



STATE WILDLIFE GRANT PROJECT REPORT—INDIANA

Evaluating Awareness and Attitudes of Humans Toward Eastern Hellbenders in the Blue River Watershed



A hellbender mascot nicknamed Herbie has visited numerous local fairs and festivals. (Photo by Rod Williams.)

Current Status

Third year of three-year project

Funding Sources and/or Partners

Purdue University, State Wildlife Grant (T07R11), DNR Nongame Fund, Missouri Department of Conservation, The Nature Conservancy

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Three interpretive exhibits incorporating a hellbender replica and related conservation information are now on display in the Blue River area. (Photo by Rod Williams.)

Background

The hellbender is a state-endangered aquatic salamander inhabiting only the Blue River watershed. The Blue River's hellbender population has declined significantly in recent years due to habitat loss, water quality degradation, and human persecution. Anecdotal reports from area residents suggest that hellbenders are much less common now than in the recent past. Community members also report widespread persecution of the animal, resulting most frequently from accidental by-catch while fishing with live bait. In other states where hellbenders are present, extensive removal for the pet trade has contributed to major population declines.

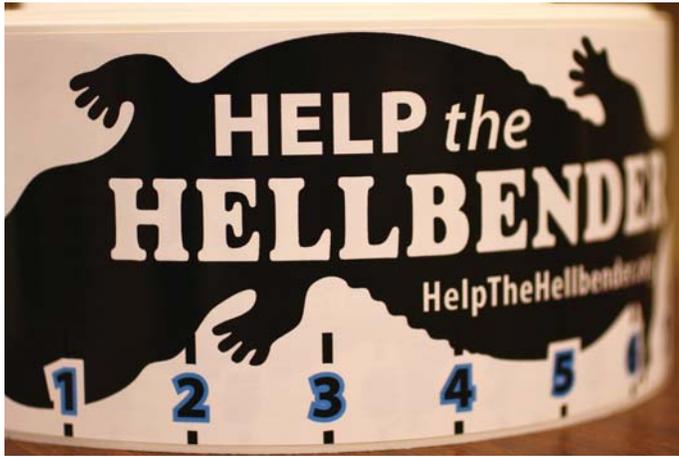
Even with substantial conservation effort, hellbenders face a serious threat of extinction. The Ozark hellbender, a distinct subspecies that lives primarily in the White River drainage near the Missouri-Arkansas border, was recently listed as a federally endangered species. In the same month, the entire Eastern hellbender species was banned from international sale through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These legal rulings provide extensive protection for the animals but also serve as official recognition of the immediate threats to their survival.

The success of ongoing efforts to stabilize hellbender populations throughout their native range depends upon the support of local citizens. To build this support, extensive education and outreach campaigns must be strategically designed and conducted to have maximal effect. It is also important to establish baseline conditions for local awareness and perceptions of the animal to measure change over time.

Hellbenders are habitat specialists and are thus widely recognized as “canaries in the coal mine”—indicator species that predict extensive ecological problems. Because of their endangered status and physiological distinctness, they also serve as important teaching tools for biodiversity. Natural resource agencies in North Carolina and in Missouri have conducted a variety of education campaigns that integrate information about the hellbender into larger conversations about ecology and the environment. Indiana's Department of Natural Resources, along with partners from Purdue University and The Nature Conservancy, hope to build on these models to bolster hellbender conservation efforts in Indiana.

Objectives

This study will use a combination of in-person and mail surveys to empirically measure local citizens' knowledge, perceptions and actions regarding the hellbender salamander in both southern Indiana and south-central Missouri, both before and after an extensive outreach campaign. Recreational users, riparian landowners, and general population members will be asked about their opinions toward the animal and what they would do if they encountered one. This study will also quantify local residents' experiences with the hellbender, helping to fill gaps in the historical population record. Surveys conducted in Missouri will shed light on that



Boat stickers emphasizing the message to protect hellbenders were distributed to anglers and other Blue River area residents. (Photo by Rod Williams.)



Community members who commit to hellbender-friendly conservation practices receive a yard sign to display in recognition of their pledge.



Bobbers prompting anglers to cut the line on accidentally hooked hellbenders were distributed to anglers at sportsmen's banquets and other community events. (Photo by Nathan Mullendore.)

state's education campaign, providing a point of reference and valuable feedback for similar efforts across the hellbender's geographic range. Together, these data will provide an assessment of current conditions through which outreach efforts can be developed, conducted, evaluated and improved.

Collection Methods

A total of 410 in-person surveys of recreational users on the Blue River were conducted in late summer 2011 and 2013. The in-person surveys were conducted at multiple public access sites along the lower section of the Blue River (from Milltown downstream). Each survey took about five minutes to administer and included questions regarding recreational habits, personal experience with hellbenders, and expected action if a hellbender were encountered. The 2013 surveys also contained a question about exposure to outreach materials used as part of the education and outreach campaign.

Mail surveys were distributed to 1,378 residents and landowners of five Indiana counties in fall of 2011. Of these recipients, 281 were landowners along the Blue River. A similar sample of residents and landowners was used in 2013, with a total of 1,412 households receiving surveys, including 312 riparian landowners. The survey included many of the same questions as the in-person survey in regard to the hellbender, but also asked questions about wildlife in general and about water quality, and attitudes toward the similarly threatened Eastern box turtle. In 2011, a total of 541 surveys were completed, resulting in a response rate of 41 percent. Data collection for the 2013 surveys will be completed in November.

Progress to Date

Project partners used data collected in 2011 to strategically plan and execute Indiana's hellbender outreach strategy. Extensive outreach efforts were conducted in spring and summer 2013. Follow-up in-person and mail surveys were conducted from August 2013 to October 2013. Data collected from these efforts are now being analyzed to evaluate the effectiveness of the outreach efforts.

The outreach strategy involved a multi-faceted approach that focused primarily on promoting hellbender-friendly behaviors to local residents, landowners and recreational users. One of the first projects was a website, helpthehellbender.org, which was launched in summer 2012. This website serves as a clearinghouse for hellbender information and contains a list of actions that local individuals can take to help with conservation efforts. Specific messages have been developed for anglers, homeowners and farmers, with a section designated for each audience on the website. Educators also can request classroom presentations and outreach materials such as posters and stickers. In 18 months of operation, the website has received 14,728 page views from 4,117 total visits. A companion Facebook page is regularly updated with hellbender information and trivia, and has received 1,128 "Likes" since it was created. Through zipTrips,



As part of the outreach campaign, local residents have been asked to sign pledges in recognition of their commitment to hellbender-friendly conservation practices. (Photo by Rod Williams.)

Purdue University’s electronic field trip program, 4,070 students in 28 states learned about hellbenders.

The outreach campaign was highlighted in a national press release regarding the release of captive-reared hellbenders. This story was featured by the Associated Press and printed in local newspapers across Indiana. Newspapers in the counties surrounding the study area have also published additional information geared toward the local community. A YouTube video of the event has received 3,604 views.

The outreach team contracted with an Indianapolis-based exhibit design company to produce three hellbender displays that focus on specific human behaviors that will help the hellbender. These displays are currently hosted by the O’Bannon Woods State Park Nature Center, Salem High School and a local sporting goods retailer (Gun World). The outreach team also worked with a marketing and design class from Randolph Community College in North Carolina to produce a hellbender costume for use at community events in the Blue River area. This mascot was given the name “Herbie” after a local competition. Herbie made appearances at numerous community events in 2013, including the Hellbender Feast, Harrison County Summerfest, Corydon Outdoor Expo, and the Harrison and Crawford county fairs. Fishing bobbers and

cooler stickers featuring the “help the hellbender, cut the line” prompt were also distributed at these events. When possible, the outreach team collected hellbender-related conservation commitments from event attendees, such as promises to release the animal or to help improve water quality in the Blue River area through household conservation measures. Individuals who made commitments were asked to stake a Help the Hellbender sign in front of their houses. Outreach team members were the featured speakers at the 2013 annual meetings for the Harrison and Crawford county Soil and Water Conservation districts and at regular meetings for the Mill Creek-Blue River Watershed Council and the Blue River Commission. A final report analyzing the effectiveness of these programs and efforts will be completed after collection of the 2013 mail survey.

Results from this project have been presented at six national and international conferences, including the 2013 Hellbender Symposium. Two peer-reviewed journal articles about the research have been accepted for publication in 2014. Additional articles have appeared in the Purdue Alumnus magazine and in the Indiana Woodland Steward.

Cost: \$215,829 (including Purdue match)