

*Observations on the
Least Flycatcher*

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Introduction

The Least Flycatcher, Empidonax minimus (Baird & Baird) breeds in the Canadian and Transition Zones. It is found as a summer resident of the Alleghenian Division of the Transition Zone. During the summer the Least Flycatcher may be located throughout the state of Michigan.

I observed the nesting of this species from July second to July eighteenth, 1943, at the University of Michigan Biological Station situated on the shore of Douglas Lake, Cheboygan County, Michigan. Five nests were located on the camp ground. I only had the opportunity of observing one nest from the last seven days of the incubation period through the day the young left the nest with a total of nineteen and one half hours of observation for this nest.

Habitat

Maples, birches, aspens and pines are the home of the Least Flycatcher. Ferns are the main underbrush in the sandy soil. Of the nests I observed, three were in maples, two in birches. The nests were located near open spaces. Two of the nests were at the top of young maples with no protection from above. One was built in a birch at the node between the trunk & a heavy horizontal branch with portions of the nest hanging down back sides of the limb. Two were constructed out on limbs. Generally the nests were a distance from each other. In one case, two nests were located just thirty-five feet apart.

The main flora on the camp grounds consist of the following:

Acer rubrum.

Betula alba

Pinus resinosa

Populus tremuloides

Populus grandidentata

Pinus monticola

Cornus virginiana
Cornus pennsylvanica
Pteris aquilina
Diervilla lonicera

Nesting

Bent (1942) states that the height of the nest ranges from ten to twenty feet from the ground. In all these cases the heights of the nests from the ground came within this range.

The nests were cupped-shaped, compact and neat. They were composed of thin dried grass, fine strips of birch bark, & thin stems that appeared to be cobwebbed in place.

The eggs were creamy-white, unmottled.

Two nests that were studied in greater detail had the following measurements:

	thickness of side	inside width of nest	outside length	inside depth
Nest #1	7 mm	55 mm	100 mm	35 mm
Nest #2	7 mm	55 mm	70 mm	40 mm

These two nests were approximately the same size. The outside length of Nest #1 was mainly due to long loose strips of birch bark that hung down from the sides.

The eggs averaged 16×12 mm. and were placed in the nest with the

5.
blunt end downward.

Later, when the active young were occupying the nest, the nest materials were spread further apart at the top and the nest became more or less flattened even though the cupped shape was still evident.

Incubation

I only observed the incubation period for the last seven days before hatching on Nest #1, situated at the top of a young maple seventeen feet from the ground. To my knowledge only the female incubated the eggs. Even though the adults are similar, I was able to differentiate between them by the presence of yellow-white on the sides and white on the coverts at the bend of the wing in the male. The female was pale ashy on the sides with

dull colored wing coverts at the
head of the wing.

During incubation the
male was in the vicinity of
the nest, either on his favorite
perch, or else near by giving away
the location of the nest with his
distinctive "cheec". The female
remained on ^{the} nest most of the
time. During the morning she
left the nest, presumably to feed,
for no longer than five minutes
at a time. During the heat of
the afternoon she was away
from the nest for as long
as one half an hour at a time.
Whenever the wind was high
she remained constantly on
the nest and was very still.
Often she turned clockwise in
position, a few degrees every
thirty seconds.

Neither parent was
too pleased about the intrusion
when the blind was pulled. The
male fluttered around wildly
giving sharp chirps. The female
went to a nearby branch pro-
testing and came back to the

nest three times in two minutes, looked ~~and~~ at the eggs and went off again uttering short clear notes. Then she was off for five minutes, returned, attempted to incubate the eggs and left again. Three times she came back to the nest at intervals of thirty seconds and finally decided to remain there for a half an hour. It took two days for her to become undisturbed by any commotion at the blind.

On July ninth, the three eggs hatched; the fourth of the clutch did not hatch until the following evening.

Young: Description & Growth

The most striking characteristic of the newly hatched young was the very large naked abdomen. The new born of most mammalian species give you the impression of being "all head", these of being all abdomen.

No commotion at the nest brought any response from the young. The ^{few down} feathers as one was still clinging together. The only movement present was that caused by breathing. Upon picking them up, they skinned moving their fragile legs & opening their beaks with feeble sounds of protest. The nestlings have large naked abdomens, pinkish, yellow skin with visible viscera, closed eyes, yellowish feet, edge of bill yellow, yellowish-pink mouth cavity.

On the second day the buff down became more numerous on the pterylae. The fourth nestling appeared looking as his comrades did on the previous day.

The two day old nestlings had heavier down, light brown in color. The nest already showed signs of wear & tear. By the evening a brownish streak became evident down the center of the head on the young.

By July the thirteenth the growth was so great that two young always seemed to be hanging

over the side of the nest. The feet by now were becoming flesh colored. The pin feathers were pushing out the down on the wings and spinal and caudal tracts.

By the fifteenth of July the feet became buff colored, edge of the beak buff with black ridge over upper mandible, feather shafts a blue-black. By the sixteen the lining of the mouth turned bright yellow.

Since the day of hatching, the large abdomens decreased in size, that by the seventeenth, the size of the abdomen was normal. On the seventeenth of July, the eight day old nestlings opened their eyes and looked at the world with their deep brown eyes. Now they spent most of their time feeding or preening or squawking. They had already doubled their size. Buff wing bars were clearly visible as well as a few buff feathers around the eye. The feet of the

10.
on the upper parts
feathers, had a brownish blue
tinge to them, the lower ones
more buffy. About 7:30 p m
on the eighteenth of July the stubby-tailed
four young left the nest. I
did not expect all four to leave
at once since the one was
a whole day younger than the
rest and was always pushed
aside and knocked around by
his brethren. The following
day I looked for signs of
the family, but all I could
find was one young in the
vicinity of the nest. When I
approached it, it flew off and
I lost track of it. Perhaps
this was the youngest one. The
abandoned nest swarmed with
mites was the only remaining
sign of that active family.

Young: Brooding & Feeding

I did not observe any feeding of the young until a day after hatching. The feeding & care of young was carried on by both parents. Previous to this the male had no noticeable interest in the nest, but now he cared for the young as well as occasionally feeding his mate. The young were fed by regurgitated food and no more than two were fed at one time. Generally whoever's gaping mouth was nearest the adult bird was fed. Twice I observed the female peck at one young, which in both cases was the youngest, nesting, to force it to take food. The feedings are very rapid with the immediate removal of the fecal sac by eating it, which I observed twice, or by carrying it from the nest for disposal. When both the adults were feeding the young almost alternately, the feedings were at ^{intervals} from five to twenty seconds.

Between larger intervals of feeding, the female remained on the nest and would have to constantly shift her position due to the activity of the young beneath her. They constantly uttered sounds & whenever the female left the nest they would shove each other aside with body and feet, stretch their skinny necks and squawk with gaping mouths.

By the twelfth of July the nest worn down their intense and constant activity. Strips of birch bark were draped at the sides of the nest. The activity of the adults was concentrated on rearing their young so they could care for themselves. Whenever the male took over the duties at the nest he remained perched at the edge of the nest, while the female sat on the young until their size became to

great for her to do, so and then she likewise remained at the side of the nest until evening.

On the thirteenth of July, when the young were about four days old, the female fed the young by regurgitation and the male came with two juicy mayflies. One he poked down one fellow. The second down another; but the second youngster was not successful. Papa pulled it out and shoved the insect further down with a hard thrust. In the meantime, the female returned to the nest and observed the actions. When she saw that everything finally went well, she continued to feed a third gaping mouth by regurgitation.

By the seventeenth both parents fed insects to their brood. The activity of the young made feeding a more difficult problem for the tired yet untiring parents, but they finally succeeded and went on their way.

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General Behavior of Adults during Breeding

The male constantly gave away the location of the nest. When he was not engaged in care and feeding of the young, he was usually on his choice perch about six feet from the nest in a fairly open spot either calling "Ch-hee" or waiting for a juicy meal to come his way. Then he would suddenly dart out after it, catch it on wing and return to his accustomed spot.

The female remained on nest most of the time. She made most in feeding of the young.

Even though this pair was wary of intrusion at the nest and protested somewhat when the eggs or later when the young were removed from the nest, the female of nest #2 remained on the nest until I touched it, whence she

flew off and perched on a branch
just three feet from the nest.
When I placed her single offspring
back in the nest, she returned
and sat on the nest before I
left the tower.

Nest Sanitation

On the whole the nest
was kept fairly clean. The
egg shells were evidently
removed, since I found no
signs of them in the nest,
when the young were still
moist from hatching. The
fecal sacs were removed
from the nest after feeding.
While the female was brooding,
she was continuously pecking
at the young. I was unable
to find out whether or not
they had lice or whether the
pecking was due to the
presence of mites or both.
The nest was swarming

16.
with spikes shortly after they left the nest.

Fear

The nestlings showed no reaction to fear until they were several days old. They then protested vocally and physically to any disturbance.

Economic Importance

Insects are no doubt the food of the Least Flycatcher. Forbush (1921) states that they feed on hairy caterpillars, pupae, and on birch plant lice. I observed their main food to be mayflies (Ephemeroidea). According to Beal (1912) their main food is Hymenoptera, then Coleoptera, Diptera, Hemiptera and Lepidoptera.

Even though Hymenoptera, the beneficial insects, are their main food we do not hold

this against our proud little Least Flycatcher. The other insects that annoy the farmer and horticulturist are devoured by them and thereby they make up for the beneficial insects that they eat.

The Least Flycatcher is one of our beneficial birds.

Summary

1. The Least Flycatcher breeds in the Canadian & Transition Zones. It is a summer resident of the Alleghenian division of the Transition Zone. My observations covered the period of July second to July eighteenth, 1943.
2. The nests were found, three in maples and two in birch.
3. Compact, neat, cupped shaped nests are built of dried grass and strips of birch bark secured with cobwebs. The eggs are creamy white and generally four in the set.
4. The female incubated the eggs.
5. The ^{large} naked abdomens are most striking in the newly hatched young. Rapid feeding and rapid growth are evident.

The young open their eyes on the eighth day. The young before leaving nest had buff wing bars and eye ring present.

6. Both parents feed and cared for young

7. Male had a favorite perch and announced the location of the nest with his distinctive "chee"

8. Egg shells and fecal sacs are removed from nest. I found miles in the nest when abandoned.

9. Fear was not evident in behavior of young until they were several days old.

10. The Least Flycatcher is beneficial economically.

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