

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. XXIV.

JANUARY, 1907.

No. 1.

SUMMER BIRD-LIFE OF THE NEWARK, NEW JERSEY, MARSHES.

BY CLINTON G. ABBOTT.

Plate I.

IT IS not the good fortune of every bird-lover to be able to visit the swamps of North Dakota, or even the more famous bird resorts nearer home; but that bird-life of scientific interest can be found within easy reach, and often in places where it would be least expected, I think the present paper will show.

There is a small group of bird-lovers, centering chiefly about the Linnæan Society of New York, who are closely confined by business in the city and whose ornithological investigations are therefore limited mostly to a small portion of the suburban district. The region has been fairly well scoured, but no experiences have been more interesting than the discoveries of the past summer in the Newark marshes, which lie within seven miles of New York City Hall, and are readily accessible within the limits even of an ordinary Saturday afternoon 'half holiday.'

These marshes, known sometimes as the Hackensack Meadows, are very extensive in their entirety, and are familiar to every one who has entered New York by train from the West. But it is only with a comparatively small area that this paper deals — a tract of not more than 100 acres. The bird-life of this spot proved to be so very interesting that there was no temptation to search further, the especially notable fact being the surprising numbers of Florida Gallinules (*Gallinula galeata*) that were found nesting here.

My first suspicion that the Florida Gallinule might be a nesting species about New York was when I heard that a bird of this species had been shot by two boys on the mill-pond at Bristol, Pa., in early September, 1899, and taken for identification to Dr. Joseph Abbott of that place. On September 7, 1902, I spent an afternoon exploring the Bristol mill-pond, but found no trace of Gallinules.

On May 28, 1904, while entering the Jersey City yards in a train of the Central Railroad of New Jersey, I had an admirable view of a Gallinule swimming in a small patch of rushes close to the track-side. I spoke to Dr. William C. Braislin of Brooklyn about the bird and on July 15, 1905, was invited to accompany him in exploring a similar situation close to the terminal of the Long Island Railroad in Long Island City, where the presence of Florida Gallinules was first discovered by Messrs. W. F. and John Hendrickson. Here we found the birds in numbers, with ample evidences of their nesting, as fully described by Dr. Braislin in 'The Auk,' Volume XXIII, 1906, page 189.

My interest in the possibilities of trackside swamps was by this time fully aroused and in my daily commutings over the main line of the Central Railroad of New Jersey I was constantly on the alert for further signs of the Gallinules. On August 4, 1905, an accident on the main line of the railroad caused the trains of that line to be dispatched by way of Newark, and a close watch of the new territory was rewarded by the sight of a number of dark colored birds swimming in a patch of open water at the point where the Newark-Elizabethport Branch crosses the Philadelphia and Reading freight tracks. I told my friends of the incident, and on Decoration Day, May 30, 1906, Messrs. H. H. Hann and J. P. Callender visited the place. The account they brought back was certainly enough to arouse the enthusiasm of the most callous ornithologist. Not only had they seen the Gallinules in numbers, and discovered both their eggs and young, but they also found three nests of the Least Bittern (*Ardetta exilis*) containing eggs, as well as one of the comical little fuzzy young birds. Furthermore they reported the presence of the American Coot (*Fulica americana*), two of which had been seen swimming in the open water.

My next available holiday, which was not till Saturday, June 16, was promptly set aside for a visit to the marshes, when Mr. Hann

was my companion. In order to make as thorough an investigation as possible, Saturday afternoon and the whole of Sunday were given up to the work, the night being spent at Newark. Mr. Callender joined us on Sunday morning.

The particular spot where the birds seemed to be most abundant, and to which our activities were confined, is best reached by walking along the railroad from Newark. In fact it is bounded on three sides by tracks, two of which are busy lines with constantly passing or shunting trains. It was certainly not a place where one would expect to look for a profusion of marsh-birds, which have a reputation for shyness and seclusion. Engineers and others about the place were found to be familiar with the birds, classing them under the general name of 'mud-hens.'

On the railroad tracks we could constantly hear the harsh cries of the Gallinules from among the reeds close by, and when we reached a spot which commands a view of open water many birds were seen swimming. With the aid of prism binoculars we plainly identified a Coot among them, and what was even more gratifying, several birds which were at once recognized as Pied-billed Grebes (*Podilymbus podiceps*), a species not observed by Messrs. Hann and Callender on their first visit. As we emerged from an old barn which we used for changing our clothes, we observed a Black-crowned Night Heron flying lazily over the swamp, with what appeared to be an eel dangling from its claws. The bird seemed to provide the last necessary suggestion of wildness to our urban hunting-ground, and helped to drive from our imaginations the presence of factories and city blocks only a few hundred yards away.

The water in the swamp was found to be about thigh deep, that is to say the wader sank that distance, but fully half the apparent depth was caused by the soft mud under the water. Occasionally, one would step into a hole up to his chest, but this was unusual, and for the most part the ground under the mud was solid and trustworthy. The area searched consisted of a broad tract of open water, containing a few islands, and bordered on the one side by the railroad track and on the other by a luxuriant growth of cat-tails into which many arms and bays extended. In addition there were among the cat-tails a number of isolated ponds unconnected with the main tract. All water, with the exception of the center of

the open tract, was covered with a solid scum of duckweed so thick that swimming birds left no path in it, as it closed immediately in their wake. The cat-tails often extended at least two feet above the wader's head, so that in a thick bed it would have been easy to lose one's bearings were it not for the tall chimney of a Bluing Factory close by — evidence in itself of the proximity of civilization to the marsh birds' haunt.

The result of our day and a half in the swamp was most gratifying. With the exception of the Coot we found the nest of every species we hoped for, and others beside. Long-billed Marsh Wrens (*Telmatodytes palustris*) were the most abundant birds found. Their nests were hanging in the cat-tails almost like some sort of fruit, and one tired of sticking his finger into them as he pushed them from his path.

Next in numbers were without doubt the Gallinules, whose strident notes, consisting chiefly of a sharp monosyllable or a laugh-like cackle, were continually in our ears. Mr. Hann and I found no less than seven inhabited nests the first afternoon and at least three times as many empty ones. The inhabited nests contained anywhere from ten eggs to one young bird. The nests themselves, which are composed entirely of dead rushes with but a shallow cup, are usually placed in an isolated tussock or else at the edge of a cat-tail bed, so that the bird when leaving may have immediate access to open water. A notable exception, however, was a nest found in a dense growth of cat-tails, at least twelve feet from open water. In the majority of cases the bed of the nest was four to six inches from the surface of the water, but several, perhaps built by birds whose first nests had been flooded, were higher. Almost every nest had a sort of sloping runway to the water's edge by which the bird probably always entered and left the nest. One nest was especially worthy of notice for its unusual height above the water, as we could barely see into it when standing on tiptoe in the mud. It was placed high on a mass of cat-tails tangled by the wind. Occasionally the tips of the rushes were drawn together to form a sort of arch over a nest, as is done by rails, but this was by no means universal.

The Gallinules' eggs are of a brownish buff ground color, speckled and blotched with reddish brown and umber. No prettier

sight could be desired than a large clutch of these handsome eggs resting on their bed of dull brown, and surrounded by the brilliant green of the cat-tails and duckweed. The measurements of a set of eight collected varied in length from 1.67 to 1.76 inches by 1.19 to 1.22 inches in width. The newly hatched Gallinule is certainly a most absurd looking little creature. The black down which covers his body, instead of being soft and warm, is coarse and hair-like. On the cheeks and throat every filament is tipped with white which only adds to the ludicrous effect. The top of the little fellow's head is nearly bald, and the skin at the base of the bill is of a bright red color, altogether a poor suggestion of the handsome shield with which the forehead of the adult bird is adorned. In more mature young birds the frontal plate is rudimentary and pale in color, and this, together with a grayish tinge to the neck and breast, render birds of the year easily distinguishable. Young Gallinules swim almost as soon as they are hatched. I was preparing to photograph a nest containing four pipped eggs and two young so recently hatched that shells were still in the nest. But before I could set up my camera one of the little fellows had scrambled out and started swimming in the direction of his mother. She would cluck to him like an old hen and he would answer with low peeping notes. Later I found him back in the nest.

Of the habits of the old Gallinules, I was able, with the increased material at hand, to corroborate and amplify my observations in the Long Island City swamps. In swimming, every stroke is accompanied by a very marked forward bob of the head, an act which I thought was perhaps an assistance to progression in the complete absence of webbed feet. Gallinules do not paddle after the manner of a duck, but seem to attempt to stride through the water. More than once the feet of both old and young birds were seen to come above the surface of the duckweed in front of the swimming bird. The tips of the wings are raised and crossed in swimming, but when the bird is standing they are folded down against the body. Like all other birds, the Gallinule becomes more courageous as its eggs near hatching. Usually the incubating bird had slipped away unseen before we even discovered her nest. But in the case of the nest containing both eggs and newly hatched young, the sitting bird allowed an approach to within about ten feet, and then

stayed close by, calling anxiously. In fact so bold did this bird show herself to be that I resolved to attempt to photograph her on her nest. It was very late in the afternoon and little time could be spent concealing the camera. But nevertheless, almost as soon as I had hidden myself in a neighboring bed of rushes, the bird showed herself, and in twenty minutes I had made an exposure. The light, however, in the meantime had become so very poor that the plate was hopelessly underexposed, though the faint image it contains is at least proof that it would be by no means an impossibility to photograph the shy Gallinule at home. The bird's actions about her nest interested me. Her note of anxiety was a strident *keck*, which she maintained ceaselessly at intervals of a few seconds, as she walked nervously about the reeds behind her nest. Each *keck* was accompanied by a spasmodic flirt of the tail; the bird also kept constantly turning and jerking her head. All her movements were most sedate and dignified and at each step the feet were raised daintily and the toes closed. But what surprised me most was that the bird continued her anxious calling even when seated upon the nest, an action which I have observed in no other bird; in the case of sparrows and the like, a cessation of the 'chipping' is often a sign that the bird is back on her nest. The Gallinule did not seem to hear the click of the shutter, but when, by continued pulling of the thread, I caused surrounding reeds to sway, she scrambled precipitately off her nest.

Our first acquaintance with the home life of the Pied-billed Grebe was made through the discovery of a bird, who could not have been more than a few hours old, but who was already an adept at diving. Indeed it was very difficult to follow him as he made quite extended swims under the duck-weed. He was a sleek and strangely striped little creature, suggesting somehow both in form and markings a peculiar fitness for his submarine excursions. He was quite alone when found, neither brothers and sisters nor parents being seen anywhere about. But close by was an empty Grebe's nest which he had doubtless just left. Not long afterwards a Grebe was spied sitting upon her nest in a sparse growth of rushes. She did not, however, allow a closer approach than fifty feet before ducking over the edge and disappearing without waiting to cover up her three eggs. This nest was discovered

on Saturday afternoon. When visited again on Sunday morning, it contained four eggs, all neatly covered. The last egg was clean and of a chalky, bluish-white color, easily distinguishable from the others, which were already stained and discolored from the soaking weeds used by the mother to conceal them. I uncovered the eggs to photograph them, and left the camera near the nest for a time in the hope of a possible camera shot. But I do not believe that the bird returned to her nest all day, although once or twice she was seen swimming uneasily about in the water some distance away. The Pied-billed Grebe, I am sure, would be a very difficult bird to photograph on her nest.

During the day we found another Grebe's nest containing one egg, two containing broken shells, and several empty nests. In addition there were at least two Grebe families swimming about in the open water. Unobserved among the cat-tails, we watched for some time one old bird solicitously caring for her five young. We observed the bird's habit of lowering itself in the water on suspicion of danger, and in one instance were treated to the pretty sight of the mother carrying a youngster on her back.

Both American Bitterns (*Botaurus lentiginosus*) and Least Bitterns (*Ardetta exilis*) inhabit the swamp, and on June 17 we found a nest of each of them, to both of which mere good luck led us, in the midst of dense and pathless cat-tail areas. The American Bittern's nest, which was merely a dry platform carelessly constructed at the foot of the rushes, contained five eggs. The Least Bittern's had but one egg. One of the Least Bittern's nests found by Messrs. Hann and Callender on Decoration Day varied from the typical form as found on June 17; for instead of being suspended in the tall cat-tails, it was situated in the top of a tuft of sedges which was growing on a large floating bog. It was open to the sky and almost surrounded by open water. The nest of June 17, was to my mind the most picturesque of the marsh nests seen. The bed of dry rushes, upon which the eggs lie, was placed within a pretty basket of living green reeds, complete even to the handle, as it were, which was formed by drawing together the tops of the cat-tails above the nest.

Least Bitterns were far more numerous than their larger cousins; for while we found several of the smaller birds' nests, and undoubt-

edly missed dozens more, we were inclined to believe that we had found the nest of the only pair of American Bitterns in that part of the swamp. Least Bitterns were not infrequently to be seen on the wing, and toward evening especially seemed inclined to indulge in constitutional flights above the reed tops, where with head drawn back and legs extended to the rear, they would attain considerable headway. They were evidently unaccustomed to human invasion of their retreat, and on coming suddenly upon one of our party, would utter a harsh sibilant note and turn quickly in their course.

With the Coots we made but slight acquaintance. I doubt if there were more than two pairs in the part of the marsh we searched, and we did not find their nests. But there was no doubt of their existence there, as the white shield on their forehead forms a conspicuous field mark, and we identified the birds positively a number of times. Once two birds were seen together. At another time a Coot was seen swimming close to a Gallinule, when the difference between the birds was very marked. The Coot, beside its larger size and darker color, swims higher out of the water and in a different manner from the Gallinule. Continuing the comparison, it might be said that the Gallinule swims at the greatest 'angle' with the water, the tail being raised very high and the forward part of the body dipped so low that the water seems almost to meet over the base of the bird's neck. The Coot swims with less of a tilt, while of the three the plane of the Grebe's back is the nearest parallel with the water.

In the way of miscellaneous birds mention should be made of the Red-winged Blackbirds (*Agelaius phœniceus*) which of course, together with their nests, were abundant in the swamp; also of a Swamp Sparrow's (*Melospiza georgiana*) nest with four eggs found in a bunch of dead cat-tails. Once a Green Heron (*Butorides virescens*) visitor was seen. Then we found a nest containing eggshells, which we put down to the Virginia Rail (*Rallus virginianus*). We took home the largest of the shells for identification, and all evidences seemed to point to this bird, which must undoubtedly have existed in the marsh, although we did not actually see it. But it seemed to us that the one feature lacking to carry us in imagination thoroughly into the heart of some western bird swamp was the presence of a member of the duck family. Nor were we to be dis-

appointed long, for on coming suddenly upon one of the isolated ponds, we saw, to our astonishment, a duck swimming. It made a short flight above our heads and then tried to hide in the rushes. Mr. Hann plunged wildly after it, and smashing the reeds about its head triumphantly produced a Lesser Scaup Duck (*Aythya affinis*). Its presence here at this date was quickly accounted for by the condition of one of its wings which had evidently been badly wounded last shooting season. Even so, how it had found its way to the marsh remained a mystery. At all events after securing its photograph we let it go.

Other visits to the marsh, each resulting in a few more nests and a little more data, were made by Messrs. Hann and Callender on June 23, by Messrs. Hann, Callender and Dr. H. F. Merriam on July 1, and by Messrs. Hann and W. DeW. Miller on August 5. This last visit was largely for the purpose of making a more quiet and minute study of the habits of the birds, as it was by this time late for nests. Mr. Hann wrote me afterwards a letter which contained the following additional information:

"We were surprised at the numbers of the Gallinules. We saw at least fifty separate birds in the open, and counted as many as twenty-eight in a single pool. We saw several of them standing on small tussocks, and when so doing the tarsus was almost perpendicular while the tibia was held at an angle of about forty degrees with the line of the tarsus. One bird we noted stood for twenty minutes on a small tussock not more than six inches across, and besides preening his feathers he would every now and then peck at the duck-weed round about. After a while he got up and flew off with short, moderately quick wing beats and legs dangling down like a rail; he did not rise more than three feet above the water.

"We observed one odd incident. As you know, some of the floating bogs are very unsteady and turn over easily. We saw a Gallinule swim up to a small bog of this sort and as he stepped on the edge, it tilted under his weight. Instead of getting off as one would expect, he simply walked forward, turning it over and at the same time picking at the duckweed on it. I should say that he turned it completely over at least four or five times while I was looking at him through the glasses, and he was so near that I could see every move he made. At times it seemed as if he would lose

his balance and have to step off, but he persistently kept at his game, and it really appeared to me that he did it more for the fun than for what he was getting in the way of food.

“In feeding on the water I never saw the Gallinules dive completely under the surface like the Grebes; they simply ducked their heads under. On such occasions it was a common thing to see them bring up a large bunch of duckweed and pick at certain places as though they were looking for insects or snails. Once I observed four birds at the same time busily engaged in drawing the duckweed toward their bodies and turning it over with their bills in this way. Occasionally, however, we saw the birds swallow large pieces of the duckweed, roots and all, so they evidently also fed upon the weed itself.

“In caring for their young the Gallinules pass food to them if they are very small, but in no case place it in their bills. The older youngsters find their own food altogether. Both parents apparently tend the young, for we saw one family of seven very young birds with two adults getting food for them, and these were the only two out of a number round about which showed any interest in the youngsters.

“We found three dead birds, one adult and a downy young, floating close to each other in one of the pools, and a dead adult on the railroad tracks. One adult was found to have started moulting. All the Gallinules’ nests seen were empty. But some of the Grebes were still mating, at least so we interpreted the action of a couple of birds who were playing with and chasing each other. One of them would at times dive and, swimming under water, come up beside the other. Then they would fly after each other so close to the water that their feet patted on the surface. Beyond this we did not observe much new in the habits of the Grebes, as we only saw six or eight and these were very shy and would not allow a close approach like the Gallinules. We found, however, another Grebe’s nest containing six eggs about a week old. It was close by the nest you found on June 17, and was perhaps a second attempt of the same pair of birds. We made careful measurements of the nest, as follows: Eighteen inches in diameter at the water line; nest cavity four and one half inches in diameter and one and one half inches deep; top of the nest two and one half inches above

the water (not including the covering of the eggs, which would make it another one half inch); nest about eight inches deep from water line to bottom of structure; attached to cat-tails in three places; at two of these places there were two stalks of cat-tails and only a single one at the third; the double stalks were on opposite sides of the nest, and the single one between these on the inside arc; these stalks were all about an inch in from the edge of the nest; you could pass your hand entirely under the nest except where the stems of the cat-tails came through, so it was thus truly a floating structure merely anchored to the cat-tails, composed of decaying vegetation and almost entirely of cat-tails."

In reference to the food of the Gallinules, it might be added that they are not, as I at first supposed, dependent upon the presence of duckweed, as Dr. Merriam found the birds nesting in a marsh near Chicago, where there was no duckweed at all.

To sum up, five separate visits were made to the marsh during the summer of 1906, comprising four full days and two afternoons. Evidences were found of the following species nesting there: Pied-billed Grebe, American Bittern, Least Bittern, Virginia Rail (?), Florida Gallinule, American Coot, Red-winged Blackbird, Swamp Sparrow, and Long-billed Marsh Wren. Of these birds, the most interesting of course are the Grebe, the Gallinule, and the Coot. In 'American Museum Guide Leaflet, No. 22' (July, 1906) — the latest publication on the birds of the vicinity of New York City,—Mr. Frank M. Chapman says of the Pied-billed Grebe: "Occurs chiefly as a migrant. I know of no definite instance of its breeding"; of the Florida Gallinule: "Its nest has not been found in the immediate vicinity of New York City, where it is known only as a rare migrant"; and of the American Coot: "Recorded as breeding only near Morristown, N. J." Although we failed actually to find the nest of the Coot, we discovered five occupied nests of the Grebes, and seventeen occupied nests of the Gallinules. This latter figure does not, however, give an adequate idea of the numbers of the Gallinules, for at least fifty empty nests were found, all of which must have been constructed this year, as we were informed by some boys that the marsh is burned over each winter for use as a skating pond.



Abbott, Clinton G. 1907. "Summer Bird-Life of the Newark, New Jersey, Marshes." *The Auk* 24, 1–11. <https://doi.org/10.2307/4070331>.

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