

A. Title Page

Professional Development Grant Report
Arkansas Tech University

Participation in the 2008 Regional Society of Wetland Scientists Meeting

by

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B. Restatement of problem researched or creativity

I recently gave a talk entitled “Moist Soil Seed Abundance on Wetland Reserve Program Sites in the Mississippi Alluvial Valley of Arkansas” at the 2008 Combined South Central and South Atlantic Chapter Meeting of the Society of Wetland Scientists (SWS). This conference was held October 9-11, 2008 in Tuscaloosa, Alabama. I was also a co-author on 2 talks presented by ATU students, entitled:

- “Nutrient Reserves, Food Preferences and Mass Change of Waterfowl Migrating through the Rainwater Basin of Nebraska” and
- “Effects of Mass Change and Mortality on Plasma Metabolite Levels in Mallards.”

Since travel funds were not provided by the conference, I applied for and received funds from Arkansas Tech University’s Professional Development Grant Committee. Below is the abstract of the research I presented at the conference.

Abstract Avian lead poisoning occurs when birds feed in hunted areas and ingest lead pellets. Lead shot has been banned for waterfowl hunting since 1991, however residual lead shot may remain in wetlands and be available to foraging waterfowl. We investigated the prevalence of spent shotgun pellets in surface and subsurface soils of a 621 acre managed wetland in the Mississippi Alluvial Valley of Arkansas in 2 time periods: 1992 and 2008. During each sampling period we collected 32 soil core samples (9.53 cm in diameter, 3.75 inches) to a depth of 20.3 cm (8 inches) within each of 4 quadrats. We used X-rays to detect shot pellets and then manually sifted through any core where a pellet was indicated. Frequency of lead shot did not differ between sampling periods ($\chi^2 = 0.00, P = 1.00$) or between sampling quadrats within sampling periods (all $\chi^2 \leq 3.23, P \geq 0.07$). However lead shot frequency did differ in depth distribution between sampling periods; significantly more pellets were detected within the top 5 cm of soil in 2008 ($\chi^2 = 14.67, P < 0.005$). Lead shot concentrations within the top 5 cm of sediment were 4,437 pellets/acre in 1992 and 62,111 pellets/acre in 2008. Because lead shot concentration measured in 2008 exceeds levels considered dangerous to waterfowl populations we recommend active management (disking and plowing) to remove lead pellets from the available foraging zone of dabbling ducks.

C. and D. Brief Review of the Research Procedures and Summary: