

Riparian Corridor Management Plan

**Bear Kill (tributary to Manor Kill)-Mattice Property Conesville,
NY**



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Introduction

Maintaining healthy and intact riparian areas is a high priority of the Catskill Streams Buffer Initiative (CSBI), as is improving the condition of degraded riparian buffers. Through the protection and enhancement of the riparian corridor we are protecting water quality, protecting and increasing habitat diversity, and offering some level of stabilization for stream banks through natural biological means. Well vegetated riparian buffers filter upland pollutants; provide rooting mass for bank stability, and lower stream water temperatures. Numerous streams in the Schoharie Creek Watershed have been walked with detailed mapping of the vegetation conducted within the riparian corridors, documenting various stream conditions, need for supplemental vegetation, presence of invasive species, and other conditions impacting the health of the riparian area. While 75% of the West of Hudson Watershed is forested, it is apparent that some riparian areas lack this protective cover.

The overall goal of the CSBI is to inform and assist landowners in better stewardship of their riparian (streamside) area through protection, enhancement, management, or restoration. The New York City Department of Environmental Protection and its partners (County Soil & Water Conservation Districts and Cornell Cooperative Extension) will assist private, riparian landowners throughout the West of Hudson Watershed by providing:

- 1) Riparian Corridor Management Plans to create awareness about riparian management issues specific to individual properties
- 2) Best management practice design and/or prescriptive measures and installation to encourage positive riparian stewardship and
- 3) Educational materials and activities as needed by landowners to understand the critical role of their buffer and how to maintain it in optimal functioning condition.

Any watershed landowner with property within the mapped buffer area can receive technical assistance and a Riparian Corridor Management Plan.

Site Visit Description / Existing Conditions

The Manor Kill Stream Management Plan (SMP) identifies the Bear Kill within Management Unit 5 and states that the entire corridor and associated tributaries would benefit from improved riparian buffers (Fig 1). The Bear Kill watershed encompasses 6.15 mi² making it a significant tributary to the flow regime within the Manor Kill basin. Throughout areas of the reach, riparian buffers, when present at all, are limited in width and provide minimal benefits.



Figure 1. Aerial photo of Mattice Property showing 25ft buffer on both sides of the Bear Kill.

The Bear Kill flows South through Conesville under Potter Mountain Road along the Mattice property. Aerial photography shows mostly herbaceous cover with a narrow forested buffer along the entire reach on the left bank flowing through where landowners have expressed concern about erosion. Initial inventory and assessment identified a need for riparian plantings on the left bank of the Mattice property. The scope of the proposed project includes vegetative left bank stabilization treatments as well as riparian buffer plantings on the adjacent terrace for a length of approximately 250 feet. The vegetative bank stabilization treatments are intended to reduce rates of bank retreat resulting from erosion, while the riparian buffer plantings are intended to enhance the overall ecological function of the riparian corridor. There is an approximately 60' section of riprap stone revetment that was installed after a high water event in 2001. The riparian plantings would tie in with this existing stabilization treatment and include inter-planting within the rock crevices to add stability and provide shade relief for the stream below.

Soils

Review of the general soil characteristics of the segment revealed that the segment was highly susceptible to bank erosion due to the thick unconsolidated layers of glacially deposited soils. Gravelly loams, soils loose in structure with little rock content, predominate the stream banks in this segment, corresponding to a natural susceptibility to erosion and entrainment. Healthy riparian buffers are critical in maintaining stability for this stream type. The soil type located within the project area is 100% Alluvial Land (AI) soil. The Alluvial Land soils which make up the site consist of soils and of recent deposits of sand, silt, and gravel. Alluvial land soils are excessively drained to very poorly drained. Drainage generally is very poor along the smaller streams and excessive in some cobble areas. Coarse fragments make up from less than 5 percent to as much as 90 percent of the soil material. Reaction ranges from very strongly acid to neutral. This makes this soil type variable for planting recommendations and will limit its use to mostly hydric grasses, forbs, and shrubs suited for those conditions.¹

Landowner Issues / Concerns

The landowners have expressed concerns about localized erosion, soil loss, and flooding.

Landowner Goals

- 1) Minimize erosion
- 2) Control flooding
- 3) Improve aesthetics and appearance – keep wild
- 4) Buffer Width of 25ft. on the left bank is acceptable.

Recommended Actions- The landowner is encouraged to apply to CSBI for funding support to install one or more of the Best Management Practices (BMPs) below:

- ✓ **As deep rooted woody vegetation is critical to maintaining bank stability, this site could benefit from enhanced buffer width and establishment of more woody vegetation.** Planting and maintaining a healthy buffer of trees and shrubs along the stream banks and floodplains is one of the most cost effective and self-sustaining methods for landowners to protect streamside property.
- ✓ **Use willow stakes to prevent localized erosion.** Bioengineering, the use of live vegetation, either alone or in combination with harder materials such as rock or (dead) wood, to stabilize soils associated with stream banks or hill slopes can be used at this location. Dormant materials such as willows quickly establish vegetation on the banks. Willow stakes are cut from living willow shrubs when the shrub is dormant (usually during the fall). The stakes, ranging from one to several feet long, are hammered or pushed into the stream bank where they will grow quickly and provide necessary bank stabilization where it is needed most.

- ✓ **Use live fascines.** Live fascines are a standard bio-engineering technique which involves the bundling and planting of dormant plant cuttings. The plant bundles sprout and develop a root mass that will hold the soil in place and protect the stream bank from erosion.
- ✓ **Increase native riparian vegetation and habitat.** Plantings can include a variety of flowering shrubs, trees and sedges native to Schoharie County. Native species are adapted to our regional climate and soil conditions and typically require less maintenance than exotic species following planting and establishment.
- ✓ **Maintain root systems that hold soil in place by not mowing right to the stream edge-** Degrading buffer zones can be improved by not mowing in the buffer zone. Keeping a buffer zone of trees and shrubs, especially in the first 50 to 100 feet, along stream banks helps to minimize erosion and protect property, filter pollutants, and increase habitat value.
- ✓ **Remove Fencing-** Fencing that is currently installed near the edge of the stream bank should be removed as it is encouraging mowing to the edge of the stream.
- ✓ **Reduce Bank Slope.** Bank currently is at a 1:1 slope which may reduce the ability for vegetation to effectively stabilize the soil. The landowner is encouraged to apply for CSBI funding to re-grade a portion of the slope to 1.5:1 to tie in with 50' rip rap section below eroded section.
- ✓ **Mowing-** It is recommended that the landowner discontinue mowing activities to the edge of the stream bank. This practice has been found to increase the likelihood of high bank failure and erosion. Installation and maintenance of a buffer at a width of 25' or more can reduce mass slumping resulting from storm water runoff off the top of the bank.
- ✓ **Falling Trees-** Cut mature falling trees above the root ball. Buck up trunk into smaller (floatable) pieces and leave in place or remove for use elsewhere. Leave root ball in place in bank.
- ✓ **Interplant Existing Rip Rap-** Landowner should consider inter-planting native shrub species between existing stone riprap materials on-site. This will provide a more natural appearance, and provide additional benefits to habitat and bank stability.
- ✓ **Consider the NYC Department of Environmental Protection's Watershed Land Acquisition Program.** DEP's Land Acquisition Program involves willing seller/willing buyer agreements. The lands acquired must meet various criteria established by the MOA for water quality protection purposes. DEP offers to purchase lands and conservation easements at fair market value, as determined by independent, professional appraisers. The City will pay assessed property taxes on fee acquisitions and on conservation easements; the latter will be in proportion to the value of the easement with respect to the overall vacant property.

Project Proposal

The scope of the proposed project includes both vegetative bank stabilization treatments as well as riparian buffer plantings on the adjacent terrace. The vegetative bank stabilization treatments are intended to reduce rates of bank retreat resulting from erosion, while the riparian buffer plantings are intended to enhance the overall ecological function of the riparian corridor.

The success of the vegetative bank stabilization treatments will be dependent upon the flood regime endured by the project in the period following project implementation. The vegetative bank treatments may need maintenance and repair over time to achieve their maximum bank stabilizing effect. Various bank armoring techniques, though beyond the scope of the proposed project, could be applied to the reach if acceptable rates of bank retreat are not achieved by the vegetative treatments. SCSWCD could provide technical assistance in the event that the landowner elected to implement a more aggressive bank stabilization treatment.

The Schoharie County Soil and Water Conservation District will provide:

1. A Riparian Corridor Management Plan
2. Project Design for the Riparian Buffer Plantings
3. All Native Plant Materials including trees and willow stakes
4. Installation of Plant Materials
5. Japanese Knotweed Containment
6. A Landowner's Guide to Vegetation Management

Resources List (Appendix)

Manor Kill Stream Management Plan

http://www.catskillstreams.org/Manorkill_Stream_Management_Plan.html

Batavia Kill SMP Executive Summary

http://www.catskillstreams.org/pdfs/BataviaKillExec_Summ.pdf

Agriculture

Whole Farm Planning

Conservation Reserve Enhancement Programs

www.nycwatershed.org

NYS Department of Agriculture and Markets

2009 Agricultural Assessment Values per Acre

http://www.agmkt.state.ny.us/AP/agservices/2009_General_Ag_Value_memo.pdf

Fascines

Ohio Stream Management Guide

http://www.dnr.state.oh.us/Portals/7/pubs/fs_st/stfs14.pdf

Forestry

Watershed Agricultural Council's (WAC) Watershed Forestry Planning Program

www.nycwatershed.org

Riparian Buffers

http://www.catskillstreams.org/stewardship_streamsideside_rb.html

Soils

USDA Web Soil Survey

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Schoharie Stream Management Implementation Funds

<http://www.catskillstreams.org/SWAC.html>

Stormwater Program - CWC

http://www.cwconline.org/programs/strm_wtr/strm_wtr.html

Watershed Land Acquisition Program

http://www.nyc.gov/html/dep/html/watershed_protection/html/landac.html