

Notes on the Nesting Habits of the Hooded Warbler.—During the spring of 1931 two nests of the Hooded Warbler (*Wilsonia citrina*) were located in Chapel Hill, North Carolina, one on May 3, while the female was building it, and another on May 20, at which time it held three slightly incubated eggs. A few notes concerning these nests and the nesting habits of this beautiful warbler may be of interest.

The first nest was attached between a small buckeye and a honeysuckle stem that ran parallel to each other about four feet from the ground. It was fastened to the stems by plant fibers and a few cobwebs, and supported by small twigs branching out below the nest. The situation was in a typical Hooded Warbler ravine, consisting of steeply sloping, wooded hillsides abundantly covered with undergrowth, and a small stream running down the middle, bordered by a luxurious growth of buckeye, honeysuckle, and poison ivy. A visit to the nest on May 9 revealed two eggs, and two days later the set of four was complete.

The second nest was placed in much the same kind of situation as the first one. It was attached to two separate alder stems that crossed under the nest, forming a sort of fork, and it was about ten feet from a small stream. About twenty feet from this nest were the remains of a last year's nest in a fork of a small oak. Both the old and the new nests were about three feet from the ground. The ravine in which this was placed differed from the other ravine in that the hillsides were only gently sloping and not so thickly covered with undergrowth, and the main growth bordering the stream was alders and ferns.

The two nests were very much alike in construction, being composed mainly of cedar bark with a few dry leaves and stems interwoven. The nests measured about two and three-fourths inches across the top and bulged out slightly at the bottom. The rim was about three-eighths of an inch thick, making the inside diameter about one and one-half inches. The inside depth was about one and one-half inches, while the whole nest was about three inches high, thus making the bottom about one and one-half inches thick. The first nest was unusual in that it was lined with horse hair, probably because there was a supply of horse hair near by, on a path where horses and riders often passed.

Because of the inconvenient situation of the first nest, most of the observations were made on the second one. The following observations apply to the second nest, unless otherwise stated:

During incubation the male spent much of his time singing on the hillside or up-stream. When the female left the nest to feed, the male would meet her and a lot of "chip"ing would follow, as if they were glad to see each other. The male would follow the female about as she fed and accompany her part of the way back to the nest, both of them keeping up a continual "conversation". The eggs hatched on May 27, and from then on frequent visits were made to the nest for longer or shorter periods.

The male of this pair had a peculiar habit of singing close to the nest when approaching it with food. Without a single exception during the first seven days after the eggs hatched, the male would sing from one to four times at a distance of twenty to forty feet when approaching the nest, and then feed the young. The male of the first nest was silent about the nest during all observations. Both pairs used two notes about the nest that I had never heard the species utter before, and which are evidently used only in such cases. Whenever the male

approached the nest and the female was brooding, he would give several throaty chips closely resembling the common call note of the Maryland Yellowthroat given softly. The female would answer him, and then either fly away or raise up and allow him to feed the young. This note was used whenever the two parents met at the nest. Brewster, in speaking of the Prothonotary Warbler (Chapman's Warblers of North America), states that when the sexes meet a soft "tchip" of recognition is given, which is also common to nearly all the warblers. In this case the Hooded Warbler probably uses this note at other times.

Another note used was a sharp warning chip. It resembled more a chip of a sparrow than the ordinary "chip" of the Hooded Warbler. Once a jay perched near the nest when the male was approaching the nest with food; the female saw the jay and gave the warning chip, and the male immediately turned about and flew away. I heard this note on several other occasions also, which assured me that it was a distinct note in the warbler's vocabulary.

Another point of interest that I noticed with both pairs was that when the male fed the young he almost always perched on an upright twig and fed hanging head downward, while the female usually perched on the rim of the nest. The male also left the nest immediately after feeding the young, while the female often rested several minutes on the rim, which tended to make her slower than the male in feeding.

During the first three days after the young had hatched, the male fed on the average of six times per hour, and the female fed three times and brooded three times per hour, during the five hours of observation. The average length of brooding periods was about ten minutes. During the remaining days that the young were in the nest brooding was discontinued, and the male fed on the average of every ten and one-half minutes and the female every fourteen minutes, in eight hours of observation. The nest was somewhat infested with lice, and the female often spent several minutes eating. The excretus was usually carried away.

The young were hatched almost naked, but soon were clothed in a coat of gray down. By the eighth day, when their eyes opened, they were partly feathered, and were beginning to utter audible food cries, resembling those of other young warblers. Their food seemed to be entirely insects, many of which were caught on the wing. Large brown crane-flies formed an important item in the fare.

While observing the nest I usually stationed myself about twenty feet away, and the birds paid little attention to me. But on the seventh day, when I took my usual place, the female began scolding me vigorously. She went to the nest and got rid of her mouthful and came back to scold. She and her mate refused to feed until I had retreated to about forty feet. For the remaining observations I was forced to stay out of sight. It seemed that when the young grew older the parents began to have more concern for their welfare.

When I arrived at the nest on June 5 the young were just leaving. The male had already led two of the youngsters up the slope, while the female stayed behind with the third which was evidently the "runtie". The young of the first nest were also, as far as I know, successfully reared.—EUGENE P. ODUM, *Chapel Hill, N. C.*