

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,

perhaps sufficient to fill a half-bushel basket. Each of these feeding stations, while containing many *Ampullaria*, also contained a few empty and broken shells of the Unionid bivalve (*Lampsilis vibex nigrina*). Two guides along this river, who have opportunity daily to observe the birds, informed the writer that while the species fed primarily on the large snail, it also occasionally fed on mussels and other material. From field observation it seemed apparent, therefore, that while the birds subsist largely on this one genus of fresh-water mollusk, they obtain a small part of their food from other sources.

Dr. Henry Bryant made careful observations of the bird in Florida and wrote in the Proceedings of the Boston Society of Natural History (Vol. VII, p. 13, 1859) that: "On the St. Johns (Fla.) it feeds principally on a species of *Natica*, which is extremely abundant, and also on the small Unios. The large green snail, so common in the Everglades, is not very often met with on the St. Johns. Its manner of feeding is to hold the shell in one of its feet, and then with a few blows of its powerful bill to detach the animal, which it immediately swallows. All the specimens I killed had the stomach filled with the more or less digested remains of various mollusks—principally Unios."

Thirty stomachs of the birds collected over many years from various localities have been examined in the Biological Survey laboratory. Of these, twenty-one were filled with the fleshy content of a gastropod that appeared to be *Ampullaria*. Some of them contained small bits of the mollusk opercula, only three of the stomachs containing even a trace of anything other than this gastropod. Five of the stomachs and gullets contained, twenty-five, twenty-four, fifteen, twelve, and ten snails, respectively. One stomach contained ten or more gastropods of the genus *Campeloma*. The other eight stomachs contained unidentifiable fleshy parts of mollusks, most of which appeared to be gastropods, probably *Ampullaria*. Of the thirty stomachs examined, the fleshy part of mollusks comprised 100 per cent by volume of the food content in all but one stomach, and in that exception it comprised 99 per cent of the total food. The other one per cent consisted of weed seeds and insects. Weed seed (*Polygonum*, *Ambrosia*, *Panicum*, *Myrica*, *Sisban*, and *Cephalanthus*) occurred in six of the stomachs, but amounted to only a trace of the total food content.

From stomach examination it will, therefore, be seen that 70 per cent of the total food was believed to be *Ampullaria*, while 3.33 per cent was identified as *Campeloma* and 26.66 per cent was unidentifiable

mollusk flesh, probably most of which was *Ampullaria*. Identification in this instance was made more difficult because only the fleshy part of the animal had been consumed. Plant fiber or seed fragments made up but 0.01 per cent of the volume of the total content.

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## EGG LAYING BY THE COWBIRD DURING MIGRATION

BY THOMAS D. BURLEIGH

Centuries ago Solomon wrote, "there is no new thing under the sun", and yet from time to time events transpire that seem to reveal a new thing. Interest in bird study during recent years has revealed much that has long been merely conjecture concerning the life histories of some of our familiar birds, and the acquired facts have usually corroborated earlier opinions of what actually happened. Yet exceptions do occur. And in the case of the Cowbird, a species already marked by its unique breeding habits, it would appear that there is some justification in considering recent knowledge of its actions during spring as something "new".

A study of the range of the Cowbird (*Molothrus ater ater*) in the southeastern States shows it to be a common migrant south of Virginia. According to the fourth edition of the A. O. U. Check-List it does not breed on the Atlantic slope south of central Virginia, and actual records of eggs or young in that State are scarce. Like the other blackbirds, it is a hardy species and in the fall normally lingers in the northern States well into October and frequently much later. Despite these facts, however, young birds have appeared in the southern States with unfailing regularity in July, and their occurrence during summer both in the Carolinas and in Georgia has presented rather a perplexing problem. Arthur T. Wayne in his "Birds of South Carolina" has commented on the occurrence of Cowbirds at Charleston as early as July 25, and Dr. Herbert Friedmann in his monograph on this species states, "It is very puzzling to find that in the Southern States the first migrant Cowbirds are seen as early as the end of July."

During nearly ten years spent at Athens, Georgia (from September 1920 to January 1930) I frequently found this species appearing in the open fields and pastures shortly after the middle of July, my earliest record being July 17, 1928. Specimens collected proved to be fully grown young birds of the year, but at the time the significance of this fact escaped me.