laying the final egg, at which point regular diurnal incubation also began. Nolan found Prairie Warblers on the nest 7–25% of the time during the days of the egg-laying period. Although our observations were limited, we never saw the phoebe on the nest during the egg-laying period except in the early morning, when egg-laying occurred, and at night.

The timing of hatching of the eggs suggests that the phoebe was incubating at night during the egg-laying period. The length of night during late April, and the behavior of the phoebe, suggests that effective nocturnal incubation time was about 10 h. A very liberal interpretation of the data from our relatively infrequent inspections of the nest suggests that the young could have hatched about 10 h apart.

Stoner (1939) states that the incubation period of the Eastern Phoebe is 16 days, measured from the laying of the last egg to the first to hatch. Bent (U.S. Natl. Mus. Bull. 179, 1942) also gives the incubation period as 16 days, but does not specify how it was determined. For our nest, the incubation period was 15 days between the laying of the last egg and the hatching of the first and 16 days for the last, if determined as between laying and hatching, and 17 days or longer for the other eggs. The nocturnal incubation may have accelerated development, but this may have been offset by the low diurnal nest attentiveness during the first 2 days after the clutch was completed.

One might attribute the sleeping on the nest before egg-laying to the energy savings gained by the insulation of the nest and the reduced losses due to radiation because of the patio roof ca. 30 cm above the nest site. This seems unlikely because temperatures were unseasonably warm (max. 24°C min. 15.5°) on the day the phoebe began to sleep on the nest. Temperatures continued to be unusually warm throughout the time until the clutch was completed. The low diurnal attentiveness in the first 2 days after clutch completion is also difficult to explain. Temperatures were quite warm these 2 days (maxima 23° and 18°C) and the bird should have been able to obtain sufficient food without difficulty.

Sleeping on a nest before investing in a clutch of eggs has the obvious advantage of functioning as a monitoring mechanism for potential nocturnal nest predators. Such an hypothesis, however, seems unlikely because phoebes apparently require 7 to 13 days to build a nest (Bent 1942), and monitoring could thus begin earlier than a few days before egg laying. We see no advantage in sleeping on the nest once egg laying has begun, at least not during mild weather. Further watches of phoebes during nest building and egg laying are needed before this behavior can be labeled as truly unusual.—HELMUT C. MUELLER, *Department of Biology and Curriculum in Ecology, University of North Carolina, Chapel Hill, North Carolina 27514,* NANCY S. MUELLER, *Department of Biology, North Carolina Central University, Durham, North Carolina 27707, and* KENNETH D. MEYER, *Department of Biology, University of North Carolina, Chapel Hill, North Carolina 27514.* Received 28 Jan. 1982; accepted 20 July 1982.

A Technique for Live-Trapping Cormorants.—In the basic Bal-chatri trap, originally developed for use with raptors (Berger and Mueller, Bird-Banding 30:18–26, 1959), a small cage for holding live bait such as a bird or mouse is covered with slip nooses. When the predator flies in and attempts to grab the bait, its feet catch in the nooses and pull them tightly shut. The cage usually is made of chicken wire or hardware cloth, and the slip nooses of monofilament fishing line. The size and shape of the trap vary according to the size and habits of the bird to be trapped. The design of the trap has been modified to extend its use to the capture of non-raptorial birds such as shrikes (Clark, EBBA News 30:147–149, 1967), grouse (Anderson and Hamerstrom, J. Wildl. Manage. 31:829–832, 1967), magpies, kookaburras, dotterels, and a variety of grain-eating species (Llewellyn, Australian Bird Bander 11:30–32, 1973). Herein, we report a modified form of the trap that we used to catch Olivaceous Cormorants (*Phalacrocorax olivaceus*) and suggest its application for the capture of other aquatic species of birds.

In August 1981, we trapped cormorants at Estancia La Golondrina, ca. 45 km N of Asuncion (24°55′S, 57°40′W), in Dpto. Presidente Hayes, Paraguay. Trapping was concen-

trated at a pond regularly visited by as many as 50 cormorants. During our study, the pond decreased from about 15 × 25 m to about 12 × 20 m, and from 1 to 0.5 m at its deepest point. Large portions of the pond were covered with floating vegetation that was moved by the wind from one area to another, or shifted with dropping water levels. From ¼ to ⅓ of the pond surface was always clear. The cormorants dived for armored catfishes (primarily *Hoplosternum thoracatum* and *Callicthys callicthys,* fam. Callicthyidae), concentrating their feeding in areas of densest vegetation. When a bird surfaced with a fish, it juggled the fish in its bill to free it of vegetation and swallow it head first. If a cormorant had difficulty accomplishing either of these tasks, usually because the fish was especially long or heavy-bodied, it frequently moved to an area of clear, shallow water, where it beat the fish on the adjacent grassy bank to subdue it, or set it down to remove associated vegetation. Cormorants also favored particular sites along the bank for sunning. It was in these areas that we set our traps.

Each trap was a 1 × 1 m square of .635 cm mesh hardware cloth covered with nooses placed at intervals of ca. 5 cm. The nooses were made of 8.2 kg test, very pale blue, monofilament fishing line. We experimented with lines of several strengths, but found that nooses made of 8.2 kg test were less apt to tangle or accidentally close. Loops were 6–8 cm in diameter. The traps were placed under 15–30 cm of water on the mud floor of the pond and anchored at the 4 corners with spikes 15 cm long. As a bird moved at the edge of the pond to sun itself or to manipulate a fish on the bank, his feet caught in the nooses, which closed as he attempted to pull free. Birds made obvious attempts to leave the site, but were unable to do so. They gave no alarm calls, and other birds in the area did not seem aware of what was happening. Captured birds were removed from the trap immediately, and no birds suffered injury from the trapping.

We used 3 traps placed ca. 10 m apart on one side of the pond or the other depending on the position of the floating vegetation. Shifts in the location of the vegetation occurred only once or twice each day. In all instances, traps were monitored by an observer in a blind. Traps always were removed from the water and turned noose-side down on the ground when unattended and at night.

The rate of capture of cormorants was about one bird per 3 h of trap time. We believe that this greatly underestimates the potential capture rate at a site using these traps because few traps were used and because times of trap use did not necessarily coincide with peak feeding times of the cormorants. Because of other activities, we often were unable to set the traps until late in the morning. Also, because we could use only one or two birds at a time, the traps generally were pulled from the water after each capture. The location of the traps underwater did not interfere with the functioning of the nooses, although dense aquatic vegetation might do so. The nooses tended to float in the water, which helped to keep them erect and open. We did not bait our traps directly, but in habitats where fishes occupy clear water, individuals or schools swimming above the traps might attract piscivorous birds. Likewise, shallow cages (e.g., 10–15 cm high) could be made and baited with live fishes and placed under the water. Such traps should be extremely effective for the capture of wading birds in shallow-water areas, as also was suggested by Llewllyn (ibid.).

We did, on several occasions, place 10–15 dead catfishes on the shore adjacent to the traps. Cormorants paid no attention to these fishes, but herons (*Syrigma sibilatrix*) and storks (*Euxenura maguari* and *Jabiru mycteria*) did feed on them. When placed on land and baited with dead fishes, flat Bal-chatri traps of the type we used, but with appropriately-sized noose loops, might be effective for capturing these species.

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