

8/1/22

To: Andy Loftus
Fish America Foundation

RE: Final Report for Fish America Foundation Grant Project Titled "Beaver Lake/Big Clifty Creek Fish Habitat Enhancement Project"

Contact:

Jon Stein District Fisheries Supervisor, Arkansas Game and Fish Commission

The Arkansas Game and Fish Commission applied for a grant from the Fish America Foundation for fish habitat work on Beaver Lake and a tributary (Big Clifty Creek) of the lake. The FAF Grant was part of a large fish habitat endeavor funded by the Reservoir Fish Habitat Partnership, Bass Pro Shops, Beaver Watershed Alliance, AGFC and partners to improve fish habitat in a tributary of Beaver Lake and in the lake itself (see attached report). The Fish America Grant (\$80,000) was utilized to purchase a habitat barge to complete fish habitat enhancement in Beaver Lake and in the state of Arkansas (Pictures 1 and 2). AGFC was able to leverage this funding and add an additional \$58,517.50 (\$45,650 for barge and \$12,017.50 for taxes) from AGFC to purchase the barge.

The fish habitat barge is a great asset to improve fish habitat in Arkansas, because it is a dual purpose piece of equipment. The boat is equipped with a hydraulic dump bed that is operated by a generator (dump capacity is 8,000 pounds). Habitat materials can be loaded on the barge and motored to fish habitat sites (Video 1). The barge is powered by twin 150 horse power motors and can also pull large habitat structures into lakes (Pictures 3 and 4).

AGFC and Hobbs State Park Fish Habitat Project with new barge

The supply chain slow down really impacted the time it took for the boat manufacturer to complete the barge. It took several months to get the boat motors and other supplies to construct the barge. The barge was picked up on May 3, 2022 and has been put to good use. Staff from Hobbs State Park cut over 250 cedar trees from state park property in Van Hollow and AGFC sank them for fish habitat. The goals of the Hobbs State Park project were to improve wildlife habitat and native plant species by removing nuisance cedar trees. Removal of the trees opens up the forest floor allowing sunlight to the ground and this greatly benefits native plants (Pictures 5 and 6). The trees also make great fish habitat when placed in the lake. AGFC Staff constructed 10 new habitat sites with the 250 cedar trees utilizing the new Barge. The new barge worked

great and can pull some very large trees. One tree was 20 inches at its base and took 30 blocks to sink. Thanks to staff from Hobbs State Park for cutting trees and dragging them down to the shoreline and the U.S. Army Corps of Engineers for access to the trees.

The barge will be used in fall of 2022 to complete the Reservoir Fish Habitat Project by working with several outdoor groups to cut and sink cedar trees in Beaver Lake. The barge will also be used statewide for fish habitat projects and the AGFC conducts at least 2 large scale fish habitat projects per year. The following is a report from a recent large-scale fish habitat project on Beaver Lake, which was part of the larger RFHP grant.

District 1 staff organized a large-scale fish habitat addition project on Beaver Lake that occurred from November 29, 2021 through December 10, 2021. A total of 42 AGFC staff participated in the project and involved members from the Fisheries, Culture, Research, and Wildlife Sections. Eastern Red Cedar *Juniperus virginiana* were cut from the riparian zone and sank by attaching cement blocks and transporting them to locations between 6 m – 9 m deep. Large trees were hauled and dumped with a large habitat barges while smaller trees were loaded manually and dumped using small habitat barges. Crews worked out of the Rocky Branch public access during the first week (November 29 – December 3) while crews worked out of the Prairie Creek public access during the second week (December 6 – December 10). A total of 145 sites were created using nearly 900 cedar trees.

The AGFC would like to thank the Fish America Foundation for the grant to purchase this much needed piece of equipment. AGFC was able to contribute another \$58,517.50 for the purchase of the barge. The barge is a great asset to the agency and will be utilized statewide for fish habitat improvement projects.

Picture 1. 27 foot habitat barge with hydraulic dump bed



Picture 2. Twin 150 horsepower motors



Picture 3. Large cedar tree used for fish habitat on new barge



Picture 4. Large cedar tree being pulled to fish habitat site



Picture 5. Glade on Hobbs State Park infested with cedar trees. Picture taken before cedar tree removal.



Picture 6. Glade at Hobbs State Park after cedar removal.





6/17/22

To: Claire Tillman
Operations Manager
Bass Pro Shops and Cabela's Outdoor Fund

RE: Wrap Up Report for Bass Pro Shop's and Cabela's Outdoor Fund project "Habitat Improvement and Stream Restoration on Clifty Creek – War Eagle"

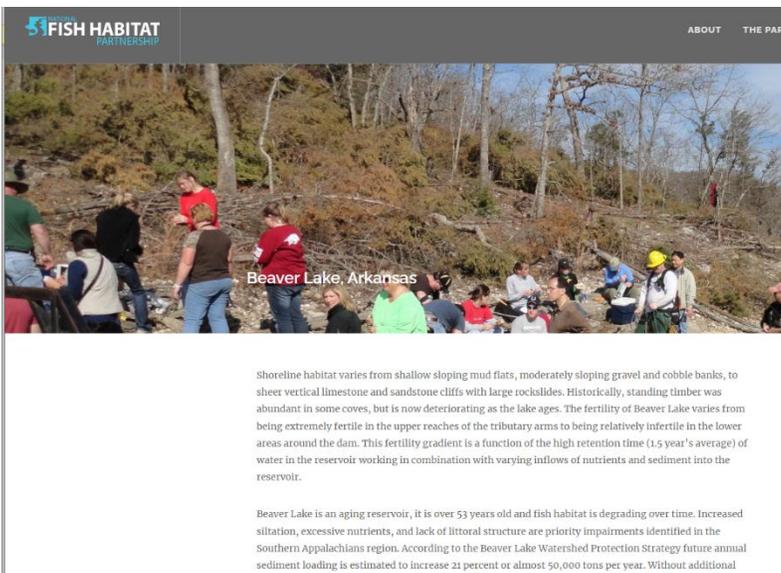
Grant #2021060293

Timeframe: August 2021 – June 2022

Contact:

Daniel Hagood, Stream and Forest Resource Specialist, Beaver Watershed Alliance
Becky Roark, Executive Director, Beaver Watershed Alliance

The Beaver Watershed Alliance (Alliance) is proud to report the outcomes of Bass Pro Shops and Cabela's Outdoor Fund support for the project titled "Habitat Improvement and Stream Restoration on Clifty Creek – War Eagle." This project accomplished objectives to install a stream bank restoration to reduce sediment flow into Beaver Lake, enhance riparian buffers along the waterway, improve fisheries in Beaver Lake, and provide education and outreach to producers and landowners in the Beaver Lake watershed. Your support made the following activities possible!



This project and its partners received national recognition. Featured on the 2021 "Waters to Watch" – through National Fish Habitat Partnership.

<https://www.fishhabitat.org/waters-to-watch/detail/beaver-lake-arkansas>

To proactively protect, enhance and sustain water quality in Beaver Lake and the integrity of its watershed.
Beaver Watershed Alliance | 162 Doolin Drive – P.O. Box 762, Elkins, AR 72727 | 479.750.8007



- **The Restoration of 300 linear feet of eroded streambank to reduce sediment and nutrients into Beaver Lake.**
- **The planting of over 300 native trees, shrubs, and grasses**
- **The creation of a riparian buffer to protect water quality and provide wildlife habitat**

Clifty Creek Technical Services: Impact Report



Figure 1. Streambank restoration along Clifty Creek

Through partnerships with Bass Pro Outdoor Fund, Arkansas Game and Fish Commission Stream Team, Reservoir Fisheries Habitat Partnership, the Alliance, UA Extension Service, Cargill Cares, Rufus Fund for the War Eagle, and the landowners, Sue and Mike Phillips, significant funding was raised to complete the streambank restoration and riparian enhancement. Your support of \$35,000 was leveraged to meet \$154,000 in total project funding.

Initial planning with partners, including landowner surveys, and site visits, showed this site on Clifty Creek, a major tributary to War Eagle Creek, as a prime candidate for restoration due to the severely eroded banks known as “cut banks” that can allow tons of sediment to erode into Beaver Lake (Figure 1 “BEFORE”). Natural State Streams (NSS) was contracted to conduct the restoration. NSS has extensive experience with streambank restorations and has completed multiple projects with Arkansas Game and Fish Commission Stream Team and other organizations. The restoration process consisted of keying boulders into the base of the eroded banks and then sloping the soil back to a smaller grade that would resist further erosion (Figure 1 “AFTER”). The graded soil was then covered in coconut fiber matting and seeded with quick-growing grass. To ensure long-term success of the streambank restoration a riparian buffer that provides root structure to hold soil in place and trap sediment is vital. A volunteer planting event was held and over 600 native, riparian trees, shrubs, and grasses were planted along both sides of the stream (Figure 1 “3 MONTHS AFTER”). Many of the plants were purchased from local growers that are participants in an Alliance program that assists with the purchase of seasonal high tunnels for propagation of local genotype native plants to be sold in the Ozarks region for watershed restoration projects.

The Alliance also collaborated with other landowners on Clifty Creek. Just downstream of the Phillip's restoration site, another volunteer planting event was held on an additional landowner's property. Over 7 acres of riparian habitat were improved by planting 320 native plants that were donated by the Arkansas Master Naturalists. These riparian plants will assist with streambank stabilization and water quality along Clifty Creek, as well as provide critical habitat for a variety of wildlife species. It was a big win-win to have this momentum grow along contiguous riparian landscapes in a critical area for watershed protection.



- **Removal of approximately 1,000 invasive cedar trees to create over 200 fish habitat structures deployed in Beaver Lake**
- **Outreach and Education for anglers and landowners**

Beaver Lake Technical Services: Impact Report



Figure 2. Sinking of fish habitat created from invasive cedar trees and being interviewed for Arkansas Game and Fish Commission outreach.

Led by Arkansas Game and Fish Commission (AGFC), the other phase of this project was the creation of fish habitat in Beaver Lake. Fish habitat was created from invasive cedar trees removed from the shorelines of Beaver Lake wildlife management areas. Multiple trees were anchored together and deployed within the lake in areas to maximize fish habitat and increase angler success rates. Education and outreach efforts provided data to stakeholders and partners to increase awareness of invasive species, and locations of sunken habitats, and will continue to provide replicable models for additional projects. A geolocation of all cedar tree habitats is available on the AGFC website. Video productions, conducted by AGFC, are also in progress to spread education and awareness to anglers and the general public about this two-fold approach to watershed restoration (shoreline habitat improvement and streambank restoration techniques).



- **132 hours of volunteer services**
- **Education and outreach provided to over 54,000 people via workshops, newsletters, and E-news**

Awareness and Education Outreach Activities: Impact Report



Figure 3. Awareness and education outreach for landowners within the Beaver Lake Watershed

The Alliance reached 25,000+ local residents, businesses and industries about the work done on Clifty Creek through newsletters, E-news (Figure 6), and a workshop. A Riparian Workshop was held on March 19, 2022 in Clifty, AR to raise awareness about the importance of installing and maintaining streambanks and riparian buffers. Guest speakers included Arkansas Game and Fish Commission Stream Team, personal testimonies from landowners Mike and Sue Phillips, Reed Green with Reservoir Fisheries Habitat Partnership, and Josh Duzan of Natural State Streams. Several of the workshop attendees received technical assistance to learn how to properly plant native trees, shrubs and grasses, and helped plant the riparian projects at the Phillips site and Valentine site after the workshop event. Surveys conducted after the workshop showed that out of twenty surveys, fifteen were landowners, and feedback results indicated that 67% of attendees rated the workshop as “excellent” and the remaining 33% ranked it as “good” (Figure 4). The Alliance will continue to host these types of workshops in communities in the Beaver Lake watershed.



Protecting and restoring Beaver Lake, our regional drinking water source!

BEAVER WATERSHED ALLIANCE

Riparian Workshop & Planting Event

Join the Alliance for a fun-filled day along Clifty Creek!

Participants will learn about streambank restoration techniques, how to establish a healthy riparian zone, which plants to use, and how to reduce and prevent land loss and slow down erosion.

Speakers:
Sean Saunders, AR Game & Fish Commission Stream Team
Josh Duzan, Natural State Streams
Shonda Garrison, Moonlit Heights Native Plants
Daniel Hagood, Alliance Stream & Forest Specialist

A hands-on planting event will be held after lunch at a nearby stream restoration site.
All tools & supplies will be provided.

FAMILY FRIENDLY EVENT
FREE LUNCH FOR WORKSHOP ATTENDEES

Saturday, March 19th

Riparian Workshop:
 10:00 am - 11:45 am
 Workshop Location:
 Clifty Fire Department
 5601 Clifty Hwy,
 Huntsville, AR, 72740

Volunteer Planting:
 12:00 pm - 2:30 pm
 Planting Location:
 23044 AR-12,
 Rogers, AR 72756

Event is free, but RSVP required
 RSVP & Contact:
 email daniel@beaverwatershedalliance.org
 or text/call 479-750-8007



BEAVER WATERSHED ALLIANCE

Evaluation of Riparian Workshop & Planting Event

Beaver Watershed Alliance - March 19, 2022 - Clifty, AR

- Are you a landowner in the Beaver Lake Watershed? (circle one) **Yes / No / Unsure**
- How did you hear about this event? (Facebook, Alliance E-news, Flyer, News Ad, Other email, etc.) Game & Fish, Beaver Watershed Alliance
- Overall, how would you rate the quality of this workshop (circle one)

Excellent	Good	Average	Poor
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- How effective were the speakers at this workshop? (circle one)

Excellent	Good	Average	Poor
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- Which best describes you (check all that apply)
 Landowner Advisor/consultant Volunteer Field Professional
- We are interested in any additional comments you have about today's event:

We are so thankful for all you do!

Thank you! Please turn this survey in as your meal ticket

Figure 4. Clifty Creek restoration workshop and planting flyer and completed attendee survey (March 19, 2022).



Figure 5. Riparian buffer signage installed at Clifty Creek restoration site.

March Clifty Creek Riparian Workshop & Planting Event: Recap

Thank you to everyone that came out for a beautiful day on Clifty Creek to attend the Alliance Riparian Workshop and Planting Event in March! We learned about streambank restoration, riparian zones, and ways landowners can protect water quality in the Beaver Lake watershed. Attendees also participated in two native plantings along the creek, planting over a thousand native plants to help prevent erosion and non-point source pollution. Thanks to our guest speakers, native plant growers, landowners, volunteers, event sponsors and attendees for

Recycling Center
Fayetteville, AR
[Click Here to RSVP](#)

April 23
Alliance Workshop
[Profitable Production on Pastures: Grazing for Soil & Water Workshop](#)
9 am - 2 pm
Clifty Volunteer Fire Dept.
Clifty, AR
[Click Here to RSVP](#)

making this possible!

These events were in partnership with Reservoir Fisheries Habitat Partnership, BassPro Outdoor Fund, AGFC, AGFC Stream Team, UA Extension, Cargill Cares, Beaver Water District, and Partners for Fish and Wildlife.



Above: Landowners, volunteers, and staff at the Clifty Creek Riparian Workshop and Planting Event

April 29
Alliance Event
[Mt. Sequoyah Invasive Plant Removal](#)
3 pm - 5 pm
Mount Sequoyah Woods
Fayetteville
[Click Here to RSVP](#)

[Save the Date](#)

May 6
Alliance Event
[Mt. Sequoyah Invasive Plant Removal](#)
3 pm - 5 pm
Mount Sequoyah Woods
Fayetteville
[Click Here to RSVP](#)

May 13
Alliance Event
[Lake Atalanta Invasive Plant Removal](#)
3 pm - 5 pm
Lake Atalanta, Clark Pavilion
Rogers, AR
[Click Here to RSVP](#)

Figure 6. Alliance's 2022 March E-news excerpt to 4,052 people.

Multiple post-planting site visits were conducted at the Clifty Creek restoration locations. The streambank restoration and riparian buffer has held up to historic high-water events that have occurred in recent months. Without the restoration work prior to these historical and intense storm events, it would be safe to conclude massive amounts of sediment would have eroded downstream, which can lead to poor water quality, degraded fishing conditions, and increased costs to treat drinking water supplies.

Thank you, Bass Pro and Cabela's Outdoor Fund! We appreciate this opportunity to continue serving the Northwest Arkansas region and helping protect Beaver Lake, our source drinking water supply.

Respectively submitted,

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