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A Latitudinal Gradient of Organochlorine Pesticide Contamination in Resident North American Songbirds

Kevin Latman
Illinois Wesleyan University

Amy Cadwallader
Illinois Wesleyan University

Russell Blogg
Illinois Wesleyan University

Jeffrey Horvath
Illinois Wesleyan University

R. Given Harper, Faculty Advisor
Illinois Wesleyan University

See next page for additional authors
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Presenter Information

Kevin Latman; Amy Cadwallader; Russell Blogg; Jeffrey Horvath; R. Given Harper, Faculty Advisor; and Jeffrey Frick, Faculty Advisor

Poster Presentation P27

**A LATITUDINAL GRADIENT OF ORGANOCHLORINE PESTICIDE
CONTAMINATION IN RESIDENT NORTH AMERICAN SONGBIRDS**

Kevin Latman, Amy Cadwallader, Russell Blogg, Jeffrey Horvath,
R. Given Harper*, and Jeffrey Frick*
Department of Biology, Illinois Wesleyan University
Department of Chemistry, Illinois Wesleyan University

Organochlorine pesticides (OCs) are still found in the environment today, despite the fact that some have been banned for more than thirty years. Few studies have analyzed resident North American birds for the presence of OCs. We looked for patterns of OC contamination in resident North American passerines (songbirds) in relation to latitude and diet. Other studies have found OCs most heavily deposited at northern latitudes, due to global fractionation, a process by which airborne pesticides travel via certain weather conditions, and tend to migrate from warmer to colder regions. As such, we predicted that resident North American birds that bred in northern latitudes would contain higher levels of OC contamination than resident birds that bred in more southern latitudes.

Sixteen species of North American resident passerines were analyzed for the presence of 17 organochlorine (OC) pesticides and metabolites. All birds were collected in McLean County, IL between 1989 and 2004. Fifty-one of the 53 birds contained one or more OC compounds above detection limits. Up to eleven different pesticides were detected in a single specimen. Total detected pesticide levels ranged from 7.47 ng/g (i.e. parts per billion) to 2274.23 ng/g in a single specimen. The most prevalent OCs detected were p,p'-DDE (in 29 of the 53 birds), dieldrin (27 birds), heptachlor epoxide (22 birds), and p,p'-DDT (20 birds).

Overall mean levels of contamination were higher in insectivores (515.19 – 129.10 ng/g, mean – SE) than in omnivores (400.92 – 106.94 ng/g) and granivores (i.e., seed eaters) (97.30 – 38.12 ng/g). However, sample sizes were insufficient for statistical analysis. A significantly higher level of OC contamination was found in birds that bred north of Illinois and wintered in Illinois than in year-round Illinois residents, which supported our prediction.