

is greatly appreciated. James Bond and Father R. Pinchon kindly reviewed the manuscript and offered suggestions. Funds for this study were provided by Goshen College.

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Observations at a Long-billed Curlew nest.—Palmer (Pp. 183-184 in *The shorebirds of North America* (G. D. Stout, Ed.), New York, Viking Press, 1967) notes how little we know of the breeding behavior of the Long-billed Curlew (*Numenius americanus*). With this in mind I report the following observations made at a nest I found 2 miles south and 13 miles east of Rockport, Weld County, Colorado on 1 May 1969.

At 10:05 that morning I saw two curlews standing 0.5 m apart, facing in opposite directions, and tossing nesting material sideways to a nest between them. One had a noticeably longer bill and a much lighter body color than its mate. Grinnell and Hunt (Condor, 31: 62, 1929) note that the female of this species has "a longer bill and a much pinker flush over the body" than the male. Thus it seems likely that my longer-billed bird was the female, but as I did not actually sex the birds, I shall refer to them as L and S. At 10:10 L slowly walked away and S continued to toss. At 10:30, with S still tossing and occasionally sitting down slowly and L feeding 100 m away, I approached to check the nest.

Upon my approach S ran away with tail lowered and spread and wings hanging out to the sides with their tips dragging the ground. Bent (Life histories of North American shore birds, U. S. Natl. Mus., Bull. 146, 1929, pp. 100-101) describes this "feigning" and Bannerman (The birds of the British Isles, vol. 9, London, Oliver and Boyd, 1960) reports similar behavior for the European Curlew (*N. arquata*). After running 50 m in this posture, S suddenly flew and gave the loud "cur-lee e e e . . . u" call that Palmer (ibid.: 184) describes.

The nest contained one egg, which I marked uniquely (as I did the three successive eggs). The nest cup, which was 190 mm in diameter and 45 mm deep, contained a few pieces of buffalo grass (*Buchloe* sp.) and lichen (*Parmelia molliuscula*).

The nest was at the edge of a large valley, adjacent to a gently sloping hill. The entire area was shortgrass prairie—the main vegetation being mixed buffalo grass and blue grama grass (*Bouteloua gracilis*), broken by scattered prickly pear cactus (*Opuntia polyacantha*). A playa that contained water only for 10 days in the mid-incubation period was 340 m from the nest. Both adults commonly fed in and around the playa when it was dry.

The second egg was laid between 07:30 and 14:50 on 3 May, the third between 17:00 on 3 May and 11:15 on 5 May, and the last between 16:15 on 5 May and 09:00 on 6 May. Incubation during egg laying, at least 5 days, was not continuous. Of eight daylight checks made from 2 May until 09:00 on 6 May, a bird was on the nest five times. Both birds were always within 300 m of the nest at each check. By the laying of the last egg, the nest was completely lined with buffalo grass and lichen.

Wickersham (Auk, 19: 353, 1902) and Bent (ibid.) report that both sexes incubate. On 10 checks during incubation I found L present 4 times, S 5 times, and once the nest was unattended. On three evenings I watched the nest exchange. On 18 May L had been on it since at least 14:45. At 17:30 S flew in and alighted 20 m from the nest, L stood up and slowly walked away, and S walked on to the nest. I was 150 m away and heard no sounds during the exchange. S stayed on into the darkness. This pattern reoccurred at 17:40 on 23 May and again S remained into the darkness. It was repeated with a slight change at 17:25 on 29 May. This time L left the nest and flew 200 m to join S. S called and flew to the nest and sat down.

The incubating bird sat either with the head upright or laid low near the ground. In both postures it remained almost motionless. Whenever I approached, the incubating bird assumed the low posture, and I walked within 2 m of it on four occasions without flushing it; once I reached down and stroked S on the back. Usually when I checked the nest, the "off" bird was in the vicinity, but on three occasions it was not. Once S flew in from at least $\frac{1}{2}$ mile away.

On the day of hatching, 3 June, I made an all-day watch. Egg 1 hatched between 05:30 and 07:10. S was incubating during this time. I approached the nest at 07:10, and S ran off quietly and feigned. Then both adults circled and called loudly. S returned immediately after I had retreated about 250 m. At 10:50 L replaced S on the nest. By then the chick had moved 2 m from the nest and was resting. At 14:50 I flushed L and found that egg 3 had hatched and the shells were still in the nest. When picked up, the chick gave a weak "curl-lee e e . . . u" similar to the adult call. When I moved back from the nest area, L again returned to the nest, but at 16:50 flew and joined S 50 m from the nest. Both then flew back to the nest area and S picked up an eggshell and flew 110 m west, alighted, and dropped the shell. S then returned and repeated the procedure, but this time flew 200 m east and dropped the shell from the air. Twice more S carried shells 200 m east and dropped them from the air in different spots. L remained about 10 m from the nest during the eggshell removal. I could now see two chicks out of the nest and one in it. Upon checking I found that egg 4 had hatched and two pieces of shell were just outside the nest. Egg 2 never did hatch.

No incubation period for this species has been reported previously. In this case the time between the laying and hatching of the last egg laid was 27 days, 14 hours (\pm 9 hours).

At 17:55 L went back on the nest and remained until 18:30 when I again checked the nest. This time I measured and weighed the three chicks (Table 1), each of

TABLE 1
WEIGHT AND MEASUREMENTS OF LONG-BILLED CURLEWS AT HATCHING

| | Weight (g) | Culmen (mm) | Tarsus (mm) | Wing chord (mm) |
|---------|---------------|----------------|----------------|--------------------|
| Chick 1 | 66.0 | 22.0 | 46.0 | 28.0 |
| Chick 2 | 62.0 | 22.0 | 47.0 | 30.0 |
| Chick 3 | 62.0 | 22.0 | 47.5 | 30.0 |

which still had an egg tooth. The downy plumage was as described by Bent (*ibid.*) and Palmer (*ibid.*). The distal $\frac{1}{3}$ of the bill is black, the remaining $\frac{2}{3}$ pink.

It is interesting to note that within a few hours of hatching two chicks spent much time out of the nest, wandering as far as 9 m away. They occasionally pecked at the ground slowly, but did not seem to be feeding. From time to time a chick went back under the incubating adult briefly.

On the morning of 5 June Ronald Ryder and Brent Giezentanner had the presumed adults (no others known to be in the area) circle them in alarm over $\frac{1}{2}$ mile from the nest. They did not locate the chicks, but found the one unhatched egg still in the nest. Bannerman (*ibid.*) notes that infertile eggs are left in many European Curlew nests. On 6 June I searched an area $\frac{1}{2}$ mile in diameter around the nest thoroughly and did not find the birds.

These observations were made while I was supported as a predoctoral trainee by an NIH Training Grant (No. 5 TO1 GM01779) from the National Institute of General Medical Sciences.—WALTER D. GRAUL, *Department of Ecology and Behavioral Biology, University of Minnesota, Minneapolis, Minnesota 55455*. Accepted 4 May 70.

Nest parasitism by Red-breasted Mergansers in Wisconsin.—In June 1967 I found eggs of the Red-breasted Merganser (*Mergus serrator*) in nests of the Mallard (*Anas platyrhynchos*), the Gadwall (*Anas strepera*), and the Lesser Scaup (*Aythya affinis*) on Gravel Island, Spider Island, and an island locally known as the Reef, all of which lie in Lake Michigan within a mile from the southeastern tip of the Door Peninsula, Wisconsin. I find no previous North American records of nest parasitism by Red-breasted Mergansers; an apparent record (Weller, *Ecol. Monogr.*, 29: 339, 1959) is erroneous, presumably based upon a photograph by Strong (*Auk*, 29: Plate 22, 1912) of a captive Red-breasted Merganser duckling following a Domestic Fowl (*Gallus domesticus*). Table 1 gives the details of my observations.

TABLE 1
CASES OF NEST PARASITISM BY RED-BREASTED MERGANSERS IN WISCONSIN

| Date observed | Location | Host species | No. of merganser eggs | No. of host's eggs or young |
|---------------|---------------|--------------|--------------------------|--------------------------------|
| 5 June 1967 | Gravel Island | Mallard | 1 egg | 13 eggs |
| 7 June 1967 | The Reef | Gadwall | 2 eggs | 11 eggs |
| 9 June 1967 | Spider Island | Lesser Scaup | 2 eggs | 6 young |
| 9 June 1967 | Spider Island | Lesser Scaup | 1 egg | 8 eggs |
| 9 June 1967 | Spider Island | Gadwall | 7 eggs | 9 eggs |