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Egg carrying by Wood Duck.—On 4 April 1976, we observed a hen Wood Duck (*Aix sponsa*) carrying an egg with her bill exit a Wood Duck nest box located in a beaver pond approximately 1.6 km west of Indian Mound, East Baton Rouge Parish, Louisiana. We could not determine whether the entire egg was being carried between the upper and lower mandibles or if the lower mandible was inserted into a hole in the egg. Earlier that same morning, we had seen a Wood Duck flying low over the beaver pond similarly carrying an egg-shaped object that it dropped into the water. Previously, on 2 April 1976, this nest contained 15 eggs in their 26th day of incubation. The average incubation period of Wood Ducks is 30 days (Bellrose, *Ill. Nat. Hist. Surv. Circ.* 45, 1953).

On the afternoon prior to the egg-carrying observation, we discovered that several eggs of this clutch had holes pecked in them. These holes may have been made by woodpeckers. Cunningham (*Proc. S. E. Assoc. Game and Fish Comm.* 22:145-155, 1968) has observed Red-bellied Woodpeckers (*Melanerpes carolinus*) pecking Wood Duck eggs without consuming them. He found that Common Flickers (*Colaptes auratus*) and Red-headed Woodpeckers (*Melanerpes erythrocephalus*) are also Wood Duck nest predators. All 3 woodpeckers were present at our study area. Shortly after we observed the duck removing the egg from the nest box that contained the damaged eggs, we discovered that only 7 eggs remained in the nest box. The nest was subsequently abandoned and the remaining eggs failed to hatch.

There have been previous reports of egg-carrying by waterfowl. Sowls (Prairie Ducks, Stackpole Co., Harrisburg, Pa. and *Wildl. Manage. Inst., Washington, D.C.*, 1955:104-108) observed hen Northern Shovelers (*Anas clypeata*) and hen Pintails (*A. acuta*) carrying egg shells away from their nests that had had some of their eggs destroyed by predators. He also was able to induce an egg-carrying response by placing egg shells on top of eggs in active nests. Hochbaum (*The Canvasback on a Prairie Marsh*, 2nd ed., Stackpole Co., Harrisburg, Pa. and *Wildl. Manage. Inst., Washington, D.C.*, 1959:92) witnessed a hen Northern Shoveler carrying an egg in the tip of her bill, and Lindsey (*Auk* 63:483-492, 1946) observed a Mexican Duck (*A. diazi*) carrying an embryo with remaining portions of a broken egg from its nest. He concluded that the egg-carrying be-

havior he observed was a response to severe disturbance. Cunningham (op. cit.) reported watching a hen Wood Duck fly from a nest with either a whole or the greater portion of an egg in her bill. This same hen subsequently brought off a brood of 9, although 6 eggs had disappeared.

The role of egg-carrying behavior by ducks is yet unclear. However, our observations and the existing literature suggest that egg-carrying behavior is an adaptation that may increase the probability of the successful incubation of undamaged eggs in partially-destroyed clutches.—ROBERT W. STRADER, RICHARD DI GIULIO, AND ROBERT B. HAMILTON. *School of Forestry and Wildlife Management, Louisiana State Univ., Baton Rouge 70803. Accepted 9 Dec. 1976.*

Evidence of brood adoption by Ruffed Grouse.—Evidence that Ruffed Grouse (*Bonasa umbellus*) hens sometimes adopt chicks from other broods is scanty. Bump et al. (The Ruffed Grouse, Life History, Propagation, Management, N.Y. State Cons. Dept., Albany, 1947:293) reported a hen which had lost its clutch just before hatching that was later seen with 4 chicks. Apparent instances of 2 broods traveling together have been reported several times. Hungerford (Murrelet 34:35-40, 1953) noted a "brood" of 2 hens and 15 young. Chambers and Sharp (J. Wildl. Manage. 22:231-239, 1958) simultaneously captured 2 hens and 5 chicks of 2 age groups. On several other occasions they reported flushing groups of grouse containing young of noticeable age differences. Bump et al. (op. cit.: 293) reported occasional encounters of double broods with both hens normally present but felt that these often represented simply chance meetings of broods. They also believed that older broods may merge permanently at times, particularly if 1 hen is killed.

These reports consist primarily of chance sightings of unmarked individuals. The histories of the individuals sighted and the number of true adoptions of chicks were largely unknown. Here I present evidence that 2 radio-marked Ruffed Grouse hens adopted extra chicks in 1972 at the Cedar Creek Natural History Area 48 km north of Minneapolis, Minnesota. Brood hens were flushed at weekly intervals through early July and at irregular intervals thereafter. Chicks were counted at these times. Typically, the number of chicks seen gradually decreased as the season progressed. There were 2 exceptions. Yearling hen 2239, which hatched 9 eggs, was seen with 9 chicks 20 days after hatch and with 13 young 27 days after hatch. Three days later this hen was killed by a predator precluding additional data on her brood. Adult (22 months or older) hen 2235's brood of 10 chicks was reduced to 4 by 30 days after hatch. However, on 4 occasions between 57 and 70 days after hatch this hen flushed with 10-15 chicks. Since home ranges of the 2 hens were adjacent, Hen 2239's chicks conceivably could have joined hen 2235's brood. At no time was a second adult seen with these broods.

My observations of both captive and wild Ruffed Grouse chicks indicate that by 28-35 days of age they are well-feathered, strong fliers, forage for themselves, are very adept at spotting aerial predators, and possibly could survive on their own. However, broods normally remain together about 75-85 days (Godfrey and Marshall, J. Wildl. Manage. 33: 609-620, 1969). For this behavior to be maintained by natural selection there must be a survival advantage afforded to chicks that remain with the hen for this length of time. If this is the case, orphaned or lost chicks would benefit by joining another brood.

It is more difficult to explain what evolutionary advantage a hen obtains in accepting