

# Identifying and Using Birds as Indicators of Ecological Condition in Northeastern WI

Project Coordinator: Dana Lex, West De Pere High School and Dr. Robert Howe, University of Wisconsin-Green Bay

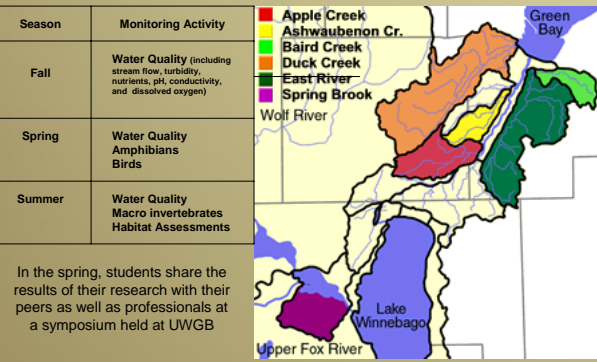
## Project Rationale & Purpose

As a high school teacher involved with the Lower Fox River Watershed Monitoring Project<sup>1</sup>, my students have been doing unprecedented scientific investigations. The project's design holistically addresses five stream watersheds throughout the year and has been doing so since 2003.

However, each year, as we collected spring bird surveys, my students were unanimously clueless about identifying even common local species, and were unsure what our surveys *meant*. Did having high biodiversity/richness mean that that site was healthier? Did the quantity of birds make a difference? I had no answers.

But Dr. Howe, of the University of Wisconsin Green Bay, did. He and his colleagues had recently published their work<sup>2</sup> associated with the Great Lakes Environmental Indicator project<sup>3</sup> which correlated habitat condition with the presence or absence of specific bird species. The project presented here merely puts his work into a format that helps make birds more accessible and meaningful for students and other amateur citizen scientists. Additionally, previous bird data can now be correlated with aerial photos depicting the changing land use within the watershed and its subsequent impacts on birds as well as the classic indicators already being studied; macro invertebrates and amphibians.

## Study Area: LFRWMP Watersheds



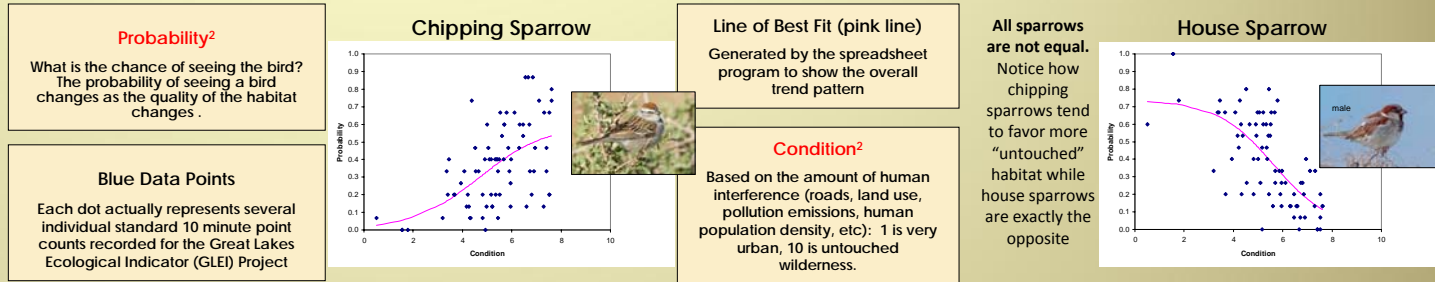
In the spring, students share the results of their research with their peers as well as professionals at a symposium held at UWGB

## Acknowledgements

- For more about LFRWMP, see [www.uwgb.edu/watershed/school.htm](http://www.uwgb.edu/watershed/school.htm). Thank you to Jill Fermanich, Paul Baumgart, and Kevin Fermanich at UWGB for their tireless efforts!
  - Howe, R.W.; Regal, R.R.; Hanowski, J.; Niemi, G.J.; Danz, N.P.; Smith, C.R.; *An Index of Ecological Condition Based on Bird Assemblages in Great Lakes Coastal Wetlands*; J. Great Lakes Res. 33 (Special Issue 3): 93-105; Internat. Assoc. Great Lakes Res., 2007.
  - For more about GLEI, see <http://glei.nrri.umn.edu/default/>
  - Photos: © Peter La Tourette with additional photos by Carole Clark. Illustrations courtesy of [www.whatbird.com](http://www.whatbird.com)
- Funding for this project was provided by a Citizen-based Monitoring Partnership Grant through the Wisconsin Department of Natural Resources in 2007



## Species Distribution Graphs Reveal Habitat Preference Patterns Unique to Each Species



## Putting It All Together: Newly Created Project Components

### FEATURES

- Focuses on common, most likely to be observed species
- Identifies indicator species with a
- Puts easily confused species side-by-side for quick comparison
- Full color, high quality photos and/or illustrations<sup>4</sup> show important identification details

### The Student-Friendly Field Guide

#### Little Brown Birds: Sparrows

**ID HINT:** male (male), female (female)

Sparrows look very much alike to me. Often I find that their heads or the streaking on their breasts provide some good clues.

Good luck!

<b>CHSP</b> Chipping Sparrow 5-7 <i>Spizella passerina</i>	<b>SOSP</b> Song Sparrow 5-7 <i>Melospiza melodia</i>	<b>SAVS</b> Savannah Sparrow 4-6 <i>Passerculus sandwichensis</i>
<b>HOSP</b> House Sparrow 1-2 <i>Passer domesticus</i>	<b>SWSP</b> Swamp Sparrow 1-2 <i>Melospiza palmarum</i>	<b>WTSP</b> White-throated Sparrow 4-7 <i>Spizella alpinus</i>

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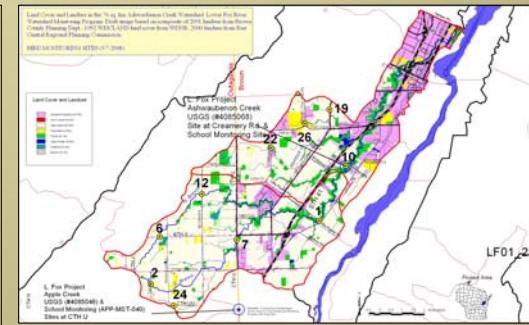
#### Little Brown Birds: Finches, Wrens, & Vireo

**ID HINT:** Wrens often hold their tails upright. They are small and quick, and scold you if you get too close to them!

<b>HOWR</b> House Wren 5-7 <i>Troglodytes aedon</i>	<b>MAWR</b> Marsh Wren 10-12 <i>Circaea palustris</i>	<b>SEWR</b> Sedge Wren 4-6 <i>Cinclus cinclus</i>
<b>AMGO</b> American Goldfinch 3-5 <i>Carduelis tristis</i>	<b>HOFI</b> House Finch 5 <i>Carduelis pensilvanica</i>	<b>REVI</b> Red-eyed Vireo 3-5 <i>Vireo olivaceus</i>

**ID HINT:** Purple Finch females have white eyebrows and the males' breasts are not as streaked as the House Finch males are.

### Data Collection Procedures & Analysis



#### Indicator Bird Checklist Data Sheet

June 2008

Watershed Monitoring Program

Site Name: \_\_\_\_\_ Date: \_\_\_\_\_

Observer: \_\_\_\_\_

Procedure:

1. Search for birds in the area...
2. Counting the birds out, enter data on the program...
3. Calculating the total of all birds seen...
4. Calculating the Index of Ecological Condition (IEC)...
5. Calculating the Index of Ecological Condition (IEC)...

Index of Ecological Condition (IEC) = \_\_\_\_\_

Index of Ecological Condition (IEC) = \_\_\_\_\_

Each watershed has 10 designated birding sites at which standard 10 minute point counts are conducted by an expert birder each spring.

Using the 33 indicator species selected, Dr. Howe designed a spreadsheet that computes the statistical parameters of each species both present and absent at each site to arrive at a final IEC (Index of Ecological Condition) Score

In June 2008, the Ashwaubenon Creek sites scored between 1 and 4 for the five heavily agricultural sites, and between 6.0 and 6.3 for the remaining five rural, fragmented woodlot sites