

## THE BREEDING BIRDS OF ASHTABULA COUNTY, OHIO

BY LAWRENCE E. HICKS

Ashtabula County, located in the extreme northeastern corner of the state and bordering on Lake Erie and northwestern Pennsylvania, has preserved more relics (both in number of individuals and species) of the northern and northeastern flora and fauna than any other Ohio county. Various physiographic and historical influences, poor drainage of heavy soils having a high water table and a high rainfall-evaporation ratio, have combined to produce in many of the little disturbed areas, cool, moist, humid environments suitable to the preservation of many species now rare or absent in other portions of the state.

Ashtabula is the largest Ohio county, having 687 square miles. The important natural features and the localities of particular ornithological interest can best be located by referring to the accompanying topography map. The county can be divided into two distinct areas, a lake plain belt averaging about three miles in width, and an upland area, including all of the area south of the lake plain. These two areas are separated by a distinct east-and-west escarpment known as the South Ridge, and by a sudden rise from the lake plain to the upland area. Another ridge, North Ridge, parallels about a mile to the north. These ridges are of sandy and gravelly materials and represent the former shore line levels of glacial lakes formed in the past when ice dams blocked the present outlets of the Great Lakes System.

The present lake shore consists of a cliff cut in the till sheet and varying from 10 to 90 feet in height. The lake plain is nearly level, sloping gently to the north, except where affected by stream erosion. Several fine small marshy areas, swamp forests, and ponds are to be found in the lake plain belt. To the east generous remnants remain of the original forest of hemlock, chestnut, and white pine and many of their accompanying species.

Three large streams, Conneaut River, Ashtabula River, and Grand River, flow into Lake Erie. All have remarkably tortuous channels and have cut very deep gorges with rich flora combinations and extreme variations in light and moisture conditions. A branch of the Grand River, Phelps Creek, has cut a similar gorge in the southwestern corner of the county, where many southern species are found which do not occur elsewhere in the county. Another large branch of the Grand, Rock Creek, arises in the large swampy Orwell Bog. This bog is a part of the famous Bloomfield Bog area of Trumbull County and at one time was truly remarkable in many ways, but has had most of its fine features destroyed by the activities of man.

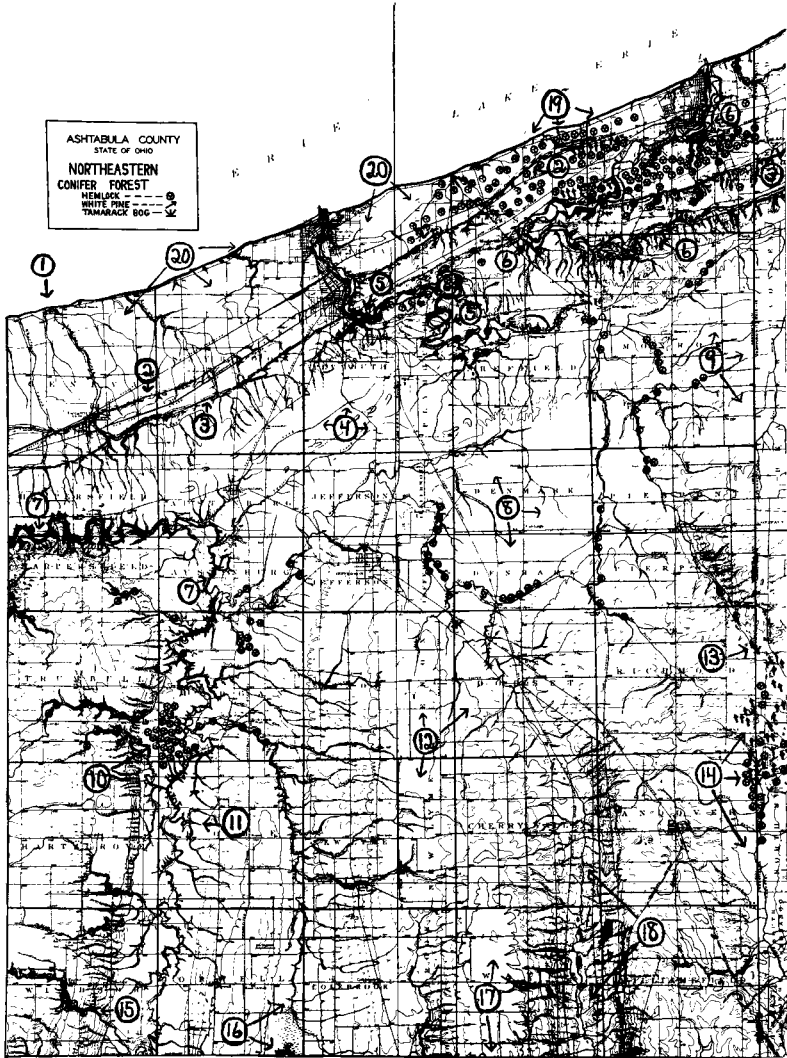


FIG. 11. Map of Ashtabula County, Ohio. This map has been prepared from the Ashtabula, Conneaut, Orwell, and Andover quadrangles of the United States Geological Survey. Stamped overprint indicates the original areas of hemlock, white pine, and tamarack forest. The circled numbers designate the following localities of particular ornithological interest: 1. Geneva-on-the-Lake Marshes. 2. North Lake Ridge. 3. South Lake Ridge. 4. Plymouth Marshes. 5. Ashtabula River Gorge. 6. Conneaut River Gorge. 7. Grand River Gorge. 8. Denmark Township Upland Flats. 9. Eastern Monroe Township. 10. Morgan Swamp. 11. Lake Cardinal. 12. Upland Flats of Lenox, Dorset, and New Lyme Townships. 13. Penn-Line Bog. 14. Pymatuning Bog-Shenango River. 15. Phelps Creek Gorge. 16. Orwell Bog. 17. Wayne Township Upland Flats. 18. Pymatuning River. 19. Lake Belt Hemlock Forests. 20. Lake Belt Swamp Forests.

West of the Grand River, the land rises abruptly by a series of terraces to the upland, much of which is poorly drained and forested by wet beech flats, swamp forest or swamp oak species. Morgan Swamp was formerly a large area covered mostly by a dense hemlock forest. Though sadly exploited, many fine species of flora and fauna still remain. Lake Cardinal, along the east bank of the Grand, is attractive to many bird species. Most of the townships to the south and east, especially Wayne, New Lyme, Lenox, Cherry Valley, Dorset, Denmark, and eastern Monroe, have large areas of upland heavy wet soils covered with little disturbed second growth thickets and swampy forests. The water table is high and the forests very cool with high humidities. Many rare northern plant and animal species occur in regular abundance, the forest floor frequently being carpeted with sphagnum moss or dense growths of ferns or club mosses.

Mosquito Creek, the Shenango River, and the Pymatuning River are the only streams flowing south into the Ohio-Mississippi drainage. The latter stream, especially, has a broad valley with numerous branches and extensive swampy or boggy areas attractive to many rare species. Several boggy areas, including the fine Penn-Line Bog, occur at the headwaters of the Ashtabula River.

The Pymatuning Bog is a crescent-shaped area of about twenty-five square miles of mostly wooded swamp and bog. The major part of the Pymatuning Bog is in Pennsylvania, but the Ohio portion originally covered about 2,200 acres in Richmond, Andover, and Williamsfield townships. The Ohio part, though not so extensive, included some of the best parts of the whole area. All of the bird species reported by Sutton from the Pennsylvania side have been found breeding on the Ohio side and the writer has been able to find but one species of vascular plant in the whole Pymatuning area which has not been collected in the Ohio portion.

The author first became interested in the flora and fauna of Ashtabula County in 1924. For three years thereafter only a limited amount of field work was done, as the area was not readily accessible. During the summer of 1928 and 1929, he was able to engage in field work in the county for the United States Bureau of Plant Industry. Hundreds of miles were covered on foot, systematically surveying areas of all types and penetrating into almost inaccessible thickets, bogs, and swamps, or covering very mediocre appearing localities which might have been considered unproductive and avoided in a biological survey. Thus a most valuable cross-cut study was made of

seven townships of the county and special trips were made to all other areas of importance.

During the summer of 1930 considerable time was spent in the county while making some special studies of the Ruffed Grouse for the Ohio Division of Conservation. In 1932 part of June and nearly all of August and September were spent in revisiting every square of land in the county and checking all previous observations made. During the eight-year period, all other time available during the growing season, was spent in the county or in related studies in Pennsylvania (Pymatuning Bog and Allegheny National Forest), southern Ontario, western New York (Allegheny State Park), and the White Mountains. This made it possible to become thoroughly acquainted with the characteristic northern flora and fauna and to compare and relate these areas with conditions in northeastern Ohio.

My records show the following field work for Ashtabula County:

Year	Days in Field	Hours in Field	Miles on Foot	Miles by Auto
1925 .....	9	68	84	270
1926 .....	11	118	107	445
1927 .....	14	153	148	572
1928 .....	103	1102	984	4084
1929 .....	71	88	702	3550
1930 .....	31	342	407	3280
1931 .....	28	301	291	2530
1932 .....	47	561	421	5180
Total .....	314	2733	3144	19911

During this time special ecological studies were made of the breeding bird species and attempts were made to correlate their distribution and numbers with various environmental factors. An attempt was made to collect all of the vascular plants occurring in the county. The state herbarium and my own herbarium now have a total of approximately 4,000 Ashtabula specimens, representing 1,547 vascular plant species. A large number are very rare plants and twenty-nine native species are now known to occur which are unknown elsewhere in Ohio. This is the largest total list and also the largest list of native plants known from any Ohio county. Wherever unusual plant combinations were found ornithological rarities usually accompanied.

The present paper is an attempt to make an accurate historical record of the status of each breeding species of the county. The study on which it is based was a timely one for undisturbed tracts of northeastern types are very rapidly disappearing. Pronounced changes have taken place during the eight years of the study. The breeding

warbler and water bird populations have shifted surprisingly in many localities. Plant life has shown even more conspicuous effects. The foremost influence has been drainage and the rapid lowering of the water table, coupled with the drouth effects of 1930. Lumbering and agricultural operations have made big changes. Most regrettable has been the complete destruction of the Ohio portion of the Pymatuning Bog during 1932 in the construction of a new reservoir. It seems probable that several species will be eliminated as breeding species by these changes and many will be considerably reduced in numbers.

The distribution and abundance of many species of breeding birds are closely linked with the forest types present in the county. The area was formerly heavily forested, small parts of which have never been molested. Extensive areas were only partially lumbered so that many localities now have forests rather similar to the original ones. Many of the heavy soils proved unprofitable for farming, especially after the decline of the dairying industry. Thus hundreds of abandoned farms occur, giving shelter to plant and animal life which would otherwise have disappeared. Many large undrained tracts of 100 to 500 or more acres occur in most sections, representing dozens of mixed combinations in the various stages of reversion to the original forest. This provides a variety of habitats favorable to the support of species of unlike requirements and a diversity and interspersion of types capable of sustaining large numbers of birds per unit of area.

Fine examples of all of the original forest types still remain, occurring in not far from their original proportions, though reduced in area by the cleared land and by the secondary forests and thickets of spice bush, witch hazel, trembling aspen, black cherry, hickory, and white elm. All of the original and present vegetation types occurring in the county were carefully mapped. Types originally represented and the percentage of the total area of the county devoted to each, were approximately as follows: beech-sugar maple, 57%; wet beech flats, 11%; oak-hickory, 4%; oak-chestnut, 10%; white elm-white or black ash-red maple, 10%; hemlock-beech or hemlock-chestnut, 4%; swamp oak, 2%; white pine-chestnut or white pine-hemlock, 1%; tamarack bog, less than 1%.

A beautiful series of succession changes takes place in the bird life of an open area as it is invaded by forest and passes through the thicket stages to a mature sugar maple-beech forest. The forest crown forms and closes over. The temporary species, the lower branches, and all but the most successful individuals, disappear. Great changes take place in the undergrowth and amount of dead tree parts. Various



FIG. 12. A second growth swamp forest in southern Wayne Township, typical of numerous similar areas throughout the county, where a large portion of the forest floor is covered with shallow pools of water throughout the summer months. The constant water supply, low temperature, and high humidities have preserved in abundance many rare northern species.



FIG. 13. Luxuriant growth of cinnamon fern in the Pymatuning Bog among tamarack, cranberry tree, and hobblebush. The ground cover is of gold-thread, Clinton's Lily, twin flower, and Dalibarda. Four species of club mosses are common. Sixteen species of warblers nest here.

local conditions may accelerate or retard these changes and variations occur when some other climax type develops. It is extremely fascinating and illuminating to correlate these successions with the successions occurring simultaneously in the bird life.

When from one to ten feet high the tree growth consists mostly of sprouts and seedlings of temporary species and there are large open spaces between the crowns. At this stage five bird species predominate, the Indigo Bunting, the Field Sparrow, the Blue-winged Warbler, the Chestnut-sided Warbler, the Towhee, and in moist areas, the Northern Yellow-throat. When from about ten to eighteen or twenty feet high, the forest crown converges and slowly closes over and soil humus begins to accumulate. The species named begin to disappear and are replaced by the Robin, Red-eyed Vireo, Ovenbird, Rose-breasted Grosbeak, Goldfinch, and Least Flycatcher. When from twenty to thirty-five or forty feet the temporary species disappear, herbacious plants develop on the forest floor and in certain localities young hemlocks begin to develop. The last named species continue and several new ones come in, including the Ruffed Grouse, Scarlet Tanager, Junco, Black-capped Chickadee, and Blue Jay.

At from thirty to fifty feet the smaller dead trees begin to appear, having been overtopped and starved out due to shading by more successful individuals. The Black-throated Green Warbler and in some areas the Blue-headed Vireo appear at this stage. At from fifty to sixty-five feet many large dead trees appear. The Rose-breasted Grosbeak now drops out and a large number of new species come in, including the Wood Thrush, Hairy and Downy Woodpeckers, Crow, Magnolia Warbler, Veery, and in certain areas, the Black-throated Blue Warbler and the Blackburnian Warbler. Finally at from sixty-five to ninety feet the mature forest develops, having numerous old logs and stumps. Where subjected to storms, windfalls and upturned roots modify the habitat. By this time considerable undergrowth has developed which shades out the smaller herbacious plants of the forest floor. The Robin, Ruffed Grouse, and Black-capped Chickadee now disappear and the Wood Pewee, White-breasted Nuthatch, and perhaps the Hooded Warbler, occur for the first time.

Other special studies were made of nesting activities, number of eggs, seasonal variations, extremes of nesting dates, yearly fluctuations and the percentage of successful nestings. The results obtained will be compared with those of studies in other portions of the state and reported upon later. Most of the field work was done individually but on numerous occasions the writer was accompanied on field trips by

S. V. Wharrum, of Austinburg, Robert H. McCormick, of the Ohio Division of Conservation, Charles F. Walker, of the Ohio State Museum, Ray T. Everley, of the United States Bureau of Entomology, Roscoe W. Franks, of the Baldwin Bird Research Laboratories, Roger Conant, of the Toledo Zoological Society, or by various agents of the United States Bureau of Plant Industry. The writer wishes to thank them for frequent valuable assistance in some of the field studies. Only a limited amount of collecting of bird specimens was done as the species involved were all readily identifiable under field conditions and extensive collecting would have made it necessary to curb much of the study program. A number of skins or eggs of the unusual species are to be found in the collections of Otterbein College and the Ohio State Museum. Field workers from the Cleveland Museum of Natural History have also made numerous collections in the Pymatuning Bog region.

The total number of bird species recorded from Ashtabula County which can be regarded as certain breeding species totals 154. The actual breeding of 145 of these has been established by the finding of nests with eggs or young. Juvenile birds, capable of flight, have been observed in the breeding season of most of the remaining species, but these can hardly be interpreted as positive breeding records.

Mr. George M. Sutton, who made a study of the birds of the Pennsylvania portions of the Pymatuning Swamp, listed 134 birds which he considered as nesting species. All of these have been recorded in the Ohio portion of the swamp or elsewhere in the county. Twenty-one species not listed by Sutton for Crawford County, Pennsylvania, are now known as breeding species in Ashtabula County.

The following species on the Ashtabula County list were not regarded definitely as breeding species in Ohio by either Jones or Dawson: Broad-winged Hawk, Eastern Pigeon Hawk, Yellow Rail, Wilson's Snipe, Yellow-bellied Sapsucker, Least Flycatcher, Olive-sided Flycatcher, Red-breasted Nuthatch, Brown Creeper, Hermit Thrush, Blue-headed Vireo, Nashville Warbler, Magnolia Warbler, Black-throated Blue Warbler, Blackburnian Warbler, Pine Warbler, Grinnell's Water-Thrush, Canadian Warbler, Purple Finch, Pine Siskin, Slate-colored Junco, White-throated Sparrow.

At least seventeen other species were recorded in the county during what would be considered the breeding season, but none of them nest. These are: American Egret, Little Blue Heron, Black-crowned Night Heron, Pintail, Shoveller, Osprey, Duck Hawk, Solitary Sandpiper, Greater Yellow-legs, Lesser Yellow-legs, Red-backed Sandpiper,



Semipalmated Sandpiper, Least Sandpiper, Herring Gull, Ring-billed Gull, Common Tern, and Caspian Tern.

Due to drainage resulting in lowering of the water table, and to forestry and agricultural activities, for the most part, the following species can be considered as decreasing in numbers: Broad-winged Hawk, Marsh Hawk, Virginia Rail, American Woodcock, Wilson's Snipe, Yellow-bellied Sapsucker, Least Flycatcher, Tree Swallow, Prairie Marsh Wren, Short-billed Marsh Wren, Veery, Magnolia Warbler, Grinnell's Water-Thrush, Slate-colored Junco, and White-throated Sparrow. To these should be added those rare species known solely or chiefly in the now destroyed Pymatuning Bog.

In the following annotated list the scientific name is followed by a number which indicates the number of nesting records obtained for that species. For the most part this number includes only nests of the species found containing young or eggs. In a few of the rarer species, or those building nests very difficult to locate, the number includes as a nesting record young birds just out of the nest and not capable of sustained flight, even though the actual nest was not found. Birds designated as general occur in at least twenty-five of the twenty-eight townships of the county. Birds listed as rather general probably occur in at least eight or ten scattered townships. Birds having a very discontinuous distribution or occurring in only very small isolated areas are listed as local. The nomenclature used is that of the Fourth Edition (1931) of the A. O. U. Check-List.

#### ANNOTATED LIST

[This list includes 154 breeding species]

**PIED-BILLED GREBE.** *Podilymbus p. podiceps*. (2). A rare and irregular summer resident. One nest with eight eggs was found at Ashtabula Harbor pond in July, 1930, and an old bird was seen repeatedly with small young in the marsh at Geneva-on-the-Lake in June, 1931.

**GREAT BLUE HERON.** *Ardea h. herodias*. Formerly a large colony was located near Jefferson but continued cutting of the nesting trees caused the birds to desert. Two new colonies have been established, neither of which are within the confines of the county, although the birds feed rather commonly over the whole area. One colony was established about 1920 south of Orwell at the junction of Phelps Creek and the Grand River on the Griswold estate, Mesopotamia Township, Trumbull County. The nests, however, are located only a few rods from the Ashtabula County line. They are in beech, sour gum, and red maple trees. This heronry increased to about sixty nests in 1930,



FIGURE 15



FIG. 14. A living tree with decayed heart, in Pymatuning Bog, which has been trademarked by the Pileated Woodpecker. This is the haunt of the Veery, the Sapsucker, the Grinnell's Water-Thrush. Beneath the poison sumac and the royal and cinnamon ferns, the rare painted trilliums, pink lady's slippers, and Pennsylvania saxifrage grow in abundance.



FIGURE 14



FIG. 15. Open areas of sedges, rushes, or cattails in the Pymatuning Bog which are being invaded by tamarack. In such situations three species of rails, Wilson's Snipe, and the Prairie Marsh Wren breed.

but due to cutting of trees and shooting, was reduced to seventeen nests in 1932. The second colony is located south and east of Conneaut across the line a short distance in Pennsylvania, adjacent to the Frank Joiners farm in Beaver Township, Erie County. In 1932 sixteen nests were built.

EASTERN GREEN HERON. *Butorides v. virescens*. (8). General and fairly common but not nearly so numerous as one would expect from the habitats available.

AMERICAN BITTERN. *Botaurus lentiginosus*. (6). Rather rare, a few pairs nesting locally in especially favorable situations.

EASTERN LEAST BITTERN. *Ixobrychus e. exilis*. (2). Rare. Two nests with eggs were found in Pymatuning Bog on July 11, 1928, and in Plymouth Marshes on August 3, 1929.

COMMON MALLARD. *Anas p. platyrhynchos*. (2). Very rare and local. A hen bird with six ducklings was studied on a small woodland pond in the Plymouth Marshes, July 4, 1929; and a nest with twelve eggs was found at the Geneva-on-the-Lake Marsh on June 14, 1932.

COMMON BLACK DUCK. *Anas rubripes tristis*. (5). Rare and local. Old birds with small young were recorded four times, and a nest with nine eggs was found at a small pond south of Ashtabula on June 12, 1931.

BLUE-WINGED TEAL. *Querquedula discors*. (1). Very rare. Three adults seen in the breeding season, including a hen with six ducklings at Ashtabula Harbor pond on July 3, 1929.

WOOD DUCK. *Aix sponsa*. (8). A rare but regular resident locally. Formerly not uncommon in the Plymouth Marsh region but disappearing with the general lowering of the water table. Young birds were recorded on seven occasions and one nest found in Wayne Township on June 10, 1930.

TURKEY VULTURE. *Cathartes aura septentrionalis*. (8). General but rather uncommon except locally. Much more frequent in late summer and during migrations. Three nests were located in fallen hollow logs, four in hollow broken stubs, while the eighth record is of two half-grown birds which clambered about a brush pile in Wayne Township. The eggs, apparently, had been placed in a small depression on the ground between the roots of a tree stump which was partially covered by the brush pile.

SHARP-SHINNED HAWK. *Accipiter v. velox*. (2). Rare, though more common than sight records of adults would indicate. A nest with five eggs was found along the lower Grand River near the Lake County line in a tall white pine on July 12, 1928, and a second with four

newly hatched young in the white pine forest at Farnham along the Conneaut River on June 14, 1931.

COOPER'S HAWK. *Accipiter cooperi*. (6). Uncommon to rare and local. Most frequent along the Conneaut, Ashtabula, and Grand Rivers. A nest found in a hemlock at Phelps Creek on July 21, 1929, contained two hatching eggs and a young bird which could have been no less than ten days old.

EASTERN RED-TAILED HAWK. *Buteo b. borealis*. (18). General and fairly common.

NORTHERN RED-SHOULDERED HAWK. *Buteo l. lineatus*. (3). Local and uncommon to rare.

BROAD-WINGED HAWK. *Buteo p. platypterus*. (3). Very rare and local. Three nests; three young on July 12, 1928, in Wayne Township; four young on July 12, 1930, at Pymatuning Bog; and four eggs on June 13, 1931, in eastern Monroe Township.

NORTHERN BALD EAGLE. *Haliaeetus leucocephalus alascanus*. (10). Adults rather frequently seen in summer, especially near the lake shore and along the three large rivers emptying into the lake. Sometimes several adults and a number of the immature are seen at the same time but there is no evidence of more than one pair nesting each year, at least in recent years. Residents report that eagles have nested somewhere in Saybrook or Geneva Townships for at least seventy years, the nests usually being placed in numerous suitable forest tracts within one or two miles of the lake shore. In the last eight years no less than ten nests have been built at six different locations, the first nest having been destroyed by storms on two occasions.

MARSH HAWK. *Circus hudsonicus*. (18). Numerous nests have been found due to much work in suitable locations, but the species must be regarded as a rather uncommon and local summer resident.

EASTERN PIGEON HAWK. *Falco c. columbarius*. Adults have been recorded fourteen times during the breeding season, mostly along the Conneaut, Ashtabula, and Grand River gorges. Although no nests have been found the species certainly breeds. In August, 1932, an adult was seen repeatedly along the lower Grand River near the Lake County line, and on August 18 an immature of the species was seen with an adult.

EASTERN SPARROW HAWK. *Falco s. sparverius*. (19). General and common.

EASTERN RUFFED GROUSE. *Bonasa u. umbellus*. (16). Occurs at least sparingly in every township and is often locally common to abundant, especially to the south and east. There has been consid-

erable fluctuation in numbers during the eight years of field work. Special studies of this species made in part for the Ohio Division of Conservation, will be reported upon later. From July 5 to September 29, 1928, 848 miles were covered on foot and 309 grouse recorded, or four per day. In 1929, from July 5 to August 1, 186 grouse were counted in 263 miles, or seven per day. Most of these birds were seen in Wayne, Williamsfield, Cherry Valley, Andover, Monroe, and Orwell Townships.

EUROPEAN PARTRIDGE. *Perdix p. perdix*. (3). The county game protector liberated twenty-four adult birds in Cherry Valley Township in the spring of 1930. At least two broods of young were raised that year and a nest with twelve eggs was found in the southwestern corner of the township on June 14, 1931. No trace of the birds was found in 1932 and it is believed that they will soon entirely disappear, as the county is not suited to their requirements.

EASTERN BOB-WHITE. *Colinus v. virginianus*. (32). General and common to uncommon or rare. Numbers are everywhere less than are to be found in most other counties of the state. Much of the county is too northern in its general aspects to be suitable for the species and it appears to be entirely absent from a number of large tracts rich in boreal flora and fauna.

RING-NECKED PHEASANT. *Phasianus colchicus torquatus*. (4). Pheasants have been planted repeatedly in the county, and recently a number of pairs nearly every year. The birds survive but do not increase to any great extent and do not hold up very well under hunting. They appear to be entirely absent from about half of the townships and range from rare to locally common in the remainder.

EASTERN TURKEY. *Meleagris gallopavo silvestris*. Reported by the older residents to have been at one time a general resident of the county, being locally common to abundant, especially in the Pymatuning Bog area. The last birds seem to have disappeared about 1880.

KING RAIL. *Rallus e. elegans*. (2). Very rare and local. A nest with seven eggs was found at the Ashtabula Harbor pond on June 30, 1928, and an adult with at least four young at Pymatuning Bog on June 15, 1931.

VIRGINIA RAIL. *Rallus l. limicola*. (8). Rather general in suitable areas but local and rather uncommon.

SORA. *Porzana carolina*. (2). Rather rare though much more frequent than adults seen would indicate. One nest with eight eggs at Geneva-on-the-Lake Marsh on June 6, 1925, and another with ten eggs in the Pymatuning Bog, July 7, 1929.

YELLOW RAIL. *Coturnicops noveboracensis*. No nests found but an adult seen in the Pymatuning Bog, July 2, 1928, and an immature bird about half grown found dead at the same place on the Pennsylvania-Ohio line, August 9, 1932.

FLORIDA GALLINULE. *Gallinula chloropus cachinnans*. (2). Rare and irregular summer resident and not known except along the lake shore. An adult observed with four young at Geneva-on-the-Lake Marsh on August 8, 1924, and a nest with seven eggs was found at Ashtabula Harbor pond on June 12, 1931.

AMERICAN COOT. *Fulica a. americana*. (1). Rare and irregular summer resident and not recorded except near the lake shore. One nest with eleven eggs found at Geneva-on-the-Lake Marsh on July 3, 1928.

PIPING PLOVER. *Charadrius melodus*. (1). Though repeatedly searched for, this species was unknown until June 16, 1933, when Floyd B. Chapman and the writer collected a set of three eggs on West Ashtabula Beach.

KILLDEER. *Oxyechus v. vociferus*. (31). General and common to abundant.

AMERICAN WOODCOCK. *Philohela minor*. (18). General and locally common to abundant. The species nests early before the majority of the field work was done, but six nests were found with eggs in June, three in July, and one nest with four eggs hatched in Wayne Township on August 7, 1928. During the summer months family groups with young were frequently encountered. In 1928 the number of birds recorded by months was as follows: July, 143; August, 101; and September, 96. In 1929, 205 were found during the month of July. Drainage with resultant lowering of the water table and the effects of the drouth of the summer of 1930 have greatly reduced the number of breeding birds and the habitats suitable for the species. The woodcock migrates early and many of the birds seen during the latter part of the summer are not to be regarded as breeding birds. On twelve occasions more than 100 birds were counted per day during the fall migration.

WILSON'S SNIPE. *Capella delicata*. (7). Recorded from twelve localities in the eastern and southern parts of the county during the summer season, and sometimes rather common locally though seldom observed. The nests are difficult to locate, only one being found, Pymatuning Bog, May 30, 1931, with four eggs. Adults with young were seen on six occasions: southern Wayne Township, July 6, 1928, June 30, 1929, and June 13, 1932; Plymouth Marshes, May 30, 1930;

Pymatuning Bog, July 2, 1929, and June 14, 1932. The species varies greatly from year to year with fluctuation in the water level and is rapidly disappearing with increased drainage and cultivation or burning of the marshy tracts of cattails and sedges. In 1928 a careful census on several successive evenings indicated that no less than fourteen pairs were breeding in the Ohio portion of the Pymatuning Bog or within three-quarters of a mile of the state line. In 1929 about sixteen pairs bred, in 1930 only six pairs were indicated, in 1931, eleven pairs, and in 1932, eight pairs.

UPLAND PLOVER. *Bartramia longicauda*. (6). Rather general but uncommon, local and somewhat variable from year to year. More frequent to the south.

SPOTTED SANDPIPER. *Actitis macularia*. (7). Local and uncommon to the south but common to abundant near the lake shore.

BLACK TERN. *Chlidonias nigra surinamensis*. (2). Very rare and irregular summer resident. One pair nested at Geneva-on-the-Lake Marsh, July 3, 1928, and another at Ashtabula Harbor pond, June 16, 1932.

EASTERN MOURNING DOVE. *Zenaidura macroura carolinensis*. (164). General and abundant.

PASSENGER PIGEON. *Ectopistes migratorius*. Formerly irregularly very abundant in the county and nesting in small numbers according to numerous reports of old residents of the county. Pigeons were said to be numerous in the Pymatuning Bog region, the Plymouth Marshes, and in the Orwell Bog, where large roosts existed for several years. The birds apparently became scarce after about 1870 and were not reported at all after 1890.

YELLOW-BILLED CUCKOO. *Coccyzus a. americanus*. (14). General but not common and rather local.

BLACK-BILLED CUCKOO. *Coccyzus erythrophthalmus*. (28). General though local, ranging from rare to abundant; especially common in the large areas of aspen thickets and bordering the boggy or swampy areas. Probably three or four times as common as the preceding species.

BARN OWL. *Tyto alba pratincola*. (3). Apparently generally distributed but rare, especially in the areas characterized by northern species.

EASTERN SCREECH OWL. *Otus asio naevius*. (7). More common than the preceding but rare compared to its numbers in most other areas of the state.

GREAT HORNED OWL. *Bubo v. virginianus*. (12). General but rather uncommon.

NORTHERN BARRED OWL. *Strix v. varia*. (6). Well distributed but uncommon.

LONG-EARED OWL. *Asio wilsonianus*. (2). Local and rare except in the Pymatuning Bog region. Two nests found with young: Pymatuning Bog, July 8, 1929, and lower Grand River near the Lake County line, June 10, 1931.

SHORT-EARED OWL. *Asio f. flammeus*. (2). Rare and local. Two nests found, both with young: Plymouth Marshes, May 30, 1930, and Pymatuning Bog, May 31, 1931.

SAW-WHET OWL. *Cryptoglaux a. acadica*. (2). Rare though probably undetected in many localities. Adults recorded twelve times from seven localities during the summer season. A family group of two adults and four young were observed near Austinburg, July 4, 1928. A nest with three young located in the Pymatuning Bog in a hollow stub in a hemlock grove, was found May 30, 1931.

EASTERN WHIP-POOR-WILL. *Antrostomus v. vociferus*. (2). Rather rare and local. The two nests found were in the Phelps Creek region.

EASTERN NIGHTHAWK. *Chordeiles m. minor*. (7). Not known to nest in natural situations anywhere in the county. Several pairs nest regularly on the roofs of buildings at Ashtabula, Conneaut, and Geneva. Occasionally one or two pairs nest at Andover, Jefferson, and North Kingsville. Not known to occur elsewhere.

CHIMNEY SWIFT. *Chaetura pelagica*. (28). Abundant, even in most of the rural districts, where it builds numerous easily observed nests in the chimneys of the hundreds of abandoned farm houses.

RUBY-THROATED HUMMING BIRD. *Archilochus colubris*. (11). Common to abundant. Most of the nests found were on small downward sloping branches of trees arching over small streams. Most of the nests were built in July and three sets of eggs did not hatch until after August 15.

EASTERN BELTED KINGFISHER. *Megaceryle a. alcyon*. (12). Common. More frequent to the north and along the lake shore.

NORTHERN FLICKER. *Colaptes auratus luteus*. (58). Abundant.

NORTHERN PILEATED WOODPECKER. *Ceophloeus pileatus abieticola*. (18). Adults have been recorded in summer from all but one of the twenty-eight townships in the county. The species ranges from rare to very common, being most numerous to the east and south. Forest areas are well distributed and due to the general high humidity of these tracts, injured trees decay rapidly producing an abundance of



large insect-infested stubs. During mating activities, from five to seven adults have been observed at one time on numerous occasions. Several nests were found in the Pymatuning Bog area, Denmark Township, and Wayne Township, where the birds could on occasion be approached closely and observed for hours at a time. The species is everywhere much commoner than the preliminary field investigations would seem to indicate; a thorough knowledge of the locality, the habits of the birds, and the various call notes being necessary to accurately census an area. The number of birds recorded on field trips of the last five years was as follows: 1928, 46; 1929, 37; 1930, 28; 1931, 44; and 1932, 78.

RED-BELLIED WOODPECKER. *Centurus carolinus*. (3). Rare but found occasionally in most localities except those characterized by northern forms.

RED-HEADED WOODPECKER. *Melanerpes erythrocephalus*. (46). General and common to abundant, except in some of the poorly drained or northern areas.

YELLOW-BELLIED SAPSUCKER. *Sphyrapicus v. varius*. (16). Very local but observed in twelve different localities in summer, mostly in the eastern and southern townships. The species seems to be disappearing rapidly with drainage and continued timbering but is still not uncommon locally in the Pymatuning Bog area and in parts of Wayne and Denmark Townships. Most of the nests were found in yellow birch snags in the wet beech flat tracts or in aspen stubs bordering boggy areas. The adults are observed with difficulty during the nesting season and can easily be missed in a tract having several breeding pairs.

EASTERN HAIRY WOODPECKER. *Dryobates v. villosus*. (21). General and common to abundant.

NORTHERN DOWNY WOODPECKER. *Dryobates pubescens medianus*. (46). General and abundant.

EASTERN KINGBIRD. *Tyrannus tyrannus*. (18). General and common to abundant.

NORTHERN CRESTED FLYCATCHER. *Myiarchus crinitus boreus*. (14). General and common.

EASTERN PHOEBE. *Sayornis phoebe*. (87). General and common to abundant.

ACADIAN FLYCATCHER. *Empidonax vireescens*. (6). Fairly common but rather local and even absent from some localities.

ALDER FLYCATCHER. *Empidonax t. trailli*. (24). Fairly common but local and absent from some localities.

LEAST FLYCATCHER. *Empidonax minimus*. (4). A rather rare summer resident but more frequent than casual observations would indicate. Birds have been recorded in summer from twelve localities, including several in Wayne Township, the Pymatuning Bog area and eastern Monroe Township. Numbers appear to vary greatly from year to year and few have been seen since the 1930 drouth. Nests are placed in alders, willows, yellow birch, and occasionally at considerable height in red maples.

EASTERN WOOD PEWEE. *Myiochanes virens*. (5). Usually a very common summer resident and even abundant in some forest areas, being one of the most characteristic species of large wooded tracts.

OLIVE-SIDED FLYCATCHER. *Nuttallornis mesoleucus*. (1). Very rare. Three summer records from the Pymatuning Bog, one from Wayne Township, and one from eastern Monroe Township. On June 16, 1932, a nest was located adjacent to the Pymatuning Bog. The nest was placed near the tip of one of the uppermost branches of a white pine and was inaccessible. One adult was incubating, returning to the nest three times upon being flushed, and another was observed about a quarter of a mile distant.

PRAIRIE HORNED LARK. *Otocoris alpestris praticola*. (1). Very local but sometimes not uncommon summer resident, but entirely absent from many large areas. The species nests very early in the spring, usually before the commencement of most of the field work, so that only one nest was found. By June and July the young fly well and groups of five to fifty are occasionally seen feeding in localities where they are not known to nest.

TREE SWALLOW. *Iridoprocne bicolor*. (4). Very rare and irregular. In 1929 four pairs nested in hollow snags in the Pymatuning bog but no birds were present during the following years and no evidence of nesting elsewhere in the county was obtained.

BANK SWALLOW. *Riparia r. riparia*. (410+). Rare or absent except near the lake shore and exceedingly variable in numbers from year to year. Formerly a few pairs nested in banks along the Ash-tabula, Conneaut, and Grand Rivers but none have been seen since 1929. Several colonies have been established in the high banks along the lake shore, growing to large size and then being deserted in three or four years. Sometimes a few pairs nest in low sand cuts of the old lake ridges some distance back from the lake. The only nests found in 1932 were a dozen in a small bank at the golf course at Conneaut.

ROUGH-WINGED SWALLOW. *Stelgidopteryx ruficollis serripennis*. (180+). Very local. Absent in much of the southern half of the

county but locally common to abundant near the lake shore, especially along the gorges of the three large rivers.

BARN SWALLOW. *Hirundo erythrogaster*. (680+). Common to abundant to the south but usually very abundant near the lake shore. Nests are frequently found in numbers about deserted farm buildings.

NORTHERN CLIFF SWALLOW. *Petrochelidon a. albifrons*. (42). Extremely local and variable from year to year but known from seventeen localities in summer, mostly in Monroe, Pierpont, Richmond, and Andover Townships. Not more than six nests have been found in any one locality.

PURPLE MARTIN. *Progne s. subis*. (411). Rather general and common to abundant. Rather infrequent in most rural districts, most of the birds nesting in houses erected for them in the villages and cities. Most numerous near the lake shore.

NORTHERN BLUE JAY. *Cyanocitta c. cristata*. (10). General and well distributed but ranging from uncommon to abundant. Most numerous in the oak areas.

EASTERN CROW. *Corvus b. brachyrhynchus*. (34). General and usually very abundant.

BLACK-CAPPED CHICKADEE. *Penthestes a. atricapillus*. (32). General and usually common to very abundant.

CAROLINA CHICKADEE. *Penthestes c. carolinensis*. Apparently rather rare but may have been passed by for the preceding species in some localities. The only positive records in summer are several from the Phelps Creek region where many other southern forms occur. No evidence of nesting was obtained but the species certainly does breed, at least in Windsor Township.

TUFTED TITMOUSE. *Baeolophus bicolor*. (11). A fairly common summer resident, most frequent where other southern forms occur and entirely absent from many areas dominated by northern species.

WHITE-BREASTED NUTHATCH. *Sitta c. carolinensis*. (3). General and common.

RED-BREASTED NUTHATCH. *Sitta canadensis*. (2). Rare and irregular. Adults were recorded from a tract in southern Wayne Township in 1928, 1929, and 1931, including two young just out of nest being fed by adults, July 18, 1929. On June 13, 1931, a nest was found in the Pymatuning Bog in a red maple tree at a height of forty feet. The cavity was surrounded by live wood, the birds entering through a tiny knot hole which had nearly grown over. Though almost unobservable, the nest appeared to be made mostly of grass and contained at least five eggs.

BROWN CREEPER. *Certhia familiaris americana*. (1). Very rare and local. Adults seen in southern Wayne Township on July 29, 1928, July 17, 1929, and June 10, 1931, and in the Pymatuning Bog on August 3, 1929, May 30, 1930, and June 12, 1931. On the last date three young were observed to leave a nest placed at a height of twenty-two feet in a large split fork of a white elm, but only one of the adults could be located.

EASTERN HOUSE WREN. *Troglodytes a. aedon*. (207). General and usually very abundant, nesting in great numbers in the wealth of suitable cavities found in the combination second growth cut-over areas. Usually more numerous in the wilder areas away from the haunts of man, where it is not unusual to find ten or twelve occupied nests in a single day.

BEWICK'S WREN. *Thryomanes b. bewicki*. Very rare and not definitely known to breed. The only summer records are of adults recorded from Phelps Creek, July 18, 1929, and June 22, 1931. Probably a recent invader.

CAROLINA WREN. *Thryothorus l. ludovicianus*. (2). Very rare. Only two pairs have been located; one nested and was seen with five young along Phelps Creek, June 10, 1930; the other pair was observed along the lower Grand River in Harpersfield Township with five young just out of nest, June 14, 1932.

PRAIRIE MARSH WREN. *Telmatodytes palustris dissaeptus*. (47). A very local and uncommon summer resident except in the Pymatuning Bog region where it is irregularly abundant, nesting in either cattail or sedge clumps.

SHORT-BILLED MARSH WREN. *Cistothorus stellaris*. (2). Recorded in summer from six scattered localities in the county but it must be regarded as rare and irregular except in the Pymatuning Bog region where at least seven pairs nested in the Ohio portion in 1931, two nests with five young each being found on June 15, 1931.

EASTERN MOCKINGBIRD. *Mimus p. polyglottos*. (1). Very rare. Unknown until 1932 when a nest with four young was found in a grove of thornapple trees at Stanhope in southern Williamsfield Township, on June 14.

CATBIRD. *Dumetella carolinensis*. (48). General and common to very abundant. Most numerous in the wilder boggy areas.

BROWN THRASHER. *Toxostoma rufum*. (14). Rather local and ranging from uncommon to common.

EASTERN ROBIN. *Turdus m. migratorius*. (264). General and very abundant, even in most of the wilder areas far from the haunts of man.

WOOD THRUSH. *Hylocichla mustelina*. (28). A general and common summer resident except in the wilder boggy areas where it is displaced by the Veery and in a few other localities where it appears to be local or entirely absent.

EASTERN HERMIT THRUSH. *Hylocichla guttata faxoni*. (1). Very rare. Known only from the Pymatuning Bog area where adults were observed on July 9, 1928, May 30, 1930, and June 15, 1932. On the latter date a nest was found with four recently hatched young.

VEERY. *Hylocichla f. fuscescens*. (24). General and ranging from uncommon to abundant, though absent from some areas. Most numerous in dense moist thickets with a great variety of undergrowth. Sometimes nesting begins as early as May 10, several nests with small young having been found before June 1.

EASTERN BLUEBIRD. *Sialia s. sialis*. (38). General and common to very common.

BLUE-GRAY GNATCATCHER. *Poliophtila c. caerulea*. (1). Rare but recorded in summer from seven scattered localities. The only nest found was on Phelps Creek, June 10, 1931. Most of the county is apparently too northern in its general aspects to be attractive to this species.

CEDAR WAXWING. *Bombycilla cedrorum*. (13). A rather general and very irregular uncommon to abundant summer resident. Most of the nests found were in orchards or in alders in wet areas.

MIGRANT SHRIKE. *Lanius ludovicianus migrans*. (8). Rather uncommon and local. Most frequent near the lake shore.

STARLING. *Sturnus v. vulgaris*. (68). General and usually abundant but entirely lacking from some localities. Mr. S. V. Wharrum, of Austinburg, reports observing the species every year since 1919, the first record being obtained late in 1918. The first known nestings occurred in 1921 and the species rapidly increased as a summer resident. By 1928 it was established in practically its present numbers, little change in distribution being noted since then except the invasion of several localities and habitat types not occupied in the early years.

YELLOW-THROATED VIREO. *Vireo flavifrons*. (3). A rather general but rare summer resident, though more frequent than casual observations would seem to indicate. It is a bird of the larger forests, the nests found being located near the tops of very tall red maples. It occurred in 1921 and the species rapidly increased as a summer resi-

dent. Adults were observed in the Morgan Swamp on July 21, 1928; southern Wayne Township on July 6, 1928, and July 8, 1929; Pymatuning Bog, May 30, 1930, and June 12, 1931, when a nest with four eggs was found; eastern Monroe Township, July 11, 1930, nest with three eggs.

RED-EYED VIREO. *Vireo olivaceus*. (226). A general and usually extremely abundant summer resident, the second growth forests attracting larger populations than I have ever seen elsewhere. Frequently parasitized by the Cowbird. Nesting begins in May and June but a large number of occupied nests can be found in July and a few even in mid-August.

EASTERN WARBLING VIREO. *Vireo g. gilvus*. (3). A fairly common summer resident but usually found nesting only in roadside trees and about towns and cities.

BLACK AND WHITE WARBLER. *Mniotilta varia*. (2). Rather general but rare and very local. More frequent to the south and east. A pair with three young were recorded from southern Wayne Township, July 18, 1928, and a nest with four eggs was found in the Pymatuning Bog, June 14, 1931.

GOLDEN-WINGED WARBLER. *Vermivora chrysoptera*. (3). Rather general but very local and decidedly uncommon or rare. Adults have been observed in eight scattered localities. Groups of four and three young just out of nest were observed in southern Wayne Township on July 5, 1928, and another pair was engaged in feeding a single bird in eastern Monroe Township on June 15, 1931.

BLUE-WINGED WARBLER. *Vermivora pinus*. (8). Rather local but ranging from rare to abundant. More frequent to the south and east, especially in moist thickets and adjacent to boggy areas.

BREWSTER'S WARBLER. *Vermivora leucobronchialis*. (3). This hybrid appears to occur about as commonly as the Golden-winged Warbler, as adults have been recorded fourteen times. No evidence of nesting of this hybrid was obtained, in fact the behavior of individuals suggested in most cases that they were non-breeding birds. On three occasions a male golden-wing and a female blue-wing have been found feeding hybrid young. On May 29, 1930, the writer found a nest with five eggs being incubated by a female blue-wing in southern Wayne Township. The next day, upon returning with Robert H. McCormick and Roscoe W. Franks, it was found that the eggs were hatched, several stills and movie pictures being taken of the hybrid young being fed by both parents at the same time, the female blue-wing and the male a typical Golden-winged Warbler. In 1931, in the

same locality, a male Blue-winged Warbler was seen courting a female Golden-winged Warbler.

NASHVILLE WARBLER. *Vermivora r. ruficapilla*. (1). Very rare and local. Adult males observed in eastern Monroe Township on July 1, 1929, and in northern Wayne Township on July 28, 1923. Not positively identified in the Pymatuning Bog area until June 15, 1931, when a male was observed feeding a fledgling just out of the nest.

NORTHERN PARULA WARBLER. *Compsothlypis americana pusilla*. (1). Very rare. Observed along both the Grand and Ashtabula River gorges in summer but nesting appeared doubtful. A pair was present



FIG. 16. A male Golden-winged Warbler bringing food to five newly hatched hybrid young which are being brooded over by the female Blue-winged Warbler. Enlarged from a movie film taken by Roscoe W. Franks and the author in southern Wayne Township on May 30, 1930.

on Phelps Creek in 1928, 1929, and 1932 but no birds were detected in the other years. Three other summer records of males in unlikely nesting localities, suggested that unmated birds may wander considerably. Two pairs were present in the Pymatuning Bog area in 1929, 1930, and 1931, a nest with three large young being found on June 15, 1931, in a large hemlock.

EASTERN YELLOW WARBLER. *Dendroica a. aestiva*. (32). General and common to abundant.

MAGNOLIA WARBLER. *Dendroica magnolia*. (3). A very local rare to uncommon summer resident, being more frequent to the south and

east. A pair of adults was observed feeding three young just out of the nest on July 8, 1928, in northern Wayne Township. Also recorded from Ashtabula River gorge, Phelps Creek, Morgan Swamp, Denmark Township, and eastern Monroe Township. On June 10, 1931, a small fledgling was seen attended by adults in the Pymatuning Bog and on June 14 a nest with four eggs was found in a dense clump of hemlocks south of Conneaut.

BLACK-THROATED BLUE WARBLER. *Dendroica c. caerulescens*. (2). Very rare and local. Recorded from only two localities. A pair was watched feeding three young in southern Wayne Township on July 7, 1928. Adults were seen again on four occasions in July, 1929, but no nests or young were found. Repeated search in the Pymatuning Bog failed to find the species until June 11, 1931, when by the most fortunate of accidents, a nest with four eggs was found at a height of four feet in a forked branch of poison sumach.

BLACK-THROATED GREEN WARBLER. *Dendroica v. virens*. (8). Rather general but quite local and uncommon. Usually not found except where hemlock occurs. On seven occasions adults were observed feeding young unable to fly well, but the only nest found was one with four newly hatched young located at a height of eighteen feet in a dense clump of hemlock in northern Kingsville Township.

CERULEAN WARBLER. *Dendroica cerulea*. (3). Fairly common but rather local, being confined mostly to more upland areas of beech or oak forest.

BLACKBURNIAN WARBLER. *Dendroica fusca*. (1). Very rare and extremely local. Known from only two localities. An adult male was observed repeatedly in June, 1931, in the Pymatuning Bog and another in an area of hemlock in northern Kingsville Township, but no evidence of nesting could be found. In 1932 a nest with four small young was found at the latter place at a height of twenty-four feet in a clump of hemlocks.

CHESTNUT-SIDED WARBLER. *Dendroica pensylvanica*. (6). Rather general and very local but sometimes common. Observed in thirty-two localities, most of which are in the eastern half of the county, especially Monroe, Sheffield, and southern Conneaut and Kingsville Townships.

NORTHERN PINE WARBLER. *Dendroica p. pinus*. Very rare and local. No nests and only three summer records: northern Kingsville Township, July 8, 1929, northwestern Conneaut Township, July 12, 1930, and Pymatuning Bog, June 12, 1931.



OVEN-BIRD. *Seiurus aurocapillus*. (83). General and usually very abundant, being one of the most characteristic birds of large areas. Nests with either young or eggs are very easy to locate and it is easily possible to find a half dozen in a single day.

GRINNELL'S WATER-THRUSH. *Seiurus noveboracensis notabilis*. (4). Recorded in summer from eight scattered localities in boggy areas but rare except in the Pymatuning Bog where a survey in June, 1932, indicated that no less than twenty-two pairs were present. After days of search during five seasons, a nest with four hatching eggs was finally discovered on June 15, 1932, marvelously concealed among roots imbedded in a small mound of rotted wood. On several occasions partly grown young were flushed from nests without it being possible to locate the nest itself.

LOUISIANA WATER-THRUSH. *Seiurus motacilla*. (1). Rather rare and very local but found in seven scattered localities where swift flowing streams have cut small suitable gorges. Not known in the numerous cuts near the lake.

NORTHERN YELLOW-THROAT. *Geothlypis trichas brachidactyla*. (14). General and common to very abundant.

YELLOW-BREASTED CHAT. *Icteria v. virens*. (6). Rather general but local and decidedly uncommon.

HOODED WARBLER. *Wilsonia citrina*. (6). Rather general and very local, ranging from rare to uncommon, except along the gorges of the Ashtabula, Conneaut, and Grand Rivers where it is sometimes common.

CANADIAN WARBLER. *Wilsonia canadensis*. (2). A few pairs nest regularly in the Pymatuning Bog, a nest with four eggs being found there on June 13, 1932, and an adult with two fledglings on July 28, 1928. Rare elsewhere in the county, only eight other records from five localities being obtained, all from the eastern half.

AMERICAN REDSTART. *Setophaga ruticilla*. (18). General and somewhat local but ranging from uncommon to abundant. A characteristic species of large areas.

ENGLISH SPARROW. *Passer d. domesticus*. (165+). General and usually very abundant but absent from the wilder areas.

BOBOLINK. *Dolichonyx oryzivorus*. (131). General though somewhat local and ranging from uncommon to very abundant. Often nests in colonies, sometimes nearly a dozen nests being revealed during the mowing of one meadow.

EASTERN MEADOWLARK. *Sturnella m. magna*. (24). General and common to very abundant wherever open areas occur.

EASTERN RED-WING. *Agelaius p. phoeniceus*. (460+). General and often very abundant, but somewhat local.

ORCHARD ORIOLE. *Icterus spurius*. (2). Very rare or absent except near the lake shore where it is not uncommon, though quite local.

BALTIMORE ORIOLE. *Icterus galbula*. (21). General and common. Somewhat local.

BRONZED GRACKLE. *Quiscalus quiscula aeneus*. (64). General and common. Less frequent in the rural districts except in trees about dwellings.

EASTERN COWBIRD. *Molothrus a. ater*. (171). General and abundant, its eggs being found in 171 nests (of sixteen other species) located. Most of these were in nests of the Red-eyed Vireo, Song Sparrow, Field Sparrow, and Chipping Sparrow.

SCARLET TANAGER. *Piranga erythromelas*. (6). General and common.

EASTERN CARDINAL. *Richmondia c. cardinalis*. (14). General and common, though somewhat local and absent from some of the areas of northern character. Three townships carefully censused in 1928 were again covered in 1932. The results would indicate that the species had in some cases increased in numbers five or six times during the interval.

ROSE-BREADED GROSBEAK. *Hedymeles ludovicianus*. (12). General, ranging from uncommon to very common. Quite local.

INDIGO BUNTING. *Passerina cyanea*. (8). General and common to abundant.

DICKCISSEL. *Spiza americana*. Unknown except for a single adult seen near Geneva on July 31, 1929, and another near Saybrook, June 16, 1931.

EASTERN PURPLE FINCH. *Carpodacus p. purpureus*. (1). Unknown in the county except in the Pymatuning Bog area where single adults were observed each year from 1928 to 1932. On June 15, 1931, a nest with three large young was found at the height of twenty-six feet in a tamarack.

NORTHERN PINE SISKIN. *Spinus p. pinus*. Unknown in the county except in the Pymatuning Bog area where adults were recorded on July 21, 1928, August 1, 1929, and July 10, 1930. Nesting, according to Sutton, probably takes place so early that the season was past before most of the field work began. The species certainly breeds, though perhaps not on the Ohio side of the bog.

EASTERN GOLDFINCH. *Spinus t. tristis*. (21). Common to abundant though somewhat local and variable in numbers.

RED-EYED TOWHEE. *Pipilo e. erythrophthalmus*. (43). Usually common to abundant. A characteristic bird of large areas, sometimes being very abundant and often the most conspicuous species in brushy tracts.

EASTERN SAVANNAH SPARROW. *Passerculus sandwichensis savanna*. (6). Rather general, absent from some localities and ranging from rare to abundant in others. Decidedly local and also variable from year to year. More frequent to the south and east, especially in grassy areas of deserted fields in Andover, Richmond, Monroe, and Pierpont Townships.

EASTERN GRASSHOPPER SPARROW. *Ammodramus savannarum australis*. (6). General and common to very common in all open areas.

WESTERN HENSLOW'S SPARROW. *Passerherbulus h. henslowi*. (3). Rather general but very local and variable from year to year. In all, eighty-seven colonies of two to fourteen pairs each were located but the greatest number known in any one year was considerably less. Much more frequent in the seven eastern townships.

EASTERN VESPER SPARROW. *Pooectes g. gramineus*. (18). General and common to abundant.

EASTERN LARK SPARROW. *Chondestes g. grammacus*. Not definitely known to breed and only one summer record, an adult studied June 17, 1932, in a sandy prairie area near Saybrook.

SLATE-COLORED JUNCO. *Junco h. hyemalis*. (14). Absent except from twelve scattered localities, all in the eastern half of the county. Adults with fledglings and at least one nest were found in both southern Wayne Township and eastern Monroe Township each year from 1928 to 1932. Curiously, only two or three pairs nested in the Ohio portion of the Pymatuning Swamp, while at least fifty pairs nested in eastern Monroe Township until the drouth of 1930.

EASTERN CHIPPING SPARROW. *Spizella p. passerina*. (24). Common everywhere in the cultivated districts but practically absent from the wilder portions.

EASTERN FIELD SPARROW. *Spizella p. pusilla*. (27). General and usually abundant.

WHITE-THROATED SPARROW. *Zonotrichia albicollis*. (4). Very rare and local, being known from only two localities. Adults were seen with young out of the nest in southern Wayne Township on July 6, 1928, July 16, 1929, and July 14, 1930. On June 14, 1932, a nest with three small young was found in the Pymatuning Bog in a clump of shining club moss and American yew.

SWAMP SPARROW. *Melospiza georgiana*. (2). Extremely local and usually rare. About seven pairs nested in the Ohio portion of the Pymatuning Bog in 1932 and two nests, each with four young, were located there on June 17, 1932, by following the adults carrying food. Apparently very variable from year to year. Other localities where the species has been found in summer include Geneva-on-the-Lake Marsh, Ashtabula Harbor pond, a pond near Conneaut, Plymouth Marsh, near Orwell, and a boggy area along the Pymatuning River in southern Wayne Township.

MISSISSIPPI SONG SPARROW. *Melospiza melodia beata*. (84). General and usually very abundant.

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DEPARTMENT OF BOTANY, OHIO STATE UNIVERSITY,  
COLUMBUS, OHIO.