



# ENDANGERED SPECIES GRANT PROJECT REPORT—INDIANA

## Developing a Conservation Stewardship Campaign to Protect Mussel Habitat in the Tippecanoe River



*Students spreading our message to protect mussels by “Taking the Pledge.” (photo by Laura Esman)*

### CURRENT STATUS

Second year of a three-year project

### FUNDING SOURCES AND PARTNERS

Endangered Species Grant Program (E16R1)  
Purdue University

### PROJECT PERSONNEL

Dr. Linda S. Prokopy, Purdue University  
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### PROJECT ASSISTANTS

Purdue University post-doctoral researcher Dr. Mike Dunn, staff Miranda McOsker and Seth Peters, undergraduate students including Kira Frenreis, Cheyenne Hoffa, John Ohmberger, Jefferson Pike, Sophia Vela and Shannon Wiltzius.

### BACKGROUND AND OBJECTIVES

Water quality in North America has been declining due to human activities for the past 200 years. As a result, the continent has lost nearly 70% of its freshwater mussels. A primary cause was that native North American mussels were harvested by the thousands for commercial button and jewelry making in the 19th and 20th centuries, especially from Midwestern rivers.

Today, freshwater mussels are the Midwest’s most imperiled animals. More than half of such species are federally listed as endangered, threatened, or as state species of special concern. The eight states of the Midwest (Iowa, Michigan, Minnesota, Wisconsin, Illinois, Ohio, Indiana, and Missouri) range from having three to 11 federally listed species of freshwater mussels. Indiana is home to 10 federally listed freshwater mussels.

Six of Indiana’s 10 species live in one river in north-central Indiana. Once found in virtually all rivers in



**Meet Molly the Mussel. (photo by Belyna Bentlage)**

Indiana, the clubshell (*Pleurobema clava*), fanshell (*Cyprogenia stegaria*), rayed bean (*Villosa fabalis*), rabbitsfoot (*Quadrula cylindrica cylindrica*), sheepnose (*Plethobasus cyphus*) and snuffbox (*Epioblasma triquetra*) mussels now mainly reside in the Tippecanoe River. Removing any native mussel from Indiana waters has been illegal since 1991. Despite federal listing and legal protection, native mussel populations continue to decline.

Mussels are filter feeders. They can reside for many years in a river's substrate. These features allow mussels to help indicate the health of the river in which they live. Because of the benefits mussels provide to rivers and because of these animals' endangered status, the Indiana Department of Natural Resources (DNR) and Purdue University are designing an outreach and education program to increase awareness of mussels and encourage positive public engagement with mussels.

The objectives of this project are to:

1) develop and distribute informational messages and materials consistent with mussel/mussel habitat conservation based on experience and information gained from a related project (Developing an Outreach Campaign to Protect Six Federally Listed Mussels in the Tippecanoe River—T7R16),

2) provide relevant mussel/mussel habitat conservation appropriate outreach signs and information at a minimum of three high-use areas,

3) work with the DNR Division of Fish & Wildlife Fisheries Section regarding the placement of permanent information signs at Tippecanoe River access sites owned or managed by the DNR,

4) distribute conservation-message-appropriate outreach materials and information to a minimum of three target audience concentrations and at two local community venues, and

5) use a minimum of two media outlets to distribute a mussel/mussel habitat conservation message.

## METHODS

Outreach materials were developed based on information received in surveys conducted during summer 2014 and feedback from the February 2015 public meeting, both part of a related project (T7R16). Drafts of informational messages and materials were tested at the 2015 Purdue University Spring Fest event on April 18-19, 2015. Attendees of Spring Fest who tested the materials were adults and children. Designs and messages were further refined based on feedback from this event.

Final outreach materials were produced and distributed at local community events and venues throughout summer 2015. Informational packets were distributed to canoe rental businesses and bait shops to help increase participation in the pledge campaign. Packets contained informational brochures, pledge forms, and prizes. News media were informed of this program through a news release about the *HeartoftheTippy.org* website.

## PROGRESS TO DATE

Based on feedback obtained on draft materials and from the Spring Fest audience, we worked with a graphic artist to finalize the design for the logo, the six Mighty Mussels (each of the federally listed mussel species depicted as superhero characters with a superhero name), and the carry-your-canoe/kayak message. We also worked with a seamstress to design and produce a mussel costume. We developed five informational messages that included actions people can take to protect mussels and mussel habitat. Each message was linked as a tagline with a mussel species/ Mighty Mussel superhero as follows.

- Thrasher the Clubshell Mussel, Don't Pick Me Up!—Leave all mussels, living, dead, or empty shells in the river.
- Ava the Sheepnose Mussel, Don't Litter!—Pick up and place all trash in proper bins.
- Gail the Fanshell Mussel, Carry Your Canoe & Kayak!—Carry your canoe or kayak across shallow water to protect mussels buried in the river.
- Charm the Rabbitsfoot Mussel, Babies Go Back!—Check the gills of fish from the river for glochidia, and



*Many of the education and outreach materials distributed to raise awareness of protected freshwater mussels in the Tippecanoe River. (photo by Jeanne Newman)*

if present, return fish with glochidia to the river.

- Gary the Snuffbox Mussel, Forget the Fertilizer!—For riparian landowners, reduce fertilizer use and stabilize your shoreline to prevent nutrient and sediment runoff from your yard to the river.

- Duke the Rayed Bean Mussel, Take the Pledge!—Pledge to do the practices listed above to improve water quality and protect freshwater mussels.

The final designs, including our slogan, *Healthy Mussels, Healthy River*, were then incorporated into outreach and educational products, including:

- Logo stickers
- Carry Your Canoe stickers
- Mighty Mussel stickers—one for each of the species/characters
- Mighty Mussel Mania—an informational game posted in public parks that includes the Mighty Mussels, their messages, and facts about mussels
- Informational brochures—one for the general audience and one for anglers
- Floating keychains with the logo and slogan
- String bags with the three main pledge messages
- Bobbers with the logo
- *HeartoftheTippy.org* website—includes information on the mussels, how to protect them, videos of their lures in action, kids activities, and a link to Take the Pledge

- Lesson plan for 4th graders

We developed a pledge campaign to get people involved in improving water quality and protecting freshwater mussels. The three messages that apply to anyone recreating on or around the Tippecanoe River include (1) Don't Pick Me Up, (2) Don't Litter, and (3) Carry Your Canoe/Kayak. We developed paper pledge forms and an online pledge where people can pledge to do these three things. We added a fourth pledge message for anglers and river residents, asking anglers to also pledge to return fish that have glochidia attached to their gills to the river (Babies Go Back) and river residents to reduce their fertilizer use and stabilize their stream banks by planting native vegetation (Forget the Fertilizer).

Each person who completed the pledge received a prize (logo sticker, Mighty Mussel sticker packs, string bag or floating keychain). Pledge takers were also asked if they would like a yard sign saying they had taken the pledge. A total of 191 people took the pledge either online or at one of the local community events or venues this summer. Below is a list of events and venues where we distributed outreach materials and information to a variety of audiences, including Tippecanoe River residents, anglers, and visitors/recreationists.



***Mighty Mussel Mania game deployed at Tippecanoe River State Park. (photo by Laura Esman)***

- June 13, 2015—Buffalo Community Daze, Buffalo
- June 26-27, 2015—Spirit of Monticello Festival, Monticello
- July 11, 2015—Wabash Riverfest, West Lafayette
- July 11, 2015—Mosey Down Main Street, Lafayette
- July 21, 2015—Tippecanoe County Fair, Lafayette
- July 26, 2015—White County Fair, Remington

We targeted canoeists and anglers on the Tippecanoe River by compiling and delivering “Take the Pledge” packets to three canoe rental businesses and three bait shops. Canoe rental businesses received pledge forms for all audiences, our general informational brochure to provide to customers, and prizes to provide to those who completed the pledge. We requested that the business owners contact us when they needed additional items and when they had a collection of completed pledge forms for us to pick up. Bait shops received copies of our angler brochure and bobbers to give to customers.

Purdue University Agriculture News issued a news release on July 25, 2015, announcing ways to protect freshwater mussels presented on the *HeartoftheTippy.org* website (<http://www.purdue.edu/newsroom/releases/2015/Q2/extension-website-presents-ways-to-help-protect-indianas-endangered-mussels.html>). This news release was

republished in the July 2015 issue of *The Sentinel*, an online publication of the Purdue University Administrative and Professional Staff Advisory Committee.

The Heart of the Tippy mussel mascot was highlighted in the photographs issued for the Purdue Exponent Online related to the Mosey Down Main Street event on July 11, 2015.

A local news station, WLFI Channel 18, ran a news segment on how the Wabash Riverfest focuses on educating people about the river and how to preserve it. The segment highlighted the Heart of the Tippy campaign and our freshwater mussel mascot.

We are finalizing the design of a freshwater mussel interpretive sign, which measures 24 inches by 36 inches. Several copies of this sign will be produced and placed at high-use sites near the Tippecanoe River. DNR staff have been contacted about installation of interpretive signs at Tippecanoe River access sites, and we are working together on delivery and installation. Due to the high water conditions for most of the 2015 recreation season, installation will be delayed until spring 2016.

**COST: \$75,128 FOR THE COMPLETE THREE-YEAR PROJECT**