



21st Annual Southeast New York Stormwater Conference

Session II - Thursday, November 18th - 9 AM-12:30 PM

Riparian Buffer Restoration

- 9:00 — **Welcome and Housekeeping**
Mike Jastremski/Lower Hudson Coalition
- 9:05 — **The Upper Susquehanna Coalition's Riparian Buffer Restoration Program**
Lydia Brinkley/Upper Susquehanna Coalition
- 10:05 — **Designing for Buffer Filtration along the Upper Rondout Creek: Assessing Existing Hydrologic, Soil, and Ecological Conditions to improve Riparian Buffer Functionality**
Haley Springston/Rondout-Neversink Stream Program
- 11:05 — **Buffer Project Monitoring: Remote Sensing and Field Methods**
Anna Palmer, NYS DEC Hudson River Estuary Program
- 12:05 — **Additional questions and discussion**
- 12:30 — **Adjourn**

Session II Continuing Education Credit

We anticipate Session II being approved for 3 CECs for Certified Floodplain Managers (Association of State Floodplain Managers) and 2 PDHs for Professional Engineers (Practicing Institute for Engineers). 3 PDHs for Registered Landscape Architects (Landscape Architecture Continuing Education System) have been approved. This information will be updated between now and the Session date. Attendance Certificates for self-certification are available upon request.



20th Annual Southeast New York Stormwater Conference

*A Virtual Gathering
Session II Program*

The Upper Susquehanna Coalition's Riparian Buffer Restoration Program

Lydia Brinkley, Upper Susquehanna Coalition

The Upper Susquehanna Coalition (USC) is a coalition of 22 Soil and Water Conservation Districts that focus on water quality Best Management Practices in the headwaters of the Chesapeake Bay within NY and PA. A priority of the USC is to implement riparian forest buffers at a high rate to reach Bay nitrogen, phosphorus and sediment load allocations, but these areas have many co-benefits such as natural stormwater retention, nutrient reduction within surface waters, wildlife habitat and diversity, and human health. To help reach water quality goals, the USC employs many strategies to implement and protect riparian buffers. This presentation will inform participants about these strategies and their applicability elsewhere.



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The Upper Susquehanna Coalition's Riparian Buffer Restoration Program

Lydia Brinkley, Upper Susquehanna Coalition

Meet the Speaker:

Lydia is a tireless advocate and in-the-field Riparian Buffer Coordinator for the Upper Susquehanna Coalition. She uses her Master's degree from SUNY ESF in Forestry and Natural Resource Management and extensive experience to lead a diverse program throughout a 22 county area. Lydia and her team provide assistance to landowners and conservation districts in the form of technical and programmatic assistance, landscape assessments, site plans, planting strategies, tree planting help, capacity building and funding opportunities.



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Designing for Buffer Filtration along the Upper Rondout Creek: Assessing Existing Hydrologic, Soil, and Ecological Conditions to improve Riparian Buffer Functionality

Haley Springston, Rondout-Neversink Stream Program

Riparian buffers have the ability to serve many different functions that are vital to both ecological health and water quality. In order to improve the functionality of a riparian planting, it is vital to clearly identify the desired functions of a planting before beginning the design process. This presentation summarizes the planting design methodology implemented along the Upper Rondout Creek. The Upper Rondout Creek planting design focuses on optimizing filtration capability, supporting native ecosystems, and improving stream bank stability.

This presentation outlines the design methodology, which may be useful to those seeking to improve the functionality of riparian buffer plantings. Before designing the Upper Rondout Creek planting, a thorough assessment was conducted of the site's existing soil, hydrological and ecological conditions. The data collected during assessment were used to improve the functional design of the planting. Hydrologic and soil data were used to delineate optimal subsurface and groundwater filtration zones. Ecological data informed the selection of native species with compatible root depth which enhanced the effectiveness of the identified filtration zones.



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Designing for Buffer Filtration along the Upper Rondout Creek: Assessing Existing Hydrologic, Soil, and Ecological Conditions to improve Riparian Buffer Functionality

Haley Springston, Rondout-Neversink Stream Program

Meet the Speaker:

Haley Springston graduated from SUNY New Paltz with a Bachelor's of Science degree in geology. In 2018, Haley completed a 10-month SCA/ AmeriCorps internship with the Rondout Neversink Stream Program. In 2019 Haley began working full time for the Stream Program. She currently has 3 years' experience working as the program's Watershed Planning Coordinator, where her responsibilities include managing the program's geodatabases, overseeing the program's CSBI projects, as well as leading education and outreach efforts. In addition to her work with the Rondout-Neversink Stream Program, she is also an adjunct professor at SUNY New Paltz where she teaches Physical Geology Laboratory.



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Buffer Project Monitoring: Remote Sensing and Field Methods

Anna Palmer, New York State Department of Environmental Conservation

This presentation will discuss how the Hudson River Estuary Trees for Tribes Program (hereafter TFT) is utilizing high resolution satellite imagery and developing a method to determine how many miles of the riparian buffers we've planted are "effective". Since 2007, TFT has worked with local volunteers to plant over 57,000 native trees and shrubs at 378 sites covering 26 miles of streams in 13 counties throughout the Hudson River Estuary Watershed. As our list of sites planted continues to grow, we are beginning to investigate the benefits of using multi-spectral remotely sensed images to assist in the determination of vegetative cover change over time to help indicate program effectiveness. Freely available four band aerial imagery from the National Agricultural Imagery Program (NAIP) at a 1-meter resolution is being analyzed to calculate the Normalized Difference Vegetation Index (NDVI) at planting sites across bi-annual time steps. NDVI determines vegetative change pre-and post-planting which provides meaningful data when evaluating a restoration plantings effectiveness. research supports our assumption that vegetative cover is closely linked to water quality improvement/protection or biodiversity in riparian ecosystems I will present an introduction to the spectral ranges of aerial imagery, discuss why we are using NAIP, and present several images and examples of the NDVI analysis at various sites in the Hudson Valley. Furthermore, I will discuss the drawbacks of vegetation modeling and provide insight into what you can and cannot determine with orthoimagery compared with field monitoring using plant sampling or counting planted trees



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Anna Palmer, New York State Department of Environmental Conservation

Meet the Speaker:

Anna is the Stream Buffer Educator for the Hudson River Estuary Program's Trees for Tribs initiative. She's involved with planning and implementing riparian buffer restoration projects across the Hudson Valley. Anna is a climate change and adaptation specialist with M.S. and B.A degrees in Environmental Studies. She has experience conducting climate change research, designing adaptation plans, and teaching vulnerability assessment planning concepts. Over the last two years during her time as the Stream Buffer Educator she has made critical improvements to the monitoring protocol for the Hudson River Estuary Trees for Trib Program.