



ENDANGERED SPECIES GRANT PROJECT REPORT—INDIANA

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



The DNR boat launch at Leiters Ford is a good place to learn about protecting freshwater mussels in the Tippecanoe River. (Photo by Belyna Bentlage)

CURRENT STATUS

Third year of a three-year project

FUNDING SOURCES AND PARTNERS

Endangered Species Grant Program (E16RI)
Purdue University

PROJECT PERSONNEL

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PROJECT ASSISTANTS

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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 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.



Residents “take the pledge” to protect freshwater mussels at the Northern Indiana Lakes Festival. (Photo by Cheyenne Hoffa)

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 Purdue University Spring Fest 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.

Distribution of outreach materials that were produced in 2015 continued at canoe rental businesses, bait shops, and local community events and venues throughout 2016. We developed additional outreach materials including a museum-quality exhibit and informational signs to 1) deter the use of mussels by anglers as bait and 2) remind canoe/kayak recreationists of the main messages of the pledge campaign.

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 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*



Molly the Mussel explains the lesson-plan game called *Mighty Mussels Journey through the Watershed*. (Photo by Belyna Bentlage)

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 continued the 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 distributed paper pledge forms and a link to the online pledge where people can pledge to do

these three things. We also continued targeting 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 369 people have taken the pledge either online or at one of the local community events or venues since summer 2015 and are now depicted on our online Pledge Map at purdue.edu/extension/mussels/pledge/. Below is a list of 2016 events and venues where we distributed outreach materials and information to a variety of audiences, including Tippecanoe River residents, anglers, and visitors/recreationists.

- April 23, 2016—Monticello City Park Earth Day Celebration, Monticello (Monticello's Herald Journal featured a photo and description of Heart of the Tippy from the Monticello City Park Earth Day Celebration, published April 25, 2016)
- June 24–25, 2016—Spirit of Monticello Festival, Monticello
- July 9, 2016—Wabash Riverfest, West Lafayette



Patrons explore the H2O-WOW! Protecting Our Water Resources exhibit at the Pulaski County Public Library. (Photo by Laura Esman)

- July 11, 2015—Mosey Down Main Street, Lafayette
- July–August 2016—In-person surveys conducted as part of a related project (T7R16)

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.

We finalized the design of a freshwater mussel interpretive sign, which measures 24 by 36 inches. Five framed versions of this sign were produced and placed at high-use sites near the Tippecanoe River. Signs can be found at the Tippecanoe River State Park, Winamac Town Park, Potawatomi Wildlife Park, and the Leiters Ford and Oakdale Dam DNR boat launches. An additional interpretive sign is being produced and will be placed at Prophetstown State Park.

We worked with Purdue’s Exhibit Program to design and produce a museum-quality watershed exhibit called

H2O-WOW! Protecting Our Water Resources. The exhibit is a large dome that allows one to actually step into and be surrounded by the importance of protecting watersheds, promoting good water quality and conserving fish and wildlife, including the imperiled freshwater mussels in the Tippecanoe River. In preparation for the debut of the exhibit, we worked with Purdue’s Ag Communications staff to write media pitches and targeted emails describing the exhibit to send to reporters at local newspapers. The exhibit debuted at the Pulaski County Public Library in Winamac on April 15, 2016, with a special reception to feature the exhibit and special guests including State Senator Ed Charbonneau. After spending 30 days at the library, the exhibit was moved to the Tippecanoe River State Park Nature Center and then to the Indiana State Fair.

In June 2016, we were contacted to present on the freshwater mussels projects at the Conservation Educator Academy at the Indianapolis Zoo. The Academy consists of approximately 30 Indiana teachers who learn about various conservation projects and ideas involving water. Belyna Bentlage presented information on this conservation stewardship campaign and the related mussels project (T7R16), including introducing the lesson plan developed for 4th and 5th graders. Fourteen teachers requested copies of the lesson plan to incorporate into their classrooms.

Based on our previous outreach work, we were contacted by two separate groups to design additional informational signage. One issue of concern that arose was anglers using mussels as bait directly below the Oakdale Dam. We spoke with anglers, members of the Jefferson County Conservation Club, a local DNR conservation officer and NIPSCO’s Hydrologic Maintenance & Operations staff about the existing concern for the mussels, the angler audience, and what type of signage would be appropriate. Based on this information, we developed two versions of one sign (English and Spanish) using our taglines, Don’t Pick Me Up!, Babies Go Back! and Don’t Litter! to remind anglers what to do to protect freshwater mussels. We also incorporated the maximum penalties for violating Indiana Code and Indiana Administrative Code by removing mussels from the river to help deter this activity. These signs are in production and will be installed below the Oakdale Dam once received.

The second request came from the owner of one of the canoe rental businesses with which we have been working. They have several vehicles they use to transport canoe/kayak recreationists from their business to the river and wanted informational flyers to place inside their vehicles. We developed small flyers reminding recreationists of our taglines. These signs were delivered electronically or printed, laminated and mailed to the canoe rental business. Evaluation of the campaign is currently taking place through the T7R16 project. Final assessment will be presented in a report to be published in January 2017.

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