

differing ability of Ospreys (*Pandion haliaetus*), eagles, herons, and Red-tailed Hawks (*Buteo jamaicensis*) to deter geese from using these sites.

A ponderosa pine (*Pinus ponderosa*) situated along the reservoir shoreline which contained 10 inactive Great Blue Heron nests experienced the following nesting regime. Nesting was initiated on 20 March 1975 by a pair of Great Horned Owls (*Bubo virginianus*) which nested in the top-most heron nest approximately 30 m above the ground. Within 2 days a pair of Canada Geese began nesting in an adjacent heron nest. On 28 March 2 pairs of Great Blue Herons occupied 2 more existing nests and at least one egg was laid. On 29 March these 2 Great Blue Heron nests were occupied by 2 additional pairs of geese. These geese displaced the heron egg(s) and laid eggs of their own. These nests were eventually deserted. The owls also deserted after incubating 4 infertile eggs for over 50 days. The first pair of geese successfully hatched a clutch of 5 eggs. The owl, goose, and heron nests occurring in this tree were within 9 m of each other. On several occasions the geese and owls were observed on their respective nests with no inter- or intraspecific strife observed.

On 30 March 2 pairs of Great Blue Herons constructed 2 nests in adjacent pines 5 km downstream from the above mentioned tree. The following day both heron nests had been usurped by Canada Geese. One pair of geese eventually hatched a clutch of 4 eggs; the other pair deserted. The latter nest was an extremely flimsy structure in a dead tree. The displacements of herons by geese occurred during a 1-2 day period although no interspecific interactions were actually observed. The herons subsequently left the area and no herons were seen again on the reservoir until several weeks later. D. A. Manuwal, W. H. Oliver, D. R. Paulson and J. B. Athearn were kind enough to read drafts of this paper and offer helpful criticisms.—RICHARD L. KNIGHT, *Washington Dept. of Game, 509 Fairview N., Seattle 98109*; and ALBERT W. ERICKSON, *Wildlife Science Group, College of Fisheries, Univ. of Washington, Seattle 98195. Accepted 12 May 1977.*

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Giant Canada goose incubates eggless nest.—On 9 May 1970, M. S. Phillips and I found a Giant Canada Goose (*Branta canadensis maxima*) incubating at a nest with no eggs in it. The nest was located on a small island on Seney National Wildlife Refuge in Michigan's Upper Peninsula. The goose allowed us to approach to within 5 to 6 m of the nest before flushing. Prior to flushing, she maintained the typical flattened, stretched out posture. The nest was well constructed, lined with a large amount of down, and typical of one that would normally contain 5 or 6 eggs. There was no sign of predation or anything else that might have resulted in the loss of the clutch. The goose quickly returned to the island and resumed her position on the nest upon our departure.

This bird was particularly interesting because she had been color-marked as an adult female on 3 July 1963. Thus, she was at least 8 years old when found on the eggless nest.

Because of the neck collar, she was earlier identified with a mate (sex unverified) on and around her nesting island. She remained on the nest for another week following my visit. About the peak of the refuge goose hatch, 16 May, she left her nest and was not seen again until 4 September, when she reappeared near the nesting island.

Refuge records since 1963 do not mention this bird being seen with a brood, although she was recorded on the refuge at least in 1967 and 1969. When captured in 1963, she was with a group of non-breeders. Further, nest records revealed that she had never

previously been observed on a nest, even though complete nest searches of the refuge have been made annually since 1963. Apparently, this bird was not a productive member of the flock, although something stimulated her to go through all the motions in 1970. She was not seen again after the 1970 nesting season.

Similar behavior was recently reported for a Wood Duck (*Aix sponsa*) in Massachusetts (Heusmann and Pekkala, *Wilson Bull.* 88:148-149, 1976). In this case, the hen tended an eggless nest for 3 successive breeding seasons. In the third year, she was provided with a clutch that was successfully incubated and hatched. Later evidence indicated at least partial brood survival.

While these 2 cases may represent nothing more than aberrant behavior, they do raise questions about the breeding cycle of birds. Parasitic nesting demonstrates the ability of some species to biologically complete the breeding cycle even though it is not behaviorally completed. These 2 waterfowl cases suggest that there may be secondary stimuli that can produce a behavioral completion of the breeding cycle even though a biological completion is not possible.—CONRAD A. FJETLAND, *U.S. Fish & Wildlife Service, P.O. Box 250, Pierre, SD 57501. Accepted 28 July 1977.*

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Nesting success and nest site selection of Red-winged Blackbirds in a freshwater swamp.—The ability of the Red-winged Blackbird (*Agelaius phoeniceus*) to nest in diverse habitats and different species of vegetation has been noted by Campbell (*Wilson Bull.* 60:244, 1948), Beer and Tibbitts (*Flicker* 22:61-77, 1950), Case and Hewitt (*Living Bird* 2:7-20, 1963), Meanley and Webb (*Chesapeake Sci.* 4:90-100, 1963), and Stowers et al. (*Wilson Bull.* 80:320-324, 1968). The selection of nest sites by Red-wings is presumed to be an indication of a site's greater potential for nesting success. Our study was conducted to determine if Red-winged Blackbirds in a freshwater swamp exhibited any preference for nesting substrate and to determine if the location of the nest within the vegetation had any effect on the success of a nesting attempt.

From May to July 1975, an area receiving little human use was searched in Miller's Lake, Evangeline Parish, Louisiana for Red-winged Blackbird nests. The study area consisted primarily of open, common buttonbush (*Cephalanthus occidentalis*) and Carolina ash (*Fraxinus caroliniana*) swamps.

The 136 nests found were each marked and subsequently examined for the presence of eggs and young. If a nest examined did not contain young, it was revisited at least once after a 1-week interval.

The supporting vegetation was noted and at 100 randomly selected nests, measurements were taken of the height of vegetation and the distances of the nest from the ground, water, and top of the supporting vegetation. A Student's t-test was used to test if the distance of the nest from the water and from the top of the supporting vegetation differed between successful (young present) and unsuccessful nests.

The vegetation substrate of Red-winged Blackbird nests was determined for the 136 nests. Because nests were located no further than 2 m from the edge of any supporting vegetation, the amount of edge of each type of potential supporting vegetation was measured and the edge frequency composition was compared, using a Chi-square test, to the frequency composition of nest substrate species present.

Nesting sites.—Of the 100 randomly selected nests located in common buttonbush, 81 did not contain young. These nests averaged 1.26 m above the water and 0.49 m from the