

A Short Study of the Nighthawk.

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Introduction.

The Nighthawk (Chordeiles minor) is one of the most abundant and interesting of the birds which occur in Eastern North America. Not only is it one of the two species in its order (Caprimulgiformes) which occurs regularly but it is the only member of its subfamily (Chordeilinae) found there. Seven subspecies are recognized by the A. O. U. Check List (4th Edition, 1931) but only one, the Eastern Nighthawk (C. m. minor) occurs in Michigan.

Nighthawks are extremely cosmopolitan occurring commonly throughout the state regardless of the conditions. In Northern Michigan in regions of sparse human population, it nests abundantly in aspen stands and open grassy areas. In the smaller towns throughout the state, nests may be placed upon flat roof tops and even in the most crowded parts of the larger cities such as Detroit, birds may be seen throughout the summer and undoubtedly nest.

Nesting Activities.

Date of finding the nest,
During the summer of 1937, a single nest of the Nighthawk was studied in the Douglas Lake Region in Cheboygan County. It was located in an open aspen stand on sandy ground about fifty feet to the west of a rarely travelled sand road. The nest hardly deserves to be called such as it was merely a bare spot on the ground. Here two eggs were laid and at the time^x that the nest spot was found, were already partially incubated. ^x July 7,

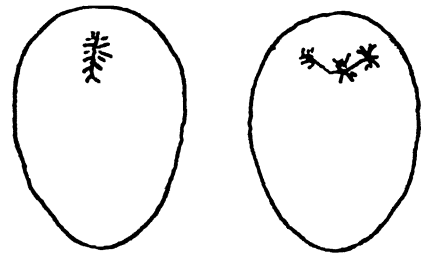
The eggs are invariably two in number and dull white marked with irregular grayish brown blotches. The shape is similar to that of a typical hen's egg but the smaller end may be more rounded. The two eggs in the nest studied differed noticeably in shape (see illustrations, next page) but the coloration was about the same on both. The pigment in the egg shell is laid on by a series of ap-

plications to judge by the variations in intensity of color. In places pigmented shell is very plainly overlain with a lighter layer of shell.

Incubation within the limits of observations made upon one nest, is carried on entirely by the female. She is quite easily recognized and distinguished from the male by the lack of white patches in the tail and generally by an ochraceous buff throat which replaces the white throat patch of the male, though the throat is subject to more individual variation within the sexes than is the tail.

The position taken on the nest was apparently influenced by three factors, the road, the sun and the blind after it had been erected. When neither of the other factors entered the picture, she invariably faced in the direction of the road. But when the nest site was exposed to the sun she kept her back to it regardless of any of the other factors. At the introduction of the blind, it took preference over the road and she faced it at all times that shade was available, until it became as commonplace as any of the rest of the scenery.

The coloration of the Nighthawk so nearly resembles the background against which it is usually found that it is very difficult to see even when one knows where to look. The birds take advantage of this condition and sit very closely allowing approach to within a few feet before leaving the nest. Approach from the rear was more feared than one from the front or to one side for the bird left at greater distances when flushed from behind than from any of the other directions.



Eggs of Nighthawk
(natural size) showing
Pipping

During most of the day the female appeared to doze on the nest waking only occasionally to shift position or to glance in the direction of

supposed danger. Her awareness to conditions about her was best indicated by the eyes though at no time was she slow to respond to any indication of approaching enemies. When dozing, her lids were almost closed but at any unusual sound, they were promptly opened to their full extent. Intermediate positions indicated neither extreme as might be expected.

When flushed from her eggs, she usually flew low over the ground to drop down again at distances of about seventy-five feet where she set up a series of notes which ^{somewhat} ~~at a distance~~ resembled a distant Kingfisher's call and might be represented as a series of hoarse, rattling "zeet"s. Occasionally the flight was made to a limb some little distance from the nest site where the bird perched parallel to the limb in almost every instance. Robert's (5) speaks of the Nighthawk's perching crosswise of the limb when agitated but at all times that I flushed the female, she lit parallel to it. -However, upon other occasions I have seen birds of the species perched crosswise when not agitated though these, of course, are exceptions to the general rule.

A few times, the female used the broken wing tactics commonly ascribed to several species. The most frequent flight when flushed from the nest, was intermediate between feigned injury and normal flight. With tail down and a slow more or less weak wing beat, she flew off low over the ground. But as hatching time approached and pipping of the eggs was discernible, she became more concerned and flew from the eggs with one wing drooping as if injured. At the conclusion of the flight, her mouth was opened to its full extent and the usual hoarse, complaining notes were uttered. Occasionally, both wings were stretched out on the ground and with her bill wide open, she emitted catlike hissing sounds.

At times, she remained on the ground immediately after being flushed but at others, she flew about, first from the ground to a limb and then from limb to limb in an unusually agitated manner. This took place primarily after the young birds were hatched and only at the time that I remained near them in plain sight,

The activity of the adult birds was most pronounced in the early morning and late evening. The incubating female was never seen leaving the nest of her own accord at any other time though adult birds were seen or heard most of the night, especially those with bright moonlight, and a good part of the more cloudy days.

Shortly after sunset during the period of incubation, the male "boomed" in the manner described under "Flight". This was repeated several times and was followed by short flights directly over the nest site during which the typical "peent" notes were heard. He then usually lit on the limb of a nearby tree and uttered several "purring" notes as if calling the female. Shortly thereafter he left and at about the same time, the female too, left the eggs to feed. The periods of feeding approximated a half hour in length.

Unfortunately, at the time of hatching, I was unable to be present at the nest. The first bird, however hatched sometime during the night of July 17-18, eleven days after the eggs were first discovered and about one and one-half days after pipping was first noted. (see illustrations of pipping on page 2). The other egg hatched between five and eight P. M. on the evening of the 18th. Though the young birds may be born blind, the eyes must open within a few hours following hatching for both young birds had their eyes open when first observed. The plumage or natal down of young birds is a light gray in color marked with darker gray patches. Shortly after the birth of the second young one, weights of both were obtained. The

second born was the heavier at that time weighing 6.65 grams, the first born which was the least active of the two, weighing 6.60 grams. The differences in weight and actions can probably be ascribed to sex differences, the male being the heavier and more active.

The eggshells had been removed from the immediate vicinity of the young birds and some of the remains of the shells were found eight to ten feet from the nest site. It is probable that they were carried there by one of the adults.

The care of the young birds after hatching was not left entirely to the female as was the brooding. Both sexes fed the young birds though brooding was still carried on largely if not entirely by the female. About dusk the actions and "peent"ing of the male occurred just as they had previous to hatching and the female finally left the nest to fly off with him. However, the trips were not as long as they had been and in about ten or fifteen minutes the female returned. As always upon her return, she lit some little distance (three to eight feet) from the nest and crept or sidled in from that point. Then calling the little ones to her by shifting her weight from one foot to the other and uttering soft "clucking" notes, she got both to move under her.

Shortly after these returns to the nest feeding took place. A few minutes later, the male bird also flew into the nest sight and fed either of the young birds which appeared from beneath the female. She then went out to gather food for another ten to fifteen minutes. Both the male and female went out on three to five trips of this kind feeding the young birds at the termination of each.

Feeding is accomplished by regurgitation. This was accompanied by what appeared to be violent effort on the part of the adult birds. The adult's bill placed inside of the little ones is

tightly grasped by the chick. Then with a violent though very limited movement of the head, the food was regurgitated. After completing each feeding, the adults swallowed two or three times and shook the wings. It appeared that one trip was sufficient for three or four feedings at which time another excursion was made for more food. The effort of feeding appeared to be greater on the part of the female than the male bird but this may have been due to differences in age or perhaps to individual variation rather than sexual differences.

Territorial instinct within the Nighthawks is not pronounced at least in the air above the nest for upon several occasions, males not belonging to the nest beneath have been observed "booming" at close range overhead. This has occurred with two or three males who were apparently merely cavorting and upon one occasion, when both adult birds were present with the chicks.

Sanitation is not necessary in this species as upon hatching, the young birds are enticed away from the nest site by the female and probably moved daily thereafter.

At an age of but three days, the little ones were destroyed and ended the study before it was well started.

Flight.

The Nighthawk's flight is a characteristic and interesting phase of its life. The wings of the bird are admirably fitted for fast and accurate motion. Aymar (1) writes "The Nighthawk's (wing), while long and pointed, has a noticeable bend at the wrist, a position characteristic of fast gliding! Few birds wings are so well adapted.

The usual flight when the bird is seen near the earth's surface is accompanied by the common "peent" notes so characteristic of the species. Several slow, strong and even wing-beats are followed by

a series of more rapid and weaker flitting strokes, the latter being typically accompanied by a "peent". Though I have heard the notes unaccompanied by this more rapid series of wing strokes, when the bird was flying low among some aspens, the two usually occur together. It is probable that during migration, the flitting wing-beats and nasal "peent"s are omitted and flight is confined entirely to the stronger and more effective strokes.

The "booming" flight of the Nighthawk while typically a mating performance, seems often to be merely the expression of an irrepressible exuberance of spirits for it continues from the time of the bird's arrival until its departure though during the last month or so its frequency is considerably reduced. Before "booming" the bird usually mounts to a considerable height, then suddenly tilts his body forward and drops rapidly downward with partially closed wings. The break is made by spreading the wings and leveling off at which time the booming sounds are heard, probably due to the rapid passing of air through the primaries. Several powerful wing strokes carry the bird back up into the air where the "peent" notes may again be produced and the flight changes to the usual alternation between the two kinds of wing-beat. The angle of incidence in this spectacular performance varies from nearly vertical to about thirty degrees from the horizontal. Occasionally, but only rarely, the "booming" sounds do not accompany the diving. Both sexes indulge though the males appear to take part in this particular evolution more often than do the females.

Economic status.

The food of Nighthawks consists almost entirely of insects caught upon the wing. For this reason, it is decidedly a beneficial species and deserves the protection which it is receiving.

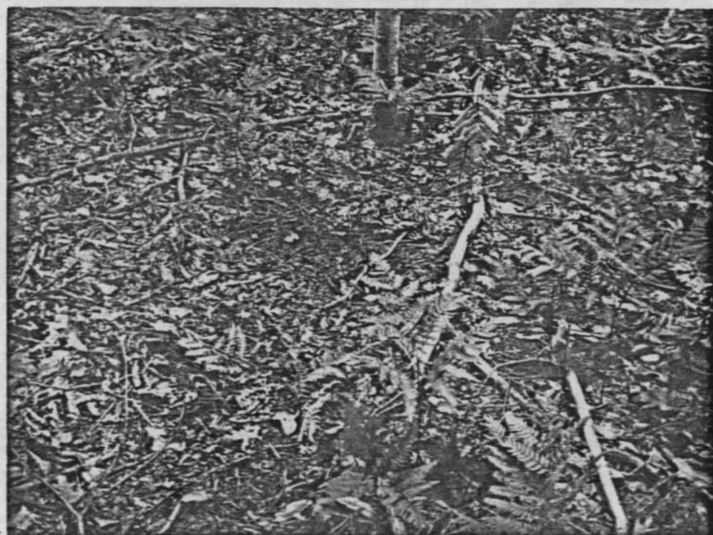
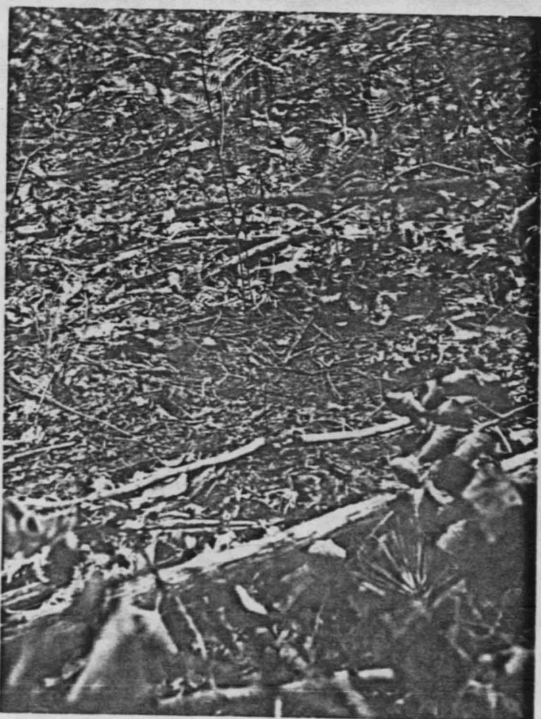
Nighthawk Nest Pictures.



The eggs.



Illustrative of the excellent protective coloration of the species.



The eggs and their environment.

References.

- (1)-A. O. U. Check List-1931 (4th Edition).
- (2)-Aymar, Gordon C.-1935-"Bird Flight"
- (3)-Chapman, Frank M.-1932-"Handbook of Birds of Eastern North
America".
- (4)-Forbush, Edward H.-1925, 27, 29-"Birds of Massachusetts and
other New England States".
- (5)-Roberts, Thomas S.-1932-"the Birds of Minnesota".