

SOME OBSERVATIONS ON THE NESTING OF THE CRESTED FLY-  
CATCHER(MYARCHIS CRINITUS), AND THE EASTERN  
- PHOEBE(SAYORNIS PHOEBE)

by

Margaret D. Feigley

Winnetka, Illinois

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OBSERVATIONS ON THE CRESTED FLYCATCHER AND THE  
EASTERN PHOEBE

Introduction

The Crested Flycatcher (Myiarchus crinitus) and the Eastern Phoebe (Sayornis phoebe) are both regular summer residents of Michigan; Barrows (1912:396) states that the Crested enters the southern counties of the state around the first of May and reaches the northern counties a week or 10 days later. The Phoebe comes much earlier, as early as the middle of March.

The Crested prefers to nest in hollowed limbs of trees in the woods or in orchards, but will nest in boxes if no natural site is available. The Phoebe seems to prefer the habitations of man. It frequently nests under porches, sheds, or bridges.

The Crested Flycatcher observed in this study, located its nest in a much weathered nesting box placed 10 feet up on the trunk of a Large - toothed Aspen (Populus grandidentata). The nesting site was situated at the south eastern corner of C and East State Street at the University of Michigan Biological Station at Douglas Lake, Cheboygan County, Michigan. The Phoebe's nest was built on a beam in the Chatterbox which is located just north of the Dean of Women's office. (See Map 1)

I studied the nest of the Crested Flycatcher for a period of 15 days, or from the day that the first nestling was hatched until the young left the nest on July 16, 1945. A total of 12 hours and 24 minutes was spent in observing at the nest of the Crested and a subsequent three hours in tracing the young and adults after the former had left the nest. A total of five hours was spent in observing the Phoebes at the nest.

I did not use a blind in observing either nest , but sat about 20 feet from the nesting sites. I used a mirror for examining the nests part of the time. I banded the young crested and one of the adults in order to recognize them after they left the nest. Recordings of time and weather conditions were taken.

#### Habitat

The University of Michigan Biological Station is located in an aspen association in the northern part of the Lower Peninsula of Michigan. The dominant tree of the association is the Large-toothed aspen(Populus grandidentata) . Sub-dominants of the association are Prunus pennsylvanica and Betula papyrifera. There are also scattered maples, beech, White Pine(Pinus Strobus), Red Pine(Pinus resinosa), and Viburnum acerifolium. The ground cover is made up of the honey suckle(Diervella lonicera) , the Bracken Fern(Pteris aquilina); Aster macrophyllus, the Wintergreen(Gaultheria procumbens), the Pipsissewa(Chimaphila umbellata), and numerous grasses and mosses.

The Crested Flycatcher and the Phoebe both made use of the materials found within the habitat for their nesting materials. So far as I could determine the Crested foraged rather widely for food, the Phoebe often caught insects in the immediate vicinity of the nesting site.

#### Territory

The Crested Flycatcher seems to range over a wide territory. To the best of my knowledge, there were two nests only in this vicinity, one about

400 feet north of the boat house in a hollow tree, and the nest I observed at the corner of C. and State Street. Forbush(1927:337) says, " So far as I have been able to observe, this species is solitary, and in New England a lone bird or a single pair keeps guard over a considerable domain. I have not known two pairs to nest within half a mile of one another, though they may be distributed more numerous where the species is common."

A number of other species were nesting within a few rods of the Crested's location. Among these were Chipping Sparrows, Cedar Waxwings, Goldfinches, Redstarts, Red-eyed Vireos, Kingbirds, and the Least Flycatcher. So far as I could observe neither the Phoebe or the Crested Flycatcher was called upon to defend its territory. Several times the vireos and the Least Flycatcher were seen perching in the tree where the Crested Flycatcher's nest was located. The crested appeared not to notice them.

#### Nest of the Crested Flycatcher

The nest of the Crested Flycatcher, as I have mentioned in the introduction, was located in a poplar tree in a nesting box. At least, 90 percent of the nesting material consisted of the dead needles of the White Pine. There were 21 pistillate catkins of the Large-toothed Aspen scattered among the pine needles. The nest was lined with bits of hair and 12 feathers of the Ruffed Grouse (Bonasa umbellus). Fragments of a cast snake skin were present.

A colony of ants (Tapinoma sessile Say) was established in the bottom of the box. Fleas, flea larvae, and mites were present in great numbers.

#### Eggs of the Crested Flycatcher

There were five eggs in the nest. This seems to be the usual number. Barrows(1912:397) says, " The eggs are four to seven, rarely three or eight, while five or six is the usual number."

The ground color of the eggs was a creamy buff streaked longitudinally with chocolate brown.

I did not measure the eggs since hatching was imminent when I began observing the nest. Chapman(1912:341) gives the dimensions as .90 by .68 inches.

#### Incubation Period of the Crested Flycatcher

Since I have no figures on the incubation period I give you the findings of Bendire as quoted by Bent(1942:112) who has found that the period runs about 15 days. He further states that only one brood is reared and that the female tends exclusively to the duties of incubation.

#### Parental Care by the Crested Flycatcher

During the first four days after the young were hatched, the female did all the feeding and brooding. I did not observe that the male fed the female on the nest at any time. I have summarized the feeding and brooding activities of the female from July first to fourth in Tables 1 and 2. On July first, when the first nestling was hatched, no feeding occurred. The brooding periods ranged from 16 to 29 minutes. The percentage of time spent in brooding was 64.6 percent of the total time of observation, that of the inattentive time 35.4 percent of total observation time.

On July second the female fed the young each time when she returned to the nest after a period of inattention. The time spent in brooding and feeding was 34 percent of the total observation time, and the inattentive time comprised 66 percent of the total time. This represents a decline of 30 percent from July 1, to July 2. The amount of time spent in brooding decreased rapidly as a study of Table 2 will show. By the end of the observation period

on July 4, the percentage of total time spent in brooding or feeding had dropped to 19 percent, and that of the inattentive periods had risen to 71 percent.

After July 4, I was unable to make any further observations until July 7, when I found that the situation had changed greatly. Both adults were taking part in the feeding at this time. I was unable to distinguish sexes, so I captured and banded one of the birds (I do not know which sex) in order to form some opinion as to whether the work of feeding was shared equally. In Table 3, where I have summarized the feeding activities of both adults, I have referred to one bird as the banded bird and to the other as the unbanded bird.

On July 7, I found during an observation period of two hours that the banded adult fed six times and the unbanded adult fed eight times.

On July 11, during a 70 minute observation period, I found that the banded bird fed nine times and the unbanded bird fed nine times, making a total of 18 feedings in 70 minutes, or an average of 15.42 feedings per hour. From these figures it is evident that both birds shared about equally in the care of the nestlings. The number of feedings increased as the nestlings grew larger.

On July 15, the day before the young left the nest, the adult birds exhibited a new type of behavior. I observed the birds for a period of 70 minutes during which time each adult fed the young only once. Both adults were in almost constant attendance at the nest and were carrying food, but did not feed it to the young except for the one time early in the period of observation. Both adults and young called incessantly.

I did not observe any further at the nest after July 15, that is, after the young had left the nest.

Table 1

Attentive and Inattentive Periods of Female During Two Days  
of Observation after the Eggs Began to Hatch

Date	July 1, 1945	July 2, 1945
Number of nestlings	1	4
Age of nestlings	0 to 4 hours.	2 hr. to 28 hrs.
Time of day	1:20 p.m. to 2:56 P.M.	4:00 p.m. to 5:38 p.m.
Total hours and minutes	1 hr. 56 min.	1 hr. 38 min.
Temperature at beginning and end of period	65 degrees to 65 degrees	65 degrees to 62 degrees
Sky	Overcast	Overcast to clear
Wind	5 to 10 m.p.h.	0 to 5 m.p.h.
Number of attentive periods (brooding and feeding)	3 (brooding only)	3 (brooding and feeding)
Extremes	16 to 26 min.	30 sec. to 29 min.
Average length of attentive period	21 minutes	11 min.
Percentage of total time spent in attentive periods	64.6 percent	34 percent
Number of inattentive periods	3	3
Extremes	11 min. to 12 min.	4 min. to 37 min.
Average length of inattentive periods	11 min. 20 sec.	21 min. 30 sec.
Percentage of total time of inattentive periods	35.4	66 percent

Table 2

ATTENTATIVE AND INATTENTIVE PERIODS OF THE FEMALE DURING THE THIRD AND FOURTH DAYS AFTER THE EGGS BEGAN TO HATCH

Date	July 3, 1945	July 4, 1945
Number of nestlings	5	5
Age of nestlings	No. I. 2 days Nos. II, III, and IV 1 day, No. V 6 hours	30 hrs. to 3 days
Time of day	10:45 a.m. to 11:45 a.m.	3:45 p.m. to 5:15 p.m.
Total hours and minutes	1 hr.	1 hr. 30 min.
Temperature at beginning and end	73 degrees to 71 degrees	74 degrees to 74 degrees
Weather conditions	Good	Fair
Sky	Clear	Overcast
Wind	0 to 5 m.p.h.	0 to 5 m.p.h.
Number of attentive periods (brooding and feeding)	2	6 ( 1 of these feeding only)
Extremes	8 min. to 14 min.	15 sec. to 9 min.
Average length of time	11 min.	2 min. 59 sec.
Percentage of total time	38 percent	19 percent
Number of inattentive periods	2	7
Extremes	10 min. to 26 min.	48 min. to 10 min.
Average length of time	13 min.	8 min. 30 sec.
Percentage of total time	62 percent	71 percent



Table 3

## FEEDING OF THE YOUNG

Date	Time of day	Minutes	No. of feedings by banded adult	No. of feedings by unbanded adult	Ave. No. of feedings per hr. (both adults)
July 7, 1945	1:10 p.m. to 3:10 p.m.	120	6	8	7
July 11, 1945	10:20 a.m. to 11:30 a.m.	70	9	9	15.42
July 15, 1945	9:50 a.m. to 11:00 a.m.	70	1	1	1.71

### Behavior of the Adult Crested Flycatchers

During the early days of caring for the young, when the female assumed all of the responsibility for brooding and feeding, the male came to a tall tree near the nesting site and called several times. For the most part, these notes were a repetition of the wheep call.

When the female left the nest after a period of brooding, she would stick her head out of the hole and peer about for as long as 30 to 40 seconds before leaving the nest. She seldom went directly to the nest when she returned after a period of inattention, but would flit about from branch to branch for as long as two minutes.

After both birds began feeding, they frequently came to the tree together. Sometimes they entered the nest in rapid succession, at other times one bird would wait for as long as five minutes after the other had left the tree before entering the nest. Just before the young left the nest both adults became more wary. When anyone walked along the sidewalk under the nesting site they raised their crests and wheeped loudly.

One of the birds left the nest in the direction of the lake for the most part. The other often flew off in the direction of the Upper Drive. They both seemed to forage rather widely for food. Only once did I observe either of them catch food in the immediate vicinity of the nest.

When I banded one of the adults it snapped its beak loudly and wheeped. It did not return to the vicinity of the nest for two hours after the banding.

### Growth and Development of the Young

When the young were hatched they were naked, blind and helpless. They were able only to open their mouths and extend their necks. The lining of the mouth was a clear bright yellow.

For the first three days the nestlings were silent. Their first cries were very faint and were audible only when I lifted the cover of the box.

When the feathers began to grow, they appeared first as papillae-like bumps on the feather tracts. The wing feathers and rectrices grew very rapidly and, by the ninth day, they were about an inch in length. The natal down with which the birds were covered by the third day, was pushed out by the contour feathers. This is shown in Plate I which shows a nestling at the age of nine days.

The nestling shown in Plate I snapped its beak in the manner of the adult when I removed it from the box.

As the nesting period progressed the nestlings became increasingly noisy. Their calls early took on the character of the adult wheep. By the sixth day they were very active in the nest.

I did not observe the manner in which the fledglings left the nest, but they left sometime during the hours of 9:00 am. and 3:30 pm. on July 16. Dr. Mary Talbot observed them about noon of that day; one was on the ground near Cabin 17, on East State Street. The other was perched in the tree near the nesting box. A garter snake struck at the fledgling on the ground breaking the skin on the breast. The last bird left the nest during the dinner hour. I found two adults and two of the fledglings near the intersection of D Street and the Upper Drive about 8:00 on the evening of July 16. The period of life in the nest was 14 or 15 days, then. Bent (1942:113) says, "Mrs. Margaret Morse Nice (1931a) gives 12 days as the alivicial period, Dr. Gabrielson (1915) says 12 to 13 days, and Dr. Dickey tells me that the young remain in the nest three weeks."

### Nesting Success

All five of the clutch of five eggs hatched although only four of the nestlings survived the nesting period. One of the young disappeared at the age of five or six days.

### Fate of the fledglings

I was able to locate two of the young birds and the two adults on the side of the ridge south of the Upper Drive on July 17. One of the young birds had a broken wing. The adults fluttered about in the trees overhead while I examined the young bird. They followed me for several rods after I left the fledgling. Both were calling loudly.

On July 18, I heard the adults calling from the ridge farther south than on the previous day. I could not find any of the fledglings. I noted that all of the fledglings were very silent after leaving the nest.

### Food

It was difficult to tell what the adults were feeding the young since it was usually concealed within the beak of the adult. I did notice that dragon flies and sulphur butterflies comprised a small part of the diet. Bent(1942:115) says, " Prof. Beal (1915) examined the contents of 265 stomachs of the crested flycatcher, and found it divided into 93.70 percent animal and 6.30 percent vegetable matter. "

### Summary

1. Observations on the Crested Flycatcher were made at the University of Michigan Biological Station from July 1, 1945 to July 18, 1945. The Biological Station is situated on Douglas Lake in Cheboygan County, Michigan.
2. The nesting site was a bird box located on the trunk of the Large-toothed Aspen(Populus grandidentata).

3. The habitat was a Large-toothed Aspen association typical of the northern part of the Lower Peninsula of Michigan.

4. The territory of the Crested Flycatcher seems to be large. The birds studied were the only pair of this species within three eighths of a mile of the Biological Station.

5. The nest was constructed largely of the needles of the White Pine (Pinus Strobus) and the catkins of the Large-toothed Aspen (Pouulas grandidentata). The cast skin of a garter snake was present.

6. Eggs: The eggs were five in number, with a creamy buff background and longitudinal streakings of chocolate brown.

7. The incubation period of the Crested Flycatcher as found in the literature seems to be about 15 days.

8. Both parents shared in the care of the young although the female took charge alone for the first four days following the hatching of the eggs.

9. The young Crested Flycatchers were born naked, blind, and helpless. Their feather tracts developed rapidly so that the fledglings were well covered with feathers at the age of nine days. The young were silent for the first three days after which they called very faintly. By the fifth or sixth day their calls had taken on the character of the adult wheep. The young left the nest at the age of 14 or 15 days.

10. The food of the Crested Flycatcher is largely animal matter.

A Few Remarks on Some Observations of the Phoebe's  
Nest Located in the Chatterbox at the Biologi-  
cal Station of the University of Michigan

The nest of the Phoebe was located on State Street near the office of the Dean of Women. The nest was saddled on a beam which supported the roof of the Chatterbox. Fibers, grasses, mosses, and a very little mud were the materials used in its construction. Bent(1942:142) says, "A. Dawes Dubois (MS.) describes a typical nest as composed of mud, dry grass, weed and grape-vine fibers; lined with finer fibers and hair; and covered outside with moss." Of the moss, a constant component of phoebe's nests, Dr. Samuel S. Dickey reports (MS.) "I have observed such species as Mnium stellaria, Funaria sp., Polytrichum sp., Hypnum cristatum, and H. dendroides."

I examined a nest at the sawmill and found that it, too, had a quantity of moss woven in among the grass fibers.

There were four eggs, creamy buff in color, marked with a very few chocolate spots. I did not measure the eggs. Chapman (1912:342) gives the measurements of the Phoebe's eggs as .79 by .59 inches.

Bent(1912:143) gives the findings of Althea Sherman on incubation periods in the Phoebe. On a study of 10 nests she found that the incubation period averaged about 15 days. The period for the first brood tended to be longer than for the second.

Care of the young was shared by both of the adult birds. The female did all the brooding. I was unable to get any very clear idea of the length of the brooding periods because the bird was flushed off the nest at short intervals. During an observation period of 60 minutes on July 13, when the nestlings were from three to four days old, the female brooded

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P. Bent

six times with extremes of three to 20 minutes. The average length of the brooding period was eight minutes and eight seconds. The total time spent in the nest was 75 percent of the observation time despite the many interruptions.

When the nestlings were five days old I spent 80 minutes observing at the nest. The female brooded the young only eight minutes during this time. The adult birds together fed the nestlings 21 times, or an average of 15 times an hour.

The young birds left the nest at the age of 15 days. Bent(1942:144) quotes Frank L. Burns (1915), as stating that the nestling life of the Phoebe runs from 15 to 16 days. He also found that the female did all of the brooding and that both adults brought food to the young.

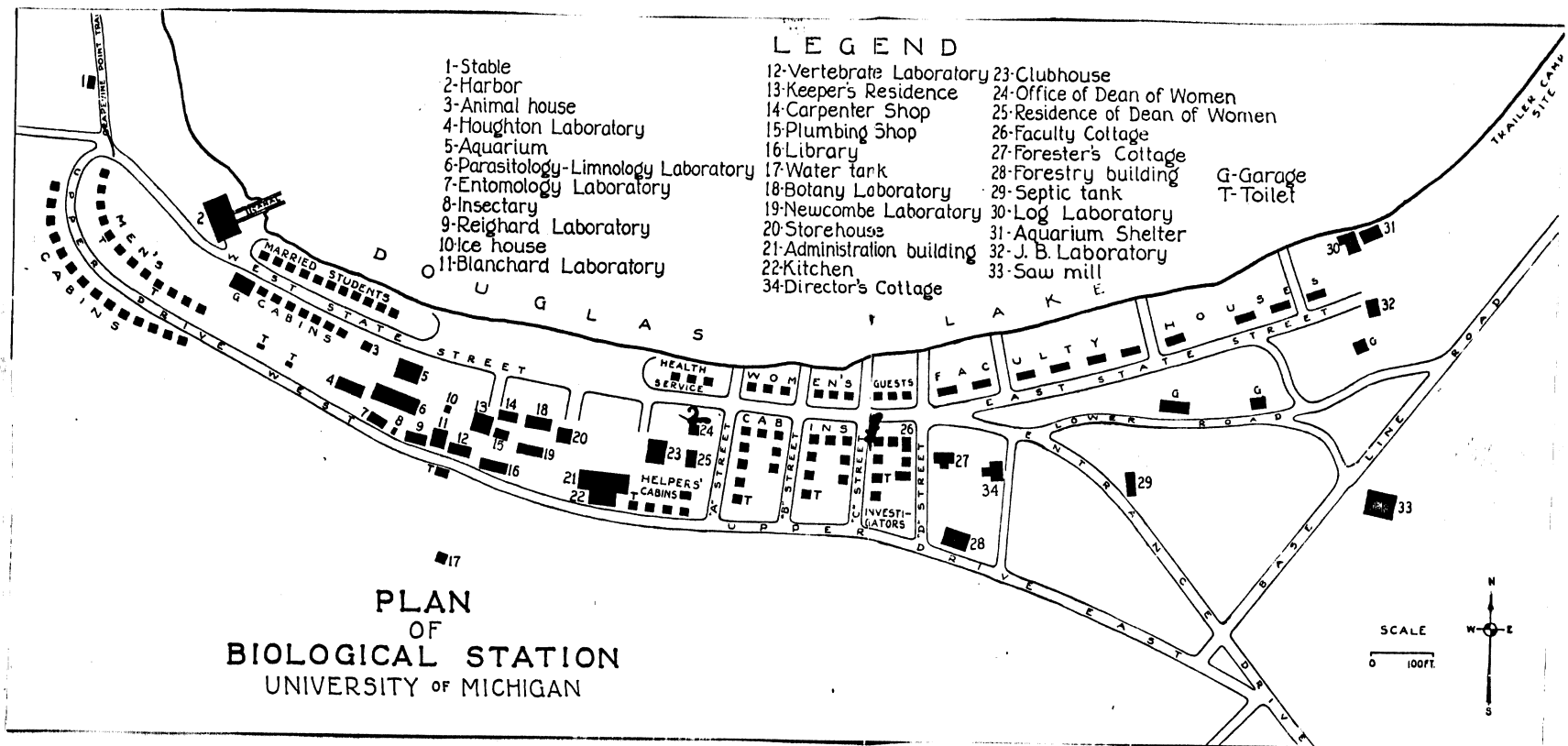
Three of the four eggs in the nest hatched. Only two of the nestlings survived the nestling life. The third died at the age of 14 days. The heavy infestation of mites in the nest may have caused the death. Bent(1942:150) states, "Perhaps the most serious of the phoebe's enemies are the parasites that often infest the nests and debilitate or kill the young birds."

PLATE I



Crested Flycatcher: Nestling at  
the age of nine days.





1. Nesting site of the Crested Flycatcher
2. Nesting site of the Phoebe

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