

# Poague Run:

## Restoring Trout, Restoring Hope

I watched the children carry their jars with native brook trout fingerlings to the edge of the stream. They were all smiles as parents watched gleefully from a few steps away. The children carefully stepped close to the clear, flowing water and tipped the jars over, releasing their fish from captivity.

Poague Run was once laden with sediment, sewage, and manure but now, thanks to the people who live in the watershed and what they did to their land, the stream is clean and cold enough for Virginia's native fish to thrive. This successful restoration project is a sterling example of leadership, partnerships, and people working together to turn what was once a quagmire of sediment and sewage-laden waters into a pristine native trout stream.

The restoration journey for Poague Run began in the mid '90s when Fisheries Biologist Paul Bugas, with the Department, informed the Headwaters Soil and Water Conservation District and the USDA Natural Resources Conservation Service that Poague Run had the water flow and fish structure to support brook trout. But there was a big problem: The water was too polluted for trout to survive. To understand what was

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causing the pollution, conservationists first delineated the watershed of Poague Run on a map. To clean up a stream, one has to first study what is happening on the land that drains into it. The watershed begins near Staunton's water filtration plant on Shutterlee Mill Road, and includes 2,896 acres draining a distance of 5.2 miles. It enters Lewis Creek just east of Interstate 81.

At the highest elevation where the watershed originates, there is no flowing water; it's just land that slopes toward the stream. Eventually, springs gurgle up from the ground here and there. Often compared to capillaries in our vascular system, they connect and eventually form a vein or, here, a small stream. One small stream joins another and another and another, and so on, to form a larger river which flows to its final destination; in this case, the Chesapeake Bay.

Poague Run has twelve unnamed small streams that feed it. Farther downstream it joins Lewis Creek; Lewis Creek joins the Middle River; and the Middle River joins other rivers to form the South Fork of the Shenandoah River. The Shenandoah joins the Potomac, and the Potomac enters the Chesapeake Bay.



Top: Brook trout fingerlings await release. Here: This young lady was happy to help them along! © Robert N. Whitescarver  
Map courtesy of Frederick M. Garst/USDA-NRCS

## Pollution Challenges

After careful study of the land in the watershed, conservationists determined the sources of the pollution: sediment, manure, and sewage.

Virginia's native trout feed on aquatic insects like mayflies, stoneflies, and caddisflies—all of which during their nymph stage have external gills. When sediment is suspended in the water, it clogs the gills of these insects and suffocates them. No insects, no fish!

Livestock lounging in the stream caused the sediment issues in Poague Run. Cattle tromping through the water to drink and lounge dislodge soil from the banks and the streambed with every step. Cattle also pollute the water with manure and urine. That manure contains nutrients and pathogens that negatively affect the entire aquatic ecosystem. If the landowners in Poague Run wanted brook trout in their stream, the livestock would have to be fenced out.

A significant portion of the watershed is urbanized, including houses and businesses with hardened, or impervious, surfaces. There were leaking sewer pipes, septic system failures, and a few straight pipes. Straight pipes are pipes, usually in older houses, that flow directly from the toilet into the stream. These are illegal but often go undetected. If the landowners in Poague Run wanted brook trout in their stream, the sewage problems would have to be fixed.

## Assessing & Restoring the Watershed

Dr. Tom Benzing, who serves as vice president for conservation with the Virginia Chapter of Trout Unlimited, obtained a grant to install water temperature sensors in the stream to determine if the water was cold enough in the summer to support the survival of brook trout. According to the collected data, Benzing determined that the water temperature could in fact do so.

Conservationists, landowners, and representatives from the city of Staunton met to develop a plan to address the pollution challenges. The plan included extensive public outreach efforts—workshops, field days, newsletters and direct mailings—to the people living in the watershed to seek their input on improving the stream.

The first agricultural projects began in 1998 when two cousins, Lewis and John Moore, began fencing cows out of the streams on their farms. This was the year USDA began funding livestock stream exclusion and planting native trees in the riparian zone—the narrow corridor beside a waterbody. These projects were funded through the Conservation Reserve Program.

The perennial flow of Poague Run begins on Merrifield Farm, owned by Lee and Alison Herford. Lee explains the benefits of USDA funding, “The programs helped us install livestock watering stations all over the farm so now we can rotate the cows to different pastures. It allows us to better utilize the forage on our farm and protect the stream.”

Rolling Hills Farm owner Carolyn Moore also participated: “I like watercress and now I have an abundance of it. I fenced the cows out of the stream, and it was amazing how fast the stream banks healed. Now the water runs so clear.”

The Headwaters Soil & Water Conservation District obtained a grant from the Virginia Department of Conservation

and Recreation to help landowners correct malfunctioning septic systems. Sandy Greene was in charge of administering the grant for Headwaters and reports, “Once we advertised we had funds to help with septic problems in the watershed it didn't take long to fix them.”

The city of Staunton financially helped with sewer hookups when the houses were close to existing sewer lines. The city also installed a sewage lift station to handle more connections.

## Work is Complete

Many conservation practices have been implemented in this watershed. Landowners and farmers excluded livestock from 5.8 miles of streambanks, established 44 acres of riparian buffers, planted over 6,000 trees and shrubs, and established 25 acres of early successional habitat for Northern bobwhites and other grassland birds. Three houses were hooked up to the city of Staunton's sewage system, and all malfunctioning septic systems were fixed by either pump-out or by installing new, reliable systems.



The author gives a briefing to firefighters with the Staunton Fire Department, volunteers from James Madison University and the landowner prior to a prescribed burn in the Poague Run watershed.



Poague Run before restoration and after restoration, © Paul Bugas. Below: Farm signs provided by the Chesapeake Bay Funders Network.

Restoring the watershed and, hence, the stream began in 1998 and was completed in 2014. The water in Poague Run now runs clear, clean, and cold with living brook trout.

On a beautiful sunny day in April 2014, hundreds of people came out to Rolling Hills Farm to help celebrate the partnership of working farms, conservation action, and clean streams. The Valley Conservation Council, a private land trust serving the Shenandoah Valley region, sponsored the inaugural “Kites and Critters” field day. Kids stocked the stream with fish. Conservation organizations set up displays and conducted tours of stream-bank restoration, wildlife habitat, and tree plantings.

The city of Staunton and the people living in Poague Run watershed can now boast of a clean stream, working farms, and native trout. What happened here is going on in small watersheds all across Virginia and throughout the Chesapeake Bay region, and it can happen in the watershed where you live.

What is the status of your watershed? 🐾



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## RESOURCES

- Poague Run:  
[www.friendsofthemiddleriver.org/tag/poague-run](http://www.friendsofthemiddleriver.org/tag/poague-run)
- DGIF, Trout Management Plan  
[www.dgif.virginia.gov/fishing/trout](http://www.dgif.virginia.gov/fishing/trout)

Cooperating units of government, NGOs, and organizations that helped make it happen:

- Landowners in the watershed
- Headwaters Soil and Water Conservation District
- USDA's Farm Service Agency
- USDA's Natural Resources Conservation Service
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Conservation and Recreation
- Virginia Department of Forestry
- Shenandoah Resource Conservation and Development Council
- Chesapeake Bay Funders Network
- Chesapeake Bay Foundation
- Valley Conservation Council
- Augusta Bird Club
- Shenandoah Valley Master Naturalists
- James Madison University
- Mary Baldwin College
- Friends of Middle River
- Pure Water Forum
- Trout Unlimited
- City of Staunton