

# The Effect of Preserve and Conservation Site Clustering on Local Amphibian Densities and Species Richness

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**Goals and Objectives:**

- Determine how the amount and number of conserved areas, including all Iowa Department of Natural Resources (DNR) properties within a region, affect amphibian species richness and densities.
  - Determine the accuracy of DNR Wildlife Diversity Program volunteer frog and toad call surveys.
  - Determine whether restored wetland basins differ from native wetland basins in amphibian richness and densities.
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## **Introduction:**

This study examines the effects of the local densities of wetland basins in regulating the abundances and diversity of anurans. Wetland restoration efforts often center upon creating wetland complexes but there is little information on the numbers or acreages of wetland basins within these complexes that are sufficient to support diverse anuran populations. The Iowa Department of Natural Resources (DNR) has used frog-calling surveys conducted by volunteers as a means of tracking the health and status of frog populations across the state. These methods have not yet been independently validated. This study will provide a means of determining if specific frog species are being systematically missed or over- or under-represented by the volunteer surveys. Finally, there is a need to determine if anuran populations in restored wetlands can match natural wetlands in both abundances and diversity. To these ends, we considered 370 sites for inclusion in our set of study sites. We have surveyed 144 of these wetlands up to three times during the 2005 field season.

## **Progress:**

Analyses of these data are ongoing but preliminary analyses (subject to change as methodology is refined) suggest that the amount of wetlands within regions surrounding survey points has little effect on amphibian species richness and densities.

Also, DNR volunteers tend to underestimate species richness in their nocturnal auditory surveys. Some species are missed more often than others (leopard frogs and bullfrogs). However, they tend to identify American toads more frequently than did the ISU Survey Team (ISUST), even though the ISUST included visual daytime surveys for both adults and tadpoles.

Finally, categorizing the anuran richness and diversity of restored and native wetlands is proving difficult due to a lack of detailed data on the types of wetland restoration projects (intensity, what was done, what existed initially, etc.) included in the available databases; data provided includes only wetland location and year of restoration.

## **Future Plans:**

Additional spatial analyses and evaluation of wetland restorations are ongoing and targeted for completion by June 2007.