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OBSERVATIONS ON THE BIRDS OF BERRIEN
COUNTY, MICHIGAN

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The biological division of the Survey, in cooperation with the Museum of Zoology of the University of Michigan and the E. K. Warren Foundation, has since 1917 been engaged in a biological survey of the western part of Berrien County, particularly the parts of the general area included in the E. K. Warren Preserve. As elsewhere stated,¹ the preserve comprises two tracts "300 acres (150 or more of the original forest) situated two and a half miles north of Three Oaks, in Chickaming Township, Berrien County, and over 250 acres in the sand dune region on the shore of Lake Michigan, in Lake Township, two miles north of Sawyer, in Berrien County.

"The forest is a remnant of the original beech-maple forest

¹ Ruthven, Alexander G. The Edward K. Warren Foundation and Two Wild Life Reservations in Michigan. *Science*, N. S. XLIV, 17-18.

of southern Michigan. It has never been cut or burned over and many of the trees are splendid specimens, fifty to seventy feet in height to the first limb, and from two to four feet in circumference. The Galien River flows through the forest for about one and one-half miles and there are numerous springs.

"The sand dune tract has a frontage on Lake Michigan of about 3,000 feet. It includes probably the highest dunes in the State of Michigan, the largest of which are from two hundred to three hundred feet in height. Much of the tract is wild, and with little doubt the original vegetation prevails in most places.

"The preserves have been established by Mr. and Mrs. E. K. Warren, of Three Oaks, Michigan, and are incorporated in the 'Edward K. Warren Foundation,' which also includes the Chamberlain Memorial Museum at Three Oaks, founded in 1915 and opened to the public in 1916."

The study of the avifauna was begun in 1917, when the writer investigated the conditions in the region about the village of Harbert and the resort of Birchwood Beach from July 6 to July 26, and, with Mr. H. B. Sherman, from August 26 to September 11. The total number of species observed during these periods was 135. Beginning April 7, and continuing for five weeks in 1918, the writer made a study of the spring migration in the Harbert region. In 1919 a camp was established at the Warren Woods and work was done in that region from May 4 to June 1. From April 29 to June 11, 1920, the fauna of that part of the dune region included in the Warren Preserve was studied.

GENERAL HABITATS

No attempt will be made to describe the habitats in detail as the survey of the plant life of the region has not been completed. The general habitats of birds are as follows:

1. The open beach.

2. The dunes. The vegetation of the dunes varies greatly. It is absent, or consists of a sparse growth of grasses and herbaceous plants or thickets of shrubs such as the low juniper and wafer ash, or there may be a rather dense cover of trees (white pine, beech, maple, and oak), all depending upon whether the dune is moving or not and the length of time it has been stationary. In the ravines which cut through the dunes or lie between them there is, at least in places (*c. g.*, at Birchwood Beach and at the Warren Reserve), a dense growth of deciduous trees. In the dune area are several ponds and streams which harbor the birds preferring these habitats. The birds of the dunes are not summarized by habitats for the reason that a more extended study must be made before the habitats can be accurately determined.

3. The cultivated lands.

4. E. K. Warren Woods. The area included in the E. K. Warren Woods comprises about 150 acres of forest and 150 acres of pasture land.

Climax forest: The forest is in the primitive condition, and the dominant trees on the high ground are beech and maple. Other trees are whitewood, sycamore, and black gum. In the eastern part of the woods there is little undergrowth, but over most of the western part there is a dense growth of beech and maple saplings and a few flowering dogwoods. A public road runs through the upper end of the forest, and a wood road from the entrance to the bend of the Galien River.

The birds of the forest were distributed as follows: In the tree tops were found the bay-breasted, black poll, Blackburnian, sycamore, and cerulean warblers, and the Baltimore oriole, and scarlet tanager. Lower down on the trees were observed the black-throated green, pine, Nashville, and orange-crowned

warblers, and the yellow-throated, blue-headed, Philadelphia, and red-eyed vireos. The lower branches of the trees were inhabited by the magnolia, chestnut-sided, and hooded warblers, the redstart, wood pewee, and green-crested and yellow-bellied flycatchers. The undergrowth was apparently the favorite habitat of the Wilson thrush, the Wilson, prairie, and golden-winged warblers, the chickadee, ruby-crowned and golden-crowned kinglets, the yellow-breasted chat, cardinal, brown thrasher, and house wren. On the ground were observed the palm, mourning, and Connecticut warblers, the oven bird, northern yellowthroat, the three water thrushes, woodcock, and whippoorwill. The four species of woodpeckers, of course, frequented the tree trunks.

River, flood-plain, and swamps: The river enters the north end of the woods and flows in a general southern direction to the edge of the clearing, where it turns abruptly to the west, forming a great bend before it leaves the western edge of the forest. At its low stage this river occupies a narrow channel from two to three rods wide and several feet below the top of its banks. In time of flood the water covers the banks and occupies quite an extensive plain, which is bordered by higher banks, in places thirty to fifty feet high. The flood-plain is mostly wooded, conspicuous trees being the black ash, elm, swamp oak, and soft maple, and there are several low areas, more or less open, but in general covered with a thick growth of willows and buttonbush, with a few trees. These swamps contain water during most of the year, but some of the smaller swamps are dry in midsummer.

The south swamp contains several acres and lies just south of the river where the latter leaves the reserve, and at flood time is connected with it. The swamp contains some water

at all seasons and is thickly covered with buttonbush, together with some willows and small trees at the edge.

A wooded ravine extends southeast from the great bend into the pasture, which is drained by a small stream that enters the river at this place. On both sides of the river the climax forest occupies the higher levels and comprises the major part of the wooded area. Beech and maple are the dominant trees, with some whitewood and sycamore at rare intervals. The black gum is also found here.

The river and swamp fauna was distributed as follows: In the aquatic and mud habitats were found but few species. Some ducks were reported during early and late migration, and the kingfisher, great blue heron, solitary and spotted sandpiper were observed.

In low, wet parts of the flood-plain were seen most of the birds observed in the forest, many of them in great numbers in the trees bordering the river. The low, wet ground was the place most favored by the Connecticut and mourning warblers and the three thrushes. About the edges of the buttonbush swamps or ponds the prothonotary warbler was the only characteristic species.

The cleared pasture: This was the favorite habitat of the bobolink, meadow-lark, killdeer, and the field and savanna sparrows; crows fed on the ground, and the song, white-crowned, and white-throated sparrows were seen about the edge of the woods.

Aerial habitat: Here the characteristic birds were the barn swallow, chimney swift, and night hawk, but the turkey vulture, rough-legged, red-tailed, and red-shouldered hawks were often seen circling about over the reserve.

GENERAL REMARKS ON THE FAUNA

As was to be expected, several southern forms rare or restricted to the southern part of Michigan were observed. The cardinal, yellow-breasted chat, tufted titmouse, hooded and sycamore warbler were common. It may be mentioned in this connection that the summer tanager and Carolina wren were not seen.

Although the migrating birds received considerable attention, it is thought best not to attempt a summary of the observations. The results of several seasons' work must be at hand before even approximate dates of the arrival and departure of each species can be determined. It can be said, however, that the dune region is particularly favorable for work on migrations.

ACKNOWLEDGMENTS

In the course of the field work the writer became deeply indebted to a number of residents for assistance and hospitality. Much of the success of the field studies is due to the coöperation of Mr. George Fox, Curator of the Chamberlain Memorial Museum at Three Oaks. Mr. and Mrs. Wells Sizer, of Birchwood Beach, rendered much assistance in the work in that region, and in 1920 Mr. and Mrs. Raymond Reymuth generously gave the use of their summer home as headquarters for the work in the dune region.

LIST OF SPECIES

The writer realizes that this list is far from complete, as it is only the result of the work done in the three small areas mentioned above.

Colymbus auritus. Horned Grebe.—This species occurs only as a migrant. It was first observed at Birchwood Beach Sep-

tember 8, 1917. April 27, 1918, three were seen near the same beach catching small shore minnows. May 1, 1920, the writer noted six at the beach of the Warren Dunes.

Podilymbus podiceps. Pied-billed Grebe.—This species was noted as a migrant only, although it may breed on the inland waters of the county. One was seen near the shore at Birchwood Beach May 9, 1918.

Gavia immer. Loon.—A rather common migrant. July 20, 1917, two were seen on the Lake at Birchwood Beach, and May 15, 1918, one was noted at the same beach. The species was not noted at the Warren Dunes in 1920.

Larus argentatus. Herring Gull.—This is a very common migrant along the lake shore. It was first seen at Birchwood Beach July 20, and became common after September 1, 1917. In 1918, from April 27 to June 1, many were seen feeding on the beach and in high winds sailing against it over the dunes. April 30, 1920, the writer saw a hundred or more at the beach at Warren Dunes.

Larus delawarensis. Ring-billed Gull.—This species is a rare migrant. It was observed at Birchwood Beach from September 4 until September 10, 1917. At the Warren Dunes it was seen May 24, 1920.

Larus philadelphia. Bonaparte's Gull.—Doubtless a common migrant. A few were seen September 4, 1917, at Birchwood Beach, and at Warren Dunes May 1, 1920.

Sterna caspia. Caspian Tern.—Four specimens of this rare migrant were seen September 9, 1917, at Birchwood Beach, and two noted May 8, 1918. After these dates a few others were occasionally seen in company with herring gulls flying along the shore or resting on the sandy beach.

Sterna hirundo. Common Tern.—This common migrant was seen on July 24 and August 26, 1917. The species became

abundant at Birchwood Beach September 2, 1917, when hundreds were swimming off shore feeding on small minnows. In 1918 it was first seen May 14, when a flock of twelve were resting on the piles of an old pier, and by May 16 and 17 hundreds were migrating northward. None were seen in 1919 nor 1920.

Chlidonias nigra surinamensis. Black Tern.—No doubt a common migrant, although it was seen only in September, 1917. September 2 a large number were feeding with a flock of common terns mentioned above, and a few were seen by Sherman September 4.

Phalacrocorax auritus auritus. Double-crested Cormorant.—This rare migrant was seen only on May 4, 1918, when two were noted near Birchwood Beach.

Mergus serrator. Red-breasted Merganser.—Doubtless a common migrant, although it was noted but once, May 1, 1920, when the writer saw six at Warren Dunes.

Anas rubripes. Black Duck.—A common migrant and perhaps a summer resident. From July 19 to September 11, 1917, many were seen flying along the shore near Birchwood Beach, but none were noted in May and June, 1918.

Querquedula discors. Blue-winged Teal.—A common migrant. An adult was seen April 29, 1918, at Willow Brook Pond and four others at Sawyer Pond May 4.

Spatula clypeata. Shoveller.—A not common migrant. An adult male was resting on a low pile at Birchwood Beach May 9 and 10, 1918.

Aix sponsa. Wood Duck.—A rather rare migrant and summer resident. A pair was seen on a small pond at Warren Dunes May 1, 1920.

Marila affinis. Lesser Scaup Duck.—A common migrant as reported by hunters. May 5, 1918, a flock of twenty was seen

near Birchwood Beach. At Warren Dunes the writer saw a pair May 3, 1920.

Branta canadensis canadensis. Canada Goose.—A common migrant both spring and fall. Residents of this region see thousands during migrations. May 1, twenty-seven lighted on the beach at Birchwood Beach, and April 29, 1920, a flock passed over the Warren Dunes.

Botaurus lentiginosus. Bittern.—This is a common summer resident of the inland ponds, but it rarely visits the lake beaches. August 29, 1917, one was seen at Sawyer Pond and another May 8, 1918. A pair was seen at the south swamp, Warren Woods, from May 23 to May 30, and from April 29 to June 10, 1920, several were noted at the marshy ponds of Warren Dunes.

Ardea herodias herodias. Great Blue Heron.—A not rare summer resident. Recorded from July 7 to September 10, 1917, at Birchwood Beach, when they often visited the beaches to catch fish. After April 30, 1918, a pair were frequently seen standing knee-deep in the lake where Willow Brook entered it. They were catching and swallowing good-sized fish. In 1919 one was seen at Warren Woods at the big bend of the Galien River May 8, and at Warren Dunes several were on the lake beach and also about the north pond after May 2.

Butorides virescens virescens. Green Heron.—This is a common summer resident. It was recorded at Birchwood Beach from July 9 to August 29, 1917, and April 28, 1918. Several were seen along Willow Brook in May and June, 1919. At Warren Dunes it was common after May 1, 1920, about the north and middle ponds, where it nested.

Rallus elegans. King Rail.—No doubt a rare summer resident. One was found dead on the beach near Birchwood Beach July 11, 1918, by A. T. Wagner.

Porzana carolina. Sora.—Probably a common summer resident, although it was seen but a few times, as it lives about wet marshes and ponds. At Birchwood Beach it was seen August 27 and 29; and in 1918 there was one May 7 at Willow Brook. Only one was observed at Warren Dunes in 1920 (May 24).

Coturnicops noveboracensis. Yellow Rail.—A rare summer resident. One was noted near Lakeside in May, 1917, by Dr. J. L. Hancock, who said it stayed for a week about a bushy pond at his summer home. May 6, 1920, the writer found a dead male in perfect condition on top of the highest Warren Dune. It had evidently struck a limb while crossing the top of the dune, as it lay just beyond the sharp crest of a blowout.

Gallinula galeata. Florida Gallinule.—Not a common summer resident. May 8, 1918, two were on the middle pond back of the dunes, where one was also seen May 19, 1920.

Philohela minor. Woodcock.—A not rare summer resident. The writer saw one near Willow Brook August 27, 1917, and September 5 one was found dead at Birchwood Beach. In May, 1918, two were at Willow Brook. Single specimens were recorded at Warren Woods May 19 and May 26, 1919. May 13, 1920, a woodcock and her nest with four eggs was found in the thick second growth at the edge of the north pond at Warren Dunes. The eggs hatched May 15.

Gallinago delicata. Wilson's Snipe.—A common migrant first seen at the south pond September 10, 1917. May 10, 1918, it was noted at Birchwood Beach in a wet meadow, and four were seen at Warren Dunes May 10, 1920.

Pisobia bairdi. Baird's Sandpiper.—This species has been listed as a rare fall migrant in the Great Lakes region, but several were seen by Sherman and the writer, and specimens were taken August 31 and September 5, 1917.

Pelidna alpina sakhalina. Red-backed Sandpiper.—This migrant must be rare, as but one bird was seen at Birchwood Beach, May 18, 1919.

Ereunetes pusillus. Semipalmated Sandpiper.—This is a common fall migrant. We found them at Birchwood Beach August 27, 1917, and saw flocks each day until September 10.

Calidris leucophæa. Sanderling.—This abundant fall migrant was first seen at Birchwood Beach August 31, 1917. After that date it was the most common wader until August 10. They were in fall plumage.

Totanus flavipes. Yellow-legs.—Not a common migrant in this region. The only ones seen were two at south pond May 9, 1918.

Tringa solitaria solitaria. Solitary Sandpiper.—This is a rather rare migrant for which we have the following records: 1917, September 10, south pond; 1918, May 6, Willow Brook; 1920, May 8, Warren Woods; May 9, mud flats along Galien River.

Bartramia longicauda. Upland Plover.—A rare summer resident. The writer saw a pair in the meadow by the roadside north of Three Oaks, June 15, 1920.

Actitis macularia. Spotted Sandpiper.—A common summer resident which was seen daily on the Lake Michigan beaches in May and June, 1918. A few were noted along the Galien River in Warren Woods in May, 1919, and one was flying over north pond on Warren Dunes, May 3, 1920.

Oxyechus vociferus. Killdeer.—This is a common summer resident, and was often seen by us in the fields back of the dunes in 1917 and 1919, at Warren Woods in May, 1919, and at the Warren Dunes May 27, 1920.

Charadrius semipalmatus. Semipalmated Plover. A rare

migrant and seen but once, September 9, 1917, with several sanderling, near the resort at Birchwood Beach.

Colinus virginianus virginianus. Bob-white.—Not a common resident of the region. It was heard calling in July, 1917, and May, 1918. At Warren Dunes a male was seen May 19, 1920.

Bonasa umbellus umbellus. Ruffed Grouse.—This is a rather rare resident of the dunes and Warren Woods. Recorded July 23 and September 4, 1917, in thick woods on the eastern slope of the dunes a mile north of Birchwood Beach, and in May, 1920, on the dunes. In 1919 it was observed in Warren Woods May 15 by the writer, and October 12 by George Fox.

Zenaidura macroura carolinensis. Mourning Dove.—A common resident of the region, usually seen singly or in pairs. May 7, 1918, a flock of eight flew north over the dunes. May 10 a nest with two eggs was found on the ground under high huckleberry bushes near Birchwood Beach. A few were seen about Warren Woods and many at the Warren Dunes, where four nests were found in May, 1920, on the ground in the thick forest. This wholesale departure in nesting habits is noted here as it is unusual in a region where normal nesting sites are so plentiful.

Cathartes aura septentrionalis. Turkey Vulture.—This species occurs rarely as a straggler from the south. One was seen eating a chicken near Birchwood Beach by Dr. Hancock September 1, 1917. At Warren Woods two were circling over the forest in May, 1919, and one was seen May 12, 1920, at Warren Dunes.

Circus hudsonius. Marsh Hawk.—An occasional summer resident of the small marshes back of the dunes. A number of these hawks were migrating north over the dunes at Birchwood Beach the last three days of April, 1918. At Warren

Woods a pair were hunting over the big pasture after May 9, 1919. In May, 1920, two pairs nested at the eastern edge of Warren Dunes.

Accipiter velox. Sharp-shinned Hawk.—This species is a common migrant. A few were seen in August, 1917, at Birchwood Beach, and during a three days' migration the last of April, 1918, numbers of them were flying north over the dunes nearest the lake. At Warren Woods only one was seen in May, 1919, near the Galien River. At Warren Dunes there were a few about April 29, 1920.

Accipiter cooperi. Cooper's Hawk.—Not a common resident. Noted in July, 1917, and common during the hawk migration of April 27 to 30, 1918, at Birchwood Beach. A pair that apparently nested in the region were seen at Warren Woods after May 8, and two at Warren Dunes May 5, 1920.

Buteo borealis borealis. Red-tailed Hawk.—A rare summer resident. It was occasionally seen at Birchwood Beach in July, 1917, and during the migration in April, 1918. In 1919, at Warren Woods, a pair occasionally circled over the trees after May 5, 1919. At Warren Dunes it occurred rarely after April 29, 1920.

Buteo lineatus lineatus. Red-shouldered Hawk.—A common summer resident in the region. A pair were found at their nest, in a low beech-maple forest a mile north of Birchwood Beach, in July, 1917. A few were going north in April and May, 1918, at Birchwood Beach. In 1919, at Warren Woods, a nest was found May 18 in a big sycamore near the Galien River, and another with three eggs was found May 5 in a beech tree at the western edge of the reserve.

Buteo platypterus. Broad-winged Hawk.—This species was recorded only in 1918, from April 27 to 30, at Birchwood

Beach, during the hawk migration, and on May 9, when a few were flying north over the dunes.

Archibuteo lagopus sancti-johannis. Rough-legged Hawk.—The most common migrant hawk. It was recorded May 1 to 28, 1917, at Birchwood Beach, at Warren Woods on May 8, 1918, and at Warren Dunes after April 29, 1920.

Haliaeetus leucocephalus leucocephalus. Bald Eagle.—An occasional straggler over the dunes along the lake shore. The writer saw it September 3 and 10, 1917. June 8, 1918, Dr. Hancock noted one at Lakeside, three miles south of Birchwood Beach.

Falco columbarius columbarius. Pigeon Hawk.—A rare migrant. Only one was noted, April 29, 1918, when a male in beautiful adult plumage was secured. This bird was perched on a dead bush on top of the big blowout near Birchwood Beach.

Falco sparverius sparverius. Sparrow Hawk.—While this is a common summer resident over most of the state, the only record for this region was given us by George Fox, who saw one May 3, 1919, near Warren Woods. Smith,² on August 30, 1904, saw hundreds of this species migrating south in Allegan County.

Pandion haliaëtus carolinensis. Osprey.—A rare migrant, as the only record is for May 12, 1920, when the writer saw one perched in a dead tree on the Warren Dunes.

Strix varia varia. Barred Owl.—A rather rare resident. It was first noted May 9, 1919, at Warren Woods, where later it was heard hooting at night and on dark days.

Otus asio asio. Screech Owl.—A resident, but not very common. It was heard calling August 28, 1917, and a few times later near Birchwood Beach.

² Bull. Mich. Ornith. Club, V (1904), 77-78.

Bubo virginianus virginianus. Great Horned Owl.—Not a rare resident of the wooded dunes and Warren Woods. An adult male was taken near Birchwood Beach May 11, 1918, and young able to fly were found May 15, 1918, at Warren Woods. Several were seen after April 29, 1920, in the wooded ravines of Warren Dunes, where they nested.

Coccyzus americanus americanus. Yellow-billed Cuckoo.—A common summer resident of the woods and thickets along the dunes. It was seen at Birchwood Beach May 17, 1918; at Warren Woods May 22, 1919; and at Warren Dunes May 19, 1920. The cuckoos are more often heard than seen, due to their shyness as well as to the fact that they arrive when the trees are almost full of foliage.

Coccyzus erythrophthalmus. Black-billed Cuckoo.—This is also a common summer resident of the same habitat as the preceding species. It was noted May 19, 1918, at Birchwood Beach; at Warren Woods May 16, 1919; and May 19, 1920, at Warren Dunes.

Ceryle alcyon alcyon. Belted Kingfisher.—A rather common summer resident. After April 29, 1918, it fished at Birchwood Beach in Lake Michigan and in Willow Brook. At Warren Woods it was seen along the Galien River May 10 and later. It also occurred occasionally about the ponds at Warren Dunes and along the lake shore.

Dryobates villosus villosus. Hairy Woodpecker.—A rare resident of the dunes, but more common at Warren Woods, where it was first noted May 7, 1919. In 1920 a nest was found in a large sycamore at the edge of the Galien River May 19; and at Warren Dunes it was observed May 20, and occasionally after this.

Dryobates pubescens medianus. Downy Woodpecker.—This resident species is more common than the preceding one, and

it is frequently seen in the wooded dunes and orchards back of the dunes. May 10, 1919, a nest was found in a dead sycamore in Warren Woods.

Sphyrapicus varius varius. Yellow-bellied Sapsucker.—An abundant migrant and no doubt an occasional summer resident. First noted May 1, 1918, it soon became common on the dunes. At Warren Woods it was seen as late as May 20, 1918.

Melanerpes erythrocephalus. Red-headed Woodpecker.—This species was a rare summer resident of the dunes, but was common about the woods and orchards back of them. It was noted May 3, 1918, at Birchwood Beach, and at Warren Woods after May 5, 1919. It became quite common at Warren Dunes by May 10, but most passed on to the north after a day or so.

Centurus carolinus. Red-bellied Woodpecker.—This rare summer resident was seen only in Warren Woods, where a pair or two evidently nested.

Colaptes auratus luteus. Northern Flicker.—A rather common summer resident of all the region. We found it nesting everywhere.

Antrostomus vociferus vociferus. Whip-poor-will.—A very common summer resident of the thickets along the streams and among the sand dunes. The call was heard during July and August, 1917; in 1918 it was first noted on the evening of May 18; after April 20, 1920, it was abundant on the dunes.

Chordeiles virginianus virginianus. Nighthawk.—A common migrant and rare summer resident. First recorded at Birchwood Beach May 17, 1918. Flocks were seen flying over the dunes as late as May 31.

Chætura pelagica. Chimney Swift.—A common summer resident of the dunes, nesting in the buildings and feeding over the whole region. Noted May 3, 1918, at Birchwood

Beach; circling over Warren Woods May 12; and at Warren Dunes May 19, 1920.

Archilochus colubris. Ruby-throated Hummingbird.—This common summer resident was seen May 6, 1918, at Birchwood Beach, and a nest with one egg was found June 1. In 1919, at Warren Woods, it was noted May 12. On several later dates the species was seen at Warren Dunes, and was observed building a nest in a poplar at the foot of the dune near the north pond.

Tyrannus tyrannus. Kingbird.—This is a common summer resident of the dunes, where it was first noted May 6, 1918, and was frequently seen after this. In 1919 it appeared near Warren Woods on May 16 and a few times later. At Warren Dunes in 1920 it was seen daily from May 7 to June 14.

Inxiarchus crinitus. Crested Flycatcher.—Not a common summer resident, but well distributed over the whole region. It was noted at Birchwood Beach May 14, 1918; at Warren Woods May 8, 1919, and a few times later; and at Warren Dunes April 30, 1920, but rarely later.

Sayornis phoebe. Phoebe.—A common summer resident found about the cottages and farm buildings at Birchwood Beach. It was one of the few species recorded daily in 1918. At Warren Woods it was seen May 4 and a pair nested at a house near the woods. We noted it at Warren Dunes the day of our arrival, April 29, 1920, but it was scarce here, as nesting sites were few.

Nuttallornis borealis. Olive-sided Flycatcher.—This species occurs as a rare migrant only. It was seen at Birchwood Beach September 4, 1917, and two others appeared a few days later. In 1918 the writer collected one May 24 and saw two others May 25 on the dunes. At Warren Woods one called from

the top of a large dead sycamore near the Galien River May 30, 1920.

Myiochanes virens. Wood Pewee.—A common resident. Noted in July, 1917, and May 17, 1918, at Birchwood Beach; at Warren Woods May 7, 1919, and many times later; and May 9, 1920, at Warren Dunes. On June 11 a completed nest was found on a big butternut limb about twenty feet above the dune at the north pond.

Empidonax flaviventris. Yellow-bellied Flycatcher.—Barrows³ says: "In Michigan this bird occurs sparingly during the migrations." This has also been the writer's experience until 1918, when for a few days after May 20 it was very common among the willow trees along the brook at Birchwood Beach. At Warren Woods in 1919 it was not so common, but after May 20 several were seen each day in the flood-plain, feeding in the lower tree levels about the button-bush ponds. In 1920 it was quite common at Warren Dunes about the edges of the north pond, where four were seen as late as June 1.

Empidonax virescens. Acadian Flycatcher.—This species is considered a rare summer resident at Ann Arbor, but we found it common in Berrien County in the thick forests along the streams. From July till September 10, 1917, we saw many at Birchwood Beach, where, in 1918, it was first noted May 7. At Warren Woods it was common from May 20 to June 1, 1919. Unlike the preceding species, it preferred the lower tree levels of the heavy climax forest. It was also abundant at Warren Woods about the north pond and wooded ravines after May 10, 1920.

Empidonax minimus. Least Flycatcher.—This is a rather rare summer resident of the region, but a few were noted in

³ Michigan Bird Life, 1912, 402.

July and August, 1917, at Birchwood Beach, where the earliest record for 1918 was May 9. At Warren Woods it did not appear until May 15, 1919, and later a few were seen in the lower levels of the climax forest. In 1920 it was first seen May 12 at Warren Dunes, where it was quite rare.

Otocoris alpestris praticola. Prairie Horned Lark.—A rare summer resident. Recorded only May 17, 1918, in the road a mile south of Harbert, and May 27 near Warren Dunes.

Cyanocitta cristata cristata. Blue Jay.—This is a rare summer resident, but a common migrant along the dunes. In 1917 a small flock came around the resort at Birchwood Beach September 9. In 1918 it was noted April 29 and May 10; a flock of twenty was seen going north May 15; a flock of thirty and several smaller flocks went in the same direction as late as May 22. In 1919 at Warren Woods a few were seen May 7, and May 11 a flock of thirty flew north over the trees. At Warren Dunes many flocks, often up to thirty birds, were seen migrating north from May 8 to May 19.

Corvus brachyrhynchos brachyrhynchos. Crow.—A common summer resident of the region. They were found on top of the highest wooded dunes and in the wet, heavy woods back of them. At Birchwood Beach small flocks patrolled the beaches daily through July and August, 1917, and fed on the small fish cast on the shore. At Warren Woods from eight to ten were almost daily seen or heard mobbing the horned owls, and after May 15, 1919, a flock of about fifty were noted feeding on the ground of the pasture field or flying over the trees. At Warren Dunes, in 1920, we saw a few each day as they flew about the pines and lake.

Dolichonyx oryzivorus. Bobolink.—This common migrant is also a rare summer resident. A small flock was seen August 27 and September 8, 1917, in a small marsh just back of the

dune at Birchwood Beach. None were there in May or June, 1918, nor at Warren Woods in May, 1919, but several were noted in the meadows about Warren Dunes in May, 1920.

Molothrus ater ater. Cowbird.—A common summer resident of the region. It was seen singly and in flocks at Birchwood Beach after April 29, 1918. It was very common after May 5, 1919, at Warren Woods, and after April 30, 1920, at Warren Dunes, where it did much damage to the smaller birds.

Agelaius phœniceus phœniceus. Red-winged Blackbird.—A not very common summer resident. A few were seen at south pond in July and August in 1917. May 4, 1918, a flock of twenty flew north over the dunes at Birchwood Beach and about a hundred the next day. At Warren Woods a large flock was seen May 5, 1919, and a pair or two nested at the south marsh. In 1920 a few migrant flocks flew over the Warren Dunes in May, and a few pairs nested in the bushes about the north and middle ponds.

Sturnella magna magna. Meadowlark.—A not rare summer resident of the fields back of the dunes, where it nested. It was seen near Birchwood Beach May 5, 1918, at Warren Woods, in the big open pasture, May 5, 1919, and at Warren Dunes April 29, 1920, near the north pond.

Icterus spurius. Orchard Oriole.—This is a rare summer resident in the region. Two were observed in July and August, 1917, and one was reported near Lakeside by Mrs. E. K. Warren May 17, 1918.

Icterus galbula. Baltimore Oriole.—This summer resident is more common than the preceding. It was recorded in June and July, 1917, and after May 16, 1918, at Birchwood Beach, after May 8, 1919, at Warren Woods, and after May 10, 1920, at Warren Dunes.

Quiscalus quiscula œneus. Bronzed Grackle.—This common

migrant is a rather rare summer resident. Our earliest record for Birchwood Beach is May 3, 1918. At Warren Woods it was seen May 5, 1919, and not again until May 25. At Warren Dunes a small flock, evidently migrants, flew over on April 29, 1920.

Carpodacus purpureus purpureus. Purple Finch.—An abundant migrant. May 5, 1919, a large flock was noted in Warren Woods; small flocks were seen in this wood as late as May 21, generally in the tops of elm trees, feeding on the tender buds. In 1920 it was noted May 11 at Warren Dunes, but was very rare here.

Astragalinus tristis tristis. Goldfinch.—A common resident which fed singly and in flocks on the dunes and fields back of them. May 8, 1918, the writer saw 150 or more eating dandelion seeds. At Warren Woods, in 1919, it was common after May 5 at the edge of the forest. May 14, 1920, a flock of twenty were at Warren Dunes, and it was later seen along the beach.

Poæetes gramineus gramineus. Vesper Sparrow.—This is a common summer resident of the region. Seen September 10, 1918, and May 3, 1918, at Birchwood Beach. At Warren Woods it was observed May 5, 1919, and at Warren Dunes at the edge of the north pond April 29, 1920.

Passerculus savanna savanna. Savanna Sparrow. —A very rare migrant in this region. Only one was seen at the roadside two miles southeast of Birchwood Beach May 17, 1918.

Zonotrichia leucophrys leucophrys. White-crowned Sparrow.—This migrant is not a common one in the region. At Birchwood Beach it was seen from May 6 to May 17, 1918. At Warren Woods it appeared May 14, 1919, and after May 16 no more were noted.

Zonotrichia albicollis. White-throated Sparrow.—An abun-

dant migrant, arriving earlier and staying later than the preceding species. At Birchwood Beach it was seen from April 27 to May 25, 1918; at Warren Woods, in 1919, from May 5 to May 26; and at Warren Dunes from April 30 to May 20, 1920.

Spizella passerina passerina. Chipping Sparrow.—A common summer resident of the region. Our earliest record is April 27, 1918, at Birchwood Beach. At Warren Woods it was seen after May 4, 1919, and at Warren Dunes along the eastern edge, and in the road at their base, April 29, 1920.

Spizella pusilla pusilla. Field Sparrow.—This summer resident is common in the cultivated region back of the dunes. It was noted April 29, 1918, at Birchwood Beach; at Warren Woods after May 4, 1919, in the clearings and open fields; in 1920 it was seen at Warren Dunes after April and was one of the species recorded daily.

Junco hyemalis hyemalis. Slate-colored Junco.—An abundant migrant seen in flocks from April 27 to May 20, 1918, at Birchwood Beach. At Warren Woods from May 7 to 30, 1919, it was common. In 1920 there were a few from April 29 to May 12 at Warren Dunes.

Melospiza melodia melodia. Song Sparrow.—A common summer resident of the region, where it prefers the vicinity of streams and ponds. Noted at Birchwood Beach after May 3, 1918; at Warren Woods every day after May 4, 1919; and at Warren Dunes after April 29, 1920.

Melospiza lincolni lincolni. Lincoln's Sparrow.—At Birchwood Beach this was a rare migrant, as only one was seen May 13, 1918. They were quite common at the edge of Warren Dunes about the north pond from May 10 to May 15, 1920.

Melospiza georgiana. Swamp Sparrow.—This is a not common migrant and summer resident. Noted at Birchwood

Beach from May 1 to May 8, 1918. It was more common at Warren Dunes, where it was seen about the marshy ponds from May 5 to May 15, 1920.

Pipilo erythrophthalmus erythrophthalmus. Towhee.—This common summer resident was noted from July to September, 1917, and after April 27, 1918, at Birchwood Beach. At Warren Woods it was common after May 5, 1919. It was one of the most common species at the Warren Dunes after April 29, 1920, and nested in all wooded areas.

Cardinalis cardinalis cardinalis. Cardinal.—A very common resident of the dunes and the region back of them. It was abundant from July to September, 1917, and again in May and June, 1918, at Birchwood Beach. Nests were found both years. At Warren Woods it was heard or seen every day after May 4, usually in thickets. In 1920 we found it common about the ponds and over the wooded dunes.

Zamelodia ludoviciana. Rose-breasted Grosbeak.—A common migrant, but rare summer resident. May 5, 1918, several were on the sand dunes near Birchwood Beach. At Warren Woods a few were noted after May 7, 1919, while at Warren Dunes it was not recorded until May 11, 1920, and rarely later.

Passerina cyanea. Indigo Bunting.—This is a common summer resident of the dunes and bushy pastures inland. It was noted from July to September, 1917, and after May 17, 1918, at Birchwood Beach. At Warren Woods it was seen daily after May 12, 1919, and it was very common on and about the Warren Dunes after May 10, 1920.

Piranga erythromelas. Scarlet Tanager.—A not very common summer resident of the sand dunes, but more abundant in the heavy forest at Warren Woods. Our earliest record at Birchwood Beach was May 15, 1918. It appeared May 10, 1919, at Warren Woods and numbers were seen May 14 and

later. At Warren Dunes it occurred May 6, 1920, and later.

Progne subis subis. Purple Martin.—A rare summer resident. A large colony occupied two houses at Mr. E. K. Warren's summer home near Lakeside in 1918, and a small colony lived in a bird house near the south pond. April 19, 1920, several flew over the Warren Dunes at the north pond.

Petrochelidon lunifrons lunifrons. Cliff Swallow.—This species was noted only as a spring migrant at Birchwood Beach April 29, 1918, where a few in company with other swallows were flying north over the dunes.

Hirundo erythrogastra. Barn Swallow.—A common summer resident noted daily after April 28, 1918, at Birchwood Beach. At Warren Woods it was not seen until May 16, 1919, and later a few others circled over the wood. April 29, 1920, a few appeared at Warren Dunes and later a pair nested in a barn near the north pond.

Iridoprocne bicolor. Tree Swallow.—This common summer resident was first seen April 28, 1918, flying over the dunes at Birchwood Beach. Later it was found breeding about the inland ponds and streams. It was common at Warren Dunes after April 30, 1920, breeding in the dead trees at the north pond.

Riparia riparia. Bank Swallow.—A summer resident, but not very common. After May 7, 1918, a few were seen over the dunes at Birchwood Beach, and later a small colony nested in a gravel pit near Harbert. After May 3, 1920, a few were noted at Warren Dunes. All of the swallows fed over the water as well as over the dunes and cultivated fields.

Vireosylva gilva gilva. Warbling Vireo.—This summer resident was rare in the region and was only recorded at Warren Woods May 22, 1918, and at Warren Dunes after May 26, 1920.

Lanivireo flavifrons. Yellow-throated Vireo.—This is a

rare migrant and possibly an occasional summer resident. It was noted only at Warren Woods from May 14 to 30, 1919.

Lanivireo solitarius solitarius. Blue-headed Vireo.—A rather rare migrant, as only one was seen at Birchwood Beach May 5, 1918. At Warren Woods a few were recorded from May 12 to 22, 1919, and three were noted in the thick woods on Warren Dunes after May 10, 1920.

Mniotilta varia. Black and White Warbler.—This common migrant was seen at Birchwood Beach August 25, 1917, and April 29, 1918. At Warren Woods it was common from May 5 to 22, 1919, in the flood-plain and forest. In 1920 it arrived at Warren Dunes May 4 in company with other warblers, and was very common May 12, when dozens were seen all over the wooded areas.

Protonotaria citrea. Prothonotary Warbler.—This rather rare summer resident was first seen at the edge of the Galien River at Warren Woods May 15, 1918. It was more common from May 8 to 22. It well deserves its reputation, as it was usually seen in the wet buttonbush swamp feeding low over the water. At Warren Dunes only one was noted, on the middle pond, May 13, 1920.

Vermivora chrysoptera. Golden-winged Warbler.—This species was not common as a migrant and was rare as a summer resident. The only one seen at Birchwood Beach was taken May 10, 1918, in a thick huckleberry swamp. At Warren Woods there were several about the wood ponds from May 7 to 20, 1919. After May 11, 1920, a few were seen about the north pond at Warren Dunes.

Vermivora rubricapilla rubricapilla. Nashville Warbler.—This species was noted as a rare fall migrant at Birchwood Beach from September 1 to 16, 1917, and was more common in May, 1918. It was abundant at Warren Woods from May 7

to 22, 1919, and a few were seen at Warren Dunes after May 10, 1920.

Vermivora celata celata. Orange-crowned Warbler.—This rare migrant was seen only at Warren Dunes. May 11, 1920, one was noted in a small apple tree at camp and others were seen as late as May 15.

Vermivora peregrina. Tennessee Warbler.—A rather common migrant, noted August 28 to September 15, 1917, and after May 16, 1918, at Birchwood Beach in both orchards and woods. In 1919 it was common from May 22 to 30 in tops of tall trees in Warren Woods. In 1920 it was first seen at Warren Dunes May 11 and was quite common about the orchards and the woods of the dunes until May 25.

Compsothlypis americana pusilla. Northern Parula Warbler.—This rare migrant was first noted at Birchwood Beach September 6, 1917, in an apple orchard at the foot of the dunes. One was seen at Warren Woods May 15, 1919; and at Warren Dunes one was taken in hemlocks May 12, 1920.

Dendroica tigrina. Cape May Warbler.—A rather common migrant at Birchwood Beach from August 29 to September 10, 1917, in low bushes at the top of a high dune. May 16, 1918, a small flock was seen in an orchard in full bloom. At Warren Woods only one bird was noted May 8, 1919, in a willow thicket at the edge of the flood-plain. In 1920 at Warren Dunes both adult and immature birds were quite common from May 18 to 25 in the blossoming fruit trees at the edge of the dunes.

Dendroica caerulescens caerulescens. Black-throated Blue Warbler.—A common migrant of the region, seen first at Birchwood Beach September 1, 1917, and after May 9, 1918. At Warren Woods it was common from May 5 to 22, 1919,

and at Warren Dunes from May 8 to 29, 1920. Dozens were in the wooded ravines on the dunes May 12.

Dendroica coronata. Myrtle Warbler.—An abundant spring migrant at Birchwood Beach from May 2 to 30, 1919. At Warren Woods it was common after May 5, 1919. At Warren Dunes it was occasionally noted from May 10 to 17, 1920.

Dendroica magnolia. Magnolia Warbler.—A common migrant in the region. It was seen at Birchwood Beach September 4, 1917, May 6 to 18, 1918, and at Warren Woods from May 10 to 28, 1919. It was first seen at Warren Dunes May 10, 1920, and a few lingered until May 29. It is usually found in the lower tree levels or in bushes near the ground.

Dendroica cerulea. Cerulean Warbler.—This rather rare summer resident was first recorded from one found dead at Vine Cottage Place in May, 1917, by Mrs. E. K. Warren. At Birchwood Beach the only one was seen May 29, 1918, in a tall maple on top of the first dune. At Warren Woods it was more common after May 12, 1919. It was rare at Warren Dunes, where it was first noted May 20, 1920. This species breeds in thick, heavy forests.

Dendroica pensylvanica. Chestnut-sided Warbler.—A common migrant in most of the region. It was seen at Birchwood Beach May 16, 1918, and at Warren Woods from May 10 to 27, 1919. In 1920 it occurred in some numbers at Warren Dunes from May 10 to 23. None were found breeding, although it may possibly do so in the county.

Dendroica castanea. Bay-breasted Warbler.—This rather common migrant was seen at Birchwood Beach September 6, 1917, and May 15, 1918. At Warren Woods it was quite common the third week of May, 1918, and from May 12 to 28, 1919, many were seen in the lower and middle levels of

the climax forest. A few were noted at Warren Dunes after May 11, 1920, among the hemlock and beech-maple woods.

Dendroica striata. Black-poll Warbler.—A common fall and spring migrant. At Birchwood Beach flocks of them were noted after May 16, 1918. At Warren Woods a few were seen from May 17 to 26, 1919. At Warren Dunes, where it was rare, it appeared May 19, 1920, and was again seen May 29.

Dendroica fusca. Blackburnian Warbler.—This species was a rare migrant on the dunes, but was more common in Warren Woods, where it was seen May 15, 1918, and from May 7 to 30, 1919. At Warren Dunes it was noted only May 11 and 12, 1920.

Dendroica dominica albilora. Sycamore Warbler.—This rare migrant is also, possibly, a rare summer resident of the county. April 28, 1918, one was feeding in the lower branches of a maple tree at Birchwood Beach.

Dendroica virens. Black-throated Green Warbler.—This common migrant was seen both spring and fall at Birchwood Beach September 6 to 10, 1917, and May 2, 1918. At Warren Woods many were noted from May 6 to 23, 1919, and at Warren Dunes from May 10 to 25, 1920. They were usually found feeding in the tops and middle levels of the trees, and on the dunes preferred the hemlocks.

Dendroica palmarum palmarum. Palm Warbler.—This common migrant is also one of the earliest; at Birchwood Beach the writer saw several September 24, 1919, and April 30, 1918. At Warren Woods it was abundant from May 8 to 16, 1919. In 1920 it was quite common at Warren Dunes from May 3 to 19. This warbler is usually found on the ground, walking and feeding among the bushes and more open woodland.

Dendroica discolor. Prairie Warbler.—This rather rare migrant and summer resident was first seen at Birchwood Beach September 1, 1917. Numbers were at Warren Dunes after May 12, 1920. June 5 a nest with five eggs was found in a juniper bush on the lake side of the first dune, and June 7 a second nest with five fresh eggs was found a few rods farther north, built in a small red cedar about four feet from the ground. These nesting records are the farthest south for the State, as the only previous report was in Ottawa County May 26, 1879, by Dr. Morris Gibbs.

Seiurus aurocapillus. Oven-bird.—This abundant summer resident was seen at Birchwood Beach in July, August and September, 1917, and after May 5, 1918. At Warren Woods it was found after May 6, 1919, and at Warren Dunes after May 11, 1920.

Seiurus noveboracensis noveboracensis. Water-Thrush.—This migrant was first noted at Birchwood Beach August 29, 1917, and May 7, 1918. At Warren Woods one was taken May 16, 1919. It was quite common at Warren Dunes from May 5 to May 20, 1920.

Seiurus noveboracensis notabilis. Grinnell's Water-Thrush.—This migrant was not as common as the preceding subspecies. One was taken May 7, 1918, at Birchwood Beach, and a few were seen at Warren Woods after May 7, 1919, and at Warren Dunes after May 5, 1920. Both of these thrushes were found in the same habitat, usually about the edges of streams and ponds.

Seiurus motacilla. Louisiana Water-Thrush.—A not rare summer resident of Warren Woods, where several were seen after May 9, 1919. This species was found in the same habitat as the other water-thrushes, and was paired and nesting the latter half of May.

Oporornis agilis. Connecticut Warbler.—This species is usually considered a rare migrant in Michigan. At Birchwood Beach it was noted from September 5 to 10, 1917; and May 30, 1918, one was taken in the junipers on top of the first dune. On three trips to Warren Woods, May 20, 22, and 27, 1918, the writer saw a dozen or more along the Galien River and its flood-plain, but in May, 1919, it was rare in the same woods. At Warren Dunes it was quite common about the middle and north ponds from May 20 to 30, 1920. This warbler usually feeds and nests on the ground, but when flushed will light in low bushes or trees.

Oporornis philadelphia. Mourning Warbler.—This rather rare migrant was first seen at Birchwood Beach September 6, 1917; and May 24, 1918, the writer saw five in a wet bog along Willow Brook. At Warren Woods a few were observed from May 19 to May 30, 1919, about the buttonbush ponds and flood-plain of the Galien River, and on May 20, 1920, a fine male was taken here. From May 13 to June 5, 1920, at Warren Dunes, this species was seen almost daily about the edge of the north pond, also in a small willow thicket which borders the small brook running into that pond.

Geothlypis trichas trichas. Maryland Yellow-throat.—A not very common summer resident of the region studied. It was recorded at Birchwood Beach September 10, 1917, and rarely after May 6, 1918. At Warren Woods a few were noted from May 7 to 30, 1919. At Warren Dunes they were first seen May 1, and soon became quite common, as their habitat was more extensive about the bushy ponds of the vicinity.

Icteria virens virens. Yellow-breasted Chat.—This rare summer resident was first seen near Birchwood Beach by Dr. Hancock, near whose residence a pair nested in June, 1917. May 19, 1918, a male was reported at the same place by Dr.

Hancock, and May 21 Mrs. E. K. Warren saw one at Vine Cottage Place and heard his wonderful vocal performance. This is only a short distance from Dr. Hancock's, and it may have been the same bird, as he was about all of June and July, 1918. At Warren Woods a pair were at the northwest edge of the big south swamp May 24 and 26, 1919, and Dr. Hancock again reported a pair nesting at his place in June, 1919.

Wilsonia citrina. Hooded Warbler.—This is a rare migrant and a possible summer resident, as Dr. Gibbs found it nesting in Kalamazoo County June 10, 1876, and in June, 1878. Barrows, 1910, records it from several southern counties and says "it undoubtedly breeds." At Birchwood Beach an immature bird was taken on the dunes August 31, 1917, and September 4 two others were seen, one of them an adult male.

Wilsonia pusilla pusilla. Wilson's Warbler.—This not rare migrant was first seen at Birchwood Beach September 5, 1917, and as late as September 10. It was noted May 15 and 24, 1918, but was more rare than in the preceding fall. At Warren Woods only three were noted from May 15 to 21, 1918. At Warren Dunes it was quite common from May 20 to 30, 1920, in the willows about the streams and ponds.

Wilsonia canadensis. Canada Warbler.—This was not a common migrant. In 1918 a few were noted from May 15 to 25, at Birchwood Beach. At Warren Woods a few were seen from May 9 to 22, 1919, and at Warren Dunes from May 18 to June 4, 1920. This species prefers the underbrush and thickets for its habitat.

Setophaga ruticilla. Redstart.—A common summer resident seen at Birchwood Beach in July, August, and September, 1917, and after May 6, 1918. At Warren Woods it appeared daily after May 7, 1919, and at Warren Dunes after May 8, 1920. It is usually found in the middle forest levels.

Dumetella carolinensis. Catbird.—This abundant summer resident was one of the species seen daily, both on the dunes and in the woods. At Birchwood Beach it was recorded in July, August, and September, 1917, and after May 3, 1918; at Warren Woods after May 7, 1919; and at Warren Dunes after May 1, 1920. The catbird is largely a ground species inhabiting hedge-rows and thickets. At the dunes the writer found them in May, 1920, feeding daily on the seeds of the sumach.

Toxostoma rufum. Brown Thrasher.—This common summer resident was seen at Birchwood Beach from July to September, 1917, and after April 29, 1918. At Warren Woods it was not so common, but there were a few after May 4, 1919, and at Warren Dunes after April 29, 1920. This also is a ground lover; it frequents brush piles and hedge-rows during the day, but sings from the tree tops at early morning and evening.

Troglodytes aëdon aëdon. House Wren.—A very abundant summer resident, especially about the resorts. A dozen pairs or more nested at Birchwood Beach in the cottages and nest boxes put up by Mr. Sizer, and although this colony was so closely associated, no trouble was noticed as the result. April 29, 1918, at Birchwood Beach, is our earliest record. In 1919, at Warren Woods it was not so common, but was noted each day after May 4 in the deep woods as well as about the buildings. At Warren Dunes many pairs were seen after April 2, 1920, often in the thick woods.

Nannus hiemalis hiemalis. Winter Wren—A rather rare migrant. Only two or three were seen at Birchwood Beach from April 29 to May 7, 1918. At Warren Woods only one was noted May 12, 1919, about an old wood-pile. At Warren Dunes it was rare, being recorded only on April 29, 1920.

Telmatodytes palustris palustris. Long-billed Marsh Wren.—A summer resident, but very rare in the region, as but one was seen June 2, 1920, at the edge of the north pond at Warren Dunes.

Certhia familiaris americana. Brown Creeper.—This migrant was not common at any station, but a few were seen at Birchwood Beach from April 29 to May 10, 1918, and at Warren Woods from May 9 to 12, 1919. It was noted but a few times at Warren Dunes from April 29 to May 5, 1920.

Sitta carolinensis carolinensis. White-breasted Nuthatch.—This resident was very rare at all the stations, and Mrs. E. K. Warren told the writer that she had seen none since the hard winter of 1917 and 1918, and she wondered if they were not almost exterminated locally at that time. At Birchwood Beach but one was seen May 22, 1918. At Warren Woods, in 1919, one was noted May 10 and on two later dates. On May 20, 1920, one was seen in these woods by the writer.

Sitta canadensis. Red-breasted Nuthatch.—A very rare migrant. In 1919 noted but once, at Warren Woods, May 13. At Warren Dunes, in 1920, it was seen May 7 and again on May 29.

Baeolophus bicolor. Tufted Titmouse.—This is a resident but is not common. There were a few at Birchwood Beach July to September, 1917, and after May 4, 1918. At Warren Woods it was often seen after May 8, 1919, and was noted again on May 20, 1920.

Penthestes atricapillus atricapillus. Chickadee.—A resident but rather rare in the region. At Birchwood Beach a few were seen July to September 10, 1917, and in 1918 from April 29 to June 1. At Warren Woods a few were noted after May 7, 1919. In 1920 it was more common at Warren

Dunes after May 1. Residents here thought many were killed during the winter of 1917.

Regulus satrapa satrapa. Golden-crowned Kinglet.—This migrant was not very common in the region. It was seen at Birchwood Beach but a few times in May, 1918, and at Warren Dunes April 29 and 30, 1920.

Regulus calendula calendula. Ruby-crowned Kinglet.—An abundant migrant. At Birchwood Beach dozens were seen daily from April 29 to May 15, 1918. At Warren Woods it was common from May 7 to 22, 1919, and at Warren Dunes from April 29 to May 17, 1920. The kinglets prefer the tops of the trees, but sometimes feed in low bushes.

Poliophtila cærulea cærulea. Blue-gray Gnatcatcher.—A rather rare and local summer resident, as it was found only in Warren Woods. Several were noted May 15 and 20, 1918; and May 6 to 27, 1919, it was seen almost daily, and was noted again on May 20, 1920. This species prefers the middle tree levels and nests in the tops of the lower trees.

Hylocichla mustelina. Wood Thrush.—A common summer resident. It was noted at Birchwood Beach July to September, 1917, and May 17 to 20, 1918. After May 5, 1919, it was seen at Warren Woods. A nest with three eggs was found May 26, 1919, four feet from the ground. At Warren Dunes it was seen after May 5, 1920. Its habitat is the ground and underbrush of the heavy forest.

Hylocichla fuscescens fuscescens. Veery.—A common migrant and occasional summer resident. At Birchwood Beach it was seen August 30, 1917, and after May 11, 1918. At Warren Woods it was abundant after May 7, 1919, and a nest was found May 25 built twenty feet from the ground in a small maple.

Hylocichla alicia alicia. Gray-cheeked Thrush.—A rare

migrant in the region. At Warren Woods it was noted but three times after May 16, 1919. At Warren Dunes a few were seen after May 3, 1920, usually on the ground or low bushes.

Hylocichla ustulata swainsoni. Olive-backed Thrush.—A very common migrant at Birchwood Beach after August 29, 1917, and after May 15, 1918. At Warren Woods it was abundant from May 6 to 12, 1919. This species was usually seen on the ground about wet places in the heavy forest.

Hylocichla guttata pallasi. Hermit Thrush.—This common migrant is also the earliest of all the thrushes. It was noted April 28, 1918, at Birchwood Beach and at Warren Woods May 5 to May 10, 1919. At Warren Woods it was noted on our arrival April 30, 1920, but was gone by May 11. Like all the thrushes, this was usually seen on or near the ground.

Planesticus migratorius migratorius. Robin.—This summer resident was not very common about the dunes, but was more common on the farms back of them, and during migration it became abundant. At Warren Woods in 1919 a few were seen about the edge of the woods, but seldom in the heavy forest. At Warren Dunes it was noted on our arrival, April 29, 1920, but was a rare breeder in the region. One nest was found in a small fruit tree near our camp. The region is sandy and the scarcity of worms may be the cause of the rareness of this species.

Sialia sialis sialis. Bluebird.—This is a summer resident, but is common only during migration. At Birchwood Beach very few were found nesting in 1917-18. At Warren Woods in 1920 only three pairs nested in the orchards near the edge of the woods. At Warren Dunes it was noted on our arrival, April 30, 1920, but very few nested here. This species prefers cultivated areas and the vicinity of orchards for its habitat.

