



Apr 17th, 9:00 AM - 10:00 AM

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

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Latman, Kevin; Cadwallader, Amy; Blogg, Russell; Horvath, Jeffrey; Harper, Faculty Advisor, R. Given; and Frick, Faculty Advisor, Jeffrey, "A Latitudinal Gradient of Organochlorine Pesticide Contamination in Resident North American Songbirds" (2004). *John Wesley Powell Student Research Conference*. 7.
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Presenter Information

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Poster Presentation P27

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

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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.