



EVALUATING AWARENESS AND ATTITUDES OF HUMANS TOWARD EASTERN HELLBENDERS IN THE BLUE RIVER WATERSHED



A Purdue University film crew captured the release of captive-reared hellbenders. (Photo by Rod Williams.)

Current Status

Second year of three-year project

Funding Sources and Partners

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

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Background

The hellbender is a state-endangered aquatic salamander living only in 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 hellbenders are much less common now than in the recent past. Community members also report widespread mortality, 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.

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Upcoming Events

Welcome to Help the Hellbender



Whether you live near the Blue River or just like visiting it, chances are you think that it's a pretty special place. The hellbender salamander thinks so too. Unfortunately, a number of habitat and water quality concerns threaten the health of the local places that we know and love. By learning about the hellbender, the surrounding environment, and some simple



A website was created that contains information specific to different groups (such as anglers, farmers and homeowners) about how certain behaviors can aid hellbender conservation efforts.

The success of ongoing efforts to stabilize hellbender populations throughout their native range depends upon the support of local citizens. In order 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 in order 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 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. 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 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 a baseline of current conditions through which effective outreach efforts can be developed and evaluated.

Collection Methods

In-person surveys of 242 recreational users on the Blue River were conducted in late summer 2011. 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 and included questions regarding recreational habits, personal experience with hellbenders, and expected action if a hellbender was encountered.

Mail surveys were distributed to 1,378 residents of five Indiana counties starting in July 2011. Of these recipients, 281 were landowners along the Blue River. This 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, water quality and attitudes toward the similarly threatened Eastern box turtle. A total of 541 surveys were completed, a response rate of 41 percent.

Progress to Date

The initial data collection period for Indiana and Missouri has ended. This information is now being used by the project partners to strategically plan and execute Indiana’s hellbender outreach strategy. The effectiveness of this work will be tested with a follow-up survey in 2013.

Analysis of the Indiana surveys suggests that less than

half (45 percent) of the residents and riparian landowners in the Blue River area have heard of the hellbender. Just over one-quarter (26 percent) of area residents claim to have seen one in the wild, though this percentage is likely inflated due to confusion with the mudpuppy, another large aquatic salamander that lives in the same area. Most importantly, just over 5 percent declared intentions that could harm hellbenders, including throwing them on the bank, killing them or taking them home. While this number may seem small, recent population declines underscore the importance of protecting each individual in the Blue River hellbender population. Outreach efforts will focus on correcting misconceptions about the hellbender's defense mechanisms, emphasizing its importance to the ecosystem and promoting live release should one be caught or captured.

The results of the Missouri survey, which was completed in early 2012, highlight the impact of an outreach campaign combined with media coverage regarding government-based conservation efforts. North Fork area residents were almost twice as likely as Blue River area residents to have heard of the hellbender before the survey (83 percent compared to 45 percent). They were also more likely to have seen one in the wild—nearly 40 percent of North Fork survey respondents said they



A YouTube video of the captive release puts the event into the larger context of hellbender conservation. The video has received more than a thousand views to date and will be distributed as part of Purdue University's zipTrips school video program.



A regularly updated Help the Hellbender Facebook page consistently draws new visitors and serves as a launch point to the full website.



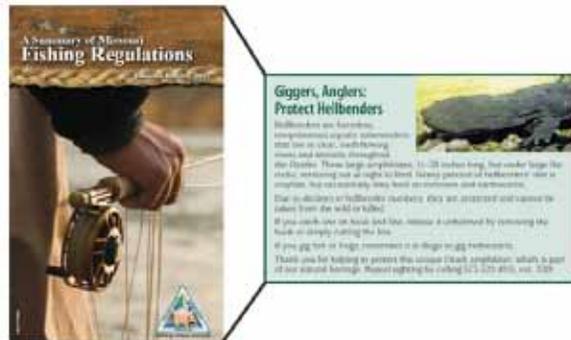
Sticker - "Help the Hellbender"



Brochure - "The Hellbender"



Poster - "The Hellbender"



Notice in MDC Fishing Regulations Book - "Protect Hellbenders"

A survey of residents in the North Fork area of Missouri helped evaluate potential outreach strategies while providing a comparison point for awareness and attitude levels of residents in areas where hellbenders live.

had seen one. The most common source of information about the hellbender was the state's "Missouri Conservationist" publication, which is distributed free to residents who request a subscription. Nearly half (45 percent) of all survey respondents had read about the hellbender in this publication. Respondents who were familiar with the hellbender displayed stronger levels of support for conservation efforts compared to those who had not, demonstrating the importance of outreach.

Education and outreach efforts are now underway. A website, helpthehellbender.org, was launched in summer 2012. This website serves as a clearinghouse for hellbender information and contains a list of actions that individuals can take to help local conservation efforts. Specific messages have been developed for anglers, homeowners and farmers, with a section designated for each audience on the website. Educators also have the option to request classroom presentations and outreach materials such as posters and stickers. In six months of operation, the website has received 6,304 page views from 1,211 total visits.

Our 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 more than a thousand views.

The outreach team has contracted with an Indianapolis-based exhibit design company to produce three hellbender displays that focus on specific human behaviors that could help the hellbender. These displays will be hosted by the O'Bannon Woods State Park Nature Center, Clarksville Bass Pro Shop, Cave Country Canoes in Milltown, and rotated through local schools. Before being installed in their permanent locations, these displays will be shown at local community events such as Master Gardener gatherings and local soil and water conservation district annual meetings. The outreach team is also working with a marketing and design class from Randolph Community College in North Carolina to produce a hellbender mascot costume for use at community events in the Blue River area. A hellbender-centered festival is being planned for spring 2013. Fishing bobbers that feature the "help the hellbender, cut the line" prompt will be distributed to anglers at the festival as well as at other presentations in the area and at local community events. We are also producing fish-measuring stickers that will feature the same message.

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