



Quarterly

# NEWSLETTER



## DATES TO REMEMBER



### January:

- 17 - USC Buffer Steward Application Deadline
- 24 - USC Bi-Monthly Meeting, Owego, NY
- 28 - Monthly USC Ag Team Call
- 31 - SRBC Consumptive Use Mitigation Grant Proposals Due



### February:

- 25 - Monthly USC Ag Team Call



### March:

- 11-14- Water Quality Symposium
- 25 - Annual Retreat - Partners Day
- 26 - Annual Retreat - Members Day

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# SAVE THE DATE

## Upper Susquehanna Coalition Annual Retreat

USC Members and Partners are invited:

**Tuesday, 3/25**

USC Members Only Retreat Planning Session:

**Wednesday, 3/26**

**Location:** Tioga Downs Casino Resort -  
 2384 W River Road, Nichols, NY 13812  
 RSVP at: [www.u-s-c.org/retreatregistration](http://www.u-s-c.org/retreatregistration)  
 by Friday, 3/7/2025





# Collaboration with the Upper Susquehanna Coalition : Lawn Management on the Binghamton University Campus

By: Dr. Amber Churchill, Ph.D. - *Department of Environmental Science,  
Binghamton University*

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UNIVERSITY

*State University of New York*

Nutrient pollution prevention is an ongoing goal for management of private and public lands in the Susquehanna watershed, addressing issues of eutrophication from excess nutrient availability being transported downstream and into the Chesapeake Bay area. An ongoing recent emphasis has included encouraging residents to consider this potential run-off in the context of lawn management, by asking for voluntary commitments to best practices in lawn care that include reduced fertilization and leaving grass clippings in-place following mowing.

In support of this project, the Plant Ecosystem lab at Binghamton University conducted a case study comparing lawn management actions with soil properties based on the lawn portion of the 790 acres of managed land owned by the University. As part of this study, 26 of BU's lawns, totaling 27 acres, were selected to compare impacts of management styles: natural areas, low mow, standard mow, and manicured mowing. Each of these areas have differing levels of fertilizer, pesticide, fungicide, and herbicide application, as well as mowing regimes, although the length of time under each management regime did differ. Soil cores from each lawn were collected during the summer of 2024 and soil properties such as pH, soil organic matter, soil carbon, and soil nitrogen were analyzed as part of a senior Environmental Studies Capstone project during the fall semester.

Given that all the soil samples were collected from the same general area with a mixed history of management, we found a narrow range of variation among the management categories that we assigned to the different lawns comprising the Binghamton campus. Even so, our preliminary results showed that naturally maintained (no mow) and low-mow areas had lower soil organic matter and soil carbon than areas with more frequent inputs of mowing clippings (all lawns retain clippings on-site after mowing events). These areas also had lower soil nitrogen than standard and manicured areas where fertilizers were applied at least occasionally, which may ultimately increase the total nitrogen that could be leached from the soils into surrounding water bodies. Soil pH was lowest under standard mowing management (6.3) and highest under natural areas (7.2), which may be associated with multiple management actions including acidification effects from added nitrogen, or landscape features such as slight differences in elevation between natural and mowed lawns.

These findings represent our first pilot study linking lawn management decisions with impacts on soils, and future studies will aim to incorporate broader regional variation in many features, including diverse management actions common among homeowners. To express interest in participating in future studies, please consider joining the Pasture and Lawn Enhanced Diversity Global-change Experiment (PLEDGE) listserv (<https://forms.gle/nFyvpVUydm1w3mFp8>).





# Volunteer Tree Planting: Supporting Healthy Waterways with Trees for Tributaries

By: Ranier Lucas - USC Buffer Team Riparian Buffer Technician

The future of our waterways is rooted in the health of the land surrounding them. Through the "Trees for Tributaries" program, the Upper Susquehanna Coalition (USC) and member Soil and Water Conservation Districts (SWCD) are empowering individuals and communities to take direct action by planting trees and shrubs along streams, rivers, and other tributaries.

This program is a vital part of the USC's and member SWCD's efforts to restore riparian buffers, which are essential for protecting water quality, preventing erosion, and fostering wildlife habitats. The USC Buffer Team brings together landowners, local organizations, and volunteers to plant native trees and shrubs in key areas.

By engaging volunteers, the "Trees for Tributaries" initiative is making significant strides in improving the Upper Susquehanna River Basin and beyond. The health of our environment starts with the choices we make today, and few actions are as impactful as planting trees.

## Why Riparian Buffers Matter

Riparian buffers -- areas of vegetation along waterways -- act as natural filters. They intercept sediment, nutrients, and pollutants, preventing these from entering our streams and rivers. Buffers also provide shade to regulate water temperature and create critical habitats for aquatic and terrestrial wildlife.

Through the "Trees for Tributaries" program, volunteers can help establish these buffers by planting native trees and shrubs in areas where they are most needed.

## Why Volunteer?

Tree planting offers more than an opportunity to give back -- it's a way to connect with nature and make a tangible difference in your community. Volunteers gain hands-on experience while contributing to a larger effort to combat erosion, enhance biodiversity, and mitigate the effects of climate change. Every tree planted is a step toward healthier streams and more resilient ecosystems.

## Program Success and Impact

Trees for Tributaries has facilitated the planting of thousands of trees and shrubs, creating long-lasting benefits for water quality and wildlife. This initiative also provides technical and financial assistance to landowners, making it easier for communities to implement conservation practices.

## Get Involved

The success of the Trees for Tributaries program depends on the support of volunteers and partners. Whether you're an individual, a family, or part of a community group, your efforts can make a difference. Email [bufferteam@u-s-c.org](mailto:bufferteam@u-s-c.org) to learn more about upcoming events and how to get involved. Together, we can protect and restore the waterways that sustain us all—one tree at a time.





# NFWF Stream Corridor Restoration Grant Wrapup

By: Lydia Brinkley - USC Buffer Coordinator

The Upper Susquehanna Coalition met and exceeded all proposed deliverables for the latest National Fish and Wildlife Foundation (NFWF) grant that is expiring, what we refer to as “NFWF Stream Corridor Restoration.” This grant is a Small Watershed Grant with \$500,000 in funding focused on assessment and implementation within the stream corridor. Notably, the USC implemented 20.88 acres of riparian forest buffer, 1,900’ of livestock exclusion, 7,694’ of stream corridor restoration, namely through bank stabilization and in-stream structures, 10.85 acres of upland afforestation, and 17.5 acres of wetland restoration. Portions of the Cohocton and Tioughnioga watersheds received intense stream corridor assessments, via desktop review and in-field visual assessments. Otherwise, a desktop review was conducted within several other areas to prioritize riparian restoration opportunities better and provide information as to whether there are opportunities in certain locations. A future project could be to develop an outreach campaign for these landowners identified through desktop review. Lastly, we were able to connect with two Environmental Justice/DEIJ communities regarding stream corridor management and restoration, providing outreach to over 1,700 people, with a large portion of those folks being children.



Otego Creek Volunteers



Otego Creek Trib

Opportunities were provided to member Soil and Water Conservation Districts to access funding to perform watershed assessments, implement water quality improvement projects, and perform outreach to communities regarding stream corridors. Examples of those projects include:

- Toe wood installations on Otego Creek. Through this project, the USC was able to exclude animals from a tributary and the main stem of Otego Creek. By installing a stream crossing, the access road was moved to the downhill side of the tributary, reducing the amount of sediment entering that waterway. Riparian plantings occurred along the tributary and main stem. Originally, the landowner contacted us because the erosion on the banks of Otego Creek was eroding away the farm’s pasture. We were able to install 550’ of stream bank restoration along Otego Creek using the Rogen Toe-wood method. Pictures of this project are attached to the report.
- Ecosystem restoration along the Chenango River. Along with funding from the Susquehanna River Basin Commission (SRBC), the USC and Chenango Soil and Water Conservation District (SWCD) stabilized a bank along the Chenango River using the Rogen Toe-Wood method and also restored the adjacent floodplain by creating wetlands and replanting the area with woody vegetation. The project included 17.5 acres of wetland restoration/enhancement, 5.5 acres of riparian forest buffer restoration, and 700’ of streambank restoration. The project will finish by installing a trail and signage so that the public has access to the natural area.
- Chemung County Stormwater Coalition supported stream corridor-related outreach by funding the production of grade school-appropriate “Project Wet” workbooks and educated students regarding stormwater in and around Elmira, NY. Elmira City is an environmental Justice Community, where the Coalition’s educator traveled to 21 schools throughout the school year and attended 10 youth summer programs working with youth ranging from kindergarten to high school. The educator helped to educate 500 students on Stormwater Management.
- By partnering with American Rivers, the USC contributed funds so that educational booklets could be produced and an outreach event could be held to celebrate the removal of the Oakland Dam, a hydropower dam that has been a public safety hazard on the North Branch Susquehanna River. The cities adjacent to the dam are Environmental Justice Communities as defined by the PA Department of Environmental Protection. The dam also blocked passages for



aquatic wildlife and caused altered river flow and conditions. American Rivers coordinated the removal of the dam. Overall, the funds helped to reach over 600 people.

- Several bank stabilization projects with associated corridor restoration occurred along Owego Creek within Cortland and Tioga counties. USC engineering staff trained and worked with Cortland SWCD staff on the process of stream restoration with bank stabilization during these projects. Owego Creek has been a watershed of interest and priority for some time both locally and for NFWF. Through this funding, we were able to implement 4.2 acres of riparian forest buffer and 3,037 feet of streambank stabilization.
- A total of 2.4 miles of Neil's Creek, a tributary to the Cohocton River in Steuben County, was assessed on foot, and provided an assessment of the upper and middle portions of that subwatershed. This area included large beaver dams and wetlands that made portions of the channel inaccessible. Based on the sampling completed it was determined that the Niel's Creek watershed was in a stable condition and future on-site assessments should be targeted at other sub-watersheds within the Cohocton basin.
- Using a desktop review, we used publicly available GIS information to identify parcels with open canopy within 300' of a water feature. Within Chemung County, we assessed this feature but also focused on areas with fragile soils and canopy openings with DEIJ areas. In total, 14,462 properties were identified within Butternut Creek, Owego Creek, Catatunk Creek, Chemung River, and the Cohocton River.
- Cortland County Soil and Water Conservation District Staff completed an assessment of culverts and stream crossing in the Upper Tioughnioga River Watershed. The Tioughnioga River watershed is a priority "most-effective basin" in the Chesapeake Bay watershed. To evaluate and prioritize projects for nutrient and sediment reductions, as well as other ecosystem benefits, two assessments, aquatic connectivity, and physical condition, were assessed at each identified crossing site using the North Atlantic Aquatic Connectivity Collaborative (NAACC) crossing dataset for the Upper Tioughnioga watershed, including the Otter Creek, Dry Creek, Factory Brook, Cold Brook, W. Br. Tioughnioga, and Tioughnioga Creek sub-basins. A total of 245 crossings were evaluated and assessments were completed on 193 structures that were located or accessible.



Owego Creek Restoration



Cohocton Watershed Assessment



Tioughnioga Watershed Assessment

Because of the success of this project, USC applied for an Innovative Nutrient and Sediment Reduction grant from the National Fish and Wildlife Foundation and was recently awarded. We're still working out some specifics in the contracting process with NFWF and hope to have those funds available to districts in 2025. We're always looking to support the stream team and stream restoration projects throughout the watershed.



## Piloting a New Partnership for Tree Stock Production

By Ava Glasser - USC Riparian Buffer Steward Coordinator

The USC Buffer Team is excited to be engaging in a new partnership with Binghamton University staff and students to start producing tree stock for riparian planting projects in the watershed. With the help of Joshua DeMarree, the Binghamton University greenhouse manager and an instructor in the Environmental Studies department, three 4' x 12' air pruning raised beds for tree production were constructed and set up to start growing trees this past fall on the University campus. Air pruning beds are an inexpensive and effective medium for growing hundreds or thousands of trees in a space the size of a parking spot. Like a traditional raised bed for gardening, air pruning beds are built above-ground using wood planks, and filled with growing medium. Unlike traditional raised beds, air pruning beds are raised up off the ground, and lined with hardware cloth or a similar material on the bottom to make sure that air is in contact with the bottom of the growing medium. This allows tree seedlings to self-prune or "air prune". When seedling roots grow toward the bottom of the bed and find air, it signals to the plant to stop growing that direction and redirect root growth elsewhere. Without this kind of air signal, roots will often continue to try to grow down, and will end up spiraled around and root bound at the bottom of the growing container or bed. These root bound plants are not as healthy or vigorous as air pruned plants, and this kind of spiraled root growth pattern can structurally damage the tree.

Air pruning beds can be any size, and can be filled with any medium to suit the species you are trying to grow. It is common for a mix of topsoil and sand to be used, since sandy soils help to develop good root structure and drain very well, which prevents rot. It is very important for the base to be some kind of rodent proof material, and for the beds to have some kind of rodent proof lid or covering. We chose to use hardware cloth, since it is inexpensive, easy to work with and typically strong enough to keep out squirrels, mice, chipmunks and rats, our most troublesome seed foragers and bark gnawers. For our construction, we used recycled cedar planks that were removed from an old biology wet lab on campus that was in the process of being renovated. Joshua was able to transport them to our construction site, a new extension on the existing Environmental Studies department courtyard garden, and we got to work on putting them together, attaching the hardware cloth and hoisting them up on cinder blocks.

This fall, we got the ball rolling on sourcing seeds for our beds, and starting to get them planted. Some seeds, including oak, were locally sourced from the woods surrounding the University. Others were purchased from a nearby tree seed distributor to fill in gaps of what was locally available at the time of planting. We chose to focus on species that can be difficult to find commercially, or species that we plant a lot of, and can be planted at almost any riparian site, such as sycamore. Looking forward, Environmental Studies students and BU Greenhouse volunteers will be involved with seed sourcing, cold stratifying, planting, and tending to seedlings in the air pruning beds. It's a great opportunity for students to learn about the growing nursery industry, local restoration and conservation efforts, and native tree identification. Tree stock grown in these air pruning beds will be made available for district and USC staff to use in buffer replanting and maintenance, in any part of the watershed. As New York begins to scale up its tree planting programs across the state, and demand for nursery stock rises, it's more important than ever to have flexible, alternative sources for tree stock. As an added bonus, locally sourcing and growing out seeds will ensure that genetics are local, and seedlings are adapted to our climate, which may result in higher resiliency.



Josh DeMarree, screwing together boards for our first air pruning bed.



Thank you to the Binghamton University Environmental Studies department for your support! We're looking forward to seeing great results from this project, and continuing to find new ways to work together and inspire the next generation of conservationists.



Finished air pruning beds, filled with potting soil from the BU Teaching Greenhouse.



Once planted, hardware cloth is secured over top to keep rodents out.

# 2024 Watershed Wednesdays Overview

11 Webinar Sessions      231 Webinar Participants      4,626 YouTube Video Views      5:34:17 Hours of YouTube Video Content





## Partner with The Nature Conservancy to Reforest Your Land

**More than half of New York’s forests are stewarded by individuals and families—and we want to support your conservation goals.**

From clean air and water to crucial wildlife habitat, from everyday wood and paper products to outdoor recreation—forests provide us with invaluable benefits. The Nature Conservancy in New York is looking to partner with landowners like you to protect and improve forest health throughout the state.

Planting trees, also known as reforestation, offers the most significant opportunity to sequester and store large amounts of carbon. And New York State has recently made an ambitious commitment to reforest 1.7 million acres with 680 million trees by 2040. From seedling production and planting, to workforce development and landowner participation—this magnitude of reforestation requires catalytic intervention to reach our goals.

Over the next few years, The Nature Conservancy is looking to partner with New York landowners to plant more than 1,000 acres of land with up to 500,000 trees. We’re working to scale these efforts to drastically increase tree planting and help reach New York State’s 2040 goal.

### Will You Join Us?

#### The Tree Planting Opportunity:

The Nature Conservancy and American Forest Foundation have partnered to offer the **new** “Reforestation for the Future” practice to New York landowners in the Upper Susquehanna Coalition Watershed. If you have over 5 acres available for tree planting, our skilled team will work with you every step of the way to determine the best option, including species selection, site considerations, and best practices.

#### To Get Started, Contact:

Contact your local County Soil and Water Conservation District to learn more and to receive informational materials about The Nature Conservancy in New York’s Reforestation program.



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# Improving Water Quality through Heavy Use Area Protection in Broome County

Submitted by Bailey Park - *Broome County SWCD, Natural Resource Conservationist*

Through the NYS Agricultural Environmental Management (AEM) Program, Broome County Soil & Water Conservation District partnered with a local producer to implement a Heavy Use Area (HUA) Runoff Management System at a beef farm in Harpursville, NY. A diversion and subsurface drain were installed to effectively remove excess water from a spring discharging in the pasture above. Surface water runoff was entering the barnyard, creating a resource concern for the livestock and nearby water courses. Muddy areas are breeding grounds for disease causing bacteria and can hinder movement and access to food and water, impacting overall animal performance and health. Runoff from heavy use areas can include pollutants such as manure, fertilizers, sediment from soil erosion, and even bacteria from animal waste.

Through the installation of the diversion and underground outlet, the amount of clean water entering the barnyard has reduced significantly, allowing the HUA to remain dry and manageable. An animal trail and walkway with exclusion fence was also installed outside of the barnyard to help control animal traffic within the area and minimize compaction over the recently installed drain. Areas that were re-graded and disturbed from implementation were seeded back to vegetative cover for the purpose of surface stabilization and to help filter nutrients and sediment.

The combination of these best management practices will help strengthen the HUA's integrity & functionality, as well as protect nearby natural resources through reduced erosion, improved surface stability, and enhanced water quality.



Figure 1. Condition of HUA before installation of diversion & subsurface drain, photo taken by Broome Co. SWCD staff, 2024



Figure 2. HUA during installation of subsurface drain, photo taken by Broome Co. SWCD staff, September 2024.



Figure 3. HUA after construction of diversion & subsurface drain, photo taken by Broome Co. SWCD staff, September 2024.



Figure 4. Condition of HUA after installation of animal trail & walkway, photo taken by Broome Co. SWCD staff, Sept. 2024.