WATERSHED
CONSERVATION RESEARCH CENTER
ALLEGHENY COLLEGE

September 2025 Newsletter

IN THIS ISSUE

French Creek Watershed Highlighting Woodcock Creek

Restoring Our Creek

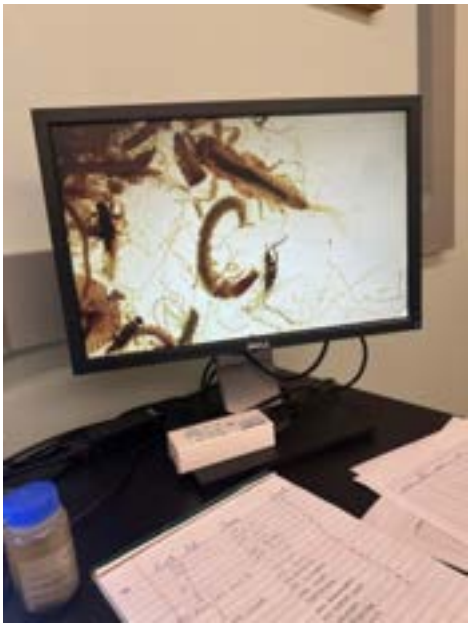
When the WCRC was established four years ago, the Co-Directors had a vision to conduct conservation-based research in the French Creek watershed and work collaboratively with local organizations to restore degraded areas within French Creek. While French Creek is renowned for being an extremely biodiverse stream and relatively healthy compared to other waterways, there are still anthropogenic stressors including erosion, turbidity, and runoff, often resulting from certain land use practices that degrade water quality. To improve stream habitats, the WCRC made it a priority to join local conservation partners and private landowners to complete three instream habitat improvement projects on Woodcock Creek, an important tributary to French Creek. The goal of these projects was to reduce sediment in the water by reducing erosion and stabilizing banks and to improve habitat for aquatic organisms. Sedimentation has been and continues to be one of the largest stressors to streams across the United States.

As with most conservation efforts, collaboration is both beneficial and critical to reach established goals. On these projects, we worked closely with the Crawford County Conservation District, PA Fish and Boat Commission, Regional Science Consortium, local contractors and private landowners. Funding for these projects has been supported by the Richard King Mellon Foundation, and the Generating Awareness for Project Success (GAPS program), a collaboration between Three Rivers Quest (3RQ), Foundations for Pennsylvania Watersheds, and the West Virginia University Water Research Institute.

Restoration Project Monitoring

We monitor our sites both before and after restoration to understand the project's impact and measure progress toward goals like reducing erosion, limiting sediment, and improving fish habitats. Before restoration, we conduct seasonal electrofishing surveys, collect aquatic macroinvertebrates, evaluate riparian habitats, and analyze water chemistry and hydrology. After restoration, we continue these surveys once or twice a year and collect water samples every two weeks to track water quality, including total dissolved solids and turbidity. From June through October, monthly samples are taken at 11 locations within the watershed and sent to the Regional Science Consortium to test for phosphates, nitrates, and bacteria such as *E. coli* and *Enterococci*.

Electrofishing Survey - Summer 2025 on Woodcock Creek at Stainbrook Park, Meadville, Pennsylvania



Macroinvertebrate Identification

Equipment Used to Measure Water Chemistry

Ryan Cox ('26) and Natalie Opauski ('27) work together to take a water sample on the French Creek

Restoration Techniques

The ecological goals of our restorative actions are to reduce erosion, stabilize streambanks, and improve fish habitat. Because each restoration site is unique, we employ a number of techniques including log vein deflectors, root wad deflectors, and mud sill cribbing. These techniques work in unison to prevent further bank erosion, trap sediment and to reduce and redirect high flow events.

Single Log Vein Deflector

Log Framed Stone Deflector

Root Wad Deflector

Mud Sill Cribbing

Root Wad Deflector during installation

Restoration #1 - Woodcock Creek at Craig Road

Woodcock Creek at Craig Road
Pre Restoration - July 2022. Notice the undercut banks on the far side of the image

Woodcock Creek at Craig Road
During Restoration - August 2022

Our first restoration project was at Woodcock Creek below the Craig Road bridge in the summer of 2022. The goal of this project was to prevent further streambank erosion and reduce downstream sedimentation. In cooperation with the landowner, Pennsylvania Fish and Boat Commission (PFBC) and Crawford County Conservation District (CCCD) we installed log-vein deflectors and modified mud sill cribbing. Through pre and post restoration monitoring, we have seen an increase in the number of fish species present from 31 to 37.

Woodcock Creek at Craig Road Post Restoration. The single-log vane deflectors are on the right of the image, and the mud sill cribbing on the far part of the stream

Restoration #2 - German Run at Telliho Property

Our second restoration project was for a small unnamed tributary to Woodcock Creek. German Run is located on the Telliho property and underwent restoration in the summer of 2023. At this site, there was a major erosion problem being caused by poor land use upstream of the area. To prevent further erosion at this site, log-vein deflectors were installed on both sides of the stream. The restoration created new pool habitats which has contributed to an increase in number of fish species from 14 to 20.

German Run at Telliho Property. Notice how much of the bank has been washed downstream. Pre Restoration - May 2023

Our summer WCRC technicians assist with the contractors installing new support structures at German Run at Telliho Property During Restoration - June 2023

German Run at Telliho Property Post Restoration - September 2025

Restoration #3 - Woodcock Creek at Stainbrook Park

Woodcock Creek at Stainbrook Pre Restoration - May 2024

Woodcock Creek at Stainbrook During Restoration - June 2024

Woodcock Creek at Stainbrook Post Restoration - September 2025

Our third restoration project was on Woodcock Creek near Stainbrook Park in the summer of 2024. This site had both instream and streambank degradation that we wanted to address. Being located near the outflow of the dam at Woodcock Creek Lake, the site was largely a homogenous run that provided little habitat for larger fish species. When water was released from the dam, high flows caused substantial erosion. To address these problems, log-vein deflectors were installed on the edge of the stream and large boulders were placed in the creek. With these changes, both riffle and pool habitats have been created in the stream providing habitat for larger fish species to colonize the area. Through our monitoring efforts, we have seen the same number of fish species (33) pre and post restoration, but there has been an increase in larger sized individuals. In the spring of 2025, Dr. Bradshaw-Wilson's Junior Seminar class at Allegheny College planted over 100 native trees and shrubs in the riparian zone, to further stabilize the streambank and create more habitat for terrestrial animals.

Riparian Zone Planting at Stainbrook Park - notice the white tree tubes - September 2025

Future Restoration Projects

Because streams are constantly changing and new threats continue to emerge, we are committed to ongoing restoration efforts within our local watersheds. Currently, we are planning “chop-and-drop projects” in German Run, and on an unnamed tributary in the Oil Creek watershed. This method involves selectively cutting trees in the riparian zone and placing them in the stream to reduce flow rates and limit the transport of material downstream. We are also preparing restorative actions to improve the connectivity of fish populations, including the removal of old dams and the replacement of outdated circular culverts.

Traditional Circular Culvert Design with Head Drop

Recently Replaced Cylindrical Culvert at Stream Grade

Beavers naturally performing Chop and Drop!

Putter Run - April 2025

Centerville Dam Post Blowout

Introducing our Fall 2025 Research Team

Name: Megan Wolfharth
Year: 2027
Hometown: Morgantown, WV
Major: Environmental Science and Sustainability
Minors: Biology and Computer Science
Clubs/Activities: Bird Club, Soccer Club
Favorite animal: Eastern Screech Owl

Name: Morgan Kinney
Year: 2027
Hometown: Brunswick, OH
Major: Environmental Science and Sustainability, Biology
Minor: Psychology
Clubs/activities: Softball, Outing Club, Student Athlete Advisory Committee
Favorite Animal: River Otter

Name: Sunny Stout
Year: 2026
Hometown: New Jersey
Major: Environmental Science and Sustainability
Minor: Arabic Language
Clubs/Activities: Carr Hall Gardening, Cooking
Favorite Animal: Snakes

















A Note from our Co-Directors

This issue is especially meaningful to us because it highlights the commitment the WCRC has to achieving long-term conservation goals in the French Creek watershed—not only by conducting research, but also by taking actionable steps to improve the watershed in collaboration with local conservation organizations. Restoration ecology often lacks long-term data, largely due to limited funding for monitoring and post-restoration research. That is where the WCRC plays an important role in the French Creek watershed and with our partners. With the support of WCRC staff and Allegheny students, we can dedicate the time, energy, and research needed to examine how in-stream habitat improvement projects are shaping biodiversity in Woodcock Creek and across the French Creek watershed. We are excited to share this story with you and hope you enjoy this issue dedicated to restoration.

- Casey and Kelly

Find us on social media
instagram.com/wcrc_allegheny/
facebook.com/WCRCAllegheny/
sites.allegheny.edu/WCRC/