The effects of urban stream and riparian restoration on summer and winter bird populations
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Motivating Questions
1. Do local bird populations change in response to stream and wetland restoration?
2. From the "birds’ perspective" is the restoration successful?

Study Area
Duke Forest Stream and Wetland Assessment and Management Park (SWAMP), Durham, NC

Methods
- Ten-minute point counts between dawn and 11 am
- Four replicate counts per site spaced at least 5 days apart during summer (June/July) and winter (Jan/Feb) seasons.
References: Gregory, R. D. et al., 2004; Carlton, C., 2009
Acknowledgements: Funding was provided by the Duke Wetland Center Endowment

Results

<table>
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<tr>
<th>Diversity indices</th>
<th>Summer 2009</th>
<th>Winter ‘09–’10</th>
<th>Winter ‘10–’11</th>
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<td>Individuals and species per count</td>
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<td>Wetland Species</td>
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Conclusions
- Greater species richness and diversity in restored streams in summer
- Greater bird density in restored streams
- More wetland species in restored streams

Future Plans
- Analysis of summer 2011 data
- Continue collecting through 2012
- Chronosequence of restored sites
- Spring and Fall counts to detect transients
The Effects of Urban Stream and Riparian Restoration on Summer and Winter Avian Populations

R. Scott Winton, Randy L. Neighbarger, and Curtis J. Richardson

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Abstract
It was hypothesized that restoration of degraded riparian wetlands in the Duke University Wetland Center's Stream and Wetland Assessment and Management Park (SWAMP) should increase bird density and diversity due to improved habitat. To test this assumption point counts were conducted at four Sandy Creek sites that have been restored within the past 5 years and one site due for restoration within the next year. We also surveyed two reference sites: one site on a Sandy Creek tributary, and another site at nearby Mud Creek. Both winter and summer counts were completed. We found greater summer bird diversity and greater bird abundance in both summer and winter at restored SWAMP sites compared to reference sites. We recorded observations of nearly 1600 individuals representing 11 orders of birds and 67 species at the seven sites. Because much of SWAMP lies adjacent to popular public cross-country and fitness trails, a greater and more diverse bird population confers both conservation and aesthetic value. To facilitate bird observation, a blind and viewing platform are being constructed with educational signs identifying species of interest.