Riparian Corridor Management Plan

Batavia Kill
Kane Property - Ashland, NY

Prepared by:

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Introduction

Maintaining healthy and intact riparian areas is a high priority of the Catskill Streams Buffer Initiative, 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 streambanks 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 Catskills 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 Catskill Streams Buffer Initiative 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:

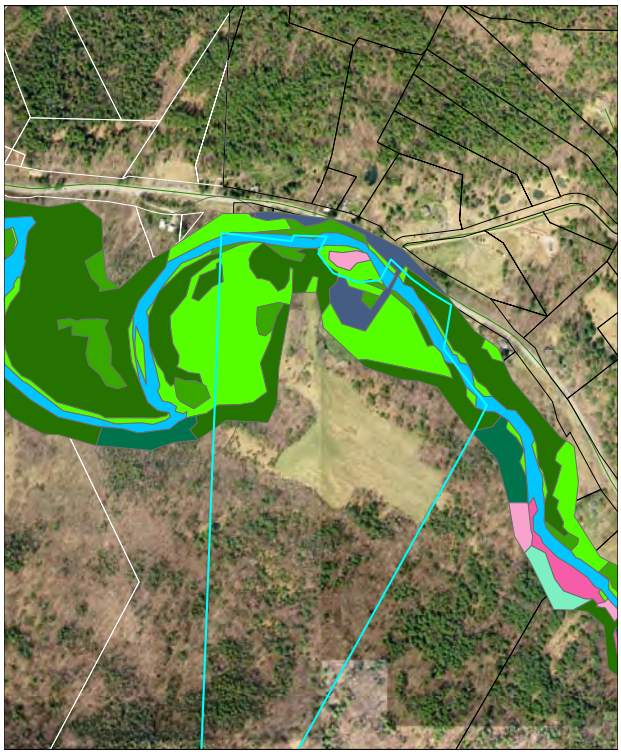
1) Riparian Corridor Management Plans to create awareness about riparian management issues specific to individual properties
2) Best management practice design and/or prescriptive measures and installation to encourage positive riparian stewardship and
3) Educational materials and activities as needed 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.

Aerial view of Kane property

Site Visit Description / Existing Conditions

The Kane property is located on the Batavia Kill near the border of Ashland and Prattsville one mile east of Red Falls. The Batavia Kill flows west parallel to Route 23 along the property where the owners have expressed concern about localized erosion on the left streambank just upstream of their bridge. In this 115 ft. area where erosion is occurring, a four acre lawn is mowed to the edge of the streambank and no deep rooted woody vegetation was visible during a site visit in the spring of 2009. Some Japanese knotweed is present. The parcel where the Kane residence is located is 89.52 acres. They own additional forested parcels in Ashland and neighboring Prattsville totaling 130.67 acres. The drainage area for this reach ranges from 63.7 mi^2 to 68.1 mi^2. The streambanks are primarily composed of unconsolidated alluvial material. Land-use / land-cover in the reach is predominately forest with limited residential development.



Riparian vegetation map – light green shows herbaceous cover in 2005

History / Past Findings

Greene County Soil and Water Conservation District conducted a Phase I Inventory and Assessment in 1997 that identified several isolated sections of streambank erosion in Reach 5a. The remainder of the reach is characterized as very stable due to the well armored streambed and presence of dense riparian vegetation.

The Batavia Kill Stream Management Plan identifies the Kane property in Reach 5a – Lower and states that past agricultural activities have resulted in minimal woody vegetation along the riparian corridor. The land-use history for this site in Ashland, NY includes a dairy farm during World War II. There have been no cows on the property since the 1970s. Twenty three years ago when the current owners purchased the property, the land was barren with much garbage and debris that they have since cleaned up and removed. In the 1980s, USACOE recommended the landowners dump yard debris over the edge to stabilize the bank. This treatment was utilized but did not stop the erosion. The Kanes do not participate in any other watershed programs at this time.

The soil type located within the project area is Elka channery loam 15–25% slopes (EID) derived from sandstone, siltstone and conglomerate and is not designated as prime farmland.[1] Many areas with this soil type are forested; others are cleared and used for

[1] National Cooperative Soil Survey
Official Series Description – ELKA Series, 1999

pasture or hay. Native trees found in this soil type are red maple, beech, white pine, red oak, yellow birch, black cherry, and sugar maple.

Landowner Issues / Concerns

Owners have expressed concerns about localized erosion on the left streambank just upstream of their bridge indicating that erosion has been occurring on this bank for the last 8 years. They estimate 1 to 1 ½ acres have been lost along that stretch including areas further upstream.

The owners planted 6-7 ft. high weeping willows in an attempt to stabilize the streambank only to have them washed away by the next flood. Crown vetch was also used to stabilize the soil.

Culverts from Route 23 empty into the stream and owners are concerned with the runoff that contains sand and foam.

Landowner Goals

1) Minimize and prevent bank failure
2) Include a variety of habitats for birds and wildlife
3) Improve aesthetics and appearance – keep natural
4) Keep fields open

Landowners have signed a 10 year temporary easement.
Agreed buffer width is 25 feet over the left bank.
Agreed buffer length is 100 to 300 feet.

Recommendations – Best Management Practices (BMPs)

1) As deep rooted woody vegetation is critical to maintaining slope stability, this site could benefit from enhanced buffer width and establishment of more woody vegetation. Planting and maintaining a healthy buffer of native trees and shrubs along the streambanks and floodplains is one of the most cost effective and self-sustaining methods for landowners to protect streamside property**.**

2) Use willow stakes to address minor 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 streambanks 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.

3) 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 streambank from erosion.

4) Increase native riparian vegetation and habitat. Plantings can include a variety of flowering shrubs, trees and sedges native to the Catskills. Native species are adapted to our regional climate and soil conditions and typically require less maintenance than exotic species following planting and establishment.

5) Remove invasive species such as Japanese Knotweed. Invasive, non-native species can threaten the ecology of a native plant community. This impact may extend to an alteration of landscape or bank stabilization. Japanese Knotweed is an exotic, invasive species and in recent years has been a serious issue in the Schoharie Basin. As the name implies it comes from Asia and was originally brought here as an ornamental plant. In an attempt to beautify their homes, residents unknowingly introduced a threatening element to the environment. Knotweed out-competes native plants by growing much faster than its native counterparts. Knotweed can tower over native plants, cut off their light supply and eventually, take over the entire length of a stream. This is especially dangerous, because knotweed does not hold stream banks together as well as native species. Furthermore, it is a very resilient plant. Simply cutting it down without proper disposal can potentially make the problem worse. See the link below (in the Appendix) to learn how to identify and control Japanese Knotweed.

6) 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 streambanks helps to minimize erosion and protect property, filter pollutants, and increase habitat value.

7) Discontinue throwing yard debris over the edge. Dumping yard clippings and debris onto streambank will suppress the native vegetation below it, destabilize the soil, and lead to erosion. Instead, compost yard debris away from streambank.

8) Continue to monitor reach stability through normal observations. Take photographs from the same location each year to photo document erosion.

9) Consider applying to Watershed Agricultural Council's Watershed Forestry Planning Program. To encourage voluntary stewardship of private forest land, the Watershed Forestry Program offers cost-sharing to landowners with parcels of ten acres and above located within the watershed boundaries who currently have no written plan.

10) Contact the Catskill Watershed Corporation's Stormwater Program.
The CWC administers New York City-funded programs to help municipalities, businesses and property owners address and correct stormwater runoff problems which may contribute to degraded water quality, and to plan ways to avoid them in the future.

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. GCSWCD could provide technical assistance in the event that the landowner elected to implement a more aggressive bank stabilization treatment.

The Greene 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. A Landowner's Guide to Vegetation Management

March 27, 2009 – Site Visit

Resources and References

Batavia Kill Stream Management Plan
http://www.gcswcd.com/stream/bataviakill/smp/

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
http://www.nycwatershed.org/lc_fmp.html
www.nycwatershed.org

Japanese Knotweed Information
http://www.catskillstreams.org/pdfs/Knotweed%20webpage%20text%20&%20links.pdf

Riparian Buffers
http://www.catskillstreams.org/stewardship_streamside_rb.html

Soils
National Cooperative Soil Survey
Official Series Description Series, 1999
http://soils.usda.gov/technical/classification/osd/index.html

Schoharie Stream Management Implementatation Funds
http://www.catskillstreams.org/SWAC.html

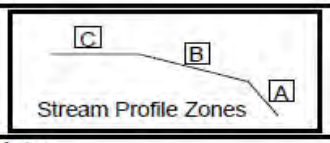
Stormwater Program – Catskill Watershed Corporation
http://www.cwconline.org/programs/strm_wtr/strm_wtr.html

Appendix A:

Planting Plan

Kane Planting
Batavia Kill

Site Details
200 ft x 50ft
10,000 sq ft
0.23 acre
100 trees with 10x10 spacing



	Latin Name	Wetland Indicator	Native	Location	Spacing (ft)	Total #	Notes
Evergreen transplants							
White pine	Pinus strobus	**FACU**	Y	C	10	10	
Eastern hemlock	Tsuga canadensis	**FACU**	Y	C	10	20	
						30	
Hardwoods							
Red maple	Acer rubrum	**FAC**	Y	B-C	10	10	
Yellow birch	Betula allegheniensis	**FAC**	Y	C	10	10	
Black cherry	Prunus serotina	**FACU**	Y	C	10	10	
						30	
Shrubs							
Winterberry	Ilex verticillata	**FACW**	Y	B-C	5	10	*plant in groups*
Redosier dogwood	Cornus sericea	**FACW+**	Y	A-B-C	5	10	*plant in groups*
Meadowsweet	Spiraea alba	**FACW**	Y	A-B	5	10	*intersperse in groups at creekside*
Northern bayberry	Myrica pensylvanica	**FAC**	Y	C	5	6	*plant 3 within 30 ft.*
Staghorn sumac	Rhus typhina	**FACU**	Y	C	5	10	
Swamp rose	Rosa palustris	**OBL**	Y	A	5	10	
						56	
				TOTAL PLANTS		116	
Stakes							
Willow sp.	Salix	**FACW**	Y	A-B	2	125	*Dormant Native*
Dogwood	Cornus amomum	**FACW+**	Y	A-B	2	125	*Dormant Native*
				TOTAL Stakes		250	

Wetland Indicator = Wetland Indicator Status
OBL: Obligate Wetland: Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW: Facultative Wetland: Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
FAC: Facultative: Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
FACU: Facultative Upland: Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).