

The color pattern of the downy young is outlined when the down feathers first make their appearance upon the skin surface of the six-day embryo. That is, the pigment begins to develop in the down feathers which are to be black almost as soon as the feather papilla appears upon the skin surface. An entire down feather is seldom all one color, but those which are black at the tip are tawny in the middle and black at the base, and those which are tawny at the tip are also black at the base. This applies only to the down feathers of the dorsal surface. There are many down feathers on the ventral surface which are wholly white.

Taking the three plumages as illustrating a process of evolution of color pattern, and taking the streakiness of the downy young of *dougalli* as the more primitive, we may readily perceive that longitudinal stripes of color break up into transverse bars, and the bars give place to a uniform distribution of color. In the evolution of the present adult coloration of the terns of the genus *Sterna*, it seems probable that a primitive longitudinal streaking became broken up into longitudinal series of spots which were arranged in transverse series so as to give the appearance of broken bars; these series of spots extended laterally, fused, and so became in reality transverse bars, which, spreading and finally fusing, resulted in the uniform coloration of the dorsal region in *Sterna* adults. Such a transition would be in complete conformity to the law announced by Eimer ('82).

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## A PRELIMINARY LIST OF THE BIRDS OF SENECA COUNTY, OHIO.

BY W. F. HENNINGER.

The need of a new county list of birds in Ohio may be questioned, with two excellent state lists—Jones' and Dawson's—of recent issue; but it is only after every county in the state has been worked over with care that we shall feel warranted in saying that any list is more than preliminary in character. And if this county list, though by no means exhaustive

or complete, shall help just a trifle in clearing up some interesting points of distribution, migration, breeding habits, and life histories of the birds of Ohio, it will have fulfilled its purpose. While the four years of the writer's work in the county, from July 26, 1902, to June 1, 1906, is but a short time, and his impaired health during the winter, his frequent absence from his field of work, and his otherwise busy life, have made it impossible to do justice to the work, this list is the first effort at systematic ornithological work in the county.

Seneca county belongs to the tier of counties along the parallel of 41°, and has more soil under cultivation than any other county in Ohio, in contrast to Scioto and Pike counties, my former field of work, in which the wooded area exceeds the arable. Seneca county was once covered with dense woods and swamps, of which no large tracts of woods remain; and of swamps nothing but insignificant pools remain, even the large Bloomville marshes in the south-eastern part of the county having been tiled and drained. These crowded conditions cause a great concentration of bird life during the migration season.

The county is level, a few ravines only being found in the northern and southern parts in close proximity to the Sandusky river, which divides the county into two almost equal parts with Tiffin as the center.

The climate is rather unhealthful; the excessive moisture of the atmosphere causing the summer heat to be very oppressive and the winter's cold to cleave bone and marrow. The great amount of snowfall accounts for the small number of residents and winter visitors among the birds.

Practically the entire county has been worked over with the exception of the south-eastern corner, the immediate neighborhood of Tiffin naturally coming in for the greatest amount of attention. The information has been gleaned from the writer's field work and his own and several other local collections, notably that of the Heidelberg University, which he re-labeled and rearranged in the fall of 1904. While these collections show that the birds in question have been taken in the county, they are greatly deficient in exact and sufficient data.

The same painstaking care is exercised in determining the species as that exercised in the writer's List of the Birds of Middle Southern Ohio (Wilson Bulletin, September, 1902).

It would not be proper to publish this list without making grateful acknowledgment to Prof. E. M. Kleckner, of Heidelberg University, Mr. Hergenrather, of the Tiffin Fire Department, and my indefatigable young friend, Mr. Karl J. Heilmann, of the Tiffin High School, for much efficient help rendered the writer in many ways.

1. *Colymbus auritus*.—Horned Grebe. A rather rare winter visitor. One shot December 20, 1902.

2. *Podilymbus podiceps*.—Pied-billed Grebe. A rare summer resident, but abundant transient. Middle of April to October 6, 1902.

3. *Gavia imber*.—Loon. A rare transient, more common in former years.

4. *Gavia lumme*.—Red-throated Loon. November 7, 1904, one was observed for ten minutes on the Sandusky river, then shot at, when he flew away.

5. *Larus argentatus*.—Herring Gull. Abundant spring transient. April 1 and 2, 1904. Not seen in fall.

6. *Larus philadelphia*.—Bonaparte Gull. Not common spring transient. April 1 and 2, 1904. Not seen in fall.

7. *Sterna hirundo*.—Common Tern. Occasional spring migrant. 1904.

8. *Phalacrocorax dilophus*.—Double-crested Cormorant. Two records, one about thirteen years ago, one shot in spring of 1902.

9. *Pelecanus erythrorhynchos*.—American White Pelican. Two records. See Wilson Bulletin No. 53, December, 1905, page 126.

10. *Merganser americanus*.—American Merganser.

11. *Merganser serrator*.—Red-breasted Merganser.

12. *Lophodytes cucullatus*.—Hooded Merganser.

All of the above three species are in local collections taken in previous years in the county. Lately *M. serrator* has not been taken here, while the other two have become rare.

13. *Anas boschas*.—Mallard. Abundant transient in both seasons. Seen as late as June 3, 1904.

14. *Anas obscura*.—Black Duck. All specimens taken in the county belong to this form, *rubripes* not having been found. Nov. 26, 1903.

15. *Mareca americana*.—Bald-pate. Once an abundant migrant. None lately.

16. *Nettion carolinensis*.—Green-winged Teal. Rare transient. There are specimens in local collections.

17. *Querquedula discors*.—Blue-winged Teal. Tolerably common

transient. November, 1902, Bloomville; August 31, 1904, young taken.

18. *Spatula clypeata*.—Shoveller. April 26, 1906, a female observed on the Sandusky river. This is my only record.

19. *Dafila acuta*.—Pin-tail. Our most common transient duck.

20. *Aix sponsa*.—Wood Duck. Rather uncommon summer resident. Nest near Old Fort in May, 1905. Four males were shot on October 18, 1904, by a local hunter.

21. *Aythya americana*.—Red-head.

22. *Aythya vallisneria*.—Canvas-back.

While these two ducks have been taken in former years, there is no recent record. They were never abundant transients.

23. *Aythya affinis*.—Lesser Scaup Duck. Fairly common transient.

24. *Aythya collaris*.—Ring-necked Duck.—Not common transient.

25. *Clangula clangula americana*.—American Golden-eye. Rare transient. November 7, 1904.

26. *Charitonetta albeola*.—Buffle-head. Not common transient. There are specimens in local collections.

27. *Harelda hyemalis*.—Old-squaw. A male taken in December, 1901, is in a local collection.

28. *Eristmatura jamaicensis*.—Ruddy Duck. Not common transient.

29. *Chen caerulescens*.—Blue Goose. A male shot March 24, 1905, is now in the writer's collection. See Wilson Bulletin, June, 1905, p. 63.

30. *Branta canadensis*.—Canada Goose. Common spring and fall transient. Occasionally a winter resident, as in the winter of 1905-6.

31. *Branta canadensis hutchinsii*.—Hutchin's Goose. A male shot March 24, 1905, is now in the writer's collection. Compare Wilson Bulletin, June, 1905, p. 64.

32. *Botaurus lentiginosus*.—American Bittern. Not uncommon transient.

33. *Ardetta exilis*.—Least Bittern. Not uncommon transient; occasional summer resident.

34. *Ardea herodias*.—Great Blue Heron. Tolerably common summer resident.

35. *Butorides virescens*.—Green Heron. Fairly common summer resident. Nest with four eggs, May 10, 1904; with four young, June 3, 1904.

36. *Rallus elegans*.—King Rail. Rare transient. There are specimens in local collections.

37. *Rallus virginianus*.—Virginia Rail. Common transient, as early as April 20, 1906.

38. *Porzana carolina*.—Sora. Common transient. Noticed as late as June 11, 1904, which may indicate that it breeds.

39. *Gallinula galeata*.—Florida Gallinule. Rare transient. There are specimens in local collections.

40. *Fulica americana*.—American Coot. Common migrant, April and October.

41. *Philohela minor*.—American Woodcock. Still a fairly common summer resident, this county being especially adapted to the needs of the bird.

42. *Gallinago delicata*.—Wilson's Snipe. Not nearly as common as the Woodcock. April 21, 1906, is an average migration date.

43. *Tringa canutus*.—Knot. The only record is the one given in the Auk, Vol. XXI, No. 2, page 277, a specimen shot in the spring of 1894, on the banks of the Sandusky river.

44. *Actodromas maculata*.—Pectoral Sandpiper. A fairly common transient. May 10, 1904; May 15, 1906; August 31, 1904.

45. *Actodromas bairdii*.—Baird's Sandpiper. A not common transient. May 10 and August 31, 1904.

48. *Pelidna alpina sakhalina*.—Red-backed Sandpiper. Not a common transient. May 10, 1904. A young female which had been injured by flying against a telephone wire, October 10, 1902, is now in the writer's collection.

47. *Ereunetes pusillus*.—Semipalmated Sandpiper. May 28, 1904, I observed four specimens at close range in the muck of a deserted reservoir along the C. C. C. & St. L. tracks.

48. *Totanus melanoleucus*.—Greater Yellow-legs. A fairly common transient. May 10 and August 31, 1904.

49. *Totanus flavipes*.—Yellow-legs. A common transient. May 10 and August 31, 1904; May 15, 1906.

50. *Helcdromas solitarius*.—Solitary Sandpiper. A common transient. May 10 and August 31, 1904; May 15, 1906.

51. *Bartramia longicauda*.—Bartramian Sandpiper. A common transient. May 10, 1904. No breeding records so far.

52. *Actitis macularia*.—Spotted Sandpiper. Common summer resident. Arrivals: April 20, 1903; April 29, 1904; April 21, 1906. Departures: September 18, 1903; August 31, 1904.

53. *Charadrius dominicus*.—American Golden Plover. There is a specimen in the Heidelberg museum collected in the spring of 1894, on the banks of the Sandusky river. This is the only record.

54. *Oxyechus vociferus*.—Killdeer. Common summer resident. Arrival as early as February 7, 1906; departure as late as November 26, 1903. Nest with four eggs June 10, 1905.

55. *Colinus virginianus*.—Bob-white. Fairly common resident, but not nearly as common as in southern Ohio. Nest with 15 eggs (fresh) July 22, 1903; with 17 eggs (fresh) August 7, 1904.

56. *Bonasa umbellus*.—Ruffed Grouse. The last specimen of this species was shot by a young man of my congregation three miles north of Tiffin, in the fall of 1892. Since then it seems to be extinct.

57. *Meleagris gallopavo silvestris*.—Wild Turkey. Extinct. The last record given is 1880.

58. *Ectopistes migratorius*.—Passenger Pigeon. Extinct. No records since the '60s. There were several large roosting places in the county.
59. *Zenaidura macroura*.—Mourning Dove. Common in summer, less so in winter, but I have found it in some numbers every winter.
60. *Cathartes aura*.—Turkey Vulture. Fairly common summer resident. Arrives the first week in April and remains until late October.
61. *Circus hudsonius*.—Marsh Hawk. A not common migrant and winter resident. Not seen later than March 19, 1903.
62. *Accipiter velox*.—Sharp-shinned Hawk. Rather rare resident.
63. *Accipiter cooperii*.—Cooper's Hawk. Rather rare resident.
64. *Buteo borealis*.—Red-tailed Hawk. Common resident. Nests with eggs April 5, 1905.
65. *Buteo lineatus*.—Red-shouldered Hawk. Common in summer, less so in winter. Nest with four fresh eggs, April 21, 1906.
66. *Buteo platypterus*.—Broad-winged Hawk. November 30, 1903; March 10, 1904. Apparently not always present in summer.
67. *Aquila chrysaetos*.—Golden Eagle. No records since 1884, but there are several specimens in local collections.
68. *Haliaeetus leucocephalus*.—Bald Eagle. An adult shot at Bloomville is now in the Heidelberg University museum. There are several young ones in other collections.
69. *Falco columbarius*.—Pigeon Hawk. Rare migrant, but solitary individuals are seen in summer, notably July 10 and 13, 1904.
70. *Falco sparverius*.—American Sparrow Hawk. Common resident. Nest with five fresh eggs May 28, 1904 (this was the second set).
71. *Pandion haliaetus carolinensis*.—American Osprey. Not common migrant, but seen every spring in April along the Sandusky river.
72. *Strix pratincta*.—American Barn Owl. Four records. Compare Auk, Vol. XX, No. 1, January, 1903, p. 67, and Wilson Bulletin No. 53, December, 1905, p. 132.
73. *Asio wilsonianus*.—American Long-eared Owl. One shot two miles north of Tiffin, September 15, 1902. Apparently a rather rare resident.
74. *Asio accipitrinus*.—Short-eared Owl. Not common spring and fall migrant. There are several in local collections.
75. *Syrnium varium*.—Barred Owl. A rather rare resident.
76. *Megascops asio*.—Screech Owl. Common resident. Nest with five fresh eggs April 2, 1905. Four young June 23, 1903.
77. *Bubo virginianus*.—Great Horned Owl. A tolerably common resident, even inside the corporation limits.
78. *Coccyzus americanus*.—Yellow-billed Cuckoo. Fairly common

summer resident. Arrival: May 9, 1903; May 7, 1904; May 15, 1906. Departure: September 15, 1902.

79. *Coccyzus erythrophthalmus*.—Black-billed Cuckoo. Fairly common summer resident. Arrival: May 10, 1904; May 15, 1906.

80. *Ceryle alcyon*.—Belted Kingfisher. Common in summer and a few remain all winter, even in the winter of 1903-04.

81. *Dryobates villosus*.—Hairy Woodpecker. Common resident.

82. *Dryobates pubescens medianus*.—Downy Woodpecker. Common resident. Nest with four fresh eggs May 9, 1903.

83. *Sphyrapicus varius*.—Yellow-bellied Sapsucker. Common transient. April 5, 1904; April 20, 1906.

84. *Melanerpes erythrocephalus*.—Red-headed Woodpecker. Common summer resident, arriving late in April and departing in October, rarely remaining all winter.

85. *Centurus carolinus*.—Red-bellied Woodpecker. Rare resident. One shot November 26, 1903. Seen May 10, 1904. These are the only records.

86. *Colaptes auratus luteus*.—Northern Flicker. Common resident. Nest May 6, 1905.

87. *Antrostomus carolinensis*.—Whip-poor-will. Rare summer resident. Found in some of the ravines in the northern and southern parts of the county.

88. *Chordeiles virginianus*.—Nighthawk. A common summer resident, arriving between April 20 and May 10, departing late in September or early in October.

89. *Chaetura pelagica*.—Chimney Swift. Common summer resident. Arrival: April 18, 1903; May 1, 1904; April 20, 1905; April 20, 1906, at 5 p. m. Departure: September 18, 1903; September 22, 1904; September 8, 1905.

90. *Trochilus colubris*.—Ruby-throated Hummingbird. Fairly common summer resident. Arrival: May 9, 1903; May 10, 1904; May 15, 1906.

91. *Tyrannus tyrannus*.—Kingbird. Common summer resident. Arrival: May 9, 1903; May 3, 1904; April 28, 1906. Departure: September 17, 1904. Nest with three fresh eggs June 11, 1904.

92. *Myiarchus crinitus*.—Crested Flycatcher. Common summer resident. Arrival: May 9, 1903; May 7, 1904; May 11, 1906. Departure: September 17, 1904.

93. *Sayornis phœbe*.—Phœbe. Common summer resident. Arrival: March 19, 1903; April 15, 1904; April 1, 1905; April 1, 1906. Departure: September 17, 1904. Nest begun April 5. Five heavily incubated eggs May 1, young May 10. Second set June 3, three eggs.

94. *Contopus virens*.—Wood Pewee. Common summer resident. Arrival: May 9, 1903; May 10, 1904; May 6, 1905; May 11, 1906. Departure: September 15, 1902; September 18, 1903; September 17, 1904.

95. *Empidonax flaviventris*.—Yellow-bellied Flycatcher. Rare migrant. May 15, 1906, two seen. September 17, 1904, one seen.

96. *Empidonax virescens*.—Green-crested Flycatcher. Fairly common summer resident. Arrival: May 9, 1903; May 10, 1904; May 11, 1906. Last, September 17, 1904.

97. *Empidonax traillii*.—Traill's Flycatcher. Fairly common summer resident. Arrival: May 10, 1904; May 15, 1906.

98. *Empidonax minimus*.—Least Flycatcher. Tolerably common migrant. May 10, 1904; May 15, 1906.

99. *Otocorys alpestris*.—Horned Lark. A flock of seventeen seen on January 2, 1904.

100. *Otocorys alpestris praticola*.—Prairie Horned Lark. Resident. More common in winter.

101. *Otocorys alpestris hoyti*.—Hoyt's Horned Lark. Two seen March 15, 1905. They were not shy and easily recognizable.

102. *Cyanocitta cristata*.—Blue Jay. Common resident. In the spring of 1903 a pair nested in a rural delivery mail-box east of Tiffin.

103. *Corvus brachyrhynchos*.—American Crow. Resident. Several large roosts were noted in the winter of 1904-5. Nests with five fresh eggs April 5, 1905, with five incubated eggs April 21, 1906, and four incubated eggs May 15, 1906. Four young May 10, 1904.

104. *Dolichonyx oryzivorus*.—Bobolink. Common summer resident. Arrival: May 9, 1903; April 29, 1904; April 28, 1905; April 21, 1906, 5:30 p. m. Departure: September 15, 1902; September 18, 1903; September 22, 1904; September 8, 1905.

105. *Molothrus ater*.—Cowbird. Common summer resident. Arrival: March 19, 1903; April 14, 1904; April 1, 1905; April 13, 1906. From the middle of June until the end of August, 1905, there was a Cowbird roost on Jefferson street, and as I sat in front of my house every evening I could see at first the five or more advance scouts coming in and circling around for a while, until they settled. Then came troops numbering from 20 to 40, while over them at right angles, enormous flocks of Grackles would fly to their roost at the Heidelberg University campus. From the end of August on, however, they deserted their own roost and joined the Grackles on the campus. In the fall they often mingle with the Bobolinks, while in the spring they prefer the company of the Grackles and Red-wings.

106. *Agelaius phoeniceus*.—Red-winged Blackbird. Common summer resident. Breeding records are too numerous to mention. Arrival: March 19, 1903; March 10, 1904; March 15, 1905; March 25, 1906.

107. *Sturnella magna*.—Meadowlark. Common summer resident. A few always stay, even during the coldest winters. Six fresh eggs June 3, 1904.

108. *Icterus spurius*.—Orchard Oriole. A rather rare summer res.



ident. Arrival: May 1, 1903; May 6, 1904; May 6, 1905; April 28, 1906.

109. *Icterus galbula*.—Baltimore Oriole. Common summer resident. Arrival: May 1, 1903; April 29, 1904; April 28, 1905; April 27, 1906.

110. *Euphagus carolinus*.—Rusty Blackbird. Common migrant. November and March until May.

111. *Quiscalus quiscula æneus*.—Bronzed Grackle. Common summer resident. Arrival: March 9, 1903; March 4, 1904; March 14, 1905; March 25, 1906. Departure: September 18, 1903; November 4, 1904; October 29, 1905. There are several large roosts in this vicinity, an especially large one on the Heidelberg University campus.

112. *Carpodacus purpureus*.—Purple Finch. Occasional winter visitor. January 6, 1904; January 5, 1905.

113. *Loxia curvirostra minor*.—American Crossbill. Specimens shot December 5 and 12, 1892, are in the Heidelberg University museum.

114. *Astragalinus tristis*.—American Goldfinch. Common resident. Nest with five eggs August 12, 1903, with six young August 8, 1905.

115. *Passerina nivalis*.—Snowflake. Rare winter visitor. A flock of 50 to 60 January 2, 1904.

116. *Poœcetes gramineus*.—Vesper Sparrow. Common summer resident. Arrival: March 19, 1903; April 1, 1904; April 1, 1905; April 1, 1906. Departure: October 13, 1904.

117. *Passerculus sandwichensis savanna*.—Savanna Sparrow. Two records: March 19, 1903; May 10, 1904. Solitary individuals.

118. *Coturniculus savannarum passerinus*.—Grasshopper Sparrow. Common summer resident. Arrival: May 9, 1903; May 5, 1904; April 28, 1906. Nest with five fresh eggs and one with four fresh eggs, June 3, 1904.

119. *Zonotrichia leucophrys*.—White-crowned Sparrow. Common transient. September 15 to 18, 1904; May 10, 1904, May 15 and April 28, 1906.

120. *Zonotrichia albicollis*.—White-throated Sparrow. Common transient, but rare winter resident. Arrival and departure with the preceding.

121. *Spizella monticola*.—Tree Sparrow. Not common winter resident, more common as a transient. It remains as late as May 10 (1904).

122. *Spizella socialis*.—Chipping Sparrow. Common summer resident. It nests about May 10 to 15. Arrival: March 19, 1903; March 27, 1904; April 1, 1905; April 3, 1906.

123. *Spizella pusilla*.—Field Sparrow. Common summer resident. Arrival: March 1, 1903; April 1, 1904; April 1, 1905; April 4, 1906.

Nests with four fresh eggs June 11, 1904 (second set). First sets: May 13, four eggs, May 15, three eggs, 1906.

124. *Junco hyemalis*.—Slate-colored Junco. Common winter resident. It arrives as early as September 22, 1904, leaving as late as May 5, 1904.

125. *Melospiza cinerea melodia*.—Song Sparrow. Common resident. First nests: May 10, 1905, four eggs, heavily incubated by May 15 and 19, 1906, five eggs. Second nests: June 23, 1903, four eggs. Nest with one young Cowbird and one fresh Cowbird's egg, but without either eggs or young of the owner, May 15, 1906.

126. *Melospiza lincolni*.—Lincoln's Sparrow. The only records are two seen in the brush along the Sandusky river, May 15, 1906.

127. *Melospiza georgiana*.—Swamp Sparrow. Not common transient. May 9, 1903, and April 28 and May 15, 1906.

128. *Passerella iliaca*.—Fox Sparrow. Not common spring migrant. April 15, 1904. No fall records.

129. *Pipilo erythrophthalmus*.—Towhee. Common summer resident. Arrival: March 19, 1903; April 15, 1904; March 14, 1905. Departure: October 10, 1903; October 13, 1904.

130. *Cardinalis cardinalis*.—Cardinal. Common resident, but fewer numbers in winter. Nests about May 10.

131. *Zamelodia ludoviciana*.—Rose-breasted Grosbeak. Common transient. No breeding records yet. Arrival: May 8, 1903; May 10, 1904; May 15, 1906; August 1, 1903.

132. *Cyanospiza cyanea*.—Indigo Bunting. Common summer resident. Arrival: May 9, 1903; May 10, 1904; May 11, 1906. Departure: October 13, 1904. Nest with three eggs and one of Cowbird, June 11, 1904, with two eggs and two of Cowbird (fresh) June 23, 1903. With 4 young. August 11, 1905.

133. *Spiza americana*.—Dickcissel. A somewhat rare summer resident, mostly in the southern part of the county. Arrival: May 10, 1904.

134. *Piranga erythromelas*.—Scarlet Tanager. A common summer resident. Arrival: May 9, 1903; May 10, 1904; May 11, 1906. Departure: September 18, 1903.

135. *Progne subis*.—Purple Martin. A tolerably common summer resident. Arrival: April 15, 1903; April 1, 1904; April 21, 1905; April 1, 1906.

136. *Petrochelidon lunifrons*.—Cliff Swallow. A fairly common but local summer resident. May 13, 1904.

137. *Hirundo erythrogaster*.—Barn Swallow. Common summer resident. Arrival: April 3, 1903; April 15, 1904; April 20, 1906.

138. *Iridoprocne bicolor*.—Tree Swallow. Rare transient. April 21, 1906.

139. *Riparia riparia*.—Bank Swallow. Tolerably common summer resident. Arrival: May 9, 1903; May 10, 1904; April 21, 1906.

140. *Stelgidopteryx serripennis*.—Rough-winged Swallow. Fairly common summer resident. Arrival: May 9, 1904; May 15, 1906. Breeds May 28, 1904.

141. *Ampelis cedrorum*.—Cedar Waxwing. Common resident. September 18, 1903, a nest with three young.

142. *Lanius borealis*.—Northern Shrike. Rare winter visitor. Recorded during the winter of 1903-4 many times.

143. *Lanius ludovicianus migrans*.—Migrant Shrike. Fairly common resident. May 5, 1904, a nest with four eggs. June 23, 1903, a nest with four young.

144. *Vireo olivaceus*.—Red-eyed Vireo. Common summer resident. Arrival: May 9, 1903; May 5, 1904; April 28, 1906. Departure: September 22, to October 13, 1904.

145. *Vireo philadelphicus*.—Philadelphia Vireo. Rare transient. May 9, 1903, a pair.

146. *Vireo gilvus*.—Warbling Vireo. Common summer resident. Arrival: May 9, 1903; May 5, 1904; May 11, 1906.

147. *Vireo flavifrons*.—Yellow-throated Vireo. Not common summer resident. Arrival: May 9, 1903; May 10, 1904; May 15, 1906.

148. *Vireo solitarius*.—Blue-headed Vireo. Not common transient. No breeding records. Arrival: May 10, 1904; May 15, 1906.

149. *Mniotilta varia*.—Black and White Warbler. Common transient. Rare summer resident. Arrival: May 10, 1904; May 11, 1906; September 17, 1904.

150. *Helminthophila pinus*.—Blue-winged Warbler. Common summer resident. May 9, 1903; May 5, 1904; May 11, 1906.

151. *Helminthophila chrysoptera*.—Golden-winged Warbler. Not common migrant. May 10, 1904; May 15, 1906.

152. *Helminthophila leucobronchialis*.—Brewster's Warbler. One record, September 17, 1904. See Wilson Bulletin, December, 1904, pp. 109-10.

153. *Helminthophila rubricapilla*.—Nashville Warbler. Common spring transient. May 11 and 15, 1906.

154. *Helminthophila peregrina*.—Tennessee Warbler. Common transient. May 15, 1906; September 16, 1902; September 18, 1903; September 22, 1904.

155. *Compothlypis americana usneæ*.—Northern Parula Warbler. Common transient. May 10, 1904; May 15, 1906; September 15, 1902; September 18, 1903; September 22, 1904.

156. *Dendroica tigrina*.—Cape May Warbler. Rare transient. May 15, 1906. September 17, 1904.

157. *Dendroica æstiva*.—Yellow Warbler. Common summer resident. Arrival: April 25, 1903; May 3, 1904; April 26, 1906. Nest with five eggs and one of Cowbird May 21, 1904, with three young June 11, 1904.

158. *Dendroica cærulescens*.—Black-throated Blue Warbler. Com-

mon transient. May 10, 1904; May 15, 1906; September 15, 1902; September 18, 1903; September 22, 1904; September 8, 1905.

159. *Dendroica coronata*.—Myrtle Warbler. Common transient. May 5, 1903; May 10, 1904; April 28, 1906; September 17, 1904.

160. *Dendroica caerulea*.—Cerulean Warbler. Rare migrant and summer resident. May 10, 1904; May 15, 1906; September 17, 1904.

161. *Dendroica maculosa*.—Magnolia Warbler. Common transient. May 10, 1904; May 15, 1906; September 18, 1903; September 22, 1904; September 8, 1905.

162. *Dendroica pensylvanica*.—Chestnut-sided Warbler. Common transient. May 10, 1904; May 11 to 15, 1906.

163. *Dendroica castanea*.—Bay-breasted Warbler. Common transient. May 10, 1904; May 15, 1906; September 18, 1903; September 15, 1902.

164. *Dendroica striata*.—Black-poll Warbler. Common transient. May 9, 1903; May 10, 1904; May 15, 1906; September 15, 1902; September 18, 1903; September 17 to 22, 1904; September 8, 1905.

165. *Dendroica blackburniæ*.—Blackburnian Warbler. Common transient. May 10, 1904; May 15, 1906; September 17, 1904.

167. *Dendroica virens*.—Black-throated Green Warbler. Common transient. May 9, 1903; May 10, 1904; May 11 to 15, 1906; September 15, 1902; September 18, 1903; September 22, 1904; September 8, 1905.

167. *Dendroica kirtlandi*.—Kirtland's Warbler. Two seen May 11, 1906. They were observed walking on the ground, and gleaning in low saplings ten feet away from me. Having seen the entire series of this species in the University of Michigan collection, in September, 1905, a mistake in identification is excluded. The bird bears a certain resemblance to the Magnolia Warbler.

168. *Dendroica vigorsii*.—Pine Warbler. Rare transient. May 10, 1904; May 15, 1906.

169. *Dendroica palmarum*.—Palm Warbler. Rare migrant. May 10, 1904; May 15, 1906.

70. *Dendroica discolor*.—Prairie Warbler. Rare. Four seen on May 11, 1906. See another page of this issue.

171. *Seiurus aurocapillus*.—Oven-bird. Common summer resident. Arrival: May 10, 1904; May 11, 1906. Departure: September 18, 1903; September 22, 1904.

172. *Seiurus noveboracensis*.—Water-Thrush. Rather rare migrant. September 17, 1904. May 15, 1906.

173. *Seiurus motacilla*.—Louisiana Water-Thrush. Common transient, but rare summer resident. May 10, 1904. September 18, 1903.

174. *Geothlypis philadelphia*.—Mourning Warbler. Fairly common migrant. May 10, 1904; May 15, 1906.

175. *Geothlypis trichas brachydactyla*.—Northern Yellow-throat. Common summer resident. Arrival: May 9, 1903; May 10, 1904; May 11, 1906. Departure: September 17, 1904.

176. *Icteria virens*.—Yellow-breasted Chat. Common summer resident, but local in distribution. Arrival: May 9, 1903; May 10, 1904; May 11, 1906.
177. *Wilsonia pusilla*.—Wilson's Warbler. Rather rare transient. May 10, 1904; May 15, 1906.
178. *Wilsonia canadensis*.—Canadian Warbler. Common spring transient. May 10, 1904. Abundant May 15, 1906.
179. *Setophaga ruticilla*.—American Redstart. Common summer resident. Arrival: May 9, 1903; May 5, 1904; April 28, 1906. Departure: September 17, 1904.
180. *Anthus pensilvanicus*.—American Pipit. Not common transient. May 5, 1904. September 17, 1904; October 13, 1905.
181. *Galeoscoptes carolinensis*.—Catbird. Common summer resident. Arrival: April 20, 1903; April 29, 1904; April 28, 1906. Departure: September 22, 1904.
182. *Toxostoma rufum*.—Brown Thrasher. Common summer resident. Arrival: March 19, 1903; April 14, 1904; April 5, 1905; April 20, 1906. Departure: September 15, 1902; September 18, 1903; September 22, 1904; September 22, 1905. Nesting May 13, 1904.
183. *Thryothorus ludovicianus*.—Carolina Wren. Rare. April 18, 1903; May 5, 1904.
184. *Troglodytes aëdon*.—House Wren. Common summer resident. Arrival: April 18, 1903; May 2, 1904; April 27, 1906. Nesting June 3, 1904.
185. *Olbiorchilus hiemalis*.—Winter Wren. Not common winter resident until March 19, 1903.
186. *Cistothorus stellaris*.—Short-billed Marsh Wren. Rare migrant. Seen May 21, 1904, when it was well observed for ten minutes in long, coarse grass in a low swampy place.
187. *Telmatodytes palustris*.—Long-billed Marsh Wren. Only a pair or so known to breed in the remnants of the Bloomville marshes. Otherwise a rare migrant.
188. *Certhia familiaris americana*.—Brown Creeper. Fairly common in winter. November 7, 1904. April 29, 1904.
189. *Sitta carolinensis*.—White-breasted Nuthatch. Common resident.
190. *Sitta canadensis*.—Red-breasted Nuthatch. Common transient. May 21, 1904; June 10, 1905; May 15, 1906.
191. *Bæolophus bicolor*.—Tufted Titmouse. Common resident, but less common in winter.
192. *Parus atricapillus*.—Chickadee. Common resident. Nest with seven young May 19, 1906.
193. *Regulus satrapa*.—Golden-crowned Kinglet. Common migrant. October 6, 1902. May 15, 1906.
194. *Regulus calendula*.—Ruby-crowned Kinglet. Rather rare migrant. May 10, 1904, is the latest spring date.

195. *Polioptila caerulea*.—Blue-gray Gnatcatcher. Common migrant, but not common summer resident. April 18, 1903; April 15, 1904; April 20, 1906.

196. *Hylocichla mustelina*.—Wood Thrush. Common summer resident. Arrival: May 9, 1903; May 5, 1904; April 28, 1906. Departure: September 17, 1904. Nest with two eggs May 28, 1904.

197. *Hylocichla fuscescens*.—Wilson's Thrush. Common migrant. Arrival: May 9, 1903; May 10, 1904; May 11, 1906. September 17, 1904.

198. *Hylocichla aliciae*.—Gray-cheeked Thrush. Not common migrant. May 11, 1906. September 17, 1904.

199. *Hylocichla swainsoni*.—Olive-backed Thrush. Common migrant. May 10, 1904; May 15, 1906. September 22, 1904.

200. *Hylocichla guttata pallasii*.—Hermit Thrush. Common migrant. April 18, 1903; April 15, 1904; April 20, 1906. October 13, 1904.

201. *Merula migratoria*.—American Robin. Common summer resident. It arrives early in March and departed November 7, 1904. A few remained all winter 1905-6. An albino was noted June 11, 1904. There was a roost in the trees of Jefferson street, Tiffin, in the fall of 1904, from 120 to 180 Robins resorted to the roost.

202. *Sialia sialis*.—Bluebird. Common summer resident. Arriving March 1, departing in November. A few remained all winter 1905-6.

203. *Helmintophila celata*.—Orange-crowned Warbler. May 10, 1904. Observed singing. Rare transient.

#### Introduced Species.

204. *Passer domesticus*.—English Sparrow. Abundant. Several albinos noted.

205. *Phasianus torquatus*.—Ring-necked Pheasant. Not common, but breeding. Nest found in 1901.

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## REMARKS ON THE SUMMER BIRDS OF LAKE MUSKOKA, ONTARIO.

BY B. H. SWALES AND P. A. TAVERNER.

During the summer of 1904 we were able to spend a short time on Gibraltar Island, situated in Lake Muskoka, Muskoka District, Ontario. This is one of the largest of the many lakes of various sizes that fill the glacial furrows in the heart of the Laurentian formation back of Georgian Bay. The country is