STUDIES OF THE SHORT-BILLED MARSH WREN (*CISTOTHORUS STELLARIS*) IN MICHIGAN.

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Plate XVII.

DURING the past few years it was found that the Short-billed Marsh Wren occurred in suitable spots over the entire state of Michigan instead of in the southern part of the lower peninsula as was formerly supposed. Specimens have been taken from most of the northern counties in the upper peninsula wherever the habitat was suitable (Norman A. Wood and Leonard Wing). I have observed the species in Gogebic, Houghton, Iron, Baraga, Alger, Schoolcraft, Luce, Chippewa and Mackinac Counties in the upper peninsula, and have found the nests at Munuskong Bay in Chippewa County, while hunting for Rails' nests with F. C. Gillette. In the northern part of the lower peninsula the species has been observed at Douglas Lake in Cheboygan County[1] and I have observed it at Houghton Lake in Roscommon County and over most of the counties in the southern part of the state

The favorite habitat of the Short-billed Marsh Wren is not among the large groups of cat-tails with several feet of standing water, but rather in the higher part of the marshes, in the intermediate portion between the bordering meadow and deepest part of the swamp itself. There is generally very little and often no water at all where they nest. These marshes are the favorite habitat for the Sandhill Crane (*Grus canadensis tabida*), Yellow Rail (*Coturnicops noveboracensis*), Greater Prairie Chicken (*Tympanuchus cupido americanus*), Savannah Sparrow (*Passerculus sandwichensis savanna*), Henslow's Sparrow (*Passerherbulus henslowi henslowi*) in the southern part of the state; Leconte's Sparrow (*Passerherbulus caudacutus*) in certain parts of the upper peninsula, and of the Swamp Sparrow (*Melospiza georgiana*) and Song Sparrow (*Melospiza melodia baeta*). This type of country is also the favorite haunt of the rattlesnake in its southern portion.

The flora of this part of the marshes consists mostly of small-leafed sedges, particularly those belonging to the genus Carex, and of small grasses. Among the many other plants which grow there Mrs. N. T. Peterson has identified the Royal Fern, Sensitive Fern (*Onoclea sensibilis*), Marsh Shield Fern (*Aspidium thelypteris*), Cat-tail (*Typha latifolia*), Wood Bulrush (*Scirpus sylvaticus*), Showy Lady Slipper (*Cypridium reginae*), Calopogon (*Limodorum tuberosum*), some of the smaller willows, Fringed Gentian (*Gentiana crinata*), Bottle Gentian (*Gentiana Andrewsii*), Climbing

[1]Wilson Bulletin, vol. 41, 1929, p. 250.

NEST OF SHORT-BILLED MARSH WREN WITH FEMALE, BATTLE CREEK, MICH. JULY 16. 1933.

Wild Cucumber (*Echynocystis lobata*), Tall Ironweed (*Vernonia altissima*), Joe-pye Weed (*Eupatorium purpureum*), Blue Vervain (*Verbena hastata*), Canada Goldenrod (*Solidago canadensis*), Beggar Ticks (*Bidens vulgata*), Nodding Bur Marigold (*Bidens cernpa*), New England Aster (*Aster novae-angliae*), Yellow Dock (*Rumex crisuus*) and Turtlehead (*Chelone glabra*). In the early part of the summer grasses and sedges predominate, and later the appearance of the marsh takes on the gay colors, the yellows and blues, of the goldenrods, asters and vervains.

The nests of the Short-billed Marsh Wren which I have observed were all in dense thick masses of small-leafed sedge, or in a combination of sedges and finer grasses. The nests are made of the culms of sedge and fine grasses interwoven into a globular mass, lined with smaller culms or grasses, and then with feathers, fur, pappus or other cottony materials. The nest is usually closer to the ground or water than that of the Long-billed Marsh Wren (*Telmatodytes*) and in much denser growth and consequently is much harder to find. The birds usually build several nests as does that species and the used nest is often a little closer to the ground than the false ones. The used nest in our marsh was thirty centimeters from the ground, which is about the average distance of the nests which I have observed. The false nests average about fifteen centimeters higher. The occupied nest was 25 to 28 cm. from the normal level of the water, and measured 101.6 mm. high, 82.5 mm. wide and 82.3 mm. from front to rear, externally. The interior, after the young had left, measured 63.5 mm. high, 44.5 mm. from front to back and 57 mm. from one side to the other. The opening was 25 mm. in diameter.

One nest examined was much smaller and the interior was lined with muskrat fur, feathers, pappus and other cottony materials. The opening was barely discernible on the side as is the case in many of the nests.

The nests examined during the summer of 1934, when all of the Short-billed Marsh Wren habitat dried up, were several centimeters higher from the ground than those previously examined. They averaged about 50 cm. from the ground. All were in dry locations. One of these nests examined had for lining feathers, mouse or shrew fur, and the downy part of the cat-tail. A few nests measure slightly larger than the measurements for the above nest and sometimes appeared to be started by drawing down the tops of the sedges to begin the outside of the ball. The openings of the nests measured from 15 to 25 mm. in diameter and in all of those examined faced either to the east or north.

Often the false nests of one pair will be located almost to the territory of another pair, in large meadows where they seem to congregate in colonies. In the marsh studied in Calhoun County, during 1934, in an area of about ten acres, there were as many as thirty-five or forty males singing at the

same time, while in other places of smaller size only one pair could be found. In one place a male was singing from a small group of cat-tails along the side of the road.

The eggs of this Marsh Wren are pure white in color and are ovate or pointed ovate in shape. They measure from 11 to 12 x 15 to 17 mm. The Short-bill has a rather large setting of eggs, varying from four to eight in number. A set of seven eggs found May 31, 1935, weighed 9.5 grams, an average of 1.35 grams per egg. As to the incubation period a nest found in our back yard during the summer of 1933, on June 22, had its first egg on June 23 and the complete set of seven eggs hatched on July 13–14. Allowing one day for the deposition of each egg the incubation period would be approximately 14 days.

This Marsh Wren nests during any of the months from May until September, in Michigan. I have observed nests during the months of June, July and August, one of which was found with one egg on August 5, but due to cattle grazing in the region it was trampled down. Of the eleven nests which I have observed eight were in June, one in July and two in August. If one considers the variation in time during which the nests were found it would appear that the Wren rears two broods and possibly three, at times, during the year, though probably some individuals rear only one brood.

The young of the Marsh Wren remain in the nest from twelve to fourteen days. They are fed by the female almost entirely but the male occasionally will stop to feed them. Excreta are carried away by the mother bird on her feeding trips to the nest.

When the weather was very warm, the young peered out through the opening, breathing very fast with mouths wide open. They showed little fear of man until they were about twelve to fourteen days old, then when one approached the nest they watched very dubiously.

After they leave the nest the young move about among the sedge and bushes of the marsh like little mice, except that they occasionally move up to secure food from their parents which feed them until they are able to take care of themselves, even then they move about in small groups until migration time.

The plumage of the adult Short-billed Marsh Wren has been described so many times that there is not much to add. The iris is brown and the legs and feet pinkish in color. The maxilla is brownish with paler tomia. The mandible is much lighter, yellow in color with the tip a little more buff, but pinker in life. The tail is barred for the full length in varying numbers of black cross bars, the width of which also varies.

The amount of white streaking along the crown also varies. In some birds it consists of long thin streaks and in others of very fine white dots.

The young have legs and bill pink, the latter a little darker near the tip of the maxilla. The young when they leave the nest are from 55 to 70 mm. in length. The top of the head on one specimen of 58 mm. in length, had no stripes, being dark brown changing to a lighter brown on the forehead. The back, rump and upper tail coverts were uniform hair brown, the wings a deeper brown, and the breast very similar but a little lighter, than that of the adult. The tail was 10 mm. in length, hair brown with one black band about two mm. in width at the tip. A bird 66 mm. in length had the coloration much the same, but there were indications of black on the wings and nape. In a bird 69 mm. long the head was colored the same, but the wings were barred with blackish and tipped with brown, and the back was barred with black. The breast on the sides was much more buffy and had a distinct band near the throat. The bills were decurved in these young birds. Weights of two birds have been recorded by Dr. J. Van Tyne, one an adult male weighed 8.5 grams; the other an immature, nearly full grown, 8 grams.

Migration dates are as follows:

Year	First	Common	Last
1929	———	———	Sept. 8
1930	May 2	May 7	Sept. 11
1931	May 16	May 24	———
1932	May 8	May 8	Sept. 1
1933	April 30	May 14	Oct. 22
1934	May 3	May 6	Oct. 14

The food of the Short-billed Marsh Wren consists of insects. They have been observed to feed the young, with moths, spiders, mosquitoes, flies, grasshoppers, and bugs.

With us the Short-bill sings from the time of arrival in the spring until the departure for the south in the fall. During the months of April, May, June and July it sings almost continuously during the hours of daylight. During August, when many of our birds are extremely quiet, this species is still a persistent singer and even in September and October I have heard its repeated song at certain times of day.

Of the pair which nested directly back of our house in 1933, the male was heard to sing not only during the day but at nearly all of the hours of night. During the months of May, June, July and August I heard this male sing at various times; from 11.30 P. M. until 2.00 A. M., and until daylight. Then he would sing all day long until 9.30 P. M. but from 9.30 to 11.30 P. M. I never heard him sing. Sometimes between the hours of 2 and 5 A. M. he would sing as persistently as during the hours of daylight.

He usually sang his song once, then paused a few seconds before repeating. During the height of the nesting season he would sing once every five seconds for a period of several minutes. Many times when he was timed,

he sang twelve times a minute, while at others he would sing only six or eight times. After August 10 this bird did not sing nearly as often but he continued to sing early in the morning and late in the evening until he left on October 5. This Wren had favorite perches from which he would sing, two on willows, another on a wire fence which was about 100 yards from the nest. The two small willows, however, were only about twenty-five feet distant.

There seems to be some variation in the song. Usually this bird would sing one song each time but I have heard him sing twice in rapid succession on several occasions, the second song much shorter than the first, "Chap-chap-churr-churr-chur-r-r-chap-chur-chur-r."

The usual song is not repeated in quick succession but is given at the rate of once in every five seconds, and is merely the first part of the above, "Chap-chap-churr-churr-chur-r-r."

After the season had progressed into the months of August and September this became much less forceful and the opening became, "Sit-sit-sit-churr-chur-r-r," or "Sit-sit-sit-sit-t-t."

The height of the singing is during the nesting season and before. I have no proof that the female sings.

There are two alarm notes both with a dominance of the letter 'R' rather than of the letter 'K' as in the Long-billed Marsh Wrens scolding note. The scolding notes are "Churr-churr" and "Chap-churr."

The young were heard to utter a call before leaving the nest of "Chit-chit."

Most of the following notes were taken from my notebook, during observations from a blind.

June 22. Two nests of the Short-billed Marsh Wren were found in the marsh which comes up to our back yard and where the male sang so persistently from his date of arrival on May 11. Both the nests were empty but the old birds were in the neighborhood scolding. Following this date I left on a trip through the northern part of the state so that it was several weeks before these nests were again examined.

July 15. On examining the first of these nests it was found to contain six newly hatched young and one egg. The following morning the blind was erected within two feet of the nest and left there until after the young had flown.

July 16. Entered the blind for the first time.

11.30 A. M. The female returned immediately to feed the young while the male sang nearby. She fed the young three times during the next fifteen minutes then sat on the young for two minutes.

12.05. Returned to feed young.

12.09. Returned to feed young. Always fed young as she stood in the

doorway. Sometimes the bird would come from low down near the base of the nest, while at others she would come directly through the upper part of the reeds without watching or worrying about anything which might be in the vicinity. Sat on the young with her head at the entrance. The wind increased, rocking the nest and waving the reeds back and forth. She peered out then sat back on the young. Male sang nearby.

12.12. Left the nest as the wind increased. Appeared nervous.

12.17. Returned to feed young.

12.22. Fed young.

12.26. Fed young and sat on the nest. Peered out when the wind rocked the nest severely. I slapped the blind to frighten her off the nest but she only peered out through the opening. Finally by rustling the reeds at the base of the blind she was flushed from the nest.

12.30. Female came through the reeds beside the blind. Called "Churr-churr." Fed young. Male sang nearby, "Chap-chap-churr-churr-chur-r-r-chap-chur-chur-r."

12.39–12.43. Fed young, then stayed on the nest.

12.47. Left nest.

12.52. Returned to feed young. (Always when wind was down could be heard coming through the reeds but usually came when the wind was blowing the hardest.)

12.57. Returned, again called "Churr-churr," as she neared the nest. Removed excrement, carrying it in her bill some distance away, flying just over the top of the reeds.

1.02. Fed young.

1.05 Left nest.

1.10. Male sang. Female fed young then remained until 1.13.

July 17, 1933.

7.00 A. M. Entered blind. Female did not leave. Male sang nearby. After setting up the camera managed to frighten the female from the nest by rustling the sedge at the base of the blind.

7.04, 7.08, 7.12 and 7.16. Fed young, then sat on the nest.

July 19.

6.00 A. M. Entered blind when I heard Crows near its location. Neither parent was about the nest.

6.04. Female returned to feed the young. Removed excrement flying low over the sedge as she carried it away.

6.10. Brought several mosquitoes for the young.

6.14, 6.18. Feedings, then sat on the young until 6.23. Returned almost immediately to feed the young (this might have been the male for he was not singing).

July 20. 5.00 A. M. Male singing.

July 21. 2.30 A. M. Male singing.

3.00 A. M. Has been singing almost continuously sometimes as many as three times in one minute.

5.00 A. M. Male singing as many as six times in one minute.

12.30 P. M. Not singing. Young with feather tracts well defined. One much smaller than the other five.

July 22. 1 P. M. Male singing, a slower song now, "Chap-sit-sit-sit-sit."

July 23. 10.00 A. M. Banded six young.

10.30. Entered blind.

10.38, 10.40, 10.42, 10.45, 10.47, 10.50, 10.53, and 11.03 young were fed and during this time excrement was removed at 10.40 and 10.47. The 10.53 feeding was probably by the male because he sang very close to the nest then arrived just after the female left the nest from the 10.50 feeding. He sang only a few feet from the nest. Left blind.

1.30 P. M. Entered blind. Temperature 96 degrees. Young very warm. Five heads at the entrance with their mouths open.

Feedings at 1.35, 1.39, 1.41, 1.43 (spider), 1.46, 1.49, 1.51, 1.53, 1.58 (spider), (one young perched on top of the rest), 2.01, 2.06 (spider), 2.11, 2.13, (young called "Chit-chit." Adult answered nearby, "Churr-churr-chap-churr." 2.17, 2.24, 2.27 (fly), male sang, 2.30 (female fed, male sang). Very hot; storm approaching from the west. Male sang "Chap-sit-sit-sit-sit-chap-chap-chip-chip-chip."

2.35 (cooler). Female fed young three light colored spiders. Male flew between the nest and blind.

2.39. Female fed spider to young, male sang.

2.45. Fed large black spider. Wind began to blow very hard rocking the reeds and shaking the blind. Rain began to fall, increasing to torrents accompanied by another increase in wind. Rain lasted several minutes with the wind continuing. Old bird returned at 2.50 to feed young, then sat in the nest as it rocked back and forth. Lifted up and tried to remove band from one of the young several times.

July 24. 7.00 A. M. Entered blind and observed several feedings. At one time the female fed the young and was just leaving when the male arrived carrying another insect, proving for the first time that he did once in a while feed the young. After the feeding he flew around the nest then alighted at the entrance to flutter his wings and utter low whispered syllables of his regular song.

July 27. When I peered around the edge of the blind at 7 A. M. the young were very alert and all but the runt bolted out through the small opening. By night he too had gone. This was thirteen days after the last one had hatched.

July 30. 10.00 A. M. Female several rods from the nest with an insect in her bill, scolded "Churr-churr." Male sang nearby.

Male sang nearly every day, sometimes very little, at others nearly all day long. Sometimes he was heard to sing at 2. A. M. and later during the entire day. He did this on August 10. The following day he could not be found nor did he reappear until September 3 after which he was heard to sing during the early hours of daylight and again during the last minutes of daylight until October 5. The song was much more feeble than the spring song, having changed to a whisper song with the same syllables of which the earlier song consisted. At times during the latter part of September and the early part of October these birds were actually curious following through the bordering bushes as I walked along the edge of the marsh.

October 22. With Dr. R. E. Olsen, I visited the 'Big Marsh' fifteen miles east of Battle Creek where the Wrens had been so common during the summer months. Here we found at least five males singing about the time of sunrise.

SUMMARY.

The eggs of the Short-billed Marsh Wren require in the neighborhood of twelve to fourteen days of incubation. The young remain in the nest about thirteen days and they are fed by both parents but almost entirely by the female. The excrement is carried away by the female to some place distant from the nest. Storms do not appreciably disturb the birds for they fed the young on one occasion even though the rain came in torrents. The food consists of insects and many spiders. The male sang during the nesting season as many as twenty-two hours in one day. The only hours when he was not heard to sing were between 9.30 and 11.30 P. M.

Battle Creek, Mich.