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YELLOW-BELLIED FLYCATCHER NESTING IN MICHIGAN

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FOUR summer records of the Yellow-bellied Flycatcher (*Empidonax flaviventris*) were listed from Michigan by Norman A. Wood (1951: 271), from Chippewa and Gogebic counties and from Isle Royale. Three of these were specimen records. He did not list any actual breeding records.

Two recent records from Wisconsin show that the species definitely breeds in that state. A. W. Schorger collected a female June 22, 1949, in a spruce swamp near Teal Lake, Sawyer County, Wisconsin. She contained a well-developed egg. A male with greatly swollen testes was collected in the same region on June 22, 1950. Both specimens are in the collection of the University of Wisconsin (Schorger, in Kumlien and Hollister, 1951: 69). Lester Diedrich of the Milwaukee Public Museum collected a nest with four eggs and the female from the town of Wascott, Douglas County, Wisconsin, July 13, 1941 (Letter, Owen J. Gromme, September 17, 1956). These specimens are in the Milwaukee Public Museum. Kumlien and Hollister (1903: 82) wrote that Thure Kumlien took a nest with four eggs in the Bark River woods, Jefferson County, June 7, 1860, and two nests at a later date in 1863 and 1864. They also wrote that L. Kumlien found a nest containing two young just hatched, and one egg, June 25, 1891, near Albion, Wisconsin (Dane County). These records from Jefferson and Dane counties are much farther south than present-day records. No description of nests and eggs was given.

From Ontario, Baillie and Harrington (1937: 210) stated that the Yellow-bellied Flycatcher is not uncommon as a summer resident from the northern part of Wellington County to the transcontinental line of the Canadian National Railway, then west to Lake of the Woods at Indian Bay. Sets of four eggs were collected by L. S. Dear from



NESTING OF THE YELLOW-BELLIED FLYCATCHER IN SCHOOLCRAFT COUNTY, MICHIGAN. (*Above*) Nests and Eggs, June 27, 1956. (*Below*) The female at the same nest, July 5, 1956. Photographs by L. H. Walkinshaw.

two different nests at Port Arthur, Thunder Bay District, one on June 24, 1934, and the other in late June, 1936. They also listed a nest with four small young found by E. Beaupre, July 1, 1921, at Amherst Island, Lennox and Addington County and recorded a female specimen (marked incubating) from Mer Bleue, June 13, 1891, found by F. A. Saunders.

Roberts (1932: 17) said that no actual nest had been found in Minnesota, but there were a number of summer records, specimens having been taken in Aitkin County, Itasca Park, Marshall County, St. Louis County, and Lake County.

The Yellow-bellied Flycatcher (Bent, 1942: 182) breeds north to southern Mackenzie, Ontario, Quebec, and Newfoundland; east to Newfoundland, Nova Scotia, New Brunswick, Maine, southern New Hampshire, southeastern New York (Slide Mountain), and northeastern Pennsylvania (Mount Pocono); south to northern Pennsylvania, southern Ontario (probably London and Listowel), southern Wisconsin, northern Minnesota, and southern Manitoba to central Alberta. During the winter it has been found from central Tamaulipas, Mexico, south through other Central American countries to Panama.

On June 24, 1952, Walkinshaw was with John Miller and Charles Price, Jr., in the great Tahquamenon Swamp, one half mile north of McMillan, Luce County, Michigan. John Miller, who had seen the species in New Brunswick, commented that he heard a Yellow-bellied Flycatcher calling. They approached and soon found two (apparently a pair). Although they spent some time in search of a nest, none was found. Two days later, William A. Dyer and Walkinshaw again searched the area, finding the two birds but no nest. The only call the birds gave was the "pee-wee" call.

On subsequent visits to the northern peninsula in 1953 and 1954 we failed to locate any of the birds. However, Walkinshaw located a singing male June 28, 1955, in the spruce-tamarack Tahquamenon Swamp about one mile west of McMillan, Luce County. Returning to this spot July 1, 1955, he again found a singing male. This was in Section 32, T46N, R11W. In this identical area, Powell and Betty Cottrille and Walkinshaw found two, possibly three, singing males on June 20, 1956, and Walkinshaw found one, July 4, 1956.

The Cottrilles, William A. Dyer, and Walkinshaw heard a male Yellow-bellied Flycatcher singing on June 18, 1956, a few miles south of Strongs, Chippewa County, Michigan (Section 7, T45N, R5W). This bird moved north along the highway, however, and soon disappeared in that direction. A few minutes later, they found another

singing male in a damp stand of black spruce (*Picea mariana*) and jack pine (*Pinus banksiana*). This male was definitely on territory. This was in Section 32, T45N, R5W (possibly just over in Sect. 5, T44N).

On June 23, 1955, Walkinshaw thought he saw a Yellow-bellied Flycatcher in a bog in northern Schoolcraft County, Michigan (Section 5, T47N, R13W), but he had not heard the species sing before and was not sure. However, on July 3, 1955, he and William Dyer heard a male giving the "Kill-ink" song in the very early morning as they entered the area to photograph an Olive-sided Flycatcher (*Nuttallornis borealis*), which was nesting in the bog.

The Cottrilles, Dyer, and Walkinshaw returned to the area on June 19, 1956. About 50 feet from where the Olive-sided Flycatcher nested in 1955, Powell Cottrille and Walkinshaw found a female Olive-sided Flycatcher building a new nest. Almost simultaneously Dyer found a Blue-headed Vireo's (*Vireo solitarius*) nest with four eggs in a nearby tamarack (*Larix laricina*).

The group separated and Walkinshaw soon observed that a female Yellow-bellied Flycatcher was carrying nesting material in front of him. She was giving the "Pee-wee" call and had her mouth full of small wisps of fine grasses. As he watched the bird, Betty Cottrille became aware of the same incident and soon they followed her to a definite spot at the base of a small black spruce. Here the nest was found sunken into the sphagnum moss. The top of the nest was slightly lower than the surrounding moss and was well formed. The female was making regular trips into the denser stands of taller black spruce to the south. As she returned, she stopped periodically in the spruce trees until she reached the nest area, where she dropped into the nest, leaving the new material. As she returned to the nest, she gave the "Pee-wee" call over and over. While returning for new material, she was quiet.

On June 22, 1956, at 6 A.M. they returned with Laurence C. Binford. There was one egg, wet with dew, indicating that it had been laid June 21. At 6 P.M. there were two eggs. On June 23, at noon, there were still two eggs but at 8 P.M. there were three, indicating that the eggs were laid in the afternoon. On June 24 both at 6 A.M. and 6 P.M. there were still three eggs, but on June 25 at 6 A.M. there were four. Since she was found building it, the female had not yet been seen on the nest. On the afternoon of June 25, from a distance of 20 feet, Walkinshaw observed the bird as she silently left the nest. On June 28, the No. 2 egg was collected (University of Michigan, Museum of Zoology).

A blind was erected in early July about 12 feet from the nest. Betty Cottrille and Walkinshaw spent separate periods watching the birds. When strobolite equipment was placed at the nest on July 3, the female would not return to the nest but sat in a nearby tree giving the "Pee-wee" call. On July 5 she showed signs of tolerance of camera equipment at seven feet. Consequently on July 6, in the early morning, Dyer and Walkinshaw tried to photograph with strobolite again. This time the female returned almost immediately. Henry took several more photographs after the young had hatched.

After the group left for southern Michigan, C. J. Henry, Ed DeRosia, and Robert Sundell examined the nest daily until the young departed. On July 9 at 7 A.M. and 4:30 P.M. there were still three eggs (Nos. 1, 3, and 4). On July 10 at 6 A.M. there were three young and no signs of egg shells in the nest. Incubation required 15 days. On July 21 the three young were well developed and one was taken by Henry (U.M.M.Z.). On July 22 in the late afternoon the young were still there, but on the morning of July 23 DeRosia found they were gone. He collected the nest (U.M.M.Z.). The nestling period was 13 days.

The nest of the Yellow-bellied Flycatcher was apparently built entirely by the female. The male was nearby but did no work. She must have hollowed out the spot in the sphagnum moss. Then, in this depression she brought an outside lining of an *Usnea*-type moss, black in color, which became darker when dried out. The sphagnum moss was damp during the entire nesting period and the water level, at times, must have been within one or two inches of the eggs. The nest was lined with light brown, dead grasses and sedges. After it was used, the inside diameter measured 53.4 mm. (in fresh condition, 48.2 mm.); depth, 24.9 mm. The outside diameter, side to side, was 81.3 mm. and from front to back, 96 mm. While sitting in the blind 12 feet from the nest, we could not see the female on the eggs unless she raised her head.

The four white eggs were laid at one-day intervals. They were sparingly covered with light brown spots, most of which were concentrated at the larger ends. Some were wreathed more than others. The largest spots were about one millimeter across, while the smaller ones were mere dots. The four eggs averaged 16.67×12.9 mm. in size and 1.67 grams in weight on June 28. The eggs, numbered as laid, measured 16.5×12.8 , 16.4×12.8 , 16.4×13 , and 17.4×13 mm. in the order they were laid.

Usually the female left the nest silently when we approached, flying into one of the many surrounding spruces. From there she

flew out of sight into spruces farther away. When she returned, she gave a continuous "Pee-wee" call. In many instances she continued to give this call a few times when she was on the nest. Then she became silent until she returned again to the nest. After the young hatched, the parents rarely made a sound when coming to or going from the nest. Both male and female fed the young. The female, if brooding, often seemed afraid of the male when he brought food, backing off in a frightened attitude. The following notes were taken by Walkinshaw July 2, 1956 from a blind 12 feet distant:

- 11:16 A.M. Female back on eggs calling a low "Pee-wee" as she came toward nest. The male was with her and also gave the "Pee-wee" call. Both birds dropped onto the edge of the nest and both were now quiet. The male left immediately; the female began incubating. Two Nashville Warblers were singing steadily. A Myrtle Warbler, a Purple Finch, and a Blue-headed Vireo sang spasmodically. The Olive-sided Flycatcher called rarely nearby.
- 12:01 P.M. The female left the nest directly and silently.
- 12:08 P.M. Female was calling as she approached and flew from the taller spruces 15 to 25 feet down onto the edge of the nest. Then she hopped down onto the eggs. She gave the "Pee-wee" call 4 times on the eggs.
- 12:52 P.M. Female left the nest directly and silently.
- 12:58 P.M. Female returned and gave the "Pee-wee" call 6 times.
- 1:40 P.M. Female hopped silently to edge of nest, then flew onto a branch 3 feet, 6 inches away, then onto another nearby branch, where she sat for about one-half minute watching all around. Then she flew silently away.
- 1:45 P.M. Female was calling as she returned, 21 times, the last 2 on the nest. She landed on a small spruce nearby before flying down onto the nest. Olive-backed Thrush singing.
- 2:33 P.M. Female left the nest; flew into small spruce three feet to east. Here she sat for about one minute, then flew away. I got out and moved blind to within seven feet from nest.
- 2:41 P.M. Female was heard calling. Within range, she called 59 times, the last 7 from the nest. Apparently from her behavior she had not heard me move the blind. She must have gone some distance away for food.
- 2:55 P.M. Female rose a little, looked around, then settled back.
- 3:19 P.M. Female left nest, flew $3\frac{1}{2}$ feet to southeast into a small spruce, and watched all around silently. After about one minute she flew away.
- 3:35 P.M. Female was heard calling 4 times but suddenly stopped.
- 3:40 P.M. Female came back, calling as usual. She called 56 times, the last 2 on nest.
- 3:52 P.M. The female was working with the eggs. A Ruby-throated Hummingbird was feeding on the Labrador tea.
- 4:11 P.M. Female left, silently flying away.
- 4:18 P.M. The female came back, giving the "Pee-wee" call 26 times, the last 2 on nest.
- 4:35 P.M. There was a slight noise nearby. The female left but returned immediately.
- 5:08 P.M. The female left suddenly and silently by same route.

- 5:17 P.M. As she returned, the female called 47 times, the last 4 from the nest.
 5:21 P.M. The male called an explosive "Squeek" nearby twice; the female left suddenly. The male called three more times.
 5:26 P.M. On returning, the female called 21 times, the last 2 on nest.
 5:32 P.M. Olive-sided Flycatcher sang for the first time since I entered the blind. He had been giving the triple "Che-che-che" or "Cha-cha-cha" calls all afternoon.
 5:55 P.M. The female rose, looked around, and left silently.

On July 3, 1956 Betty Cottrille took the following notes from the blind:

- 10:13 A.M. "Pee-wee" call heard. Other birds heard singing and calling were the Alder Flycatcher, Olive-sided Flycatcher, Golden-crowned Kinglet, Olive-backed Thrush, Blue-headed Vireo, Nashville Warbler, Mourning Warbler, and White-throated Sparrow. Strobolite placed two feet from nest.
 10:15 A.M. "Pee-wee" call continued. Female approaching nest.
 10:19 A.M. Bird on nest.
 10:20 A.M. Male called "Kill-ick."
 10:21 A.M. Female flew off nest and called "Pee-wee" once.
 10:22 A.M. "Pee-wee" call continued; female came near, then went away.
 10:24 A.M. Male called "Kill-ick"; female called "Pee-wee."
 10:26 A.M. Same.
 10:29 A.M. "Pee-wee" call heard in distance.
 10:30 A.M. A small shrew went by the nest three feet away.
 10:35 A.M. Camera taken down.
 10:40 A.M. "Pee-wee" call given 46 times near nest; then the bird flew away, continuing to call.
 10:45 A.M. and 10:48 A.M. Male called "Kill-ick."
 10:49 A.M. Female called 24 times approaching nest.
 10:50 A.M. Female on edge of nest, but flew away; both she and her mate continued to call. Behavior similar until strobolite removed at 11:01 A.M.
 11:17 A.M. Female calling as she approached. She went onto nest, where she called twice.
 11:20 A.M. Raven called and startled female.
 11:21 A.M. Male came and sat on branch above nest, giving a throaty call and fluttering his wings. He shifted his position three times. (This could have been the female and the male might have been on the eggs.)
 11:54 A.M. Incubating bird quietly raised up, looked around, and took off.
 11:55 A.M. "Pee-wee" call in distance.
 11:59 A.M. Female back onto nest without hesitating. Sharp-shinned Hawk scolding.
 12:15 P.M. Bird raised up, looked from side to side, and left.
 12:16 P.M. Female back, calling 3 times while settling onto eggs.

In the afternoon Walkinshaw was there at 2.

- 2:10 P.M. Female back, calling "Pee-wee" near blind.
 2:21 P.M. Male chased something near nest; called a sharp "Kill-ink." Both birds gave the "Pee-wee" call.
 2:22 P.M. Female on nest.

- 2:29 P.M. Male called sharp "Kill-ick."
3:19 P.M. Female left the nest after raising up and peering about. She landed 3 feet from nest, looked all around, then flew silently away.
3:25 P.M. Female calling over and over as she approached. She landed right on nest and immediately sank out of sight on eggs.
3:32 P.M. She tried to raise up and catch an insect over her.
3:35 P.M. She left quietly and quickly. Something had frightened her, for she remained very near nest.
3:41 P.M. She was back quietly this time. Not one call.
4:02 P.M. Ravens, calling from south, were flying over and came into nearby trees. Female left the nest before they came.
4:07 P.M. Ravens left to northeast. Sharp-shinned Hawk scolding them as they came over its nest about 400 feet away.
4:12 P.M. One Raven still nearby.
4:15 P.M. No Ravens calling now. Nashville and Myrtle warblers and Olive-sided Flycatchers scolding. Female came back, calling 12 times, then became silent.
4:27 P.M. Female had been sitting on a nearby branch for some time. Now she dropped silently onto nest.
4:58 P.M. Female left the nest, flying around behind the blind.

On July 4, she left the nest when a small airplane went overhead. Otherwise, her behavior was similar to that of July 2 and the afternoon of July 3. On July 6, Dyer and Walkinshaw set up strobolite equipment again within two feet of the nest. The female returned almost immediately and many photographs were taken. The male remained nearby throughout the morning. He called a sharp "Kill-ick" periodically. During the afternoons of July 4 and 5 he had not been heard nor seen.

Periods on the nest July 2 were 45, 44, 42, 48, 38, 31, 50, 4, and 29 minutes; periods away from the nest were 7, 6, 5, 8, 21, 7, 9, and 5 minutes. On July 3 periods on the nest were 37, 16, 57, 10, 21, and 31 minutes; periods away from the nest were 5, 1, 6, 6, and 25 minutes. On July 4 the female was on the nest for one recorded period of 40 minutes. On July 5 she incubated for two periods of 15 and 21 minutes and was away for periods of 12 and 10 minutes. The average time of 15 periods away from the nest was 8.9 minutes (1-25 minutes). The average period of incubation was 32.2 minutes (4-57 minutes) for 18 periods. Of a total of 712 minutes, 579 (81.3 per cent) were spent in incubation and 133 (18.7 per cent) away from the nest.

NESTING HABITATS

The area where we found the Yellow-bellied Flycatcher on territory in Chippewa County, Michigan, was a bog, drier than some, but with pools of water standing here and there. There were areas of higher, sandy land intermixed with the boggy areas. The area was

thickly covered with black spruce, some 25 to 30 feet tall, with small clearings in some places and scattered spruces in others. Many jack pines grew on the higher sand ridges among the spruce. The ground cover was mainly moss with Labrador tea (*Ledum groenlandicum*), swamp laurel (*Kalmia polifolia*), bog rosemary (*Andromeda glaucophylla*), and cassandra (*Chamaedaphne calyculata*), the predominant ground vegetation. The area along the Tahquamenon River near McMillan, Luce County, was similar but included much more sphagnum moss and larger numbers of tamarack (*Larix laricina*). There was no jack pine there, but a number of small deciduous bushes grew in places. In another area, still part of the Tahquamenon Swamp region (Section 36, T46N, R12W), Luce County, where Walkinshaw heard a singing male Yellow-bellied Flycatcher, July 4, 1956, there was less tamarack and more alders (*Alnus* sp?).

In the nesting bog in northern Schoolcraft County, some areas were covered with dense stands of black spruce; other areas with some tamarack with practically no ground cover. In between these dense timber stands were many clearings of different sizes. The Yellow-bellied Flycatcher seemed to use the edges of these clearings. The clearings had some of the plants found in Chippewa County—Labrador tea, swamp laurel, bog rosemary, and cassandra. But here we found several orchids: *Cypripedium acaule*, *Habenaria clavellata*, *Habenaria lacera*, *Calopogon pulchellus*, *Arethusa bulbosa*. (In the Tahquamenon Swamp area *Cypripedium parviflorum* was very abundant.) The large cranberry (*Vaccinium macrocarpon*) was abundant and small sedges (*Carex* sp?) grew here. Although the Yellow-bellied Flycatcher could have built its nest under ground vegetation, it selected a spot adjacent to a small black spruce where there was no ground cover above it at all. It was at the edge of a large clearing but adjacent to a thick black spruce area. Three different males were heard in this section. Two of them were in the bog clearings; the third was where the alders met the bog.

Bird species in the Schoolcraft County area were: Sharp-shinned Hawk (*Accipiter striatus*), Ruby-throated Hummingbird (*Archilochus colubris*), Flicker (*Colaptes auratus*), Hairy Woodpecker (*Dendrocopos villosus*), Alder Flycatcher (*Empidonax traillii*) (in the alders), Olive-sided Flycatcher, Hudsonian Chickadee (*Parus hudsonicus*), Red-breasted Nuthatch (*Sitta canadensis*), Golden-crowned Kinglet (*Regulus satrapa*), Ruby-crowned Kinglet (*Regulus calendula*), Cedar Waxwing (*Bombycilla cedrorum*), Blue-headed Vireo, Black and White Warbler (*Mniotilta varia*), Tennessee Warbler (*Vermivora peregrina*), Nashville Warbler (*Vermivora ruficapilla*), Parula Warbler

(*Parula americana*), Magnolia Warbler (*Dendroica magnolia*), Myrtle Warbler (*Dendroica coronata*), Blackburnian Warbler (*Dendroica fusca*), Canada Warbler (*Wilsonia canadensis*) (in the alders), Redstart (*Setophaga ruticilla*) (in the alders), Purple Finch (*Carpodacus purpureus*), Chipping Sparrow (*Spizella passerina*), and Lincoln's Sparrow (*Melospiza lincolni*).

After the eggs hatched the adults became very quiet, and they became progressively quieter during the nestling period. Henry looked all over the swamp for them right after the young left the nest and could not find a trace of them. Sometimes, when one parent brought food while the other was at the nest, a very low note was emitted by one of the birds. On a couple of occasions Henry observed one parent give food to its mate, which in turn passed it on to the offspring. On two occasions the adult perched near the nest for several minutes at a time; it finally caught food from this perch. On other occasions the parents went for food far beyond Henry's field of vision.

The young in the nest were less active than most young birds. They were offered quite a contrast of foods. Characteristically, upon accepting food from the parents, they usually retaliated with a little white sac. Sometimes the parent swallowed the sac, but on a few occasions flew away with it.

The one young taken July 21, 1956, when it was 11 days old, weighed 11.3 grams. The wing measured 42.4 mm., tarsus, 15 mm., total length, 79 mm., and exposed culmen, 7 mm. The iris was dark brown. The tomia and lower mandible were lemon yellow; the upper mandible was dark tan (horn color). The legs were pinkish purple on the front, pale yellow posteriorly. (Colors were recorded by Robert Sundell from specimen taken by Henry.)

The bird was extremely yellow on the lower belly but much whiter on the throat and upper belly. Above, the bird showed a general olive-green appearance, tinged in places with brown and gray. The wing bars were also evident.

At the nest the adults showed the definite eye-ring and the two wing bars. The edgings of the secondaries showed lighter borders and the lower mandible was much lighter than the upper.

VOICE

The only call we heard the female Yellow-bellied Flycatcher give was the "Pee-wee" call. This call is definitely a "Position Call" as described for other *Empidonax* flycatchers by Davis (1954: 165-170). The female did not give it when leaving the nest, nor when away from

the nest. She did not give it when returning to feed the young. When she was frightened from the nest she did not give it on returning. However, while building the nest she gave it on each trip back to the nest, calling regularly and continuously, every few seconds. She gave it similarly when returning to incubate the eggs, even after she had settled down onto the eggs. After the hatching date she became very quiet. The male was heard to give this call on at least two occasions in Schoolcraft County and both birds were giving it in Luce County in June, 1952. The accent is on the second syllable and the call is not very loud. The Least Flycatcher (*Empidonax minimus*) has been heard by Walkinshaw repeatedly giving a "Position Call" of "Whit" usually as she returns to the nest. Another female Least Flycatcher call was described by MacQueen (1950: 203) as "Chweep." The Acadian Flycatcher (*Empidonax virescens*) was also heard in Muskegon and Calhoun counties, giving a "Position Call" of "Queep," again given by the female on returning to incubate the eggs. She has been heard to give this, though, when returning to brood the young or even feed the young out of the nest, as has the Least Flycatcher. The "Whit" call of the female Alder Flycatcher (*Empidonax traillii*) may possibly be a "Position Call," but the sharp "Queep" call is definitely not.

The typical call of the male Yellow-bellied Flycatcher is a double-syllabled, metallic "Kill-ink." It is not nearly as loud nor as explosive as the songs given by *E. minimus*, *E. virescens*, and *E. traillii*. It is given most often during the early morning hours. Walkinshaw has heard this song in Chippewa County, June 18, 1956; in Luce County, June 28 and July 1, 1955, and June 20 and July 4 (two areas), 1956; in Schoolcraft County, July 3, 1955, and repeatedly in late June and early July, 1956. Another song heard by the Cottrilles and Walkinshaw June 20, 1956, in Luce County was a "Pee-wick," also accented on the second syllable. These males were heard to sing from 8 to 16 feet up in 20- to 25-foot spruces. Between 9:51 and 9:56 A.M. a male sang the "Kill-ink" song from 9 to 12 times per minute, averaging 11 times. Later he gave the "Pee-wick" song 5, 5, and 4 times per minute for three consecutive minutes. A second male singing nearby gave the first song at about the same rate. Another call, which was not a song, given by the male when the birds were disturbed at the nest was a sharp "Kill-ick" much more explosive than the song.

For three of the *Empidonax* flycatchers in Michigan, Walkinshaw has heard a different call given in flight by the male near a known nest. The male has flown directly past him only a few feet away when giving these calls. Apparently it is to divert attention away

from the nest. The call was given by a male Yellow-bellied Flycatcher June 23, 1955, in Schoolcraft County when no nest was found and again by the male at the same area at a known nest in 1956. It consisted of many rapid short-syllabled notes. It has been heard only once when the intruder was near the nest. The Acadian and Least flycatchers have been heard giving a similar call during flight in Muskegon County, in July, 1956. In general, though, the male Yellow-bellied Flycatcher is a very quiet bird. Even then he is heard more than seen.

SUMMARY

Yellow-bellied Flycatchers were found in summer in the Upper Peninsula of Michigan, in Chippewa, Luce, and northern Schoolcraft counties. A nest was found under construction in Schoolcraft County, June 19, 1956. All observations were made in bog areas where black spruce, tamarack, and in one area, jack pine occurred. Undergrowth was predominantly sphagnum or other mosses, Labrador tea, swamp laurel, bog rosemary, and cassandra, with scattered cranberries, rare orchids, sedges, and grasses.

The nest was built by the female at the base of a small black spruce in a semi-open location, near both a clearing and a thick stand of black spruce. It was sunken into the sphagnum moss with no vegetation directly over it. It was built of black mosses and lined with dead grasses and sedges. Four eggs were laid from June 21 to the night of June 24-25. One egg was laid between noon and 8 P.M. Incubation began June 25 and the young hatched between 4:30 P.M. July 9 and 6 A.M. July 10, a period of 15 days. The four eggs were white, covered sparingly with light brown spots. They averaged in measurement 16.67×12.9 mm. and in weight on June 28, 1.67 grams. The young remained in the nest 13 days. The female did all of the incubating, but both male and female fed the young.

During 712 minutes of observation July 2, 3, 4, and 5 the female incubated 81.3 per cent of the time. The average period of incubation (18 periods) was 32.2 minutes (4-57), and the average period away (15 periods) was 8.9 minutes (1-25) for the remaining 18.7 per cent of the time.

While building the nest, when she returned with nest-material, and when she was returning to the nest to incubate the eggs, the female gave a low "Pee-wee" call accented on the second syllable. At all other times she was very quiet.

The male had a two-syllable song, "Kill-ink," not very loud, and also accented on the second syllable. It was given during one period

an average of 11 times per minute (9–12) during a six-minute period. Another song was “Pee-wick,” given only 4 or 5 times per minute. The male was heard to give the “Pee-wee” call on three occasions. Another flight-call, with many rapid, short-syllabled notes, was given as the male flew by the intruder near his nest. But in general the male, too, was a very quiet bird.

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