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2012, 23rd Annual JWP Conference

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

Comparison of Regional Eggshell Porosity Between the Brood Parasitic Brown-Headed Cowbird (*Moluthrus ater*) and its Hosts: the Dickcissel (*Spiza americana*), and Two Non- Parasitic Relatives, the Red-Winged Blackbird (*Agelaius phoeniceus*) and the Common Grackle (*Quiscalus quiscula*).

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Childs, Brittany; Jaeckle, Faculty Advisor, W. B.; Harper, Faculty Advisor, R. G.; Kiefer, M.; Rivers, J. W.; and Peer, B. D., "Comparison of Regional Eggshell Porosity Between the Brood Parasitic Brown-Headed Cowbird (*Moluthrus ater*) and its Hosts: the Dickcissel (*Spiza americana*), and Two Non-Parasitic Relatives, the Red-Winged Blackbird (*Agelaius phoeniceus*) and the Common Grackle (*Quiscalus quiscula*)." (2012). *John Wesley Powell Student Research Conference*. 3. <http://digitalcommons.iwu.edu/jwprc/2012/oralpres/3>

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Presenter Information

Brittany Childs; W. B. Jaeckle, Faculty Advisor; R. G. Harper, Faculty Advisor; M. Kiefer; J. W. Rivers; and B. D. Peer

Oral Presentation O1.3

COMPARISON OF REGIONAL EGG SHELL POROSITY BETWEEN THE BROOD PARASITIC BROWN-HEADED COWBIRD (*MOLUTHRUS ATER*) AND ITS HOSTS: THE DICKCISSEL (*SPIZA AMERICANA*), AND TWO NON-PARASITIC RELATIVES, THE RED-WINGED BLACKBIRD (*AGELAIUS PHOENICEUS*) AND THE COMMON GRACKLE (*QUISCALUS QUISCULA*).

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The Brown-headed Cowbird is a generalist brood parasite that lays eggs in the nests of many host species, including the Dickcissel and two non-parasitic relatives: the Red-winged Blackbird and the Common Grackle. Cowbird eggs reportedly hatch sooner than equivalently-sized host eggs, presumably via accelerated embryonic development enabled by a greater eggshell porosity and consequently greater gas exchange. The distribution of pores among apical, equatorial and basal eggshell regions within cowbirds and host species is undetermined. We tested the hypothesis that equatorial porosity would be greatest because respiratory gases cross the eggshell and enter or exit the embryo's circulatory system in that region. We found that, when normalized to mass, cowbird eggshells had significantly greater pore area and porosity in equatorial regions compared to its three hosts ($p \leq 0.001$). Cowbird eggshells had greater apical pore area than the hosts ($p < 0.04$) but equivalent basal pore area ($p > 0.09$) and porosity ($p > 0.15$) to its relatives.