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BLUE HERON COLONIES IN NORTHERN OHIO

BY E. L. MOSELEY

Most people have never seen a nest of a Great Blue Heron, although they may often have seen one of these majestic birds flying along a stream or standing on one leg in a marsh, patiently waiting a chance to spear a frog or fish. They have been told that these birds were cranes. I had been teaching classes in zoology and making observations on Ohio birds for nearly thirty years before I learned the location of any herony in the state. In later years, as the result of considerable inquiry, I have heard of thirty or forty nesting sites of Great Blue Herons (*Ardea herodias herodias*) and have visited many of them myself. The largest is in Sandusky County, nine miles northwest of Fremont, in woods belonging to Horatio and Harry Waggoner. Fortunately these men are interested in the preservation of the birds, which are favored also by having their home in a law-abiding community, where no one attempts to shoot them.

On May 2, 1935, before the leaves had come out on the trees, I went to the Waggoner woods with a large number of students from Bowling Green. With their aid and also help from Horatio Waggoner and his son John, the herony was divided into eight strips, running east and west, each several rods wide. The lines bounding these strips were followed by tall men who did no counting, but aided those who did the counting to keep within the lines. If a tree containing nests was on the line, they saw that it was included in only one list. Thus we avoided duplications and omissions. One thousand one hundred eighteen nests were counted. As some nests had only recently been started, probably a few more were built after we made this count. If any of the nests counted were unused in 1935, the number was probably very small.

We saw egg shells on the ground that day and Mr. Waggoner heard one or two young birds. The first of the herons he had seen arrived from the south on March 10. The previous year, 1934, and also in 1932, a few arrived March 1. In earlier years the first arri-

vals observed were usually about March 15, or 20, other individuals coming later, some not arriving until about the middle of April.

Nests used the previous year are repaired, if not too dilapidated. As the colony has been increasing, many new nests are built each year. They consist of platforms of sticks, most of which are smaller in diameter than a finger. Sweet clover or other herbaceous stems are used to line the nest, which is shallow and two and a half feet or more in diameter. After about four weeks each nest becomes the home of two or three baby herons usually; but the number may be more than three, or only one.

To feed between two and three thousand nestling herons enough to enable them to attain in five weeks the size of their parents requires considerable activity on the part of the latter. After the young are half grown, a ton of fish a day would probably not satisfy them. Only a trifling amount could be obtained within six miles of the heronry. Probably half of the whole supply is carried a distance of fourteen miles or more. Many persons have wondered why these birds choose for a home a locality so remote from their food supply. The reason is that woods containing a large amount of tall trees suitable for their nests are not to be found nearer to the water in which they obtain most of their food. Like other gregarious creatures too big to hide, these birds and their young are safer when many are close together, because enemies are less likely to attack them or to succeed if they do attack. Charles Holloway has told me of seeing a large dog repulsed by a Great Blue Heron whose wing had been injured so it could not fly. The dog rushed at the bird, which dealt it one savage blow on the nose. This took all the courage out of the dog.

A visitor to the heronry in summer is likely to hear the thud of a fish falling to the ground only a few yards from where he stands and he wonders why the birds lose so many after carrying them so far. If the falling of fish went on all through the day as fast as when visitors are present, the young birds would starve, for the fish that fall are not recovered. Evidently the presence of visitors causes the loss. I used to think that fright confused the birds so that the fish was lost in transferring it from parent to offspring, but I have observed it when I believe only the young were at the nest and when they had passed the tender age when they receive partly digested food directly from the throats of their parents. Many of the fish found on the ground under the nests are almost whole. Perhaps it is instinctive with young herons, when they seem to be in danger from some enemy,



FIG. 1. The Waggoner Heronry. Seventeen nests in this tree.

Photograph by Robert L. Baird.

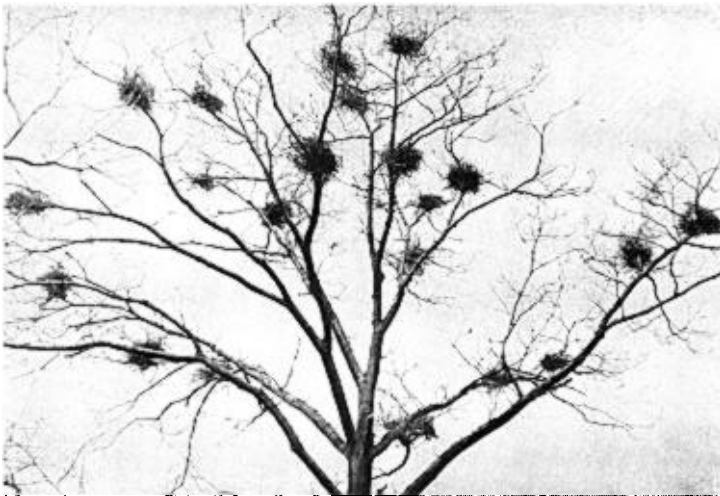


FIG. 2. The Waggoner Heronry. Twenty-two nests in this tree.

Photograph by Robert L. Baird.

to regurgitate what they have swallowed; in this way the appetite of the hungry predator might be appeased.

The fish found included sheepshead, sunfish, sucker, carp, and goldfish, the last not at all uncommon. Recently we found a catfish about eight inches long whose stout pectoral spines stood out prominently on each side. My colleague, Dr. C. H. Otis, recently watched a mature heron while it cautiously swallowed, head first, a bullhead which he estimated weighed a pound and a half, but we think the bird which brought the catfish to the heronry was not very considerate of the welfare of its offspring.

Horatio Waggoner has found an explanation for herons standing on one leg when fishing. More than once he has seen them put the other foot down and hold a luckless fish that swam close to the foot which had been supporting the weight of the heron.

That such large heronries are no longer common may be due to the difficulty of supplying a sufficient quantity of food for the young. To secure a ton of fish each day for several weeks requires extensive fishing grounds. Now that frogs are in demand for human food the supply of these amphibians has become much depleted. Snakes and lizards are getting scarce and the draining of swamps has curtailed the supply of various kinds of aquatic food. In this part of Ohio the herons have become so numerous that they are pressing on man's food supply by taking fish from the ponds. Some of the wholesale fishermen have obtained permission to shoot herons found robbing their nets.

In 1912 or 1913, the first year that any herons nested there, Mr. Waggoner says most of the nests were built in two sycamore trees. In his woods large sycamores are not numerous, so that various other trees are now used, most of them larger than the largest trees of the same kinds in a majority of the woods remaining in Ohio. We have observed nests in four kinds of oak—red, black, white, and bur—also in silver maple, shell bark hickory, ash, and in many elm trees. One bur oak in 1931, had twenty-two nests. In 1932 one red oak contained eighteen nests and another twenty-three. This is the largest number we have ever counted in a single tree, but some years ago Mr. Waggoner counted thirty in one sycamore tree. The 1118 nests counted in 1935 were in 194 trees, but 490 of the nests were in thirty-seven trees, each of which had more than nine nests. Only eleven trees contained more than fourteen nests each.

A silver maple tree which had died was cut down in order to utilize the timber in it. In the top were several heron nests. With

steel tape we found that they had been 110 feet above the ground. The highest of the nineteen nests in a big sycamore tree was found by the method of similar triangles to be 120 feet from the ground. What appeared to be the lowest nest in that vicinity had an elevation of seventy-six feet. In the entire woods there are probably a few that are somewhat lower. The nests are apparently placed as far from the ground as adequate support can be found. Trees with open tops seem to be preferred, as their limbs do not interfere with flight.

In the Waggoner woods the mature herons are never seen on the ground. The bushes and other undergrowth would probably interfere with these large birds rising from the ground; presumably they must have a clear space from which to take off. If by mischance a nestling should get down on the ground in the woods it would starve. In fields south of the woods we have seen mature herons on the ground. They do not appear to find food there. Mr. Waggoner thinks that they resort to these fields to the leeward of the woods to avoid the chilling effects of a cold wind from the north.

In the museum of the University at Bowling Green is the unbroken shell of a heron egg which we found on wet ground in these Waggoner woods May 7, 1926, when it was still fresh. It had probably fallen more than seventy feet. By the first week of July many young herons may be seen standing on or near the nests, a few of them testing their wings as if about ready to fly. Fewer old birds are seen at the heronry during the day in July, but between 5:30 and 7:00 p. m. they sail in from the distant fishing grounds with a cargo of food for the lusty youngsters. Some fish are brought as late as 9:30.

In 1930 there were still very many herons at the heronry on August 3; but when the woods were visited by one of my students a week later, no herons were seen or heard. This heronry is always deserted in August, but many of the birds continue to frequent the streams or marshes of northern Ohio until October, and some still later; rarely has one been seen in December.

The colony in the Waggoner woods has grown so large that the herons have already appropriated most of the trees which are suitable for their nests. In 1933 they built six nests in a tract of woodland about a half mile to the south, and the next year built more nests in those woods. On May 5, 1935, I counted 151 nests in this new colony and found egg shells under some of the trees and the air bladder of a fish, showing that there were already young herons in some of the nests, although a few nests had not yet been completed. Forty-four

trees, most of them American elms, contained from one to ten nests each.

An older colony, started about 1924, in woods one mile south of the bridge which crosses Sandusky Bay is also probably an offshoot from the Waggoner colony, for Sandusky Bay has long been a fishing ground for Great Blue Herons and those frequenting the western part of the bay, if not the entire bay, probably had their home in the Waggoner woods until the bay bridge colony was founded.

Among the other heronries in Ohio which are occupied exclusively by Great Blue Herons I know of none which have had so many as a hundred nests at any time in the past ten years. Very few now contain as many as thirty nests, but quite a number have between fifteen and thirty. Just over the line in Michigan, about sixteen miles west and north of Toledo, is a heronry in which I counted 129 nests May 31, 1931, probably overlooking some because of the foliage. The following spring, before the leaves came out, Reverend Hammond, of Berkey, Ohio, which is near these woods, counted 214 nests. This colony, like the one in the Waggoner woods, has been growing, especially in the last few years.

Great Blue Herons were numerous until their breeding places were visited by hunters whose ambition was to kill something big. Their numbers then were greatly reduced, but in recent years, on account of protection by law and a growing interest in bird life, the herons have been multiplying. At the heronry at Indian Lake in Logan County some have been shot by lawless hunters in recent years. At the heronry in Trumbull County, near Orwell, where there were said to be about sixty nests in 1930, sixteen of the herons were shot by one man who afterwards was prosecuted and made to pay a fine of \$25 for each heron. Few, if any, nests longer remain at that place, but in most places, thanks to laws backed by public sentiment, the birds are permitted to rear their young unmolested. Very few are likely to be killed by other birds or by mammals, for with their long, sharp, straight beaks these big birds are able to defend themselves and their young. They have been increasing in numbers, in Ohio, and other states, but the increase has been restricted by the limited supply of food and to some extent also by the remoteness from their fishing grounds of any woods that are suitable for a large heronry.

Great Blue Herons seem to show some preference for sycamore trees, but very tall deciduous trees of any kind are used, if there are enough of them in a single woodland near the source of food. The woods need not be low or wet, if they are near a food supply and far

from traffic. A majority of the nesting sites are in low wet woods, but this is because woods near a large supply of aquatic food are more frequently of this character. In Huron County, six and a half miles south of Monroeville, far from roads and houses was a heronry which a few years ago contained about forty nests in eight sugar maple and two beech trees on hilly ground where foxes had a den. Nearly all of the large trees in the woods were of these two kinds. This was too far from Lake Erie for the herons to go there regularly for fish and the low water in the Huron River in recent summers has probably been the primary reason for this heronry dying out.

East of Springboro, in Warren County, is the only nesting site for Great Blue Herons which I know of in southern Ohio. The birds began nesting there about 1927. On August 14, 1932, we found twenty-six nests, of which twenty-four were in second growth beech trees, tall but less than a foot in diameter. The woods are on ground which is 950 feet above sea level and slopes away in all directions, except toward the northeast. They probably afford more seclusion for the herons than they could find anywhere closer to their food supply, which comes from the Great Miami River, five miles away, and from the Little Miami, six miles away.

In Sandusky County about twelve miles farther from Lake Erie than the Waggoner heronry, I found March 22, 1931, twenty-two nests in the tops of eight elm trees, there being few other large trees in these woods. In the Goll woods near Bean Creek, in the southwestern part of Fulton County, where for years there have been between fifteen and thirty nests, all are in large bur oaks, although a tall cottonwood near one of the oaks formerly contained a nest. Long ago when there were cottonwood trees that towered above other trees, they were favorite nesting sites of Great Blue Herons. Now elm and bur oaks are the trees most used.

On visiting various heronries one is impressed with their isolation from the busy world around. It seems as if the birds had tried to get as far as they possibly could from public roads and human habitations, or else where a person would need rubber boots or a boat in trying to reach the place.

Black-crowned Night Herons have shared some of the nesting sites, for a time, with the Great Blue Herons. Their flimsy nests are usually in small trees and not so high as the nests of the larger birds. So far as I know they do not resort to the same nesting site very long. The trees they use are killed in a very few years by the excrement. More slowly this fate befalls the big trees that hold considerable num-

bers of Great Blue Heron nests, but in such big timber as they were accustomed to select the growth of medium sized trees kept up with the destruction of the large ones. Before the coming of white settlers, such a forest may have formed a harbor for these majestic birds every summer for more than a century.

We know that several of the present nesting sites were first used by the herons after the big trees in the woods which they had previously been using were felled by the axe or destroyed by fire. The same is probably true of many whose history we have not learned. In most cases we do not know when the birds began to use the earlier nesting sites. One of my students, whose father owns part of the big woods which the herons used before they began nesting in the Waggoner woods three miles farther south, told me that these birds were nesting there when her father's great grandfather was a young man. This was about 1840. For how many years previously they had been coming to those same woods we can not tell.

The big heronry northwest of Toledo has been maintained in the same place for half a century. Until 1871, the year of the great Chicago fire and of many very serious forest fires, herons nested in cottonwood trees in heavily timbered swampland about four miles northwest of the present heronry. Fire destroyed these trees and the birds then began nesting in cottonwoods in a tract of timber about one mile to the northwest of the present site. Some fifty years ago that tract was cut over and all the very tall trees removed, causing the birds to take up their abode where the heronry is now.

Until about 1890 there was a large heronry in Gorham Township in the northwestern part of Fulton County, in a woods consisting of five or six acres; in large cottonwood trees along Bean Creek there are said to have been some 250 nests. At present, and for many years past, the food supply here has been quite inadequate for such a large heronry. Indeed a person unfamiliar with the region would wonder how such a large number of these great birds could ever have maintained themselves there. But formerly thousands of acres of what is now fertile farmland were covered with water from early spring until July or later. Frogs and fish were abundant. Clark Powers who still lives there remembers that his father often caught a bushel of fish at a time with a gill net or sieve, and would put the small ones back in the water. Fish abounded not only in the natural streams but also in ditches and ponds and they spread into the water that covered the land, where many perished and stank. Until it was dredged, the Bean Creek contained more fish than it does now.

Changes in drainage would not have brought about the complete extirpation of this large heronry so soon but in addition to depletion of the food supply the birds suffered persecution from unscrupulous hunters. Men and boys used to go to the nesting site on Sundays and shoot herons for sport, never eating any of them, although from a few they cut the wings to be used in dusting shelves. Some of the hunters would shoot as many as twenty-five herons in one day. Even such persecution might not have wiped out the heronry entirely, for the inhabitants were not bent on getting rid of the birds, but the felling of the big cottonwoods in which they had made their nests year after year put an end to what had been, so far as we know, the largest heronry in the interior of the state.

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FOOD OF THE LIMPKIN

BY CLARENCE COTTAM

Because of its peculiar distribution and unique feeding habits, the Limpkin (*Aramus pictus pictus*) is one of the most interesting of North American birds. In habits it seems to partake somewhat of the characteristics of both the rail and the heron. Like the rail, it runs rapidly and stealthily on the damp ground and frequents the borders of wooded streams and swamps; like the heron, it perches in trees.

In distribution the bird is restricted to the Okefenokee Swamp in southern Georgia and to Florida. Over much of its range it is absent or rare and is common only locally where the food and environment are to its liking. Perhaps the principal factor responsible for its discontinuance and spotty distribution is its peculiar and restricted food. It feeds primarily on a large fresh-water snail of the genus *Ampullaria*, and is, therefore, largely restricted to places where this snail is sufficiently abundant to afford adequate sustenance.

It has generally been assumed that the bird feeds exclusively on this gastropod. Howell in his excellent book on "Florida Birds" (1933, page 200), states that the Limpkin subsists entirely on this one genus of mollusk. A recent but brief inspection at Wakulla Springs, Florida, gave convincing evidence that it also takes other foods. Along the Wakulla River the Limpkin is locally common. *Ampullaria depressa* likewise is common, as are the fresh-water mussels (Unionidae).

It seems to be a common habit of the bird to feed at given points or stations. At such places a large pile of empty shells could be seen,