

# **Riparian Corridor Management Plan**

**Batavia Kill: Kastanis Property - Ashland, NY**



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## **Introduction**

Maintaining healthy and intact riparian areas is a high priority of the Streamside Assistance Program, 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 Streamside Assistance Program 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 Batavia Kill Stream Management Plan (SMP) identifies the Kastanis property along Route 23 in Reach 4e and states that the entire corridor would benefit from improved riparian buffers. Past agricultural activities have resulted in minimal woody vegetation along the riparian corridor. Throughout the reach, riparian buffers, when present at all, are limited in width and provide minimal benefits.



Aerial photo of Kastanis Property showing 100ft buffer and Japanese knotweed.

The Batavia Kill flows west through Ashland paralleling Route 23 along the Kastanis property. Aerial photography shows herbaceous cover along the entire north bank, the area where owners have expressed concern about erosion. After initial inventory and assessment of the reach, a more detailed analysis documented in the SMP identified lateral streambank erosion on the right bank of the Kastanis property. The lack of any deeply rooted vegetation is a factor in the high rates of erosion that have been observed. 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 invasive species Japanese knotweed (*Fallopia japonica*) has colonized certain areas of this segment and appears to be proliferating in the low lying floodplain areas. It is believed the invasive species, known for its dominant characteristics, is limiting the re-establishment of any effective native species to serve as an effective buffer through the segment.

According to the landowner, the property is a “designated forest” with 100 acres of protected forest. There is a patch of non-commercial Christmas trees growing in the northwest corner of the property near Carrington Road.

Hay fields are not harvested for profit at this time. More than twenty acres of hay are given away in exchange for their harvest.

## 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 streambanks 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 mostly Barbour loam (Ba) 0-3% slope with some Basher silt loam (Bs) 0-3% slope. The Barbour loam soil series includes very deep, well drained soils formed in recent alluvial deposits derived from areas of acid, reddish sandstone, siltstone, and shale. They are nearly level or gently sloping soils on flood plains. Most areas with Barbour loam soil have been cleared and are used to grow corn, small grain, hay, vegetable crops, and pasture. The few woodlots remaining include maple, oak, beech, sycamore, and elm. Most areas with Basher silt loam have been cleared and are used to grow corn, small grains, hay, vegetable crops, and pasture. Woodlots contain maple, oak, hemlock, and white pine.<sup>1</sup>

## Landowner Issues / Concerns

Frank Kastanis has expressed concerns about localized erosion, property taxes, and damage to property by unknown individuals.

## Landowner Goals

- 1) Minimize erosion
- 2) Reduce taxes
- 3) Improve aesthetics and appearance – keep wild
- 4) Keep fields open – maintain access for hay harvest

Buffer Width of 100ft. is acceptable.

## Recommendations – Best Management Practices (BMPs)

**1 a.) 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 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.

**1 b.) 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

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<sup>1</sup> National Cooperative Soil Survey  
Official Series Description, 1999

(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.

**1 c.) 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.

**2) 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.

**3) 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.

**4) 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.

**5) 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. 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. Japanese Knotweed Containment
6. A Landowner's Guide to Vegetation Management

## **Resources List (Appendix)**

### Batavia Kill Stream Management Plan

<http://www.gcsxcd.com/stream/bataviakill/smp/>

### Batavia Kill SMP Executive Summary

[http://www.catskillstreams.org/pdfs/BataviaKillExec\\_Summ.pdf](http://www.catskillstreams.org/pdfs/BataviaKillExec_Summ.pdf)

### Agriculture

Whole Farm Planning

Conservation Reserve Enhancement Programs

[www.nycwatershed.org](http://www.nycwatershed.org)

### NYS Department of Agriculture and Markets

2009 Agricultural Assessment Values per Acre

[http://www.agmkt.state.ny.us/AP/agsservices/2009\\_General\\_Ag\\_Value\\_memo.pdf](http://www.agmkt.state.ny.us/AP/agsservices/2009_General_Ag_Value_memo.pdf)

### Fascines

Ohio Stream Management Guide

[http://www.dnr.state.oh.us/Portals/7/pubs/fs\\_st/stfs14.pdf](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](http://www.nycwatershed.org)

### Japanese Knotweed Information

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

### Riparian Buffers

[http://www.catskillstreams.org/stewardship\\_streamsideside\\_rb.html](http://www.catskillstreams.org/stewardship_streamsideside_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 - CWC

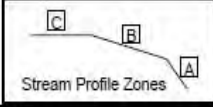
[http://www.cwconline.org/programs/strm\\_wtr/strm\\_wtr.html](http://www.cwconline.org/programs/strm_wtr/strm_wtr.html)

### Watershed Land Acquisition Program

[http://www.nyc.gov/html/dep/html/watershed\\_protection/html/landac.html](http://www.nyc.gov/html/dep/html/watershed_protection/html/landac.html)



## Kastanis Riparian Planting Plan Batavia Kill

Site Details							 Stream Profile Zones
3000 ft x 100 ft							
7.1 acre							
1500 trees and shrubs							
Latin Name	Wetland Indicator	Native	Location	Spacing (ft)	Total #	Notes	
<b>Evergreen transplants</b>							
White pine	Pinus strobus	FACU	Y	C	10	80	
Eastern hemlock	Tsuga canadensis	FACU	Y	C	10	85	
White spruce	Picea glauca	FACU	Y	C	10	110	
Red spruce	Picea rubens	FACU	Y	C	10	30	
White cedar	Thuja occidentalis	FACW	Y	B-C	10	75	
					<b>380</b>		
<b>Hardwoods</b>							
Paper birch	Betula papyrifera	FACU	Y	C	10	60	
American sycamore	Platanus occidentalis	FACW	Y	B	10	100	
Green ash	Fraxinus pennsylvanica	FACW	Y	B	10	80	
Black cherry	Prunus serotina	FACU	Y	C	10	100	
Eastern cottonwood	Populus deltoides	FAC	Y	C	10	75	
Red maple	Acer rubrum	FAC	Y	B-C	10	160	
Sugar Maple	Acer saccharum	FACU	Y	C	10	85	
River birch	Betula nigra	FACW	Y	B-C	10	60	
Gray birch	Betula populifolia	FAC	Y	C	10	75	
					<b>795</b>		
<b>Shrubs</b>							
Speckled Alder	Alnus rugosa	FACW	Y	B	10	40	
Shadblow serviceberry	Amelanchier canadensis	FAC	Y	C	5	15	
Downy shadbush	Amelanchier arborea	FAC	Y	C	5	15	
Buttonbush	Cephalanthus occidentalis	OBL	Y	A-B	5	25	
American elderberry	Sambucus canadensis	FACW	Y	B-C	5	20	
Nannyberry	Viburnum lentago	FAC	Y	B-C	5	25	
Arrowwood	Viburnum dentatum	FAC	Y	C	5	15	
Highbush blueberry	Vaccinium corymbosum	FACW	Y	B-C	5	20	
Redosier dogwood	Cornus sericea	FACW	Y	A-B-C	5	60	
Gray dogwood	Cornus racemosa	FAC	Y	B-C	5	40	
Silky dogwood	Cornus amomum	FACW	Y	A-B	5	50	
					<b>325</b>		
<b>TOTAL PLANTS</b>					<b>1500</b>		

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%-96%), 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%-98%), but occasionally found on wetlands (estimated probability 1%-33%).