

## Keal Run Instream Habitat and Aquatic Organism Passage Restoration

### Coldwater Heritage Partnership Implementation Grant

Western Pennsylvania Conservancy (WPC) received a Coldwater Heritage Implementation Grant to complete instream habitat improvement on Keal Run, a naturally reproducing, native brook trout stream in northeastern Indiana County. This stream, located within State Game Lands 174 is a tributary to the South Branch Bear Run and has benefited from abandoned mine land reclamation over the past decade.

The Bear Run watershed holds one of the only Class A native brook trout streams in Indiana County and is a focus for both WPC and the Ken Sink Chapter of Trout Unlimited (KSTU). WPC has partnered with KSTU on numerous projects in the watershed, including this grant. Informational updates on work in Bear Run have been provided regularly at KSTU board meetings and been the subject of multiple presentations to KSTU membership. Attendees at the meetings include PA Fish and Boat Commission, Indiana County Conservation District, PA Senior Environmental Corps and IUP Fishing Club representatives. KSTU's programs are normally held at the Indiana VFW, until COVID-19 restrictions moved TU membership meetings virtual.

#### Project Summary

This project utilized a number of funding sources and restoration components to improve Keal Run.

As the grant application explained, KSTU has funding from the Foundation for Pennsylvania Watersheds for a riparian buffer improvement. Two sites were proposed, adjacent to Keal Run, which were barren ground following significant coal waste removal and abandoned mine land reclamation. As identified in the South Branch Bear Run Coldwater Conservation Plan, Keal Run is a crucial source of cold water during the summer months. Maintaining those water temperatures through installation of riparian buffers was recommended. At the February 2019 meeting, KSTU and WPC issued a call for volunteers to participate in the riparian buffer planting that was included as match for this project. In addition, KSTU used Trout Unlimited's online service to send out additional requests to membership by email. Trees and shrubs were purchased from the ICCD native plants fundraiser. The buffer planting was completed on April 7<sup>th</sup> 2019, planting 400 trees over 1.6 acres with assistance from the Evergreen Conservancy, ICCD and Indiana University of Pennsylvania's SEEDS club.

The aquatic organism passage (AOP) component of this project was funded by ICCD's Low Volume, Dirt and Gravel Road program. This site has been a target for AOP restoration for several years following completion of NAACC surveys by WPC. Unfortunately, the sheer expense of the project had delayed implementation. The grant application was developed by WPC and submitted by Banks Township in 2018. Upon awarding the project funding, ICCD anticipated installation to be completed in the Summer of 2019. Funding was to be utilized to replace an undersized culvert on Keal Run where the stream intersects Sidney Road; however, permitting, logistics and weather caused the project to be delayed. The project was finally completed in September of 2020. The undersized five-foot-wide culvert was replaced with a ten-foot-wide concrete box culvert. Construction oversight was led by the ICCD with assistance from the Penn State Center for Dirt and Gravel Road Studies.

Initial designs submitted for the CHP grant proposal called for installing cross vanes above and below the culvert structure with “traditional” instream habitat structures being installed upstream of the culvert. As the project evolved, discussion within WPC and with PA Game Commission (PGC) staff and CHP personnel presented the opportunity to implement a different strategy. Rather than utilize heavy equipment and disturb the forested floodplain, WPC proposed a change in scope to utilize the “chop & drop” and grip hoist methods to construct instream habitat structures using standing timber. These Large Woody Material (LWM) structures carry benefits beyond redirecting stream flows.

### Project Outcomes

WPC staff, including a certified sawyer, first walked the section of Keal Run to identify structure locations, evaluate available trees for “material” and determine logistics for completing the project. Meeting with the PGC in January of 2020, WPC flagged locations for structures to be placed and mapped approximate locations to be submitted for the permit application. A GP-1 was submitted for review to the ICCD in February with notification of approval received at the beginning of March. Of course, by the end of March precautionary measures and restrictions in place due the COVID-19 pandemic significantly altered the way WPC was operating. Following WPC’s guidelines including masking, distancing and vehicle use, WPC was still able to implement the project.

During the week of April 27<sup>th</sup>, four WPC staff installed 14 structures on Keal Run. This included felling and winching of 43 trees, and brushing in with uncountable pieces of small material over 1,300 feet of Keal Run. Important to note was the placement of a “super-structure” at the bottom of the reach to minimize any potential for movement of wood, which would impact the culvert at Sidney Road.

Follow-up monitoring of these structures has shown no significant movement of wood pieces since installation. That being said, the time period between installation and this final report has had no major rain events, which will encourage the structures to settle in and begin to function optimally. WPC will continue to monitor these devices over time to watch for movement.

### Project Sustainability

Long term sustainability of this project depends upon the structures functioning at their optimum. This includes actively encouraging redirection of stream flow, reconnection of the stream and floodplain and development of large pool habitat. Due to the project being within state game lands, with a largely forested upstream drainage area, WPC anticipates no significant threats to the function of these structures. Future monitoring will include photo-monitoring of individual structures, overall reach visual assessment and potentially annual electrofishing surveys.

Long term plans for coldwater conservation on Keal Run include extending LWM structures downstream of the Sidney Road culvert, working with the PGC to replace AOP barriers higher in the watershed and potential riparian buffer restoration in the headwaters.

## Project Metrics and Accomplishments

WPC partnered with multiple agencies and organizations to complete this project. This includes:

- Eight volunteers from KSTU, Evergreen Conservancy and ICCD who planted native trees & shrubs for six hours,
- Six volunteers from IUP who planted native trees & shrubs for six hours,
- PGC staff who met with WPC for project purposes,
- ICCD staff who oversaw replacement of the Sidney Road culvert for 120 hours.

This project completed three major projects within a focal area of Keal Run. This includes:

- Installation of 1.6 acres of native trees and shrubs for riparian buffer restoration,
- Replacement of an undersized culvert, improving AOP and access to more than three miles of upstream habitat,
- Installation of 14 large wood structures over 1,300 feet of Keal Run.

## Project Photographs



*Figure 1 - Volunteers planting trees adjacent to Keal Run*



*Figure 2 - Riparian buffer about month after installation*



*Figure 3 - Uppermost LWM location prior to structure placement*



*Figure 4 - Keal Run LWM brushing in progress*



*Figure 5 - Uppermost site after LWM placement*



*Figure 6 – Uppermost site after six months in place*



*Figure 7 - Sidney Road culvert prior to AOP restoration*



*Figure 8 - Post installation view of Sidney Road box culvert*