



The Williams' Eastern Hellbender Salamander Partnership Project

IOGCC Chairman's Stewardship Award Submittal: Environmental Partnership

Project Description

The Eastern Hellbender Salamander Partnership Project includes a 100 percent voluntary species restoration and habitat conservation effort with local, state and federal agencies, zoos, non-governmental organizations and educational institutions. The Hellbender is a completely aquatic salamander and the largest species in North America, but populations have declined dramatically throughout its range making it a Federal Species of Concern. To stabilize the population, Williams provided funding for conservation, stream protection and the creation of biosecure facilities to rear Hellbenders for release and reintroduction back into the wild. This innovative partnership is working to reverse species decline and ensure the future of this Ohio Endangered Species.

Purpose of the Project

Surveys of the Eastern Hellbender Salamander (Hellbender) in the late 2000s found an 82-percent population decline in Ohio since the mid-1980s. Without intervention, this species, much like the endangered Ozark Hellbender in Northern Arkansas, may be lost forever. Currently, the Eastern Hellbender is a state Endangered Species and a Federal Species of Concern.

Williams contributed voluntary non-mitigation related funding for the Eastern Hellbender Salamander Partnership Project (Project), which includes conservation efforts, stream protections and the creation of biosecure "head-starting" facilities. The Hellbender is the largest salamander in North America and can reach over two feet in length and live over fifty years. Please see the link for a video describing the original program: <https://www.youtube.com/watch?v=re560YgBKkk&feature=youtu.be>

The central component of this Project consists of collecting wild Hellbender eggs, raising the salamander for three years in biosecure facilities and then releasing the species into the wild to reestablish the population. "Head-starting" programs, such as this, have been successful for other amphibian species, but the greatest predictor of success is the number of animals released to the environment. This posed a problem for the Partnership, who had limited biosecure facility space to ensure that novel pathogens are not passed from other zoo animals to Hellbenders destined for release. Animal biosecurity is the practice of encompassing prevention and containment. The key is to prevent the transmission of potentially infection agents, toxins or pollutants from passing between one species to another. Ensuring biosecure facilities is imperative for a delicate species such as the hellbender because not only can infectious pathogens spread quickly amongst small facilities and decimate the head-starting program's fragile population but it could also greatly impact species in the wild during later reintroduction.

Process Taken to Complete the Project

To meet the need for additional biosecure facility space, Williams contributed non-mitigation related funding to create the Partnership's new Hellbender Salamander Conservation Center at the Toledo Zoo. The facility is a modified, self-contained trailer and provides the biosecurity necessary to raise Hellbender youth for reintroduction into the wild. The biosecure facility provides an innovative, turnkey solution for captive head-starting of endangered species. In addition to species rearing, the facility provides behavioral study opportunities that will assist in further strengthening the species from predators.

Funding also went towards a second facility, which is a modified classroom-turned-Hellbender laboratory, located at the Penta Career Center. In addition to providing much needed space for raising Hellbenders, the Penta facility also provides high school students the opportunity to participate in a real-world endangered species recovery program. Students are responsible for the daily care of the young Hellbenders, including feeding, cleaning, monitoring water quality and keeping detailed records of the animals' health and growth. As these students are destined for animal related careers - as zoo keepers, veterinarians, researchers and laboratory technicians – this experience is providing valuable job skills, while also fostering critical thinking about solutions to today's environmental challenges.

To date, the Partnership has released 249 Hellbenders back into Ohio streams. After a 3-week settling in period, released animals have been found to behave, grow and survive as well as their wild counterparts. This head-starting program is such a vital piece of species stabilization because the mortality rate for 1 year old Hellbenders is 90-percent. Based on estimates, an average of only 6 of every 1,000 larvae in the wild will survive to sexual maturity (age 6). Since the "head-starting" program, the mortality rate for Partnership raised Hellbenders, released in the wild, was reduced to 45-percent. A significant change and population boost that will aide in species stabilization. Please see the following link for an additional video describing the program: <https://www.youtube.com/watch?v=ufA8ZjsUhQw&feature=youtu.be>

Recognizing that species stabilization will require the release of thousands of reared Hellbenders, along with concurrent habitat protection efforts, Williams became engaged with Partnership members to further assist the species. Williams partnered with WRLC to conserve 131 acres and protect Ohio's Yellow Creek, which serves as a Hellbender release point and youth habitat, from potentially detrimental sediment impacts. Williams also partnered with the U.S. Fish and Wildlife Service and the Jefferson Soil and Water Conservation District to build the Cedar Lick Ford crossing in order to remove sediment and vehicle traffic upstream from one of the highest quality Hellbender nesting sites in Ohio. Moving forward, an additional 1,100 Hellbenders are currently being "head-started" with 350 destined for release in both 2016 and 2017.

Williams' Project Contribution

Williams was welcomed to the Ohio Hellbender Partnership and collaborated with local, state and federal agencies, zoos, non-governmental organizations and educational institutions, under the umbrella of the Ohio Hellbender Partnership (Partnership), to help stabilize this beloved species. The Partnership consists of the Ohio DNR Divisions of Wildlife and Scenic Rivers, U.S. Fish and Wildlife Service, Belmont, Columbiana and Jefferson SWCD, Ohio EPA, Ohio State and Purdue Universities, Williams, Penta Career Center, the Wilds, Akron, Columbus and Toledo Zoos. Partner roles include field surveys, captive-rearing, habitat protection, restoration, veterinary services and educational outreach.

This collaboration provided Williams a great opportunity to strengthen relationships with regulatory agencies and share our mutual interest in environmental stewardship. Williams provided the Partnership funding for the following projects from a portion of our annual budget that was specifically developed for, non-mitigation related, environmental conservation and restoration projects:

Project	Williams Contribution	Project Cost (Approximately)
Toledo Zoo & Penta Hellbender Facilities	\$40,000	\$80,000
Conservation Easement	\$100,000	\$108,119
Cedar Lick Ford Crossing	\$25,000	\$140,000
total	\$165,000	\$328,119

Environmental Contributions & Accomplishments

The Partnership’s Hellbender endeavors are at the heart of Williams’ core values. Williams maintains a commitment to environmental excellence by protecting the environment and all natural resources.

We are proud of the Partnership’s efforts and their ability to provide significant environmental value by aiding a species that if not stabilized, has great potential of reaching federally protected species status in the foreseeable future. The Partnership’s proactive measures will stabilize a state endangered species and also help prevent detrimental impacts to the Hellbender’s high quality nesting locations. The Williams’ Eastern Hellbender Salamander Partnership Project achieved the following educational and environmental goals:

❖ Educational Opportunities

The Hellbender Laboratory at Penta Career Center provides an innovative educational opportunity for high school students to gain practical job skills and participate in the solution to an environmental problem. Students now have the opportunity to not only raise the species but to also study and document species behavior. Thus, giving students a one-of-a-kind educational experience in species conservation and the opportunity to engage in a real-world endangered species recovery program.

❖ Habitat Protection

The Project also helps improve water quality in Ohio’s Yellow Creek. The Hellbender breathes entirely through its skin, so it depends on clean, oxygen-rich freshwater. To protect water quality, Williams partnered with Western Reserve Land Conservancy to offset previously constructed facilities, conserve 131 acres, and protecting Yellow Creek, a Hellbender release point, and youth habitat. Williams also partnered with USFWS and Jefferson SWCD to build the Cedar Lick Ford crossing to remove sediment and vehicle traffic upstream from one of the highest quality Hellbender nesting sites in Ohio.

❖ Species Stabilization

The mortality rate for one year old Hellbenders is 90-percent. Based on estimates, in the wild, an average of only six of every 1,000 larvae will survive to sexual maturity (age 6). So, success is absolutely measured by species stabilization. To date, 249 Hellbenders reared by the Partnership have been released into Ohio waterways. The survival rate is monitored by the Partnership on a yearly basis by utilizing Passive Integrated Transponders which are placed on individuals once released. Currently, 1,100 young Hellbenders are being head-started by the Partnership, with 350 destined for release in both 2016 and 2017. The additional biosecure facilities at the Toledo Zoo and Penta Career Center will provide the necessary space to greatly increase those release numbers in the near future and help stabilize the Eastern Hellbender Salamander.