JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE
VOLUME 60, NUMBER 2, APRIL, 1985

YOLK FORMATION IN WOOD DUCK EGGS

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ABSTRACT

Staining of Wood Duck (*Aix sponsa*) eggs collected from Kentucky Lake, Tennessee, shows that 5 days are typically required for yolk formation.

INTRODUCTION AND METHODS

During 1981 and 1982 we were involved in a study of the nesting biology of Wood Ducks (*Aix sponsa*) on Kentucky Lake, Tennessee. For a description of the study area and other aspects of the study see Spero et al. (in press). During April and May 1982 we collected a total of 14 unincubated eggs from 6 different clutches. A staining technique similar to the one described by Grau (1976) was used to determine the amount of time required for yolk formation. The eggs were frozen at -30°C for 25 hours and then degassed in a vacuum chamber for 18.5 hours. After removal of the egg shells, the yolks were placed in 4% formalin at 66°C for 23 hours. Thin slices (1-3 mm) were removed from each yolk and stained with a mixture of 5% potassium ferrocyanide and 6N HCl for 5-10 minutes. Following this treatment daily growth rings were visible in 13 of the 14 eggs.

RESULTS AND DISCUSSION

One of the yolks had 3 light and 3 dark rings, 1 had 4 sets of rings, 9 had 5 sets of rings, and 2 had 6 sets of rings. Grau (1976) demonstrated that each set of rings (1 light and 1 dark) represented the material deposited during 1 night and 1 daylight period, or 1 complete day. Differences in yolk color are due to the consumption of foods with fats and pigments during daylight and the deposition of these materials in the yolk. We are not aware of other reports describing the development of Wood Duck eggs. Grau (1976) found 7-11 sets of rings in domestic chickens, 4-6 sets in Coturnix Quail (*Coturnix coturnix japonica*), and 12 sets in Canada Geese (*Branta canadensis minima*).

The eggs with 3 and 4 sets of rings were conspicuously smaller than the other eggs. Apparently the optimum time for yolk development is 5 days as 9 of the 13 yolks showed 5 sets of rings. Factors regulating the amount of time yolks remain in the ovary and grow are not understood. Environmental conditions such as weather and food supply could possibly influence developmental time in the ovary. Hormone levels, which could be influenced by interactions with other Wood Ducks, also may have an influence. Larger samples of yolks from females in high and low density populations and from populations that differ in the type of food consumed are needed to clarify the role of density and food supply on yolk formation.

ACKNOWLEDGMENTS

We would like to thank Jack Colwick and Jed Petit, both of the Tn. Wildlife Resources Agency, for their support.

LITERATURE CITED

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Spero, V. M., F. G. Dallmeier, and T. D. Pitts. (in press) Nesting study of Wood Ducks on Kentucky Lake, Tennessee. Migrant.

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NOTES AND NEW DISTRIBUTIONAL RECORDS FOR SEVERAL TENNESSEE ORCHIDS

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ABSTRACT

During recent field trips in West Tennessee, several important collections of orchids were made and are reported here. *Listera australis* Lindley, *Malaxis unifolia* Michaux, and *Platanthera lacera* (Michaux) G. Don are reported from West Tennessee for the first time, significantly extending their Tennessee range. Two new stations were found for *Aplectrum hyemale* (Muhl. ex Willd.) Torrey, which is uncommon in this part of its range. Several county records for *Platanthera flava* (L.) Lindley, *Platanthera peramoena* (Gray) Gray, and *Spiranthes ovalis* Lindley, species that are being monitored by the Tennessee Heritage Program, are also included.

A brief historical overview of pertinent Tennessee records for each taxon is presented. In addition, earlier literature reports for *Habenaria viridis* (L.) R. Br. var. *bracteata*