

## Monitoring Benthic Macroinvertebrates in the Grass River Watershed

MiCorps Grant = \$9,411; Matching Funds = \$15,501

Project duration: July, 2013 to July, 2015

Applicant: Grass River Natural Area, Inc.  
P.O. Box 231, Bellaire, Michigan 49615  
Contact: Richard Hannan, 231-676-9110, rich.hannan@gmail.com

GRNA Location: Antrim County, 6500 Alden Highway (Co. Road 618)  
Bellaire, Michigan 49615

The most current and best map can be found at <http://www.grassriver.org/contact.html>

Collaborators were Three Lakes Association, Becky Norris, Water Quality Director, and Northwestern Michigan College, Dr. Hans Van Sumeren, Director, Great Lakes Water Studies Institute.

This project was an effort to establish a long range, sustainable, volunteer based stream monitoring program to specifically monitor the Grass River and Grass River watershed which is a significant component of the greater Elk Rapids Chain of Lakes Watershed. This program was under the management of the Conservation Program at Grass River Natural Area, Inc.

The primary goal was to create a scientifically sound macroinvertebrate monitoring system that would become the corner stone of a larger, more inclusive, water quality monitoring program. We also intended to establish an administrative strategy to make the GRNA Inc. water quality monitoring system volunteer based and sustainable for the long term and through administrative turnover.

The primary objectives were: 1. Establish an educated corps of volunteers from our community, teach them about the importance of water quality in the Grass River watershed, and train them to do proper sampling of macroinvertebrates through our Citizens Science program. 2. Establish the first reliable baseline for the macroinvertebrate populations in the river and three major tributaries at multiple sites in each stream. 3. Collect sufficient data and properly analyze it in order to draw informed conclusions which will assist in making decisions about our conservation management strategies. 4. Determine deterioration or improvement over time and identify any specific problems or problem areas. 5. Research documented successful methods to address any identified problems.

Significant accomplishments included:

We established a core volunteer base of citizen scientists that ranged from young scouts to elder retirees. These volunteers have become interested and engaged in the science of macroinvertebrate sampling the streams, identifying the bugs and quantifying the data. They have also developed, in some cases, a keen interest in the interpretation of the results and the resulting biometric implications.

We collected measurable and statistically usable data to be shared with the larger state of Michigan database.

We greatly advanced our combined skills in data sampling, collection, documentation and tabulation.

An unexpected and/or unanticipated goal was the ultimate integration of what we learned in the Conservation Program project into the Education Program at Grass River Natural Area. The education program has summer sessions for children of all ages to do almost exactly the same sampling that was done for the MiCorps project. These young students will become our future volunteers.

Over the past two years, we monitored nine sites (3 sites per stream) on Shanty Creek, Cold Creek, Finch Creek and at the mouth of each creek on Grass River. Sampling was conducted according to MiCorps standard operating procedures.

The most significant measurable results were: 1. Macroinvertebrate population diversity and densities at some of the sites sampled were indicative of a stressed riparian habitat. The assessment of the obvious indicators of excessive siltation provided information to GRNA to address siltation as an issue, and partner with Three Lakes Association and county officials to find solutions and remedies.

Data surrounding the strategic parameters of conducting monitoring surveys/events were very critical in refining our approach and planning for future stream monitoring activities.

The continued and growing increase of numbers and interest from our volunteer community is a very relevant statistic for our organization.