

absence of the marks. The seeming failure of one egg to be turned in a 21.5 hr period is thus made increasingly important by this possible tendency to attempt to conceal foreign marks on the eggs, and incubating Wood Ducks seemingly do not normally turn all of their eggs daily.

Eggs sometimes appeared on opposite sides of the clutch on successive days, as with Egg 10 during the 22 hr period between the making of Maps C and D. Also, an occasional egg was left on top of the others, as with Eggs 3 and 13 in Maps C and D, and Egg 13 in Map D was presumably being moved over the top of the clutch from side to side. Presumably eggs thus being moved were sometimes crowded down among the others in the center of the clutch, as with Egg 9 in the change from C to D. Thus, it appeared that one way the incubating Wood Duck turned her eggs was by rolling them from the outside of the clutch toward the center and ultimately all of the way across the clutch or to other positions not directly across the clutch from the starting position. On the other hand, eggs were not invariably moved across the clutch to its opposite side but were simply moved short distances to new positions on the same side of the clutch, as with Egg 7 which remained near its original location throughout the four days of observation.

All of the eggs in this clutch hatched in due time, and the egg turning regimen can thus be assumed to have been normal, or at least satisfactory for hatching.—PAUL A. STEWART, *Entomology Research Division, Agricultural Research Service, USDA, Oxford, North Carolina, 15 March 1970.*

Spruce Grouse attacked by a Northern Shrike.—On 18 October 1969 at 09:30, I saw five Spruce Grouse (*Canachites canadensis*) fly across a graveled road on the Kenai National Moose Range, Kenai Peninsula, Alaska. The birds had flown from a forest edge about 350 yards away, and landed 50 or more yards back from the road, in a moderately dense stand of white spruce (*Picea glauca*) and paper birch (*Betula papyrifera*). They landed in spruce trees and were scattered singly 50 or more yards apart. At 09:35 I located a female sitting in the open on the end of a limb about 15 feet above the ground. Upon seeing me, she became nervous and began clucking loudly, a typical reaction of a Spruce Grouse when approached by man. As I slowly approached to within 30 feet in an attempt to noose her, a Northern Shrike (*Lanius excubitor*) struck the grouse from above. After a brief struggle lasting less than 3 seconds, the shrike flew off and the grouse flew to the ground, where she gave a display normally performed by a hen with young chicks; the tail was fanned vertically, head raised with neck feathers ruffled, wings cupped out from body and drooped to ground, and body feathers fluffed. This display may have been given to increase her apparent size, as a potential prey, and thus discourage the predator. The shrike had already flown off though, and the grouse maintained the display for only 15–20 seconds before also flying away.

I believe the shrike was attracted to the hen by her clucking. In conducting field studies of Spruce Grouse over several years, I have seen Goshawks (*Accipiter gentilis*) appear several times in similar circumstances. Goshawks are also occasionally attracted by the distress call of a grouse chick.

Apparently shrikes rarely attack grouse-sized birds (500–700 g for Spruce Grouse) and White (Wilson Bull., 75:461, 1963) thought his observation of a Northern Shrike attacking a Sharp-tailed Grouse (*Pediocetes phasianellus*) might have been due to “redirected” behavior. A shrike he had been watching had killed a Pine Grosbeak

(*Pinicola enucleator*) but before the shrike could eat the grosbeak, White flushed three Sharpshoots near the shrike. White thought that his presence and the startling flight of the grouse interrupted the shrike's feeding behavior, and that the shrike attempted to consummate its feeding sequence by attacking the grouse. None of the elements of this situation appeared to be present in the instance of the shrike attacking the Spruce Grouse, and as White notes (pers. comm.) shrike attacks on grouse-sized birds may be more frequent than suggested by the literature.—LAURENCE N. ELLISON, *Museum of Vertebrate Zoology, University of California, Berkeley, California 94720, 7 April 1970.*

Black-necked Stilt nesting in Delaware.—On 13 May 1970 I observed two pairs of Black-necked Stilts (*Himantopus mexicanus*) building nests in the north impoundment of the Little Creek State Wildlife Area near Little Creek, Kent County, Delaware. This 800-acre impoundment of shallow, saline water was completed in 1967 by the diking of tidal salt marsh bordering Delaware Bay. An estimated 95 percent of the area is open water and flooded salt-meadow cordgrass (*Spartina patens*) and saltgrass (*Distichlis spicata*) marsh.

On 15 May I waded into the impoundment and inspected the two nests. Both were low mats, fairly wet and muddy, built of pieces of dead marsh grasses. Each nest was situated on a small irregular island of very soft mud in open water. There were three eggs in the shallow central depression of one nest and none in the second.

On 28 May I again waded into the impoundment. The three egg nest had been built up to a height of five inches, was completely dry, and now contained six eggs. The second nest was empty and appeared little changed from its condition on 15 May. With additional search, four more nests with clutches of 8, 8, 4 and 2 eggs, respectively, were located. During early June five more stilt nests were observed from the impoundment dike. No precise data on nesting success were obtained but chicks were seen at four of the eleven nests during June and early July.

In the eastern United States, the Black-necked Stilt breeds in South Carolina, central and eastern Florida (A.O.U. Check-list of North American birds, 1957:210) and coastal North Carolina (Audubon Field Notes, 14:443, 1960; 16:467, 1962). It formerly nested on the salt marshes of southern New Jersey (Fables, Annotated list of New Jersey birds, 1955:36) but there is no definite evidence of breeding there since 1810 (Stone, Bird studies at old Cape May, 2:510-512, 1937). In 1952 an attempt was made to re-establish a breeding population in New Jersey by placing stilt eggs from Florida in Willet nests (Fables, op.cit.). The effort was unsuccessful though four eggs hatched. On 24 May 1962 Lesser (Cassinia, 47:31, 1963) observed the Black-necked Stilt on the Little Creek State Wildlife Area, Delaware, apparently the first record on the Delmarva Peninsula this century, and it has been observed there every year subsequently. Efforts to find nests were unsuccessful in 1964 (Delmarva Ornithologist, 2:15, 1965) and in 1965 (Delmarva Ornithologist, 3:4, 1966). However, two family groups of two adults and three to four immatures each were seen on the area 26 July 1964 (Audubon Field Notes, 18:502, 1964) and Carlson (Atlantic Nat., 24:171, 1969) reported a mated pair accompanied by three young birds on 5 July 1969.

The Little Creek nests are the first Delaware nest records for the Black-necked Stilt and the first definite records north of North Carolina since 1810.—NORMAN E. HOLCERSEN, *Bombay Hook National Wildlife Refuge, Smyrna, Delaware 1977, 19 June 1970.*