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## Lipid Biochemistry in House Wren Egg Yolk and Possible Effects on Incubation Period

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Poster Presentation 15

**LIPID BIOCHEMISTRY IN HOUSE WREN EGG YOLK  
AND POSSIBLE EFFECTS ON INCUBATION PERIOD**

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House Wrens (*Troglodytes aedon*) are distributed throughout North and South America. As has been observed in many avian species, populations of House Wrens in the tropics have longer egg incubation periods than populations in temperate regions. The purpose of this study was to characterize incubation periods of a temperate population of House Wrens and to conduct a preliminary chemical analysis of the yellow and white yolk layers of House Wren eggs. The eggs were collected from a breeding population in Central Illinois from June-August, 2000. Avian yolk is composed of yellow and white components, which are laid down in alternating layers around a core of white yolk called the latebra. White yolk is produced at night, while yellow yolk is produced during the day. Along with the temporal differences in formation, yellow and white yolk differ in their biochemical make-up in that yellow yolk is richer in high-energy lipids. The proportions of yellow and white yolk may differ in eggs from tropical and temperate populations of House Wrens, which may influence the rate of embryonic development and thus incubation periods.

There was a 90.0% hatching success from the artificial incubation of temperate House Wren eggs (n=30), which had a mean incubation period of 13.6 days<sub>0.2SD</sub>. Studies of natural populations of House Wrens in temperate regions have found incubation periods of 12.2 days<sub>0.2SD</sub>. The lipid components (triacylglycerol, phospholipid, free cholesterol, cholesterol ester and free fatty acid) of 30 unincubated eggs were analyzed. Extraction of the lipids from the yolks was conducted using a modification of the Folch method, followed by the separation of lipid components using preparatory TLC. This method produced a 93.4-96.0% lipid recovery rate with little variability (<6.0%) in replicate portions of the same yolk. Future work will involve incubating eggs from tropical House Wrens and conducting a chemical analysis of their yolks.