

unusual abundance was visited. The weather was beautiful, and Professor Whitman was in fine spirits.

A small duck boat conveyed the party to nests of Coots, Rails, Gallinules, Black Terns, etc., with eggs and young birds just hatched. These aroused keen enthusiasm.

A unique experience was an encounter with some young Pied-billed Grebes and their parents. The writer had found the nest five days before, with two downy young just hatched which were lying on the material covering the other eggs not yet hatched, as is the custom of grebes. On this later visit, we saw the parent grebes swimming with several of their offspring in open water not many rods from the now deserted nest. Professor Whitman urged a very quiet and deliberate approach. Our little boat in which we were obliged to sit with some care to avoid tipping, was gradually paddled up to within a very few rods of the grebes. As we drew near, the little grebes gathered about one of the parents and took places inside its wings. In another moment, the bird dived taking the young with her. We were able later to capture one of the little grebes for a few minutes' inspection.

NOTES ON THE SUMMER BIRDS OF THE ST. JOHN VALLEY, NEW BRUNSWICK.¹

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THE following observations were made between July 11 and August 4, 1911, in the lower part of the valley of the St. John River, New Brunswick, between St. John and Fredericton. Two days were spent at St. John, a day on the Kennebecasis River, eight days at Glenwood, three days at Upper Greenwich, a day at Fredericton, and nine days at Gerow's Landing, Wickham.

As one ascends the St. John River, one is struck with the sudden change in the physical character of the valley from the hilly,

¹ Read before the Nuttall Ornithological Club, October 2, 1911.

almost mountainous and forest clad shores of the southern portions, beginning close to the city of St. John and extending upwards for about thirty miles, to the more pastoral scenery where the river is bordered by a flood plain, and where the islands, instead of being rocky and forested as in the south, are low-lying mud banks on which hay in great quantities is produced. Back of this flood region the gently sloping hills are largely given up to farming, while the forest recedes to the background. The forest is chiefly spruce — white, black and red — and balsam fir, with arbor vitæ and larches in places, and an occasional white pine and hemlock. Canoe, white and yellow birches, beeches, rock maples, mountain ashes and poplars also form parts of the forest. All of these trees in the lower, wilder regions of the valley sometimes attain considerable dimensions, especially in that portion back of Glenwood and Upper Greenwich. Beginning at Glenwood, red oaks become common in the river valley, while the graceful wineglass-shaped American elm is the most conspicuous tree on the low shores and islands, and an occasional butternut and linden are to be seen.

Recent subsidences has depressed this whole region to such an extent that the former river cutting has become an estuary of the sea, the force of whose tides are felt even to Fredericton, a distance of eighty-four miles.

While the region of the city of St. John and the hills back of it are cooled by the proximity of the Bay of Fundy with its rushing tides and frequent fogs, the broad alluvial central valley has a more genial summer climate, as shown by a comparison of the mean summer temperature in Fredericton and St. John. The average of the mean temperature for the month of May in the years 1901, 1902, 1904 and 1905 was 2.4° Far. higher at Fredericton than at St. John. In June of these years it was 2.5° higher, while in July it was 5° higher in Fredericton than in St. John.

As a result of this proximity of two such unlike summer climates there is an admixture here of Boreal and Transition species. As long ago as 1869 (*Am. Naturalist*, Vol. III, 1869, p. 331), the late Mr. Henry A. Purdie suggested that some birds not common on the central and southern Maine coast may have reached the northern coast of Maine by the "Saint Lawrence and Maine Central

water route." Mr. O. W. Knight in his 'Birds of Maine' in speaking of the Rose-breasted Grosbeak, which he states "is rare along the coast and in certain of the central portions of the State, while north it is again locally common," says: "It seems quite probable indeed that these northern representatives of the species enter the State from the west and pass across it by some regular migration route." Montague Chamberlain, in the Bulletin of the Natural History Society of New Brunswick, No. II, 1883, p. 40, says "that many of the species of birds rarely met with in the vicinity of the coast of the Bay of Fundy during the breeding season are much more abundant at that time beyond the line across which the humidity and low temperature so characteristic of this coast at that season do not penetrate, said line being drawn some 15 or 20 miles from the shore of the Bay."

That some of these birds of the St. John valley that are less common farther south on the coast, migrate north in the interior until they reach the valley of the St. John, and follow it until they are arrested by the colder regions bordering the Bay of Fundy, seems therefore a not unlikely theory. The fact that on July 31 I saw forty-five Night Hawks flying as if in migration in a *northerly* direction over the river valley at Wickham is certainly suggestive.

The further extension of migration routes from this warm St. John Valley to the north is clearly shown in an interesting paper by Professor W. F. Ganong (Bull. Nat. History Soc. of New Brunswick, Vol. V, part iv, 1906, pp. 423-433). One of these natural migration routes extends northwest along Washademoak Lake, a great drowned side valley of the St. John River above Wickham, the Canaan and the Buctouche Rivers, Northumberland Straits, Prince Edwards Island, and Cascumpec Harbor. North of this and parallel with it is a route by way of Grand Lake, Salmon and Richibucto Rivers, while farther north the Nashwaak and Miramichi Rivers together, and the Nepisiquit and the Restigouche Rivers form three other obvious routes. Besides these, Professor Ganong has sketched numerous probable and possible valleys all extending northeast and southwest.

On the southern coast of the Labrador Peninsula, in the Mingan region, the avifauna as far east as Natashquan is largely Canadian with a sprinkling of birds of the Hudsonian zone and even of some

that are characteristic of the Alleghanian Zone,¹ while the shore to the eastward, which feels more strongly the arctic current — for icebergs float as far west as Natashquan — is the summer home of Hudsonian and Arctic birds. It is possible that the Canadian fauna reaches the Mingan region of Labrador by way of the valley of the St. Lawrence, or by the migration routes from the St. John valley just sketched, thence north across the narrow part of the Gulf of St. Lawrence over the island of Anticosti, or by both routes. Much further study is needed to elucidate these problems.

The following is a briefly annotated list of the birds observed, all of which are, I believe, summer residents.

1. **Larus argentatus.** HERRING GULL.— A few in the harbor of St. John.
2. **Sterna hirundo.** COMMON TERN.— A few in the Kennebecasis River, and on the St. John River all the way from St. John to Fredericton. At Wickham and Upper Greenwich birds were frequently seen flying down the river with small fish hanging from their bills, while the return trips were made without the fish.
3. **Phalacrocorax auritus auritus.** DOUBLE-CRESTED CORMORANT.— A single bird, apparently of this species, seen on the river about eight miles above St. John.
4. **Anas rubripes tristis.** BLACK DUCK.— A few above Upper Greenwich.
5. **Clangula clangula americana.** WHISTLER.— One seen on July 12 on the Kennebecasis.
6. **Botaurus lentiginosus.** BITTERN.— One at Queenstown, July 26.
7. **Ardea herodias herodias.** GREAT BLUE HERON.— Not uncommon on the Kennebecasis and on the St. John above Upper Greenwich.
8. **Philohela minor.** WOODCOCK.— Two seen at Glenwood, July 17.
9. **Actitis macularia.** SPOTTED SANDPIPER.— Common along the rivers and brooks.
10. **Bonasa umbellus togata.** CANADIAN RUFFED GROUSE.— Several at Glenwood and at Upper Greenwich.
11. **Zenaidura macroura carolinensis.** MOURNING DOVE.— A pair nesting in a spruce at Glenwood, July 20.
12. **Circus hudsonius.** MARSH HAWK.— One at Wickham, August 4.
13. **Accipiter velox.** SHARP-SHINNED HAWK.— One seen at Glenwood and one at Wickham.
14. **Buteo borealis borealis.** RED-TAILED HAWK.— One at Wickham.
15. **Buteo platypterus.** BROAD-WINGED HAWK.— Two were seen

¹ Townsend and Bent, *Auk*, XXVII, 1910, pp. 1-18.

at Glenwood circling together over the forest, uttering their clear, double, *ter-whée*.

16. ***Haliaeetus leucocephalus leucocephalus***. BALD EAGLE.— Several seen from Upper Greenwich to Fredericton. At the former place two or three in immature, and one in adult plumage were seen daily, and a farmer told me that a pair nested on a cliff, and that they had carried off eight of his chickens. He said that one of the young birds had seized a hen, but was unable to carry her off. The hen made such an outcry that the farmer came to her rescue and the eagle departed. At Wickham I watched an adult and young bird circling near together, and once the young turned on its side and thrust out its legs as if about to grapple with the adult.

17. ***Coccyzus erythrophthalmus***. BLACK-BILLED CUCKOO.— Heard singing several times at Glenwood.

18. ***Ceryle alcyon***. BELTED KINGFISHER.— Not uncommon. At Wickham I heard one practising its rattle in so low a tone that it suggested the distant trill of a wren.

19. ***Dryobates villosus villosus***. HAIRY WOODPECKER.— Common.

20. ***Dryobates pubescens medianus***. DOWNY WOODPECKER.— Common.

21. ***Sphyrapicus varius varius***. YELLOW-BELLIED SAPSUCKER.— One seen at Hampton, July 12.

[*Melanerpes erythrocephalus*, Red-headed Woodpecker. A mounted specimen was seen in the taxidermist shop of Emack Bros. in Fredericton, and I was told that the bird was shot by the guide Tom O'Leary at Beavertown, York County, on June 1, 1911, and brought to the taxidermist in the flesh.]

22. ***Colaptes auratus luteus***. NORTHERN FLICKER.— Common.

23. ***Chordeiles virginianus virginianus***. NIGHTHAWK.— Common and evidently nesting on roofs in St. John and Fredericton. On July 31, at 5.30 P. M. at Wickham, I counted 45 Nighthawks flying *north* high over the river.

24. ***Chætura pelagica***. CHIMNEY SWIFT.— Abundant. At Fredericton, on July 25, I watched a large flock of Swifts enter for the night a chimney on the southwest corner of the Parliament Building. Sun set at about 8 P. M. At 8.24 P. M. one bird set its wings and dropped into the chimney and soon they began dropping in fast, while the flock circled first one way then another or crowded together in a confused mass, twittering loudly all the time. Owing to the proximity of the dome regular circling was somewhat interfered with, but as a rule the birds circled in the direction of the hands of a clock, and individuals would drop out and into the chimney in dozens when the circle passed over it. Occasionally they would all swoop off to the other side of the building, soon to return. At 8.45 P. M. practically all the birds had entered the chimney and I had counted roughly,— at first singly and later by tens,— 2200 birds. A minute later, when it was nearly dark, six stragglers appeared, five of

which entered the chimney while the sixth retired by itself to another chimney.

25. *Archilochus colubris*. RUBY-THROATED HUMMINGBIRD.—Two seen.

26. *Tyrannus tyrannus*. KINGBIRD.—One seen at Glenwood. Common at Wickham.

27. *Nuttallornis borealis*. OLIVE-SIDED FLYCATCHER.—One seen at Wickham, August 4.

28. *Myiochanes virens*. WOOD PEWEE.—One at Fredericton and one at Upper Maugerville.

29. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER.—Common at Glenwood.

• 30. *Empidonax trailli alnorum*. ALDER FLYCATCHER.—A few at Glenwood and Wickham, in full song.

31. *Cyanocitta cristata cristata*. BLUE JAY.—A few seen.

32. *Corvus brachyrhynchos brachyrhynchos*. CROW.—Common.

33. *Dolichonyx oryzivorus*. BOBOLINK.—Abundant in river meadows at Wickham, not singing; a flock of thirty or forty.

34. *Agelaius phœniceus phœniceus*. RED-WINGED BLACKBIRD.—Common in the meadows of the Kennebecasis River and on the St. John above Upper Greenwich.

35. *Quiscalus quiscula æneus*. BRONZED GRACKLE.—Common.

36. *Carpodacus purpureus purpureus*. PURPLE FINCH.—Abundant.

37. *Loxia curvirostra minor*. RED CROSSBILL.—A small flock seen at Glenwood on July 15.

38. *Loxia leucoptera*. WHITE-WINGED CROSSBILL.—Eight or ten seen at Glenwood on July 20.

39. *Astragalinus tristis tristis*. GOLDFINCH.—Abundant.

40. *Passer domesticus*. ENGLISH SPARROW.—Abundant in cities and larger settlements. Although they were common in the village of Wickham, there were none three miles away at Gerow's landing. This fact probably accounted for the successful broods of turkeys raised at the latter place, as they were not infected by the Sparrows with the blackhead disease.

41. *Spinus pinus pinus*. PINE SISKIN.—A flock of six seen at Glenwood on July 16 and 17.

42. *Poœetes gramineus gramineus*. VESPER SPARROW.—Common at Wickham. Not seen elsewhere.

43. *Passerculus sandwichensis savanna*. SAVANNAH SPARROW.—Abundant.

44. *Passerherbulus nelsoni subvirgatus*. ACADIAN SHARP-TAILED SPARROW.—Very abundant in the meadows of the St. John at upper Greenwich, Wickham and Hampstead. The A. O. U. Check-list states of this bird that it is found in the "Salt marshes of the Atlantic coast," although Dwight (Auk, XXII, 1896, p. 276) speaks of it as "peculiar to

the fresh and salt water marshes of the maritime Provinces of Canada." These marshes where I found it were made up entirely of fresh water vegetation including arrow heads and white pond lilies, although the impulse of the tides is felt there. The curious song of this bird, which resembles closely the hiss of hot iron in water followed usually by two short low notes, was heard on every hand in these meadows during my visit there from July 21 to August 4. Occasionally a bird would indulge in a flight song, uttering short notes as he flew up, followed by rapid repetitions of his simple song during the descent to the grass where he continued to sing. One repeated his song in the grass ten times in a minute. A female that was taken contained eggs, evidently of the second brood, for full grown young were common. These were in the juvenal dress which resembles in general coloration that of the juvenal Bobolink, although of course the finches are much smaller. A juvenal specimen obtained was easily distinguished from the juvenal *caudacutus*. In the latter the markings on the sides of the chest are distinct, in the former indistinct and few.

45. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.— Abundant and in full song. At Glenwood on July 15 when the sun set at 7.49 these birds sang until 9 P. M. when it was too dark to see to read.

46. *Spizella passerina passerina*. CHIPPING SPARROW.— Abundant.

47. *Junco hyemalis hyemalis*. SLATE-COLORED JUNCO.— Abundant.

48. *Melospiza melodia melodia*. SONG SPARROW.— Abundant.

49. *Melospiza georgiana*. SWAMP SPARROW.— Common at Hampton and Wickham.

50. *Progne subis subis*. PURPLE MARTIN.— Fifteen or twenty pairs were nesting in the iron framework of the bridge at Hampton over the Kennebecasis River. English Sparrows were constantly fighting with them. At Brown's flat I noticed several Martin houses inhabited only by English Sparrows, and was told that the Martins had been entirely driven out by these pests. At Evandale were several small houses inhabited by Martins; no English Sparrows were to be seen. At Fredericton and at Wickham Martins were frequently seen.

51. *Petrochelidon lunifrons lunifrons*. CLIFF SWALLOW.— Abundant. At Glenwood I counted sixty-five nests on one barn and shed.

52. *Hirundo erythrogastra*. BARN SWALLOW.— Common.

53. *Iridoprocne bicolor*. TREE SWALLOW.— Common.

54. *Riparia riparia*. BANK SWALLOW.— A few seen.

55. *Bombycilla cedrorum*. CEDAR WAXWING.— Common.

56. *Vireosylva olivacea*. RED-EYED VIREO.— Abundant.

57. *Lanivireo solitarius solitarius*. BLUE-HEADED VIREO.— Common.

58. *Mniotilta varia*. BLACK AND WHITE WARBLER.— Common.

59. *Vermivora rubricapilla rubricapilla*. NASHVILLE WARBLER.— Abundant, in full song.

60. **Compsothlypis americana usneæ**. NORTHERN PARULA WARBLER.— Abundant, in full song.
61. **Dendroica æstiva æstiva**. YELLOW WARBLER.— Not uncommon.
62. **Dendroica cærulescens cærulescens**. BLACK-THROATED BLUE WARBLER.— One at Glenwood, July 14.
63. **Dendroica coronata**. MYRTLE WARBLER.— Common and in song.
64. **Dendroica magnolia**. MAGNOLIA WARBLER.— Abundant, in full song.
65. **Dendroica castanea**. BAY-BREASTED WARBLER.— Common. At Glenwood, Upper Greenwich and at Wickham I saw one or two nearly every day and twice heard the male sing. At the two last named places I saw them feeding fully grown young.
66. **Dendroica virens**. BLACK-THROATED GREEN WARBLER.— Common and in song.
67. **Seiurus aurocapillus**. OVEN-BIRD.— Two or three heard singing at Glenwood, and one seen giving his flight song. One seen with young at Wickham on August 2.
68. **Geothlypis trichas trichas**. MARYLAND YELLOW-THROAT.— Common, in song.
69. **Wilsonia canadensis**. CANADA WARBLER.— One seen at Glenwood on July 14.
70. **Setophaga ruticilla**. REDSTART.— Rather common.
71. **Nannus hiemalis hiemalis**. WINTER WREN.— Common and in song.
72. **Certhia familiaris americana**. BROWN CREEPER.— A few seen at Glenwood.
73. **Sitta canadensis**. RED-BREASTED NUTHATCH.— One at Wickham, August 3 and 4.
74. **Penthestes atricapillus atricapillus**. CHICKADEE.— Abundant.
75. **Penthestes hudsonicus hudsonicus**. HUDSONIAN CHICKADEE.— Nearly as common as *P. atricapillus*. On one occasion only, at Glenwood on July 15, I heard the clear warbling notes of this species.
76. **Regulus satrapa**. GOLDEN-CROWNED KINGLET.— Abundant.
77. **Hylocichla fuscescens fuscescens**. VEERY.— Two were frequently heard singing at Glenwood in a thicket by the river, and one by Jones's Creek.
78. **Hylocichla ustulata swainsoni**. OLIVE-BACKED THRUSH.— Abundant and in full song, especially at Glenwood from July 13 to July 21.
79. **Hylocichla guttata pallasi**. HERMIT THRUSH.— Abundant and in full song.
80. **Planesticus migratorius migratorius**. ROBIN.— Abundant.
81. **Sialia sialis sialis**. BLUEBIRD.— The only Bluebirds I saw were a pair in the fields at Jones's Creek, Glenwood, about two miles from its mouth at the St. John River. This was on July 15.