

A STUDY OF THE CUCKOO

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A total of four nests were under observation in this study-- two nests each of the Black-and Yellow-billed cuckoos.

The first nest was found about a quarter of a mile west of the U. of M. Biological Station on July 1, 1936 with adult incubating two eggs. These were not found on July 5th when the nest was visited in the morning. The center of the nest consisting of wild cherry stems was torn up as if something had lifted bird and eggs out.

The second nest, also of the Yellow-billed species, was found by Miss Flossie Maxwell July 3rd on the hill back of camp about one-half mile away. Although this nest was visited by the entire class of beginning birds (59) numbering about thirty; it was successfully brought to fruition, and through the collaboration of Miss Maxwell and myself, I am able to present some results of the nest and birds.

The third nest was discovered by Mr. Frank Hinds July 14th, east of the Picnic Grounds. It contained four eggs of the Black-billed cuckoo and although observed for about a week at irregular intervals--the mother deserted the nest, the eggs of which were found to contain embryos about ninety-six hours along, according to Mr. Hinds. The eggs were blown and these together with the nest were added to the collection. The photograph by Dr. Ingles show these.

The fourth nest was discovered back of cabins number six and eight on July 16th. It was a Black-billed cuckoo's nest containing two birds about four days old. On July 17th I studied this nest from a blind from breakfast time (7:15 A.M.) until about 11:30 A.M. I was fortunate to pick the time when one of the young birds reached the age at which it decided to leave the nest--about which I'll say more later.

Such is the material with which I had to work and although the data is meager and the nests few, I believe I learned many things that were new to me, and together with my readings in Herkick, Roberts, Allen and Howard, I have experienced many interesting events that before held little or no meaning for me, and have opened up new vistas for me in bird life.

Roberts (Vol. I. pp. 588) gives the range of the cuckoo as South-eastern Canada, along the border; Northern U/S. east of the Dakotas-South to the Gulf States and Mexico. It winters in South America, Venezuela, Colombia, Ecuador and Uruguay.

The nest is a rude affair, almost a flat platform of sticks, leaves (in the Black-billed), catkins, cherry stems (in the Yellow-billed), usually two-five feet from the ground in the undergrowth and vines but often higher.

The eggs are usually 2-4 rarely 6 or 8; oval or elliptical, light bluish-green, unspotted but sometimes faintly mottled with darker. The average size of 66 specimens was 1.19 / .90. The incubation period is 14 days. (Barrows)

A writer in Bird-Lore (31:190-1929) says that the cuckoo gathered all the sticks for its nest by breaking them off with its bill from a nearby dead tree. The bird bent the twig back and forth and if it did not break off readily this twig was abandoned for a more brittle one. The rude nest is usually completed in a few hours.

"Nearly half of the cuckoos' food was found to be caterpillars." Beal. The U.S. Biological Survey considers the bird "extremely beneficial,"

In regard to the calls of the two species Bendire says "it is impossible to positively distinguish them from those of its somewhat smaller relative, the Black-billed cuckoo. On the whole, I consider those of the Yellow-billed to be the louder of the two, but this is only a matter of opinion, and it is rather difficult to state just what difference exists between them."

Wm. Brewster says it is "easily distinguished by the much softer voice of the Black-billed". Personally I believe the Yellow-billed notes are more numerous and louder, having counted as many as twenty notes in one series while only thirteen from the Black-billed.

Roberts describes "the young when hatched-ugly, uncanny looking creatures with oily black skins, little or no down, the feather tracts marked by dull white, and when the first feathers appear they are stiff, whitish quills, which are several days in breaking through their sheaths."

As previously stated it was my privilege to witness a young bird leaving the nest for the first time. I erected a blind about fifteen feet from the nest of the Black-billed cuckoo about 7:15 in the morning. The adult bird which I took for the mother fussed around at first, curiously encircling the blind, peering cautiously in and around it, to discover any danger if possible. During the course of the forenoon she drove off a spermophile which came near the white pine tree in which she had her nest, uttering a cry of warning, spreading her feathers and advancing upon the animal with a threatening attack. However, she paid no attention to other birds like the robins, red-eyed vireos, waxwings and martins.

The parent brought in food--larvae and caterpillars, feeding the young by quickly putting the food in the mouth of the young bird, which swallowed it unaided. Roberts (page 593) has this to say: "When the old bird returns, the food, which is very likely to be live caterpillars, is concealed in the throat. As a nestling raises its head with open mouth and rapidly vibrating wings, the parent thrusts its bill deeply into the open mouth and the young bird grasps securely the smooth bill of the old bird in which action it is greatly aided by several soft papillae or disks in the roof of the mouth. They with the slow pumping motion, the squirming caterpillars are transferred with some difficulty from one mouth

to the other. The process is a slow one, the birds being attached a minute or more and the transfer aided apparently by a sucking effort on the part of the nestling." Herrick, opposite page 85, figure 33 shows a picture of a female black-billed cuckoo serving an insect by an "unusual mouth-feeding method" and in figure 34 by the "usual method of throat-feeding."

I saw no evidence, either in the method of feeding of the Yellow-billed or Black-billed that would tend to show that they fed their young by regurgitation. The parents simply presented the food in their bills, stuffed it in the open mouth, waited for the excreta sac and departed; the whole operation taking only a few seconds. The white papillae were present in the mouth of the young of both species but apparently disappears in the adult, *ex. one* that was killed by a car. However, never having seen the young grasp the parents' bill, I would be forced to disagree with the theory advanced by Roberts and Herrick, at least with the birds studied in the Douglas Lake (Mich.) region.

The young of the Black-billed left the nest about 11:00 A.M. shortly after it had been fed twice. It hopped first to a limb about 6 inches away, started to preen the sheathing from its quills, first on its breast, then the back and tail and finally the back of its neck by scratching with either foot, balancing expertly for so young a bird. The operation of unsheathing had lasted about half an hour during which time the young had transferred from an ugly looking creature similar to a porcupine, to a fluffy youngster about to venture out into the unknown world of limbs and trees. It was taken to the laboratory and banded (No. 331101) and returned to the tree, but it would not stay in the nest as it had gained "the light in its eye" that is, become a mature bird in the sense of investigating the world outside its nest. The young leave very early, for altricial birds, at the age of three or four or five days.

The eggs hatch at different intervals so that birds a few days old, newly hatched and incubating eggs may appear in the same nest. The young are born with a "grasping reflex, a reaction to food, call notes and a power of orientation or of maintaining a normal upright position", the latter enabling the young birds to leave the nest early and continue their growth and development in the branches of the nearby trees and shrubs.

The nest of the Yellow-billed cuckoo observed contained three eggs all of which hatched, two July 6, 1936 and the third July 8th.

One of the first hatched weighed 14.7 grams at 7:15 P.M. about 10 hours after hatching. When it left the nest after five days it weighed 26.61 grams. The other bird weighed 26.415 grams at the end of six days, disappearing at that time.

The third young bird "the runt" weighed 10.28 grams the first day, was fed grasshoppers and ant pupae the third and fourth days as it appeared undernourished, weighed only 13.9 grams the last weighing, the fourth day and was gone the next day. The chart shows the temperature to have been 102° and 101° those days.

Herrick said that "when removed (bird) from its familiar twig "saucer" will starve rather than open its mouth."

I did not find this to be true. The "runt" appeared very hungry when brought to the laboratory, would open its mouth, took several grasshoppers and ant pupae. (15). It also took water from a medicine dropper when tapped on the bill. It actually lost .27 grams the third day when the temperature (max.) stood at 102°.

The adult birds seemed to feed sparingly of caterpillars and spiders and once shaded the young during the heat of the day.

The nest (#1) of the Yellow-billed cuckoo was built about 9½ ft. up in a small maple; bulk composed of dead twigs and lined with cherry blossom stems (probably *Prunus pennsylvanicus*). Outside diameter was 7 inches, inside diameter 2¾ inches, outside depth 2½ inches and inside depth ¾ inch. No leaves were interwoven in the nests of the Yellow-billed as were

done in the nests of the Black-billed. The latter nests seemed more compact and better constructed. The dimensions were as follows: outside diameter 6 inches; inside diameter  $2\frac{1}{2}$  inches; outside depth  $2\frac{3}{4}$  inches; inside depth 1 inch. The adult Yellow-billed appeared shyer than the Black-billed and were very timid about approaching the blind. They also nested farther from the camp.

Both species "froze" on the nest at my approach as did the juvenals when their eyesight was acquired, about the second or third days.

#### Summary

1. The cuckoos of this region did not appear to feed the young by regurgitation.
2. The juvenals did not acquire their full feathers (only quills at first) until just before leaving the nest, at about the age of four to six days.
3. The young can be fed by others than the parent, outside the nest, without force.
4. About 50% of the nests found in this region are successfully brought to fruition.
5. The Black-billed appears to build a much better nest, more substantial than its relative.
6. Both species appear to be more numerous than generally supposed.
7. Being altricial juvenals, the young leave the nests very early as compared to juvenals of other genera of birds.

References.

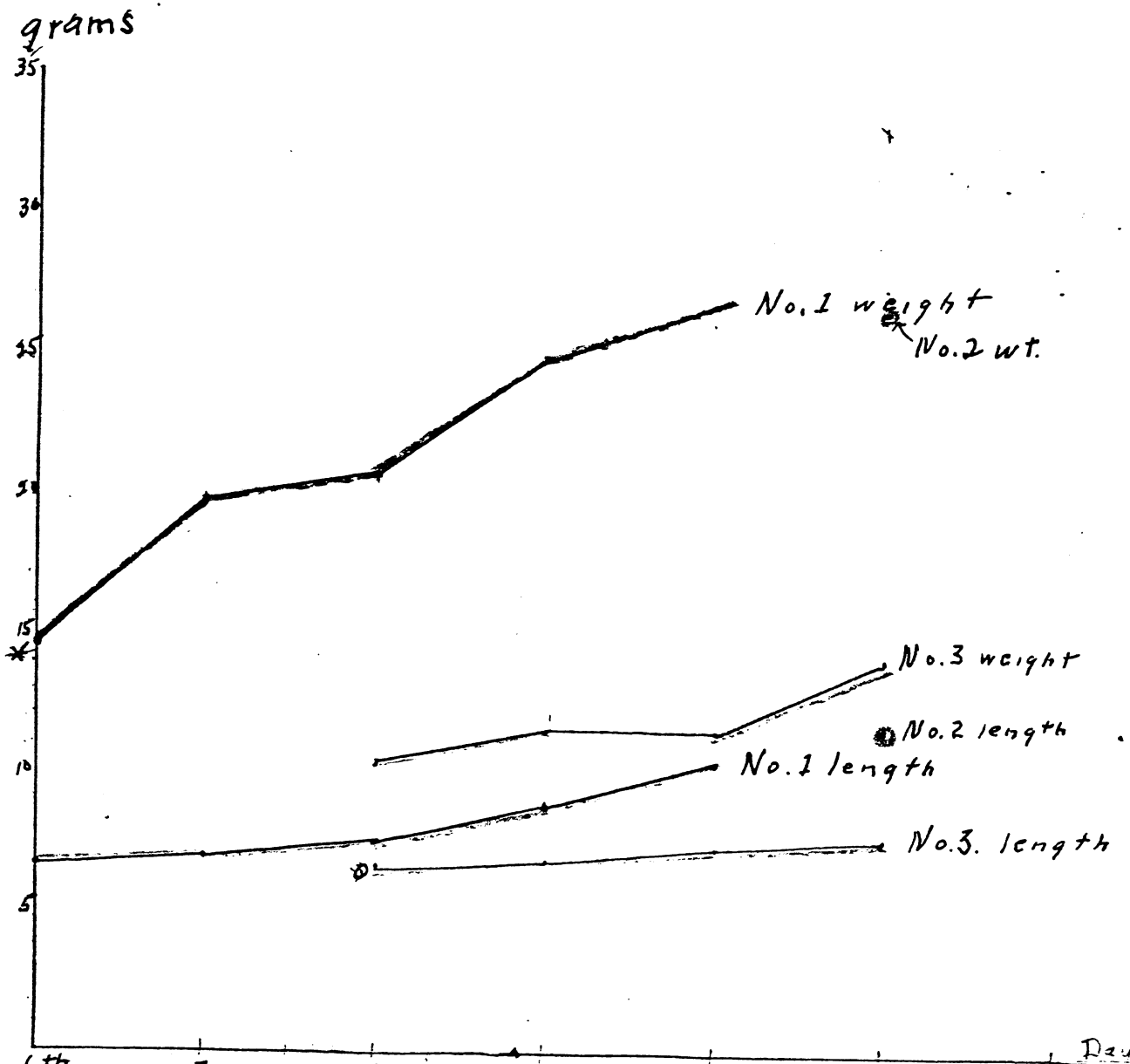
- A.A. Allen      The Book of Bird Life
- Chas. Bendire      Life Histories of North American Birds
- Francis Hobart Herrick      Wild Birds at Home
- Thomas S. Roberts      The Birds of Minnesota
- Henry Mowsley      A Further Study of the Home Life of Northern  
Parula Warbler and the Oven-bird.



	No. One Yellow-billed					2nd bir	yellow-billed				Black-billed # 331101		No. 331102
	July 6	7	8	9	10	11	7-836	9	10	11	7-1636	7-17	7-17
Weight gms.	14.7	19.9	20.71	24.83	26.61	26.41	10.28	11.47	11.36	13.9	28.35	27.32	25.52
m.m. Length	69	70	75	89	103	105	68	69	72	75	80	100	90
B, 11	13	14	16	16	17	15	13	15.5	16	16.5	13	16	15
B, 11-eye	12	13	16.5	18	19	19	14	15	16	17.25	17.5	21	20
B, 11-gape	14	16	17	20	19	20.5	15	16	16	17.25	18	21	20
B, 11-nostail	5	6	8	8	9	9	5	6	7.5	7.5	8	9	8
Eye-dia	3	3.5	4	4	5	4	3	3.5	4.25	4	4.5	5	4.5
Extent	65	90	115	145	165	162	75	72	79	90	105	131	115
Wingrt.	27	46	50	60	75	72	27	34	36	36	47	50	50
Right Foot	4	4.5	5	5	5	3.5	3.5	3.5	4	4	5	5	5
toe 1	7	8	8	9.5	10	11	7	7.5	9	9	9.5	11	10.5
2	9	10.5	11.5	13		13	8	10.5	11.5	11.5	12.5	15	14
3	13	17.5	19.5	21.5	22.5	23	10	15.5	16	18	20	22	22
4	12	15	17.5	19.5	21.5	22.5	10	13	14	15.5	17	17	19.5
Nail 1	2.75	3	3	3	3	3	2	2.5	3.5	3.5	3	4	4
2	2.75	3	3	3	4	3	2	3	4	3.5	4	4	4
3	2.75	3	3	3	4.5	4.5	2	3	5	5	4.25	5	4.5
4	2	3	3	3	3	3	2	3	4	4	3.5	5	4.5

Daily Development of Nestlings,  
 Yellow-billed Cuckoos (3)  
 Black-billed Cuckoos (2)

# Yellow-billed Cuckoo.

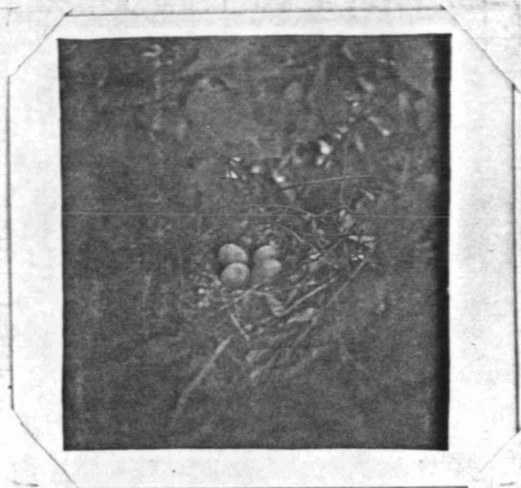


July

	6 <sup>th</sup>	7	8	9	10	11	12
Maximum temp	89°	98°	101°	100°	102°	102°	102°
Day							
Minimum " Night	53°	56°	70°	73°	75°	70°	73°

\* 2 eggs hatched July 6, 1936

o 1 egg hatched July 8, 1936



Measurements:

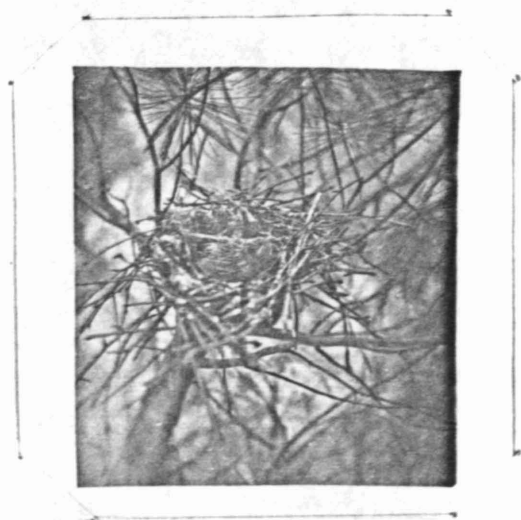
28 X 21.5

28.75 X 21.5

25.75 X 20

27 X 21

Nest and eggs of Black-billed Cuckoo -  
(*Coccyzus erythrophthalmus*)



Nest and young of  
Black-billed Cuckoo.

# 331102

Photographs by the  
courtesy of Dr. Finglas