

Cove Run Restoration

SAVING A BROOK TROUT STREAM By Rebecca Kenyon-Sesler and Alan Klotz



Cove Run, summer 2012



Cove Run before restoration began, winter 2012



The brook trout — Maryland's native trout

This story begins in May of 2011 in a beautiful little stream located near the town of Accident in Garrett County, where Northern Middle School 6th graders were participating in *Wilderness Week* — a week-long outdoor environmental learning experience. As an inland fisheries service biologist from DNR and an environmental science teacher from Northern Garrett High School, we co-presented an ecology demonstration in Cove Run to the eager students. The children got their hands and feet wet, wading in and sampling aquatic invertebrate life with screen nets. They collected plenty of mayfly nymphs, stonefly nymphs and caddisfly larvae, and one crayfish, which caused excitement for those daring enough to hold it!

After letting the bugs go and returning to dry ground, we showed them how to survey for fish populations using a backpack electrofisher. The first stunned fish that came to the net was a gorgeous brook trout, Maryland's only native trout species and a symbol for clean streams. For several of the kids, this was the

first one they had ever seen. They were in awe of its beautiful colors — bright orange fins highlighted with black and white margins above orange sides, accented by constellations of red spots inside blue circles.

Signs of a stream in need

Once the students left and headed to their next assignment, we reflected upon the day's event. We could see that the students came away from the experience with an appreciation of the fish and a clear sense of how necessary it is to protect its environment.

But one evident fact was that the headwater areas of Cove Run needed to be restored in order to improve the health of the whole waterway. Our activity caused the water to become quite turbid or cloudy, indicating an excessive amount of sediment. There were very few young trout collected during our survey, signifying that spawning success was very limited. (These fish need very clean, sediment-free gravel on the stream bottom for the eggs to incubate properly.)

We began brainstorming how we could involve Northern Garrett High School's Advanced Placement Environmental Science class in a restoration project. Working with landowners in the headwater area was going to be the key factor in making this hands-on learning opportunity possible.

Gathering support

We contacted and met with three landowners in the watershed whose cattle pastures border the water and its tributaries. We explained our concept of a student-learning project, including long-term monitoring of water quality and aquatic life along with the creation of vegetated riparian buffers. A *riparian buffer* is land adjacent to a stream where native grasses, flowers, shrubs and trees are growing.

These buffers along Cove Run would improve water quality and enhance its fish population. A healthy riparian buffer decreases water temperatures, which increase dissolved oxygen levels. They prevent bank erosion, decreasing the turbidity of the water. The buffer reduces

nutrient runoff from livestock pastures while also slowing overall runoff, allowing more water to soak into the ground and recharge groundwater.

After just one meeting with each of the landowners, they were on board!

Grant money was now necessary to purchase water quality monitoring equipment, waders and aquatic macroinvertebrate collection supplies. Since Cove Run is a tributary to Bear Creek in the Youghiogheny River Watershed, we collaborated with the Youghiogheny River Watershed Association and the Youghiogheny Chapter of Trout Unlimited to obtain two DNR Aquatic Resources Education Grants. This grant fully funded our budget request and provided students the unique opportunity to participate in an active watershed restoration.

The plan in action

Riparian restoration sites were established on the three farms in the headwaters of the watershed in late winter 2012. Two of the sites required fencing installation to create a buffer on both sides of the stream. New

partnerships were formed with Habitat Forever, LLC and the U.S. Department of Agriculture's Natural Resources Conservation Service, as they planned and installed the riparian fencing early the following spring.

As soon as the fencing was completed, the students planted hundreds of native trees and seedlings at each of the sites. They did an amazing job of getting 160 trees and seedlings in the ground on their first day, including 60 red osier dogwoods supplied by the National Wild Turkey Federation, as well as 10 black willow trees, 50 silky dogwoods and 20 witch hazel seedlings supplied by the Maryland Department of Juvenile Services Meadow Mountain Camp. Since the landowners wanted the restored riparian zone to look attractive, the students obliged by using larger-sized apple trees, flowering dogwood trees and Eastern redbud trees for their colorful spring blossoms. Sugar maple and black gum trees were planted to add a splash of color in the fall.

They removed invasive plant species such as multiflora rose and Japanese

barberry to help with the establishment of the planted trees and shrubs. The students also placed bluebird nesting boxes on the new fence posts. Amazingly, bluebirds and tree swallows began occupying the boxes within a day.

Commitment and results

To monitor health, the students have visited the sites several times during the past two years to collect water quality data and to conduct habitat and bio-assessments. The class monitors water quality parameters such as temperature, turbidity, pH, dissolved oxygen and nutrients.

While conducting the pre-restoration stream habitat and bioassessment, the students documented an aquatic invertebrate community that was tolerant to pollution. However, just one year after establishing the vegetated riparian zone, pollution sensitive organisms such as caddisflies, mayflies and stoneflies were showing up in the samples. The students also witnessed the return of birds and animals, such as song sparrows, Northern water snakes, and Eastern cottontail rabbits.

A rewarding culmination

The hard work the students put into this project has not gone unnoticed. Northern Garrett High School received the Silver Level PLANT award in 2012 for the impressive amount of trees, shrubs and seedlings planted at the restoration sites. They later received the Gold Level award in 2013 for maintaining them. Sponsored by DNR's Forest Service and the Maryland Community Forestry Council, PLANT (People Loving And Nurturing Trees) is a statewide award program that recognizes communities for their tree planting and tree care efforts.

The school also received the 2013 Friends of Deep Creek Lake Agricultural Stewardship Award and the 2014 Maryland Department of the Environment Tawes Youth Award. The latter is an annual statewide environmental recognition program that seeks to involve youth, adults, and private and public organizations in the restoration and protection of Maryland's natural resources. The Maryland Petroleum Council provides a donation to the non-profit group of the winners' choice.

A public celebration of the project was held in the spring of 2013 for students to showcase their accomplishments and share what they had learned with parents and community members. Highlights of the celebration included a student Power Point presentation, environmental in-



Water quality analysis, fall 2012

formational displays, a fish print station, and a field visit to the restoration sites where students demonstrated water quality assessment techniques.

As for the students' experience, "It was very educational, but also pretty fun," junior classman John Major says. "I enjoyed applying the knowledge we gained in class to real-world environments."

Senior Elizabeth Green adds, "The Cove Run project was an excellent way to not only learn about the different problems that current aquatic ecosystems are undergoing, but ways to solve these problems and why we should do something about them."

A bright future

In 2013, Northern Garrett High School also received a Margaret Rosch Jones Award as part of the Keep Maryland Beautiful Program. The program provides grants to non-profit organizations and schools for environmental education and on-the-ground projects to enhance and maintain the state's health and appearance. The funding for the grant is made possible by the generous support of the Maryland State Highway Administration. Northern Garrett High School received additional funding in 2014 from DNR. The grants will



Bluebird nest box installation, spring 2012

be used to continue the restoration project for future students.

Looking at the bigger picture, senior Sarah Myers sees the need for and benefits of such projects: "If more projects like this were started with younger children," she says, "they would learn to protect the environment and practice those skills throughout their lives."

A sincere **thank you** goes out to the farmers and their families along Cove Run, whose generosity allowed for this inspirational story of students learning to apply classroom teachings to a real-world project in nature. It is our hope that this story inspires other schools to work within their communities to improve their local environment for all aspects of life. The future of the watershed and its native brook trout is looking very bright! ■

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Tree planting, spring 2012



Mrs. Kenyon-Sisler and her class with the PLANT Award, spring 2013

Photos by Terri Belasco