 young a few weeks old found March 22, 1941. A nest with a single young about a month old seen on Apr. 11, 1941.
99. Burrowing Owl.—One seen Apr. 12, 1941.
100. Barred Owl.—Uncommon resident.
101. Long-eared Owl.—Two birds banded, one May 27, the other June 2, 1939.

102. Short-eared Owl.—Winter resident. Abundant in fall of 1939; 50 seen on Nov. 11, 1939. Rare since sharp drop in rodent population in Jan., 1940. Seen from Sept. 30 (1939) until April 23 (1941).
103. Chuck-will's-widow.—Uncommon summer resident—seen from May 1 (1941) until Aug. 15 (1941); 2 eggs May 8, 1940.
104. Nighthawk.—Fairly common spring and fall migrant—seen from May 2 (1940) until June 15 (1940) and from Aug. 29 (1941) until Sept. 27 (1941).
105. Chimney Swift.—Uncommon summer resident—seen from Apr. 22 (1941) until Sept. 23 (1941).
106. Ruby-throated Hummingbird.—Rare summer resident—seen from May 11 (1941) until Aug. 2 (1940).
107. Belted Kingfisher.—Uncommon spring and fall migrant—seen from Mar. 26 (1940) until Apr. 26 (1941) and from July 5 (1940) until Nov. 14 (1941).
108. Yellow-shafted Flicker.—Common winter resident and uncommon summer resident.
109. Red-shafted Flicker.—Uncommon winter resident—seen from Oct. 5 (1940) until Apr. 8 (1941).
110. Pileated Woodpecker.—One seen May 24, 1940.
111. Red-bellied Woodpecker.—Fairly common resident.
112. Red-headed Woodpecker.—Fairly common summer resident—seen from Mar. 8 (1941) until Nov. 16 (1939).
113. Yellow-bellied Sapsucker.—One seen Dec. 26, 1941.
114. Hairy Woodpecker.—Fairly common resident.
115. Downy Woodpecker.—Common resident.
116. Eastern Kingbird.—Common spring and uncommon fall migrant and uncommon summer resident—seen from Apr. 17 (1941) until Sept. 8 (1939).
117. Arkansas Kingbird.—Uncommon spring and fall migrant and rare summer resident—seen from May 1 (1939) until Oct. 11 (1941).
118. Scissor-tailed Flycatcher.—Common spring and fall migrant and fairly common summer resident—seen from Apr. 4 (1940) until Oct. 14 (1941).
119. Crested Flycatcher.—Common summer resident—seen from Apr. 26 (1941) until Sept. 13 (1941).
120. Eastern Phoebe.—Uncommon summer resident—seen from Mar. 14 (1939) until Oct. 14 (1941); 5 eggs found May 10, 1941.
121. Least Flycatcher.—Uncommon spring migrant—seen and heard on May 10 and 15, 1941. A number of flycatchers belonging to this genus were seen but not identified as to species.
122. Horned Lark.—Fairly common winter resident and rare summer resident.
123. Bank Swallow.—Rare spring migrant and summer visitant—first seen Apr. 22, 1941; 2 seen June 23, 1940, and 2 July 27, 1939.
124. Rough-winged Swallow.—Rare spring migrant—see from Apr. 8 (1940) until June 16 (1941).

125. Barn Swallow.—Uncommon summer resident—seen from Apr. 8 (1940) until Oct. 22 (1941).
126. Cliff Swallow.—Uncommon spring migrant and rare summer visitant—seen from May 9 (1941) until July 20 (1939).
127. Purple Martin.—Uncommon summer resident—seen from Apr. 3 (1940) until July 25 (1941).
128. Blue Jay.—Fairly common resident; often abundant during the spring and fall migration; 4 eggs seen May 8, 1941.
129. Common Crow.—Abundant resident—larger numbers seen in the winter.
130. Plumbeous Chickadee.—Abundant resident.
131. Tufted Titmouse.—Common resident.
132. Brown Creeper.—Rare winter visitant—seen from Nov. 4 (1941) until Mar. 18 (1939).
133. House Wren.—Rare spring and fall migrant—seen from Apr. 13 (1939) until May 16 (1940) and from Sept. 12 (1939) until Oct. 9 (1941).
134. Winter Wren.—One seen Dec. 17, 1939.
135. Texas Wren.—Fairly common resident.
136. Carolina Wren.—Uncommon spring and fall migrant—seen from Mar. 14 (1939) until May 27 (1939) and from Nov. 4 until Nov. 13 (1941).
137. Prairie Marsh Wren.—Rare visitant—seen on Oct. 1, 3, and 4, 1941.
138. Short-billed Marsh Wren.—One seen May 10, 1941.
139. Mockingbird.—Uncommon summer resident—seen from Apr. 8 (1939) until Sept. 3 (1939).
140. Catbird.—Rare spring migrant—5 records from May 10 (1941) until May 25 (1940).
141. Brown Thrasher.—Uncommon summer resident in 1939 and 1940; none recorded in summer of 1941—seen from Apr. 8 (1940) until Oct. 21 (1941).
142. Robin.—Common winter resident—seen from Sept. 9 (1941) until May 9 (1939).
143. Hermit Thrush.—Rare visitant—recorded Apr. 6, 1939 and Apr. 19, 1940.
144. Olive-backed Thrush.—Fairly common spring migrant—seen from May 1 (1941) until June 4 (1941).
145. Eastern Bluebird.—Uncommon in winter and summer; common during spring and fall migration.
146. Blue-gray Gnatcatcher.—Common summer resident—seen from Apr. 2 (1941) until Sept. 15 (1941).
147. Golden-crowned Kinglet.—Uncommon winter resident—seen from Oct. 28 (1941) until Jan. 13 (1940).
148. Ruby-crowned Kinglet.—Rare spring and fall migrant—seen in spring only on Apr. 8, 1941, and from Oct. 7 (1941) until Nov. 29 (1940).
149. American Pipit.—Fairly common spring and fall migrant—seen from

- Mar. 1 (1940) until May 19 (1939) and from Sept. 30 (1939) until Nov. 21 (1940). Some of these pipits may have been Sprague's.
150. Cedar Waxwing.—Uncommon visitant—seen May 15, 1941, May 30, 1940, Oct. 28, Nov. 16, and Dec. 27, 1941, and Jan 3, 6, 7 and 8, 1942.
  151. Migrant Shrike.—Uncommon resident.
  - ✓152. Starling.—Common winter resident—seen from Oct. 11 (1939) until Mar. 15 (1941).
  153. White-eyed Vireo.—Former summer resident. Reported as nesting a number of years ago by Prof. Geo. A. Moore.
  154. Bell's Vireo.—Fairly common summer resident—seen from May 2 (1940) until Sept. 12 (1939).
  155. Red-eyed Vireo.—Fairly common summer resident—seen from Apr. 26 (1941) until July 23 (1941).
  156. Black and White Warbler.—Uncommon spring migrant—seen from Mar. 29 (1941) to May 11 (1941).
  157. Nashville Warbler.—Uncommon spring and fall migrant—seen in spring only on May 10, 1941, and from Sept. 30 (1939) until Oct. 9 (1941).
  158. Orange-crowned Warbler.—Rare spring and fall migrant—seen from Apr. 26 (1941) until May 10 (1941) and on Oct. 9, 1940.
  159. Tennessee Warbler.—Two seen May 10, 1941.
  160. Yellow Warbler.—Uncommon visitant—seen in spring from Apr. 22 (1941) until May 17 (1941); 1 seen June 17, 1940.
  161. Myrtle Warbler.—Uncommon fall migrant—seen from Oct. 4 (1941) until Nov. 11 (1941).
  162. Prairie Warbler.—Rare spring visitant—1 seen on May 15, and 18, 1941.
  163. Kentucky Warbler.—Rare spring visitant—1 seen May 10, 1941, and 4 seen May 11, 1941.
  164. Yellow-throat.—Uncommon summer resident—seen from May 3 (1940) until Oct. 9 (1941); 5 eggs seen May 17, 1941.
  165. Chat.—Rare summer resident—seen from May 2 (1940) until July 14 (1941).
  166. American Redstart.—Rare visitant—1 seen May 10, 1941; another seen Sept. 24, 1940.
  167. English Sparrow.—Common resident in 1939, becoming less numerous as farming was discontinued. Uncommon resident in 1941.
  168. Eastern Meadowlark.—Abundant resident.
  169. Western Meadowlark.—Abundant winter resident.—seen from Oct. 11 (1939) until Apr. 13 (1939); 1 seen and heard in May and June 1939; last seen June 16.
  170. Yellow-headed Blackbird.—Recorded twice, 20 seen April 22, 1941, and 2 seen May 10, 1939.
  - ✓171. Red-winged Blackbird.—Abundant winter resident and fairly common summer resident.

172. Baltimore Oriole.—Fairly common spring and uncommon fall migrant and uncommon summer resident—seen from May 4 (1939) until Sept. 12 (1939).
173. Orchard Oriole.—Fairly common summer resident—seen from May 3 (1941) until Aug. 15 (1941).
174. Rusty Blackbird.—Probably a common winter resident—seen from Oct. 8, (1940) until Mar. 29 (1941); 1 seen Apr. 27, 1940, may have been a cripple. Identification of flocks of flying blackbirds is difficult.
175. Bronzed Grackle.—Uncommon spring and fall migrant—seen from Apr. 6 (1939) until May 8 (1940) and from Oct. 12 (1940) until Nov. 13 (1941).
176. Cowbird.—Common summer resident—seen from Mar. 1 (1940) until Nov. 11 (1941).
177. Summer Tanager.—Uncommon summer resident—seen from May 8 (1941) until July 23 (1941).
178. Cardinal.—Common resident.
179. Blue Grosbeak.—Fairly common summer resident—seen from May 8 (1941) until Sept. 12 (1941); 5 young in nest Aug. 1, 1941.
180. Indigo Bunting.—Fairly common summer resident—seen from May 4 (1939) until Aug. 2 (1940).
181. Lazuli Bunting.—One seen May 10, 1941.
182. Painted Bunting.—Common summer resident—seen from May 2 (1940) until Aug. 4 (1940).
183. Dickcissel.—Abundant summer resident—seen from Apr. 25 (1939) until Sept. 12 (1939).
184. Purple Finch.—Rare visitant—2 seen Nov. 13, 1941, 3 Dec. 11, and 2 Dec. 17, 1939.
185. Eastern Goldfinch.—Abundant winter resident and fairly common summer resident.
186. Red-eyed Towhee.—One seen Mar. 16, 1941.
187. Arctic Towhee.—Common spring and fall migrant and uncommon winter resident—seen from Sept. 30 (1939) until May 10 (1941).
188. Savannah Sparrow.—Common spring and fall migrant and rare winter resident—seen from Sept. 12 (1941) until May 21 (1940).
189. Grasshopper Sparrow.—Fairly common summer resident—seen from Apr. 5 (1941) until Sept. 12 (1941).
190. Leconte's Sparrow.—Fairly common winter resident—seen from Sept. 8 (1939) until May 3 (1939).
191. Vesper Sparrow.—Common spring and fairly common fall migrant—seen from Mar. 11 (1939) until Apr. 19 (1940) and from Sept. 27 (1939) until Nov. 7 (1940).
192. Lark Sparrow.—Common summer resident—seen from Apr. 6 (1939) until Sept. 27 (1941).
193. Fox Sparrow.—Uncommon winter resident—seen from Nov. 2 (1941) until Mar. 30 (1941).

194. Slate-colored Junco.—Abundant winter resident—seen from Oct. 20 (1939) until Apr. 18 (1939).
195. Tree Sparrow.—Abundant winter resident—seen from Oct. 28 (1939) until Apr. 2 (1941); most common winter bird.
196. Clay-colored Sparrow.—Uncommon spring migrant—seen from Mar. 11 (1939) until May 16 (1940).
197. Field Sparrow.—Abundant summer and fairly common winter resident. Most abundant summer resident; 3 eggs seen Aug. 2, 1940.
198. Harris's Sparrow.—Abundant winter resident—seen from Oct. 30 (1939) until May 8 (1940).
199. White-crowned Sparrow.—Fairly common spring and fall migrant—seen from Mar. 3 (1939) until May 4 (1939) and from Oct. 9 (1941) until Nov. 14 (1940).
200. White-throated Sparrow.—Uncommon spring and fall migrant—seen from Mar. 14 (1939) until Apr. 13 (1939) and from Oct. 7 (1940) until Oct. 22 (1941).
201. Lincoln's Sparrow.—Fairly common spring and fall migrant—seen from Mar. 15 (1941) until May 16 (1940) and from Sept. 27 (1939) until Nov. 8 (1941).
202. Song Sparrow.—Common spring and fall migrant and fairly common winter resident—seen from Sept. 27 (1941) until May 3 (1939).
203. Lapland Longspur.—Abundant winter resident—seen from Nov. 6 (1941) until Mar. 1 (1940). Some individuals were identified as this species, but most were not identified as to species.

## LITERATURE CITED

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