

TWENTY-FIVE EGGS APPARENTLY LAID BY A COWBIRD

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WHILE working with the Eastern Field Sparrow (*Spizella pusilla*) during the past few years I have had opportunity to observe some of the habits of the Eastern Cowbird (*Molothrus ater*). During the summer of 1944, I estimated by censusing the number of birds in the flocks on the area, that 5 pairs of Cowbirds were breeding on a 100-acre census area in Pennfield Township, Calhoun County, Michigan. I spent a total of 242 hours on this area from March through July 27. As the summer advanced I became aware of the similarity among the Cowbird eggs laid in the nests of a certain section of the 100 acres and a small area to the north and east. These eggs were shaped alike, were about the same size, and were almost identical in color, being spotted much less than the usual Cowbird egg. I found 25 of them and, of this number, I knew the exact date of laying of 19 and the date within 1-2 days for 4 others. No 2 were laid on the same day. The first was laid in a nest of the Towhee (*Pipilo erythrophthalmus*) on May 15 and the last in a Field Sparrow's nest, probably on July 20, a period of 66 days. The Cowbirds were not banded but the similarity of the eggs and the fact that they were laid on different days helped confirm my opinion that 1 female laid all 25.

In Table 1, I have listed the dates the eggs were laid and, following this, more detailed notes on the 21 nests parasitized by, apparently, the 1 Cowbird. The territory in which the eggs were laid was a roughly triangular area of about 12.5 acres, 321 feet along the west side, 972 feet from northwest to southeast, and 1,288 feet along the south side. It consisted of open shrubby fields covered sparingly with trees and a small cut-over, burned-over woodlot, with many small shrubs. It included the territories of at least 3 pairs of Towhees, 3 or 4 pairs of Vesper Sparrows (*Pooecetes gramineus*), and 16 pairs of Field Sparrows. One nest of a Towhee was parasitized and 20 nests of 14 pairs of Field Sparrows (9 pairs: 1 nest each; 4 pairs: 2 nests each; 1 pair: 3 nests). The eggs were laid in the early morning, before 5 or 6 a.m. Usually eggs of the host species were removed in the early morning, but one was taken between 7 a.m. and 8 p.m.

The average measurement of 11 of these Cowbird eggs was 21.8 x 16.9 mm and the average weight 3.18 grams. The extremes in length were 21.4 to 22.1 mm and in width, 16.4 to 17.1 mm—a remarkable similarity in size. The extremes in weight were 3.0 and 3.3 grams when fresh. A statistical analysis of these 11 eggs and of 22 other Cowbird eggs showed that for the 11 eggs the mean length was $21.8 \pm .20$ mm and the mean weight was $3.18 \pm .10$ gms.

For the 22 other eggs the mean length was $22.7 \pm .81$ mm and the mean weight was $3.16 \pm .17$ gms. A comparison of the standard deviations by the F ratio method showed that the variability in length differed significantly in the 2 samples but the variation in weight did not differ significantly.

The Towhee and 15 of the Field Sparrows deserted their nests when the Cowbird laid eggs and removed the host eggs. Two parasitized nests were

TABLE 1
Data on Cowbird Eggs Apparently Laid by One Female

DATE LAID	HOST	NEST	HEIGHT	EGGS OF HOST	
				Laid	Dis- appeared
May 15.....	Towhee		on ground	3	2
May 16.....	" "		" "		
May 20.....	Field sparrow	1	22 cm.	1	1
Found.....	" "	2	on ground	?	?
May 25.....	" "	2	" "		
May 26.....	" "	3	18 cm.	0	0
May 29.....	" "	4	on ground	1	1
May 30.....	" "	5	" "	3	2
June 5.....	" "	6	" "	4	(4 yg.)
June 7.....	" "	7	22 cm.	1	1
June 10.....	" "	8	on ground	3	1
June 11.....	" "	8	" "		
June 13.....	" "	9	27 cm.	1	1
June 18.....	" "	10	12 cm.	1	1
June 19.....	" "	10			
June 22.....	" "	11	on ground	3	0
June 23-24.....	" "	12	13 cm.	4	3
June 30.....	" "	13	12 cm.	2	1
July 8.....	" "	14	41 cm.	2	1
July 11.....	" "	15	27 cm.	3	1
July 10-12.....	" "	16	40 cm.	?	?
July 14.....	" "	17	42 cm.	2	1
July 16.....	" "	18	34 cm.	2	1
July 17.....	" "	19	25 cm.	2	1
July 20?.....	" "	20	25 cm.	3	0
May 15-July 20.....		21		41	23

destroyed by unknown agencies. In 3 nests, young were raised; 1 of these was a nest in which the young were 6 days old when the Cowbird egg was laid.

The following additional notes were made at the nests:

Towhee Nest. Built May 11 to 13. Towhee eggs laid May 14, 15, and 16. Cowbird eggs laid May 15 and 16, before 6 a.m. Two Towhee eggs were missing May 16. One of these was lying about a foot from the nest with a bill hole through the side. Nest deserted.

Field Sparrow Nests. 1. Built May 13 and 14. First Field Sparrow egg laid May 19, before 7 a.m. On May 20 at 7 a.m. this egg was gone and a Cowbird egg was present. Nest deserted. Female Field Sparrow 140-32215.

2. Found May 25 with 2 Cowbird eggs. Nest deserted. The female on this territory unbanded.

3. Female Field Sparrow unbanded (male 140-87740). Nest built May 24 and 25. On May 26 it contained a Cowbird egg and was immediately deserted. The female Field Sparrow started a new nest, which I found May 28, and she laid an egg when it was barely started. She finished building the nest, covering her own egg, then laid another egg May 31, but the egg was destroyed by some unknown agency during the day.

4. Female 140-87741 building nest May 25 and 26. One Field Sparrow egg laid May 27 was gone May 28. Apparently the Cowbird egg was laid May 29. I observed it early during the morning of May 30. Nest deserted.

5. Female 140-32203 building nest May 26. Nest completed May 27. No eggs on May 28. Not visited May 29. On May 30 the nest contained 1 Field Sparrow egg and 1 Cowbird egg, both newly laid. On May 31 the second Field Sparrow egg was laid and on June 1, the third, between 5:15 and 7:00 a.m. Two Field Sparrow eggs disappeared June 4. Nest deserted.

6. Female 140-32208. Nest found May 23 with 4 Field Sparrow eggs. Three hatched on June 2, the fourth on June 3. On June 5 the young were gone. A Cowbird egg had been laid in the nest.

7. Female Field Sparrow, 140-32206, building nest June 5. On June 6 at 7 a.m. it contained 1 Field Sparrow egg. At 7 p.m. this egg was gone, but on June 7 at 6 a.m. it contained a Cowbird egg. Nest deserted.

8. Female Field Sparrow, 140-32202, found building nest June 9. On June 10 the nest contained 1 Field Sparrow and 1 Cowbird egg. On June 11 the first Field Sparrow egg was gone; a second Field Sparrow egg and a second Cowbird egg had been laid. A third Field Sparrow egg was laid June 12. On June 13 these eggs had been destroyed by some unknown agency.

9. Nest built (Female 140-32204) June 8 and 9. First Field Sparrow egg laid June 12. On June 13 at 6 a.m. this egg was gone and a Cowbird egg had been laid. Deserted.

10. Female Field Sparrow, (140-32214) found building nest June 15. On June 16 it was nearly completed. First Field Sparrow egg laid June 17. On June 19 this nest contained 2 Cowbird eggs. The Field Sparrow egg was gone. Nest deserted.

11. Nest found June 5 with female 41-120060 sitting on three eggs. Two hatched June 16, and a third June 17. With 3 young in the nest 5 and 6 days old, the Cowbird laid an egg June 22, in the early morning. The young left the nest the same day.

12. Nest built June 15 and 16 by female 140-87741. First Field Sparrow egg laid June 17; fourth on June 20. All 4 eggs were in the nest on June 22. In the early morning of June 25, the nest was found deserted. It contained 1 Field Sparrow egg and 1 Cowbird egg, both damp with dew. The Cowbird egg had been laid June 23 or 24.

13. Completed nest built by female Field Sparrow 140-32214, found June 28. First Field Sparrow egg laid June 29, 5:30 a.m. On June 30 at 6 a.m. the first egg was gone and a second Field Sparrow egg and a Cowbird egg had been laid. The female was sitting on the nest. She did not desert these eggs, but the nest was destroyed by some predator July 16.

14. Female 140-32205. Nest found with one Field Sparrow egg July 7. This marked egg was gone July 8 but a second Field Sparrow egg and a Cowbird egg had been laid. Nest deserted.

15. Female 140-32213. Found July 8 when empty and not yet completed. On July 10 at 7 a.m. it contained 1 Field Sparrow egg. At 7 a.m. on July 11 the first egg was gone and a second Field Sparrow egg had been laid, as well as a Cowbird egg. At 7 a.m. July 12, the third Field Sparrow egg had been laid. On July 17 the Cowbird egg was found on the ground beneath the nest. Two young Field Sparrows hatched July 24 and left July 31.

16. Female 140-32205. This female was observed regularly July 9 to 12 in this area but I did not find the nest until July 13. It contained 1 Cowbird egg. From observations at other nests, the nest must have been built July 9 to 10 and the Cowbird egg laid July 10 to 12. The Field Sparrow had moved to a new location and built another nest in which she deposited her first egg July 13 (nest 17). The Cowbird egg was deserted.

17. Female 140-32205. Nest found July 13 in the early morning with 1 Field Sparrow egg. On July 14 at 7 a.m. it contained 2 Field Sparrow eggs and 1 Cowbird egg. The first-laid Field Sparrow egg had a bill hole in it. Nest deserted July 15.

18. Female 41-120060. Completed nest found July 13. At 7 a.m. July 15 it contained 1 Field Sparrow egg. On July 16 at 8 p.m. it contained a second Field Sparrow egg and 1 Cowbird egg; the first marked Field Sparrow egg was gone. Nest deserted.

19. Female 140-32228. Fully constructed nest found July 13. On July 15 at 7 a.m. it contained 1 Field Sparrow egg. At 8 p.m. July 16 this egg was gone, but a second Field Sparrow egg had been laid. At 7 a.m. July 17 it still contained the second Field Sparrow egg and a newly-laid Cowbird egg. Nest deserted.

20. Nest found July 18. First Field Sparrow egg laid July 19. When revisited in the early morning July 24, it contained 3 Field Sparrow eggs and 1 Cowbird egg. Apparently no Field Sparrow egg was removed. The female, 41-73350, hatched only 1 young, on August 2. This young Field Sparrow left the nest about August 9. I removed the Cowbird egg July 24 to keep it with a number of similarly-marked eggs taken from the above deserted nests. It was the only Cowbird egg I found on this particular area during the summer that might have been successful. It was the only one with which I interfered.

SUMMARY

From May 15 to July 20, 1944, 25 Cowbird eggs were laid, apparently by one female, on a 12.5 acre area in Pennfield Township, Calhoun County, Michigan. It was concluded that the eggs came from the same female because (1) they were very similar in coloration (2) no 2 were laid on the same day (3) the length of 11 similarly colored eggs had significantly less variability than the length of 22 not-similarly colored eggs.

The eggs were laid in a nest of a Towhee and in 20 nests (belonging to 14 pairs) of Field Sparrows. Three or 4 pairs of Vesper Sparrows also nested on the area but apparently were not parasitized.

Cowbird eggs were laid in relation to the laying of the first egg of the host as follows: 2 before the host had laid any eggs; 2 were laid the same day; 11 on the day after; 4 on the second day after (2 of these being second Cowbird eggs for the same nest). One Cowbird egg was laid 3-4 days after the completion of the host's clutch; one was laid when the host's young were 3 days old, and one when the host's young were 6 days old. In 1, possibly 3, parasitized Field Sparrow nests no Field Sparrow eggs were laid.

At least 17 Field Sparrow eggs and 4 young (in 16 nests) and 2 Towhee eggs (in 1 nest) disappeared from the nests, presumably removed by the Cowbird (2 eggs were found with bill holes in them). From 3 nests no egg was removed.

Eggs disappeared from the hosts' nests in relation to the laying of the first Cowbird egg as follows: 3 the day before; 7 eggs and 4 young on the same day; 3 eggs on the day after. From 1 nest 3 host eggs disappeared 5 days after the Cowbird egg was laid. Excluding from consideration the nest in which a Cowbird egg was laid when the host young were ready to leave, 15 out of 20 parasitized nests were deserted. In 1 nest the Cowbird egg was found on the ground below the nest 6 days after it was laid.