



Apr 14th, 10:00 AM - 11:00 AM

An Adapted Method for Measuring Gas Exchange Across Avian Eggshells

Sarah Takushi
Illinois Wesleyan University

Given Harper, Faculty Advisor
Illinois Wesleyan University

William Jaeckle, Faculty Advisor
Illinois Wesleyan University

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>



Part of the [Biology Commons](#)

Takushi, Sarah; Harper, Faculty Advisor, Given; and Jaeckle, Faculty Advisor, William, "An Adapted Method for Measuring Gas Exchange Across Avian Eggshells" (2012). *John Wesley Powell Student Research Conference*. 4.

<https://digitalcommons.iwu.edu/jwprc/2012/oralpres3/4>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Oral Presentation O3.4

**AN ADAPTED METHOD FOR MEASURING GAS EXCHANGE
ACROSS AVIAN EGGSHELLS**

Sarah Takushi and Given Harper* and William Jaeckle*
Biology Department, Illinois Wesleyan University

Gas exchange through the pores of bird eggshells is necessary for normal embryonic development. Differences in eggshell porosity are known to influence rates of development and incubation periods. Eggshell porosity may vary among different eggshell regions within and among species. Portugal et al. (2010) glued eggshell fragments from domestic fowl to small tubes that contained water. These were placed in a dessicator and gas flow through the eggshells was measured as a decrease in tube weight. I tested this method to determine if it could be used to measure gas exchange through songbird eggshells. My findings indicated that the results reported by Portugal et al. (2010) were inaccurate and that gas loss may have been the result of an error in experimental technique (i.e., gas likely leaked around the seal of the eggshell). I have modified and tested this protocol to increase the accuracy and precision of the estimated rates of gas exchange through eggshell pores.