

ponential function of the thickness and the absorption coefficient of the transmitting material (U. Fano, in *Principles of Radiation Biology*, A. Hollaender, ed. vol. 1, p. 103. 1954); i.e., the logarithm of the fraction transmitted is a linear function of the product of the thickness and the absorption coefficient.

Statistical tests were first performed separately on shell thickness measured optically and on radiation data (logarithm of the fraction transmitted). Eggs from Hamilton Co. had thicker shells than those from Crittenden Co. Using the data from all eggs, the difference in thickness was not significant at the 5% level, but when 3 eggs from Hamilton and 2 from Crittenden Co.—eggs with shell thickness at least 2 standard deviations removed from the mean of their respective groups—were eliminated from the data, the difference was significant at the 1% level. Similarly, eggs from Hamilton Co. transmitted less radiation than the others; using the measurements from all eggs, the difference was significant at the 5% level. The radiation technique, therefore, gave slightly better results in differentiating between the groups. Also, the radiation measurements had slightly smaller coefficients of variation indicating more consistency.

We also calculated linear regressions with the logarithm of the fraction of radiation transmitted being a function of the shell thickness. The 5 eggs mentioned in the preceding paragraph were omitted from these calculations. Regression coefficients from the data for each county were not significantly different, but were in fact almost identical. This indicates that the samples differed only in shell thickness, and that chlorinated hydrocarbons affect only this characteristic and have no effect on the chemical and physical characteristics determining the absorption coefficient. A single regression was calculated from the data of both counties combined, and the resulting equation is:

$$(\log \text{ of fraction transmitted}) = -0.880 - (0.0199/\text{micron}) (\text{thickness in microns}).$$

The regression coefficient is very significantly different from zero.

In conclusion, the effect of chlorinated hydrocarbons on egg shells is primarily if not entirely on their thickness, and radiation absorption methods are only slightly superior to optical methods in measuring this effect. The optical methods are much faster and cheaper.—JAMES T. TANNER AND WAYNE W. TOLBERT, *Graduate Program in Ecology, Univ. of Tennessee, Knoxville 37916. Accepted 24 Jan. 1975.*

**Two female Wood Ducks call brood from nest box.**—At the Duck Creek Wildlife Area, Puxico, Missouri, on 5 June and again on 12 June, 1973 I found 2 female Wood Ducks (*Aix sponsa*) incubating a clutch of 21 eggs. The number of eggs in the clutch and the rate of egg laying suggested that both females contributed to the clutch simultaneously.

One female (756-00205) was banded as a nesting female in 1971. Her 1971 nest and her subsequent nest in 1972 were both dump nests. Thus she was at least 3 years old and tolerant of intrusion by other females into her nesting box when she nested in 1973. The second female (756-00296) was identified by a web tag as having hatched in a dump nest in 1970; she was not found nesting on Duck Creek prior to 1973. No earlier association of the 2 females is known.

On 13 June 1973 at 06:48 (CDT) one female flushed from the nest box then containing 13 dry ducklings, 3 dead ducklings, and 2 eggs with dead embryos; 3 other eggs were missing. At 07:11 a pair of Wood Ducks flew into the area, the female landed in the mouth of the nest box and entered, the male kept flying and left the

area immediately. At 07:18 the first female, which had remained near the box on the water, flew up to the nest box and entered. Between then and 08:18, when the young started jumping from the box, the 2 females were heard calling to the young and alternately flew down to the water and up into the box. Both females were on the water below the box as the brood exited. When all the ducklings had left the nest box, the 2 females swam away with the brood. One female had most of the brood; the second female had at least one duckling with her and swam approximately 10 m behind the first female.

Simultaneous occupation of a nest box by 2 female Wood Ducks has been observed by Bellrose (Auk 60:446-447, 1943) and Fuller and Bolen (Wilson Bull. 75:94-95, 1963), but neither reported observation of both females calling the brood from the nest. In Illinois, one female left the nest box with 26 ducklings and the second female left with 2 ducklings a day later (Bellrose op. cit.). In Vermont, one female was on the nest and a second female was on the water near the nest box when hatching occurred, but the exodus of the brood was not observed (Fuller and Bolen op. cit.).—RICHARD L. CLAWSON, *School of Forestry, Fisheries and Wildlife, Univ. of Missouri-Columbia, Gaylord Memorial Laboratory, Puxico, MO 63960. Accepted 23 Jan. 1975.*

## ORNITHOLOGICAL NEWS

In the review (Wilson Bull. 87:292-296 1975) of "Productivity, Population Dynamics and Systematics of Granivorous Birds," edited by S. C. Kendeigh and J. Pinowski, published by the Institute of Ecology near Warsaw, Poland, it was stated that the book was available from Dr. Pinowski in Poland. It would probably be more convenient and faster for persons in this and other western countries to order the book from Dr. S. C. Kendeigh (Vivarium, Wright and Healey Streets, Champaign, IL 61820). The price is \$13.00 plus 60¢ for postage and handling.

---

Plan now to attend the Wilson Ornithological Society's fifty-seventh annual meeting at Cornell University, Ithaca, New York, 3-6 June 1976.

---

A court fight by the Mississippi Wildlife Federation and the National Wildlife Federation to stop the construction of U.S. Interstate 10 through the breeding area of the Mississippi Sandhill Crane was lost last month following testimony by a U.S. Fish and Wildlife Service biologist that the construction would not adversely affect the cranes. An appeal of the decision is anticipated.

---

"Even-aged management"—clear-cutting—is now the recommended management practice for most of our southern National Forests. Recently it was announced that forests on some of our southern National Wildlife Refuges are also being subjected to this controversial practice!