

# STATE OF THE STRAIT MONITORING FOR SOUND MANAGEMENT



## A BINATIONAL CONFERENCE ON THE DETROIT RIVER ECOSYSTEM

Convened December 2004 by Great Lakes Institute for Environmental Research, University of Windsor, The Greater Detroit American Heritage River Initiative of Metropolitan Affairs Coalition, The Detroit River Canadian Cleanup, The Detroit River International Wildlife Refuge, The Detroit Water and Sewerage Department, and other organizations.

**Cover photos:** photos left and center (upper and lower): Recreational fishing in the Huron-Erie Corridor (lower center photo by Kurt Byers, Michigan Sea Grant Extension, courtesy of United States Environmental Protection Agency, Great Lakes National Program Office; other photos courtesy of OMNR); upper right: Scientist sampling water, benthic invertebrates and sediment in Lake Erie (photo courtesy of Environment Canada and University of Windsor); lower right: Longear sunfish (*Lepomis megalotis*) (photo courtesy of Nicolas Lapointe)

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MONITORING FOR SOUND MANAGEMENT

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## 6.10. ROUGE RIVER WATERSHED VOLUNTEER FROG AND TOAD SURVEY

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### Introduction

Friends of the Rouge (FOTR), a watershed-based organization in metropolitan Detroit, has been coordinating a watershed-based volunteer frog and toad survey since 1998. The survey goals are to collect data on the health of local wetlands while giving residents a first-hand experience of local wildlife and wetlands. Wetlands are critical to the health of a watershed, filtering and storing storm water, and providing habitat for wildlife. Since amphibians depend on upland and wetland habitat, changes in populations can be used as an indicator of ecosystem health. An additional goal of the survey is to identify critical wetlands that should be protected.

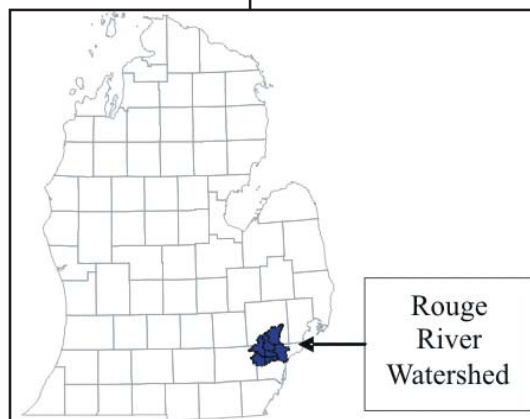


Figure 1. Rouge River Watershed location.

The survey is conducted within the Rouge River Watershed (Figure 1), a highly urbanized and suburbanized system that drains 1,207 km<sup>2</sup> (466 square miles) and discharges into the Detroit River at Zug Island (Rouge River National Wet Weather Demonstration Project 1998). Begun five years after the Michigan Volunteer Frog and Toad Survey, the Rouge River Survey was designed to augment the statewide survey by focusing on one area intensively. Survey blocks of 0.65 km<sup>2</sup> (one quarter mile square) enable volunteers to uncover small, fragmented populations of amphibians left in this highly urban and suburbanized watershed. It is probably the only watershed-based survey in the country.

### Methods

The Rouge River Watershed Frog and Toad Survey is a volunteer listening survey. Volunteers attend a two-hour training session that includes a slideshow on local frogs and toads and instructions on how to conduct the survey. A compact disc or tape of the breeding calls and a participants' guide are provided, and volunteers are expected to learn the calls on their own following the workshop. Volunteer teams sign up to survey one or more quarter-section blocks within the Rouge River Watershed.

Volunteer teams survey independently twice or more each month on damp evenings from March through July. Observations are made by listening for three minutes at representative wetlands within the survey block. Volunteers record what species they hear on a monthly data sheet along with time, temperature, wind speed, and precipitation. Data sheets are submitted to FOTR, where they are compiled. The species distributions are mapped and a report including maps is provided to all volunteers and local community contacts.

Since 2003, maps and reports have also been provided to planning commissions and local elected officials with a cover letter urging them to work to protect and increase frog and toad habitat in their part of the watershed.

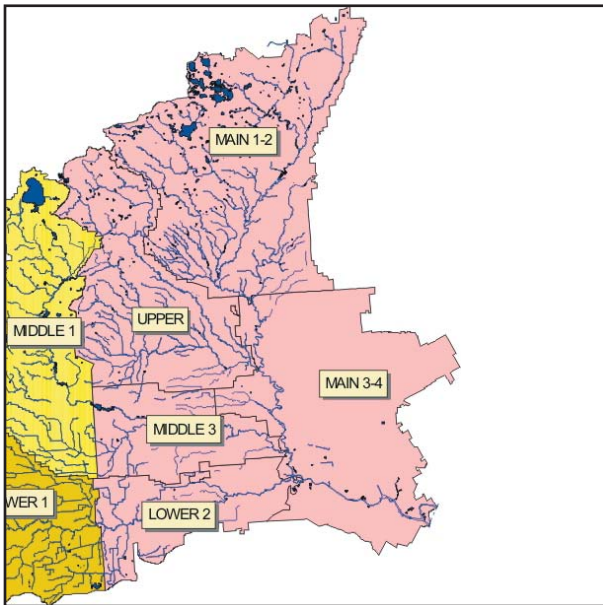


Figure 2. Rouge River subwatershed locations.

## Results

In 1998, only one subwatershed (Middle 1) was surveyed and only four species were included because organizers were unsure of interest (see Figure 2 for subwatershed locations). In 1999, an additional subwatershed (Lower 1) was added and all nine species were included in the survey. In 2000, the survey included any part of the watershed with suitable habitat that volunteers were willing to survey. Due to the volunteer nature of the survey, approximately 10% of the watershed is surveyed every year, and survey blocks vary from year to year.

An average of 208 survey blocks are covered by volunteers each year. Each volunteer averages 7.5 observations/visits per year. From 1998–2003, approximately 9,400 observations were made.

Every year, the distribution of species is mapped and some rough comparisons are made (Table 1). In the first two years of the survey, spring peepers and western chorus frogs were heard in the highest number of blocks. In 2000 and subsequent years, when the survey included the entire watershed, the American toad was the most commonly heard species. This is a rough comparison because blocks vary so much from year to year.

Table 1

Common name	Scientific name	2003	2002	2001	2000	1999*	1998**	00–03 average
Wood Frog	<i>Rana sylvatica</i>	23	20	17	14	30	55	19
Western Chorus Frog	<i>Pseudacris triseriata</i>	48	52	49	50	64	80	50
Spring Peeper	<i>Pseudacris crucifer</i>	45	50	47	48	67	83	48
American Toad	<i>Bufo americanus</i>	62	71	58	49	50	54	60
Northern Leopard Frog	<i>Rana pipiens</i>	18	8	9	5	5		10
Gray Treefrog	<i>Hyla versicolor</i>	40	35	37	47	40		40
Green Frog	<i>Rana clamitans</i>	53	39	38	15	30		36
Bullfrog	<i>Rana catesbeiana</i>	13	5	7	0	2		6

\*Only Middle 1 and Lower 1 subwatersheds surveyed

\*\*Only Middle 1 subwatershed surveyed

In 1998, the relationship of the diversity of frog and toad species (Figure 3) to percent impervious surfaces (paved surfaces) was examined. Blocks with two to three species were about 17% impervious, and blocks with four species were 13% impervious. Research by Schueler and Holland (2000) shows a declining diversity in headwaters streams once imperviousness surpasses 11%.

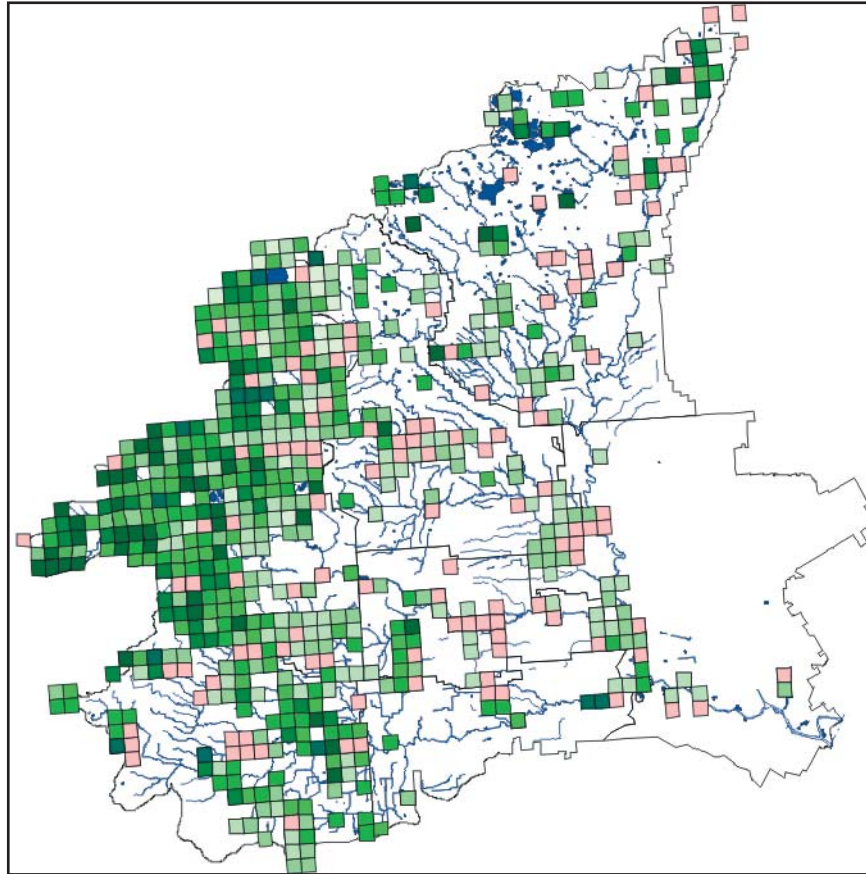


Figure 3. Species diversity among surveyed blocks in 1998–2003. Darker shading represents higher numbers of species.

## Discussion and Conclusions

The purpose of the Rouge River Watershed Frog and Toad Survey is to educate local residents and to collect baseline information on amphibian distribution. The survey is accomplishing both goals. A specific mechanism for applying the results to management decisions has yet to be created. The management of wetlands is controlled by state, local and private agencies as well as individuals. The FOTR is working to distribute the data to some of these agencies by providing results to planning commissions and elected officials, and by offering the data to the state through the new Wildlife Conservation Strategy Program. The FOTR has also begun training volunteers in wetland delineation and wetland law so that they can become educated advocates for critical wetlands, in a new program called Watchfrogs. It is our hope that educated citizens armed with frog and toad population data can help to influence management decisions.

## **Acknowledgment**

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## **References**

Rouge River National Wet Weather Demonstration Project. (1998). *Demo Info: The Watershed*. Wayne County Department of the Environment, Wayne, Michigan.

Schueler, T. and H. Holland. (2000). *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City, Michigan.