

OBSERVATIONS ON THE NEST LIFE OF THE CEDAR  
WAXWING (BOMBYCILLA CEDRORUM)

by

Walter R. Donaghho

1945

OBSERVATIONS ON THE NEST LIFE OF THE CEDAR WAXWING,  
(BOMBYCILLA CEDRORUM)

AS a bird study assignment for the Advanced Ornithology course taught at the University of Michigan Biological Station by Dr. Olin Sewall Pettingill, during the summer of 1945, I chose the study of the Cedar Waxwing. In getting the account of the nest life of the species, which follows in these pages, I studied four nests. Two were watched in the process of construction. These shall be referred in the text as Nests "A" and "B". These were blown down by an out-of-season wind storm before the birds had a chance to use them. A new nest was found after the storm with ready to hatch eggs and was studied until the birds left the nest. This will be referred to as Nest "C". A fourth nest was found nearing completion and was watched as the female deposited five eggs. The nest, known as Nest "D", was deserted.

The nest studies were started with observations of the construction of nests "A" and "B". Nest "A" was located in an Oak tree (*Quercus borealis*) near the beach in front of the main entrance to the Station Offices. It was on a horizontal limb, at a height of nine feet from the ground. An average of three hours a day was spent in watching the pair constructing this nest, which was apparently abandoned on July 5th. It was blown down on July 8th, and there were no eggs in it.

Nest "B" was watched for two days, from July 7th to July 9th, before being destroyed. It was located in <sup>clump of</sup> 2/Red Oak about one mile down the road to Pine Point, at the South East corner of the Pine Pt. Road-Firebreak Bad Crossing. It was also placed on the fork of a horizontal limb, 15 feet from the ground.

Nest "C" was located along the lower drive in a large Elm (*Ulmus americanus*) standing at the edge of the forest on the North side of the road and ~~adi~~-corner to and about 20 yards from the Boat-house. The nest was placed in the vertical fork of an offshoot limb, and was 19 feet from the ground. A blind tower was ~~placed~~ put up on July 18, and observations were started at 1:30 p. m. on July 19, and carried on up to the time of the departure of the young on Aug. 2.

A total of 47 hours was spent at the blind at Nest "C" and watching the construction of nests "A" and "B".

The last nest observed, Nest "D", was discovered on ~~July~~ July 14 under construction. It was in the Red maple (*Acer rubrum*) at the West side of the front walk into the Clubhouse and was placed on a horizontal limb 12 feet from the ground. On July 16th, the first egg was laid. A blind tower was put up on July 24th, and the birds deserted.

I wish to extend deep gratitude to Dr. Pettingill and Dr. Theodora Nelson for their unselfish aid in my studies, and to Miss Peggy Muirhead, Miss Marion Frear and Mrs. Clarence Messner for helping me with the locating of my n

rests.

HABITAT: Nests "A" and "D" were in single trees that stood apart from the other trees in front of the station. As nest "A" was never used, I do not know how much the birds were affected by the many people walking about nearby, but it has been recorded by Saunders (1911, p. 324) that the birds are usually very tame and not in the least affected by humans as close as two yards from the nest. It is possible that nest "D" was a more successful attempt by the same pair, since they have been known to make several starts before a final nest was built. (Pettingill, 1945) The birds on nest "D" were not the slightest bit bothered by the heavy traffic using the walk running right below ~~their~~ their nest, and it was my investigations that finally drove them off.

Nest "B" was in a clump of Oaks and other trees that stood apart from the open aspen forest surrounding it. The other trees of the clump were a small aspen (*Populus tremuloides*) on the South side and a Service berry (*Amelander canadensis*) near it. A small pine (*Pinus resinosa*) was just <sup>1</sup>under the clump at the East side. A clump of ~~Populus~~ Quaking Aspen with one Red Pine stood a few feet from the East side of the clump, and to the rear of this was an open forest of Red Oaks, Red ~~Pines~~ and White Pines, Service berries, and the Quaking and Large toothed Aspen (*Populus grandidentata*). Across the road to the North was a similar forest, and across the Firebreak to the West was an open space covered with

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Bracken (*Pteris aquilina*). Several Service berry bushes were scattered over this clearing, which extended back a hundred yards or more from the crossing. Just South of the Oak clump was another and smaller clearing with no Service berry bushes, bordered by the Aspen forest.

Nest "C" was, as mentioned before, placed in an Elm that stood at the edge of the road clearing. North, East, and West of the Elm was a dense growth of Red Oaks and Maples, and Sugar Maples (*Acer saccharum*) for the large trees, while underneath these grew Basswood (*Tilia americana*) and Birch (*Betula papyrifera*). One large Red Oak and one large Sugar Maple stood just North of the Elm, which was on the side of the 20 foot road incline. ~~AN~~ A Red Maple grew under the nest limb, and its leaves grew up around the nest. A large Quaking Aspen stood apart ~~fx~~ from the forest at the edge of the road and 20 yards West of the nest Elm. Dead branches jutting above the living main stem were used by the waxwings as perches.

Across the road, the area was clear, with single Red Oaks, Red and Sugar Maples and two Quaking Aspens growing on it. This area was the parking lot of Manville.

TERRITORY: AS far as I could make out, the Waxwings had little, if any nesting territory. Robert Lea, while studying the Waxwing at the Station during the summer of 1940, states that the birds have no territory (1942-p. 226). Post, however, writes that the Waxwings may observe <sup>a</sup> small territory, that a pair under his observation drove off

a Vireo, a Hermit Thrush and another Waxwing. (1916; 177)  
 I believe the birds do have a feeding territory however, as they resorted to the Pin Cherry trees (*Prunus pennsylvanicus*) about the station to feed. They are social birds, and kept in their flocks all through nesting, and they congregated in these flocks at the cherry trees, and disbursed in pairs to their various nests. (Saunders, 1911; 323).

THE PARENT BIRDS: The male and female Waxwings are devoted to each other, during the building of the nest and in the first few days of bringing up the young. The male was distinguished from the female not only by the ~~black~~ blacker chin but, as far as nest "C" was concerned, by the richer brown of the crown. The whole appearance was also ~~brighter~~ ~~brighter~~ brighter.

THE VOICE: The male Waxwing never sang any song while I was watching them, and there are two conversational notes commonly used. One is a lisping note used by the male as he flew in to the nest area. It was also used when they flew away from the nest area together. The other is a drawn out slur that I believe in several cases was used as a complaining note, as the female called to the male who had spent over ~~ten~~ ten minutes sitting at the edge of the nest. He flew off, and the female came in. On July 21, I heard the male calling with this note and the female immediately flew out.

This same observation was made on July 25.

The slur was often heard when the birds met each other, after the female flew out of the nest at the sound of the male, and both birds would converse with each other with it.

Another note, a higher and ~~xxxxx~~ sharp, descending note, was used as a warning note by the female, and the chicks in the nest froze immediately. I heard it often as I climbed the tower to the blind.

COURTSHIP: I never saw what has been described as the Courtship activities of the Waxwing, while I was observing the nest building, but Silloway (1904:13) writes: "Two Waxwings were sitting near each other on the lower branch of a fir about twenty feet from the ground. They were evidently courting. He would sidle over to her, rub his breast against hers, rub his bill caressingly upon hers, and then sidle back to his former place. Then the other bird would go through a similar performance." Ebert Lea writes of this courtship going on while building the nest (1942:226), saying "I watched a pair who engaged in a rhythmic routine of bill-clicking and sidling back and forth on a limb on which they had already begun to build a nest".

THE NEST AND IT'S CONSTRUCTION: The nest was a rough affair of sticks and grass, flattened slightly with a shallow depression. Nest "D" was measured and examined, and the measurements are: width across, eight and five-eighths inches;

inside diameter, three and three-eighths inches; depth, one and five-eighths inches, and width from the top to the bottom, six and two-eighths inches. The bulk of the nest was built largely of twigs averaging an eighth of an inch in diameter. Fern stems were also used, and also two strips of paper streamers, and one *Populus tremuloides* leaf that was hung on a projecting twig. The top was lined with grass leaves, and the bowl lined with the fuzz from Sumac stems. The average height of ten nests seen during the summer was 17.5 feet. The highest was placed 35 feet in a maple, and the lowest was nine, placed in an Elder berry bush in front of the library. Of trees used, three were in Red Oaks, two in Red Maples, two in Sugar Maples, and one each in Birch, ~~White, and~~ Elder, and Elm trees. Two others were reported in Oaks and one in a Birch.

Both birds assisted in the building of the nest, frequently arriving at and leaving the nest together. Roberts (1932:160) states that the female does the greater part of the nest building, while the male assisted in the collecting material, but as I was unable to tell the two apart while watching nests "A" and "B", I cannot support this observation, but several times, one of them came up to nest "A" without a twig. At other times it brought in twigs and laid them on the nest for the other bird who was in the nest. It then flew aside and waited for the other bird to finish,



then flew off with it's mate after more material. At one time, while watching nest "B", one of the birds came back with a twig and started to weave it into the nest. The other bird came back, also with a twig and pushed the first bird off the nest, finishing the job itself.

The nesting material was gathered mostly on or near the ground, and the birds also broke off small and dead twigs. I also saw a pair of Waxwings "skinning" the Sumac of fuzz for nest lining. Robert Lea (1942:228) writes ~~of this~~ that the Waxwings use what is readily available, telling of Waxwings using paper packing material from a wastebasket in close proximity to the nest and another pair using long strings from a diving board mat nearby, spending much time and effort to procure them. I found that the Waxwings were not in the least adverse to stealing. The pair at nest "B" started stealing nest material from a Wood Pewee's nest on the otherside of the Oak clump, and the combined efforts of the Pewees finally discouraged them, and they resorted to the nearby ground ~~for~~ for fern stems. Once I saw another Waxwing fly to this nest <sup>(waxwing's)</sup> and make off with a long grass stem plucked from the nest.

In constructing the nest, the birds ~~xxxxxx~~ will insert the twig, push it down and, if it is flexible, will bend it back into the nest and push it in. Then they turn around and wiggle their bodies to shape the nest, now and then reaching over to grab some

loose stem, and tucking the end of it into the nest. The length of time to build takes from five to seven days.

Nest "B", which was started on July 3, was finished on July 7. Robert Lea (1942:229) gives six days for two nests observed by him and five days for another.

LAYING AND INCUBATION: Although S. A. Saunder writes that incubation starts with the ~~xxxxx~~ first egg<sup>(1911:4)</sup> I found that, in nest "D", the bird was sitting on July , when the last and fifth egg~~x~~ was laid. Robert Lea (1942:229) writes that the incubating started when the clutch was complete. Four or five was the usual number in the clutches. Nest "C" had four eggs in it, while nest "D" had five. Three other nests were seen with four young and I also observed five young in the nest in the Elder near the library. Nest "D" had one egg in it on July 16. There were two on July 17, three on July 19, four on July 20 and five on July 21, when the bird first began to incubate.

I was unable to obtain any data on the incubation, but Robert Lea (1942:227) found ~~kkkix~~ the period to range from eleven to thirteen days. Also, according to him (p.229), the female does the incubating, while the male feeds her. However W. A. Gross (1929:181), by marking one of them with paint, found that the male also incubated.

THE CARE AND DEVELOPMENT OF THE YOUNG: The observations of the bringing up of the young were made at nest "C" from the 20 foot blind. On the first day of observance, the nest

contained two eggs and two chicks. Since then, a total of 28 hours and 14 minutes was spent in or near the blind, while the young were in the nest, and three hours was spent watching them after they left on the fifteenth day. Visits were made to the area every day after that until I lost track of the birds completely.

BROODING AND FEEDING: During the first eight days, the female broods the young, religiously during the first three, then less and less, until, on the tenth day, she does not brood at all. On the ~~ninth~~ eighth day, however, after a steady decline of the attentive period to 14 per cent of the total time on the nest, she spent 60 per cent of the total time on the nest. Table I, on page 11 shows the attentive and inattentive periods of the female at the nest.

On July 24, while watching the nest, it started to rain and the female came at once and sat on the young. She had been off the nest eleven minutes before this.

She nearly always flew off the nest at the arrival of the male, which always announced his arrival ~~at~~ in the nest area. Then she would return as soon as the male came in and help with the feeding and cleaning. The birds were very leisurely in their actions at the nest, taking their time with arriving and leaving the area. Often, the male, after announcing his arrival in the area, would take several minutes to come to the nest, and he always came up

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TABLE I

Hours of Attentiveness of the Female

	1st	3rd	5th	6th	7th	8th	10th	11th
at nest	180	173	60	291	218	220	180	120
at	170	135	15	99	31	133	0	0
st	10	38	45	192	187	87	180	120
on n.	19%	77%	25%	34%	14%	60%	0	0

Attentive period: 26 minutes

Attentive period: 2 minutes

Brooding: 9 hrs, 59 min.

TABLE II

Number of Feedings of the Parent Birds

	1st	3rd	5th	6th	7th	8th	10th	11th	13th	14th
at nest	3h	2h53m	1h	4h51m	3h38m	3h40m	2h30m	3h	3h	2h
♂ p. hr.	0.5	2	1	1.6	1.9	1.6	2.4	0	0	0
♀ p. hr.	0	0.8	1	0.5	1.1	1.0	1.6	3.5	4	3.5
ings, male	1	5	1	8	7	6	6	0	0	0
female	0	2	1	3	4	4	4	7	12	7
me bet. f.		22m		26m	19m	22m	15	17	14	17

through the maple below the nest. He usually approached the nest from the East side, leaving from the West, after first hopping to a small branch jutting out from the West support limb to sit there for periods up to ten minutes. His flight was to the North into the forest. The female arrived from the same side, though she also arrived from the West occasionally. Her flight, when she got off the nest was always to the North.

Although the male takes little, if any part in the incubation, he takes the major part in the feeding of the young, up to the tenth day, when he suddenly disappeared, leaving the young to the care of the female. The female, during the first ten days made on the average, only a third of the trips made by the male. Table II on p. 11 gives the number of feedings of both the male and female, with the averages in each case.

Although it has been written that the female does most of the work during nest building, I believe I have ~~xxxx~~ made observations that suggest ~~xxx~~ to me the fact that the male is "the boss", at least during the incubation period. This seemed to be shown in the way the female left the nest when the male called, and, at one time, after I had spent two and one half hours on the nest, and eight minutes after the male had made a visit to the nest, I heard him call in the slurring note. Suddenly the female flew out. Eight minutes later she came back and fed the young. Could

it be that the male was asking the female to make a feeding trip?

The male, after ~~he~~ sixth day, ~~suddenly~~ suddenly attacked the female with his beak while the latter was helping with the feeding, and she left immediately.

The Waxwings fed by means of regurgitation, the food being held presumably in the gullet. It consisted of berries of the Pin Cherry and Raspberry (*Rubus canadensis*), and a few strawberries and blueberries. Insect matter was also fed the young. The berries were regurgitated easily, and could be seen flowing out of the mouth, but the birds had to shake their heads vigorously to regurgitate the insect matter. At first, the berries were crushed, and the birds did much trial feeding, e.g., poking the berry into several mouths and pulling it out, giving only a taste, then depositing it finally into one of the outstretched bills. Sometimes, the parent birds swallowed the last one. Later, when the birds were capable of swallowing whole berries, the berry was frequently put down one throat then taken out again and given to another bird. Dr. Pettingill states that this was a method of the parent birds in finding out which birds had enough. If the chick couldn't absorb it, the berry was given to another, who could. At one time I saw a parent bird take out a berry that had been given the young bird on the preceding visit.

There was no apparent order of feeding, it was merely "The one who reached the farthest got the food" (Pettingill and Harwell in U. S. S. lectures, 1945). However the bird

frequently made the round of four, since those fed were thus temporarily satisfied and did not reach.

After feeding, the birds cleaned. The young would hold up their tails, and wiggle them, and the parent birds would reach over and swallow the fecal sacs. This was done until the birds left the nest. Once, on the fourteenth day, the fledgling dropped a sac over the edge of the nest, and it landed on a leaf a foot below the nest. The female flew down at once and swallowed the sac. She also cleaned off a bit that remained on the side of the nest. I found one fecal sac in the bottom of the nest, most likely left by the last ~~fledgling~~ fledgling just before leaving the nest. An examination of the nest after the fledglings had gone showed it otherwise perfectly clean, with no apparent sign of any parasites.

DEVELOPMENT OF YOUNG: On the first day, the naked young measured one and one half inches in length. They were capable of only the most primitive of instincts; those of opening their mouths to beg for food and holding up their tails to eject fecal sacs for the parent birds. Placed on their backs at this early stage, they were incapable of turning over, and squirmed and kicked helplessly.

They measured two and fifteen-sixteenth inches on the third day and their feather tracts on the body were showing as grey stubble. The secondary and primary feather quills were appearing, measuring a sixteenth of an inch. The eye-

lids were beginning to open; the space between them measuring one millimeter. The chick was able to grab the nest when lifted out, and was also able to turn over when placed in it's back.

First signs of the sense of hearing occurred on the fifth day when one chick stretched up his neck when the parent birds were in hearing distance. (this could have been, however, a response to a slight jar of the ~~xxx~~ nest by the wind).

On the sixth day, the eyes were well opened, and the feathers were showing on the feather tracts. The shafts of the primaries and secondaries were over a fourth of an inch in length. The chicks showed concern for outside noises ~~by~~ on the tenth day by opening their eyes when I lightly rustled leaves four feet from the nest. They vocally begged for food, and were well able to swallow.

On the eleventh day, the nestlings gave a start of fear when I coughed withing the blind. The white line around the crown was now quite distinct. They were well aware of their surroundings on the thirteenth day, freezing when I climbed the tower and crouching in the nest whenever I placed my fingers in the viewslot of the blind. Once, at 10:12 a. m., they stood up in the nest and fluttered their wings rapidly, calling loudly with a lisping note. Two of them got up on the rim and sat awhile.

Two of the fledglings had left early on the morning of the fifteenth day. Mr. Ikestead, who had climbed up into the blind to take some pictures reported them gone at 7:45.



The two that remained were perched on the edge of the nest. One of them paid attention to the female who was in the Elm over the nest, calling in a rapid lisping note, and answered her, hopping to a perch a foot away on the West side of the nest. (8:10 a. m.). After further coaxing from the female, No. 3 (Nos. 1 and 2 having left) suddenly flew, going down to a small birch tree within the woods and thirty feet to the North. The fourth bird left from the rim at 8:30 a. m. also flying down, and landing on a horizontal dead branch of the Elm, 10 feet above the sloping ground. They sat ~~ix~~ frozen in upright positions on their perches while I moved about over the ground, the female all the while giving the alarm note. When I was still long enough, the female began the coaxing lisp, and the young answered loudly. No. 4 flew up into an aspen five feet from the birch of number 3 and perched about three feet from and below No. 3, at the lisping of the female which leads me to conjecture that the female was addressing No. 4. I never caught a glimpse of Nos. 1 or 2 that morning, though I heard lisping which was most likely from young in the large maple above and to the West of Nos. 3 and 4. The latter two were gone when I returned from lunch, in the afternoon, having flown up into the big Maple. The female could be seen flying around thru the foliage calling, and the young were now and then answering.

Dr. Lyell Thomas reported seeing a fledgling fly out of the woods at 1:55 p. M. on August 1, and land in the lake  
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Dr. Lyell Thomas reported seeing a fledgling fly out of the woods at 1:55 p. m. on August 1, and land in the lake

where it soon perished. Mr. Ikestead reported all four present in the nest at 8:00 p. m. on August 1. Careful search of the area disclosed no other nests within the possible lines of flight, but since I never saw all four waxwings at once, the only statement I can make that it was quite probable that the first one, being the oldest, was a stronger flyer and, ~~immediately~~ upon leaving the nest, flew fairly level for a ways before dropping down. As the lakeshore is only 25 yards from the Elm, and the nest about 40 feet above the lake, it is quite probable for a fledgling to have overshot the shore.

The ~~next~~ young remained in the Maple or vicinity for more than a week, I having heard them on August 11. I only got one more glimpse of a young bird on August 4. On August 13 I ~~he~~ heard what may have been the young about fifty feet to the West, and once I saw an adult Waxwing fly into the area calling, and the young answered. This was the last observation made, having lost the Waxwings completely after August 13. Robert Lea (1942:231) that he believed that the young remained in area for some weeks.

The nesting season of the Cedar Waxwing from what I can conclude from my observations of the species, started up in the middle of June and was in full swing by the first week in July, many pairs building their nests at that time. I found Waxwings incubating on June 28 at the ~~Station~~ Station. By the middle of August, most of the nests in the Station area were either empty or with full grown young ready to

vacate the nests. At the date of writing this ~~xx~~ paper, August 18, All the nests in the Station area have been vacated. Maynard (1928:76) believes the species is a single brooded bird, but Crouch (1936:7) suggests that more, perhaps ~~xxx~~ as many as three, are raised in a single season.

As far as I could see, all the birds in the area of my study nests were compatible with the Cedar Waxwings. The brooding female at nest "C" paid practically no attention to the Redstart and Red-eyed Vireo that were constantly in the area, both species having nests in the vicinity, although at one time, when the Vireo passed within two yards of the nest, the Waxwing turned her head toward it. Kingbirds and Purple Martins called overhead, but the Waxwings paid ~~ihem~~ them no heed.

SUMMARY: OF ten nests found in the Station area during the summer of 1945, I watched four. Two were watched ~~during~~ in ~~the~~ construction, one while the eggs were being laid, the parent birds ~~deserting~~ deserting when a blind was put up at the nest, and a fourth was watched while the young were brought up. It took five days to finish one of the nests, and five eggs were laid in another, one at a time. The bird began incubating on the last day. Fifteen days from the day of hatching, the young left the nest.

The parent birds are devoted to each other, helping each other with gathering nest material and in the feeding. The male does the lion's share in the feeding of the young up to the tenth day, when it disappears and leaves the care of ~~young~~

young to the female. The female does all of the brooding. The birds fed Pin Cherries, Blue Berries, Raspberries, Strawberries, and insect matter to the young. The food was regurgitated. The fecal sacs of the young were eaten by the parent birds.

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