



# REDSIDE DACE (*CLINOSTOMUS ELONGATES*) IN MILL CREEK, WABASH COUNTY, IND. A STRATEGY FOR POPULATION RESEARCH



*Male and female redbside dace.*

## Status

First year of a four-year project

## Funding Sources and Partners

State Wildlife Grant, Manchester College,  
DNR Nongame Fund

## Project Personnel

Principal Investigator: Jerry Sweeten, Ph.D.  
Research Technicians: Jacob Wenger and  
Melissa Bowman

## Objectives

1. To determine the distribution, abundance, habitat, prey selectivity and spawning habits of redbside dace in the Mill Creek watershed (Wabash County, Ind.).
2. To determine the genetic makeup of the Mill Creek redbside dace population
3. To develop a mechanism (model) to determine suitable redbside dace release sites for population augmentation
4. To develop redbside dace rearing protocols and test the habitat selection model by redbside dace release trials

## Methods and Progress

Contracted research for August 2008–June 2009 consisted of compiling a thorough literature review, beginning field work on physical, chemical and biological parameters of Mill Creek, and collecting tissue samples for DNA analysis. These goals have been attained and surpassed within the course of the summer.

## Literature Review

Literature review was compiled over the summer and cites all redbside dace literature found. It will be updated with newly published information.

- Established a captive rearing protocol.

A successful protocol for culturing and raising redbside dace in the laboratory was established, and more than 200 dace were raised successfully from embryos. Fish embryonic development is temperature dependent. Daily pictures were taken of the developing fish and were paired up with Degree Temperature Units (DTU) markers. These data points are currently being paired with the pictures to establish a developmental time line for the species.

- Began establishing baselines for physical, biological and chemical parameters of Mill Creek  
Physical characteristics, such as temperature, sunlight,

drainage area, pool depth/width, riffle length, and distance between pools and riffles were measured. A pebble count and Qualitative Habitat Evaluation Index (QHEI) were performed for further quantification of physical characteristics. For biological parameters an Index of Biotic Integrity (IBI) and a triple pass population estimation were executed. Mill Creek's water chemistry parameters, such as nitrate, phosphorus, dissolved oxygen, conductivity and suspended solids were measured weekly.

- Established microsatellites for future relatedness study

DNA samples were collected from redbelly dace. The samples were then sliced and sequenced for microsatellites. From the collected DNA more than 70 potentially usable microsatellites were found, 40 more than are required for the genetic relatedness tests to be conducted later this year. A number of microsatellites were established for blacknose (*Rhinichthys atratulus*) dace and southern redbelly dace (*Phoxinus erythrogaster*). These were collected with a desire to monitor potential interbreeding between the species.

Cost: \$118,640 for the total project when complete

