

13th for the Kingbird. This shows that when raw, cold or stormy weather prevails here in April or May, it will retard the migration of species having wintered in South America, but already landed on our Gulf coast in their northward migration, and the most important part of the migration, that of May, becomes normal again.

An unsuspected consequence of the mildness of the season was the shift of the breeding range of at least one southerly species northward. This is the Tufted Titmouse. It breeds commonly 30 miles to the south, and even at Riverside, five miles away. I had seen it once or twice in our woods, but only at the end of the winter, never later. This last winter about four pairs took possession of Thatcher's Woods and made it melodious at once. Later, in April, I saw them inspect knot holes in trees, and they remained, following the Cardinal, which has moved in within the last ten years.

July, 1921.

BIRDS SEEN AT THE MOUTH OF THE OHIO RIVER

BY GORDON WILSON

STATE NORMAL SCHOOL, BOWLING GREEN, KY.

For several years I have spent a week or more of my vacation, some time between July 27 and September 15, at Wickliffe, Kentucky, which is located near the junction of the Ohio and Mississippi Rivers and nearly opposite to Cairo, Illinois. Six miles above the town, which is located on the first bluffs below the mouth of the Ohio, stretches the great bottom. No levees have been built here and the bottom is still rather wild. Only a few hundred of the four or five thousand acres in this tract are in cultivation. The rest of the bottom is covered with open woods, marshes, and lakes. Some thirty-five lakes are of sufficient importance to have been named and there are many more which are almost or wholly dry late in the season. One of the most notable of these marshes is Swan Pond, some 500 acres in extent, which is covered with duck-weeds and water-lilies. Most of the lakes are bordered with tangles of elbow shrubs, while cypress knees and duck-weeds often extend far out into the water. After the fall rains set in, the bottom is almost inaccessible, but in the summer and fall it is a great pleasure ground. The ponds are still full of fish, for every winter they are restocked by the annual overflow of the rivers.

Squirrels, raccoons, and opossums keep fairly plentiful, in spite of a pretty general disregard of game laws.

About two miles above Wickliffe, in a bend of the Mississippi, there is a very extensive sandbar, which varies in size from year to year, but is usually about a mile long and half a mile wide. When the water is low this bar is a place dear to the bird lover, for the refuse from Cairo washed ashore here and the dead bodies of mussels attract many birds of rare beauty, some of which are not commonly seen, except on the Mississippi, in the interior of the United States.

Unfortunately, I have never had a spring vacation in this locality, nor have I been on hand to witness the real waves of fall migrants. Consequently, my list includes only the residents, most of the summer residents, and some of the earlier fall migrants. My records in the general period indicated above, cover the years 1915, 1916, 1917, 1918 and 1921. In 1915, 1917 and 1921 I camped for several days in the bottom, in the lake country. When not attending to camp duties I made long journeys to less-frequented ponds and marshes, often being paid for my pains by catching a good string of bream, crappies, and sunfish, and by seeing a new bird or two.

One of the most unfortunate things in bird study is that this section has never been studied exhaustively by ornithologists. Dr. L. O. Pinder, now of Versailles, Kentucky, made a valuable study of birds in Fulton County, thirty miles south of Wickliffe, and published the results in *Auk* in 1889. The two sections, however, differ considerably. I am hoping that this brief study will attract the attention of some experienced or amateur bird student in that locality, and that a few years hence a more exhaustive study may be made of the "big bottoms," especially as the projected drainage plans will materially change bird life there.

1. HERRING GULL (*Larus argentatus*).

A flock of six or eight seen near the river, August 27, 1917.

2. COMMON TERN (*Sterna hirundo*).

A few seen in 1915, 1917 and 1918, 1917 being the best year. I found only one in 1921.

3. BLACK TERN (*Hydrochelidon nigra surinamensis*).

Seen commonly in 1915, 1917 and 1918, being most abundant along the sandbar in 1917. At Hickman, thirty miles south of the mouth of the Ohio, on September 9, 1917, I saw a very large flock just after a severe storm, flying low down over the gigantic waves.

4. WATER TURKEY OR ANHINGA (*Anhinga anhinga*).

Two which were thought to be of this species were seen on Long Pond August 28, 1917.

5. WOOD DUCK (*Aix sponsa*).

A common summer resident, especially abundant on Swan Pond.

6. WHISTLING SWAN (*Olor columbianus*).

Locally known as "White Crane." Seen in 1917, 1918 and 1921, being especially abundant in 1917. I counted twelve in a single flock at the head of the sandbar in early September, 1917. Seldom have I, in many years of bird study, seen anything to compare with the beauty of the lakes, with their old cypresses standing in a clump of knees and duck-weeds and with two or three Whistling Swans perched on the gnarled and broken limbs.

7. GREAT BLUE HERON (*Ardea herodias*).

Fairly common every year except 1915.

8. LITTLE BLUE HERON (*Florida carula*).

One or two seen every year except 1921.

9. GREEN HERON (*Butorides virescens virescens*).

Not seen in 1915 and 1916, but fairly common the other years.

10. BLACK-CROWNED NIGHT HERON. (*Nycticorax nycticorax naevius*).

One seen in 1917 among the lily-pads on Long Pond.

11. SANDHILL CRANE (*Grus mexicana*).

Fairly common in 1915; a few seen in 1916, 1917 and 1918. A very vivid picture in my mind is that of a Sandhill standing at full height and motionless on a drift at the lower end of a small wild lake, appropriately called Lost Pond.

12. COOT (*Fulica americana*).

A few seen in 1915 and 1917.

13. WOODCOCK (*Philohela minor*).

A flock of 6-10 seen on the sandbar, August 24, 1918.

14. WILSON'S SNIFE (*Gallinago delicata*).

A few seen on the sandbar in 1918.

15. PECTORAL SANDPIPER (*Pisobia maculata*).

Three or four seen on the sandbar, August 31, 1918.

16. LEAST SANDPIPER (*Pisobia minutilla*).

A few seen on the sandbar in 1915.

17. SOLITARY SANDPIPER (*Hedromas solitarius solitarius*).

Very common in 1918 and 1921, but not seen the other years.

18. SPOTTED SANDPIPER (*Actitis macularia*).

A very few seen in 1918 and 1921.

19. KILLDEER (*Oxyechus vociferus*).

Very common on the sandbar, but rarely seen in the bottoms.

20. BOB-WHITE (*Colinus virginianus virginianus*).

Common in the cleared portions of the bottoms.

21. MOURNING DOVE (*Zenaidura macroura carolinensis*).

Common to abundant.

22. TURKEY VULTURE (*Cathartes aura septentrionalis*).

Common.

23. BLACK VULTURE (*Catharista urubu*).

Very rare.

24. MARSH HAWK (*Circus hudsonius*).
One seen September 13, 1917; another September 4, 1918.
25. SHARP-SHINNED HAWK (*Accipiter velox*).
One or two seen each summer.
26. COOPER'S HAWK (*Accipiter cooperi*).
Fairly common around the edges of the bluffs.
27. RED-TAILED HAWK (*Buteo borealis borealis*).
One seen August 31, 1918.
28. RED-SHOULDERED HAWK (*Buteo lineatus lineatus*).
A few seen every summer.
29. SPARROW HAWK (*Falco sparverius sparverius*).
Fairly common.
30. SHORT-EARED OWL (*Asio flammeus*).
One seen in 1916; another August 30, 1917.
31. BARRED OWL (*Strix varia varia*).
Common in the bottoms.
32. SCREECH OWL (*Otus asio asio*).
Fairly common.
33. GREAT HORNED OWL (*Bubo virginianus virginianus*).
Common. The owl concerts of the wilder parts of the bottom are the richest I have ever heard, the Barred and Great Horned being the chief musicians.
34. YELLOW-BILLED CUCKOO (*Coccyzus americanus americanus*).
Common. It sings in a very mournful manner all night long in the late summer.
35. BLACK-BILLED CUCKOO (*Coccyzus erythrophthalmus*).
A few seen in 1918.
36. BELTED KINGFISHER (*Ceryle alcyon*).
Especially abundant around the shallower ponds.
37. HAIRY WOODPECKER (*Dryobates villosus villosus*).
Common.
38. SOUTHERN DOWNY WOODPECKER (*Dryobates pubescens pubescens*).
Common.
39. YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius varius*).
One seen August 2, 1916; another August 29, 1917.
40. PILEATED WOODPECKER (*Phlæotomus pileatus pileatus*).
Fairly common.
41. RED-HEADED WOODPECKER (*Melanerpes erythrocephalus*).
Common to abundant.
42. RED-BELLIED WOODPECKER (*Centurus carolinus*).
Common.
43. NORTHERN FLICKER (*Colaptes auratus luteus*).
Common.
44. CHUCK-WILL'S-WIDOW (*Antrostomus carolinensis*).
One heard July 30, 1917. My vacations have occurred usually too late for me to hear this bird and the Whippoorwill.
45. NIGHTHAWK (*Chordeiles virginianus virginianus*).
Common.
46. CHIMNEY SWIFT (*Chætura pelagica*).
Abundant.

47. RUBY-THROATED HUMMINGBIRD (*Archilochus colubris*).
Fairly common.
48. KINGBIRD (*Tyrannus tyrannus*).
Common to abundant.
49. CRESTED FLYCATCHER (*Myiarchus crinitus*).
Common.
50. PHEBE (*Sayornis phæbe*).
A few seen in 1915 and 1917.
51. WOOD PEWEE (*Myiochanes virens*).
Common.
52. ACADIAN FLYCATCHER (*Empidonax virescens*).
Common in the bottoms. I know of few bird-notes so stirring and "woody" as the call of this bird.
53. BLUE JAY (*Cyanocitta cristata cristata*).
Common to abundant.
54. CROW (*Corvus brachyrhynchos brachyrhynchos*).
Common to abundant. I often found large flocks of Crows on the sandbar, in company with Herons, Swans, and Sandpipers, feeding on dead mussels.
55. COWBIRD (*Molothrus ater ater*).
Common.
56. RED-WINGED BLACKBIRD (*Agelaius phœnicus phœnicus*).
A few seen in 1915. They are said to be very numerous in spring and common in the nesting season.
57. MEADOWLARK (*Sturnella magna magna*).
Common.
58. ORCHARD ORIOLE (*Icterus spurius*).
Fairly common. It was usually beginning to leave before my arrival.
59. BALTIMORE ORIOLE (*Icterus galbula*).
A few seen in 1915, 1917 and 1918.
60. BRONZED GRACKLE (*Quiscalus quiscula aeneus*).
Abundant.
61. GOLDFINCH (*Astragalinus tristis tristis*).
Common.
62. LARK SPARROW (*Chondestes grammacus grammacus*).
Seen in 1915 and 1917. It is said to nest there, as I know it does in Calloway county, seventy miles east of Wickliffe.
63. CHIPPING SPARROW (*Spizella passerina passerina*).
Common.
64. FIELD SPARROW (*Spizella pusilla pusilla*).
Common.
65. TOWHEE (*Pipilo erythrophthalmus erythrophthalmus*).
Rather rare.
66. CARDINAL (*Cardinalis cardinalis cardinalis*).
Common to abundant.
67. ROSE-BREASTED GROSBEAK (*Zamelodia ludoviciana*).
One seen and heard near Prairie Lake, August 30, 1921.
68. INDIGO BUNTING (*Passerina cyanea*).
Common.

69. DICKCISSEL (*Spiza americana*).
A few seen in 1915 and 1917. They had usually migrated before my arrival.
70. SUMMER TANAGER (*Piranga rubra rubra*).
Common.
71. PURPLE MARTIN (*Progne subis subis*).
Common.
72. CLIFF SWALLOW (*Petrochelidon lunifrons lunifrons*).
Seen August 7, 1916.
73. BARN SWALLOW (*Hirundo erythrogastra*).
Seen in 1915, 1918 and 1921. Rare.
74. BANK SWALLOW (*Riparia riparia*).
Seen in 1915, 1917 and 1918.
75. MIGRANT SHRIKE (*Lanius ludovicianus migrans*).
Fairly common. On one day in 1918 I saw more of this species than I usually see in a whole season in my regular territory.
76. RED-EYED VIREO (*Vireosylva olivacea*).
Fairly common.
77. YELLOW-THROATED VIREO (*Lanivireo flavifrons*).
Fairly common in the deep woods.
78. WHITE-EYED VIREO (*Vireo griseus griseus*).
Common every year except 1921.
79. BLACK AND WHITE WARBLER (*Mniotilta varia*).
Fairly common.
80. PROTHONOTARY WARBLER (*Protonotaria citrea*).
Common around the wilder lakes.
81. YELLOW WARBLER (*Dendroica aestiva aestiva*).
Seen only in 1915 and 1916. It is said to be a common summer resident.
82. MYRTLE WARBLER (*Dendroica coronata*).
A few seen September 9-12, 1917.
83. BLACK-THROATED GREEN WARBLER (*Dendroica virens*).
A few seen in 1918.
84. LOUISIANA WATER-THRUSH (*Sciurus motacilla*).
Seen only in the years 1917 and 1921. In the latter year it was very common around the edges of half-dried ponds and sloughs.
85. KENTUCKY WARBLER (*Oporonis formosus*).
One in fine plumage seen August 23, 1918.
86. MARYLAND YELLOW-THROAT (*Geothlypis trichas trichas*).
Seen commonly every year but 1921.
87. YELLOW-BREASTED CHAT (*Icteria virens virens*).
Fairly common in 1915 and 1917.
88. REDSTART (*Setophaga ruticilla*).
Seen in 1916, 1917 and 1921, being especially plentiful in 1921.
89. MOCKINGBIRD (*Mimus polyglottos polyglottos*).
Common.
90. CATBIRD (*Dumetella carolinensis*).
Common every year but 1921.
91. BROWN THRASHER (*Toxostoma rufum*).
Seen only in 1915 and 1917.

92. CAROLINA WREN (*Thryothorus ludivicianus ludivicianus*).
Common.
93. BEWICK WREN (*Thyomanes bewicki bewicki*).
Common.
94. WHITE-BREASTED NUTHATCH (*Sitta carolinensis carolinensis*).
Common.
95. TUFTED TITMOUSE (*Baeolophus bicolor*).
Common to abundant.
96. CAROLINA CHICKADEE (*Penthestes carolinensis carolinensis*).
Common to abundant.
97. BLUE-GRAY GNATCATCHER (*Polioptila caerulea caerulea*).
Common.
98. WOOD THRUSH (*Hylochichla mustelina*).
Common. Nothing added more to the grandeur of early dawn and twilight than the rich, gurgling melody of this justly-celebrated songster.
99. ROBIN (*Planesticus migratorius migratorius*).
Common, and becoming steadily more abundant.
100. BLUEBIRD (*Sialia sialis sialis*).
Common.

THE PRAIRIE CHICKEN IN EAST CENTRAL IOWA

BY FRED J. PIERCE

WINTHROP, BUCHANAN COUNTY, IOWA

Indirectly, the advance of civilization has made many alterations in the lives of America's birds, and, in infrequent cases, it has spelled their doom. The coming of the white man into theretofore undeveloped country made a great many changes to which a great many birds could not readily adapt themselves. He cut down the forests, drained the wet lands, turned vast stretches of virgin prairie land into fields of food for himself, and built cities in what was formerly the great domain of nature's children. Some of the birds retreated farther into the wild as man advanced; others less timid returned his friendship and came close to his dwellings to rear their young; and a few, of their own volition, accepted his structures as superior to their own and thenceforth called them their homes. Unfortunately, a few, by reason of the excellent food their bodies contained, were dealt severe and long continued persecution,—to such extent that they were nearly, if not completely, wiped off the face of the earth.

In this paper the writer wishes to present some of the scattered notes he has gathered on the (Iowa) Prairie Chicken of yesterday and today. This now protected Iowa game bird was for many years a very common species, but, because of the great