Riparian Corridor Management Plan
Schoharie Creek

Slutzky Property – Jewett, NY

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Catskill Streams Buffer Initiative

Introduction

A riparian buffer is the vegetated area adjacent to a stream that plays a key role in protecting water quality and providing various environmental benefits. A healthy riparian buffer usually consists of a diverse assemblage of tree and shrub species. Deeply rooted riparian buffers stabilize stream banks by anchoring sediment particles in place, and therefore play an essential role in the prevention of erosion. These buffers also intercept surface runoff from upland sources which may contain contaminants such as sediment, pesticides, and nutrients. Many of the unique wildlife species seen in the Catskill region rely on riparian areas for critical habitat.

Maintaining healthy and intact riparian areas and improving the condition of degraded riparian buffers are high priorities of the Catskill Streams Buffer Initiative (CSBI) program. Stream feature inventories have been conducted on numerous streams in the Catskills, which include detailed mapping of vegetation within the riparian corridors, existing stream conditions, presence of invasive species, and identification of the need for supplemental planting of vegetation in the riparian zone. 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. In addition, CSBI seeks to maintain ecological integrity of streamside property by conducting restoration projects which include the use of plant materials that are native to the Catskill region. The New York City Department of Environmental Protection (NYCDEP) and its partners (County Soil & Water Conservation Districts and Cornell Cooperative Extension) will assist 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.

Aerial view of Slutzky property on Deming Road, South Jewett, NY

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

Site Visit Description / Existing Conditions

The Slutzky property is located on Deming Road off of Route 23A in Jewett, NY. The parcel is bisected by Deming Road. The northern property boundary is the Schoharie Creek, which is a C (TS) stream suitable for trout spawning.[1] The County Bridge which bisects the property appears to pass low flows effectively, but is causing a moderate constriction of the stream channel during higher flows. The resulting scour caused by the constriction has resulted in the installation of riprap along the banks on both the upstream and downstream sides of the bridge. The bridge has also caused a slight decrease in the streams ability to effectively transport sediment through the reach during high flows, as is evidenced by moderate sediment deposition upstream and downstream. During a site visit conducted by GCSWCD staff in March of 2011, both the right and left banks appeared to be stable with little evidence of active erosion.

View of Slutzky parcel from Route 23A

Structures on the property are located a relatively good distance back into the floodplain and are not under an immediate threat during flood events. Other than a single row of mature trees present at the top of the bank, deep-rooted vegetation was sparse along the property line. The low elevation, flood prone left terrace is currently a field of mowed herbaceous vegetation, and was identified as such in the 2007 Schoharie Creek Management Plan created by the GCSWCD. The property is rented to another family that owns and cares for horses which are confined to the eastern half of the property by non-permanent pasture fencing. The current pasture size for the horses is three and a half acres. Barbed wire fencing runs along the row of mature trees on the left bank of the Schoharie Creek (looking downstream). The

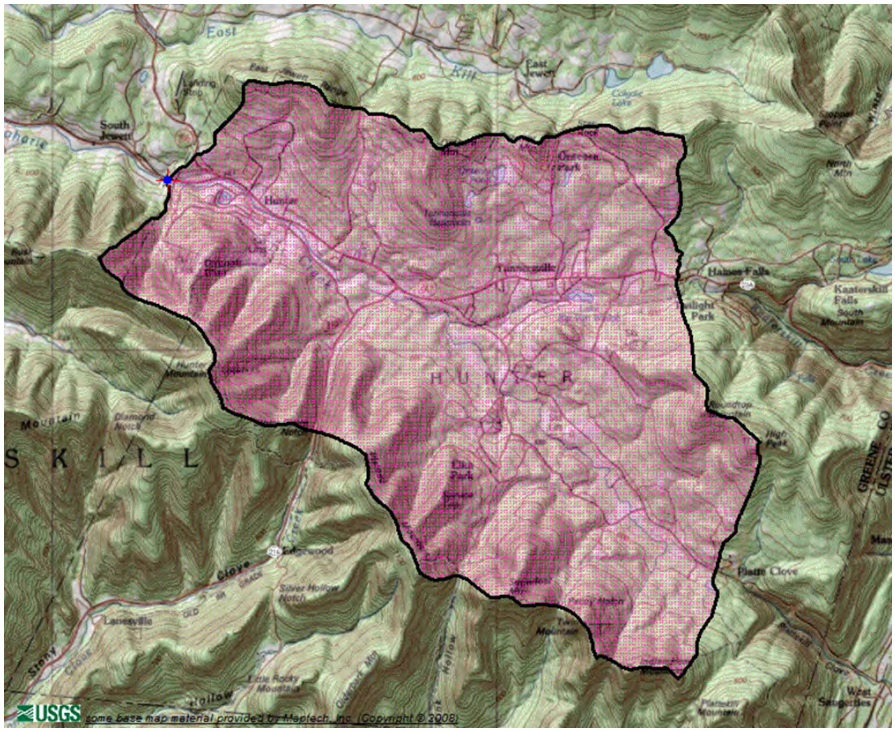
[1] All waters of New York State are provided a class and standard designation based on existing or expected best usage of each water or waterway segment. Classification C is for waters supporting fisheries and is suitable for non - contact activities. Classification TS designates trout spawning waters.

installation of a CSBI project on this property is dependent on assurance that fencing will remain intact and horses will continue to be kept from grazing in areas where plants are installed.

Removable fencing

Upstream view of Slutzky parcel from Deming Rd. Bridge

The drainage area for this location is 44.7 mi^2 including runoff from portions of High Peak to the North, Indian Head Mountain to the East, Sugarloaf Mountain to the South, and Hunter Mountain to the West. Approximately 95.3% of the drainage area is covered by forest.



USGS StreamStats map showing Drainage Area for Slutzky property

Floodplains are land areas adjacent to rivers and streams that are subject to recurring inundation. According to the most recently updated floodplain map (below), the planting area is located within the estimated 100-year floodplain, which is defined as the area predicted to be inundated by floods of a magnitude that is expected to occur once in any 100-year period. A flood of this magnitude has a 1% chance of occurring in any given year based on a statistical analysis of local stream gaging records. Most communities regulate the type of development that can occur in areas subject to these flood risks.

Recent studies indicate that air temperature, precipitation, and runoff are all showing a trend of increase in the Catskill region (Burns et al. 2006). These trends suggest that flood events may become more frequent and severe, and every attempt should be made to naturally mitigate flood risks to stream side property. Streamside plant communities adapted to periodic flooding provide natural flood control by intercepting the floodwaters, slowing them down and reducing the height and duration of floods downstream. Other benefits of species-rich forested floodplains include promoting infiltration and aquifer recharge which maintains groundwater supply and enhances base flow during the dry season. The shade from streamside vegetation moderates temperature regimes in aquatic systems, preventing excessive warming of the river during summer months. A forested 100-year floodplain is also beneficial as it provides important habitat for native species, including some rare and endangered mammals and birds. Floodplain forests serve as important wildlife corridors between aquatic and terrestrial habitats.

100-year floodplain boundary map

The soil type within the project area is identified as Barbour loam (Ba) which consists of very deep, well drained soils formed in alluvial deposits derived from acid, reddish sandstone, siltstone and shale. Mean annual air temperature is 45 to 50 °F., and mean annual precipitation is 47.6 inches. Depth to high water table is 3 to 6 feet with occasional flooding. Native trees found in this floodplain soil type are maple, oak, and white pine. [2]

Generally, aquatic habitat quality appeared to be fair throughout this management unit. Canopy cover was inadequate along some stream banks and could be enhanced with plantings in the riparian zone. Woody debris observed within the stream channel was minimal throughout the unit. Woody debris provides critical habitat for fish and insects, and added essential organic matter that will benefit organisms downstream.

Historic Conditions

In the development of the Schoharie Creek Management Plan by the Greene County Soil and Water Conservation District (GCSWCD), it was determined that the Slutzky parcel is located in Management Unit 7. Within the mapped 300 foot wide riparian buffer zone for this management unit, the predominant vegetation type is herbaceous vegetation (40% of mapped area) followed by forested (34%). Other land cover types include shrubland (15%) and impervious surface (11%) which includes local roadways, private residences and associated driveways. The 2006 stream feature inventory revealed that revetment has been installed on 20% of the streambanks in this management unit.

The entire stream channel within this management unit has been designated as a wetland by the National Wetlands Inventory. Wetlands are important features in the landscape that provide numerous beneficial functions including protecting and improving water quality, providing fish and wildlife habitats, storing floodwaters, and maintaining surface water flow during dry periods.

As seen from the historical stream channel alignments (below), the planform of the channel alignment has remained fairly stable since 1959.

Historic stream channel alignments with 2006 aerial photograph

[2] National Cooperative Soil Survey
Official Series Description – 1999

The Schoharie Creek Management Plan recommends that management efforts in this unit should focus on enhancing the riparian buffer in recommended locations and prevention of further floodplain development. It is also recommended to establish a riparian buffer in appropriate locations by planting native trees and shrubs along the streambank and adjacent upland areas. Buffer width should be increased by the greatest amount agreeable to the landowners. Increasing the buffer width to at least 100-feet will increase the buffer's functionality and protect the stream from nearby land uses. Once the proposed planting is complete, the majority of the 100 year floodplain on the property will be forested.

Landowner Issues / Concerns

Mr. Slutzky is interested in enhancing the riparian buffer on his property which is routinely flooded. He does not participate in any other watershed programs at this time, has completed a CSBI application form, and is agreeable to a buffer width of 100-feet and buffer length of 950-feet. He has signed a five year landowner agreement which specifies the terms of the work being conducted on the property by GCSWCD. Mr. Slutzky has also indicated a willingness to host a group of student volunteers for project installation. As shown below, this riparian buffer planting will tie in to a 2009 planting installed by GCSWCD on the two adjacent parcels downstream creating a vegetated riparian corridor of over 2,000 feet.

Aerial map showing riparian planting area along the Schoharie Creek

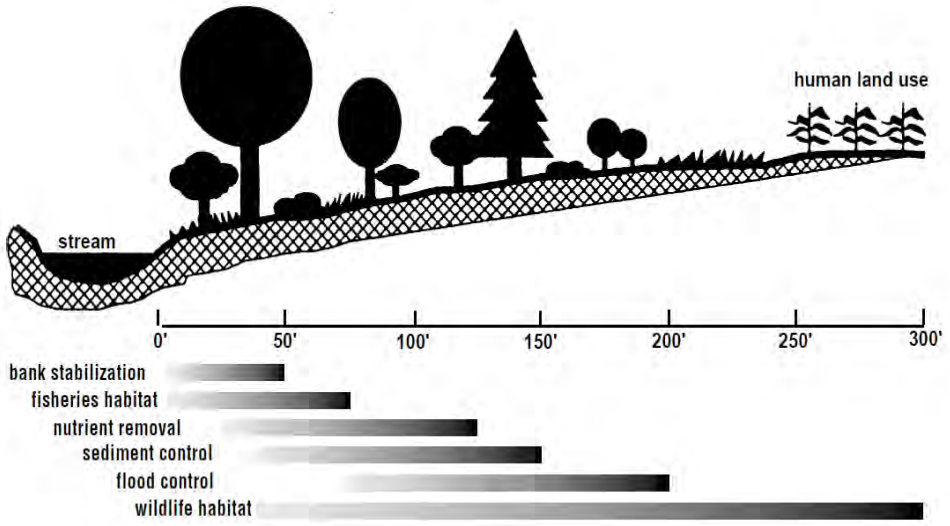
Landowner Goals

1) Establish riparian buffer
2) Plant native trees and shrubs to enhance buffer
3) Maintain pasture for horses
4) Maintain access to water for withdrawal for future reservoir
4) Maintain overflow parking area for Mountain Jam festival (according to Michelle Yost)

Recommendations – Best Management Practices (BMPs)

1) Apply to CSBI for funding support to install one or more of the practices below.

2) Establish a riparian buffer 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 native trees and shrubs along streambanks and floodplains is one of the most cost effective and self-sustaining methods for landowners to protect streamside property**.** Planting additional native species such as willow can help restore the riparian buffer to stabilize the streambanks. Native species are recommended due to their adaptation to our regional climate and soil conditions and because they typically require less maintenance than exotic species following planting and establishment.



3) Fence off buffer planting to ensure horses do not eat or damage newly planted trees and shrubs. Fencing is useful to control grazing in the riparian area where the goal is to establish woody vegetation. Excluding livestock initially from the buffer area will protect vegetation (stems and roots) that might otherwise be trampled and damaged. Fencing is needed to protect high-value plantings especially during establishment.

4) Use vegetative treatments such as dormant posts and stakes to address minor localized erosion. Bioengineering, the use of live vegetation to stabilize soils associated with streambanks, can be used at

this location. Dormant cuttings from appropriate species, such as willows and dogwoods, quickly establish vegetation on the banks. Live posts and stakes are cut from living willow shrubs when the shrub is dormant (usually during the fall or early spring). 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. A dormant post detail drawing is attached.

5) 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.

6) Be on the lookout for 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 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 stabilize stream banks as well as native species. Furthermore, it is a very resilient plant, and simply cutting it down without proper disposal can potentially make the problem worse. See the link below (in the Appendix) for tips on controlling Japanese knotweed.

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

Project Proposal

The scope of the proposed project includes riparian buffer plantings of trees and shrubs on both sides of Deming Road. This riparian buffer planting of native vegetation is intended to enhance the overall ecological function of the riparian corridor.

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. Native Trees and Shrubs
4. Installation of Plant Materials
5. A Landowner's Guide to Vegetation Management

Resources and References

Schoharie Creek Management Plan
http://www.catskillstreams.org/Schoharie_Creek_Management_Plan.html

Schoharie Creek Management Unit 7
http://www.catskillstreams.org/pdfs/SCSMP/27_MU7.pdf

Catskill Streams Buffer Initiative
http://catskillstreams.org/CSBI/

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

Introduction to Riparian Buffers Fact Sheet
http://northjerseyrcd.org/upload/uploads/Intro.pdf

Floodplains
http://www.dnr.state.oh.us/Portals/7/pubs/pdfs/fctsht50.pdf

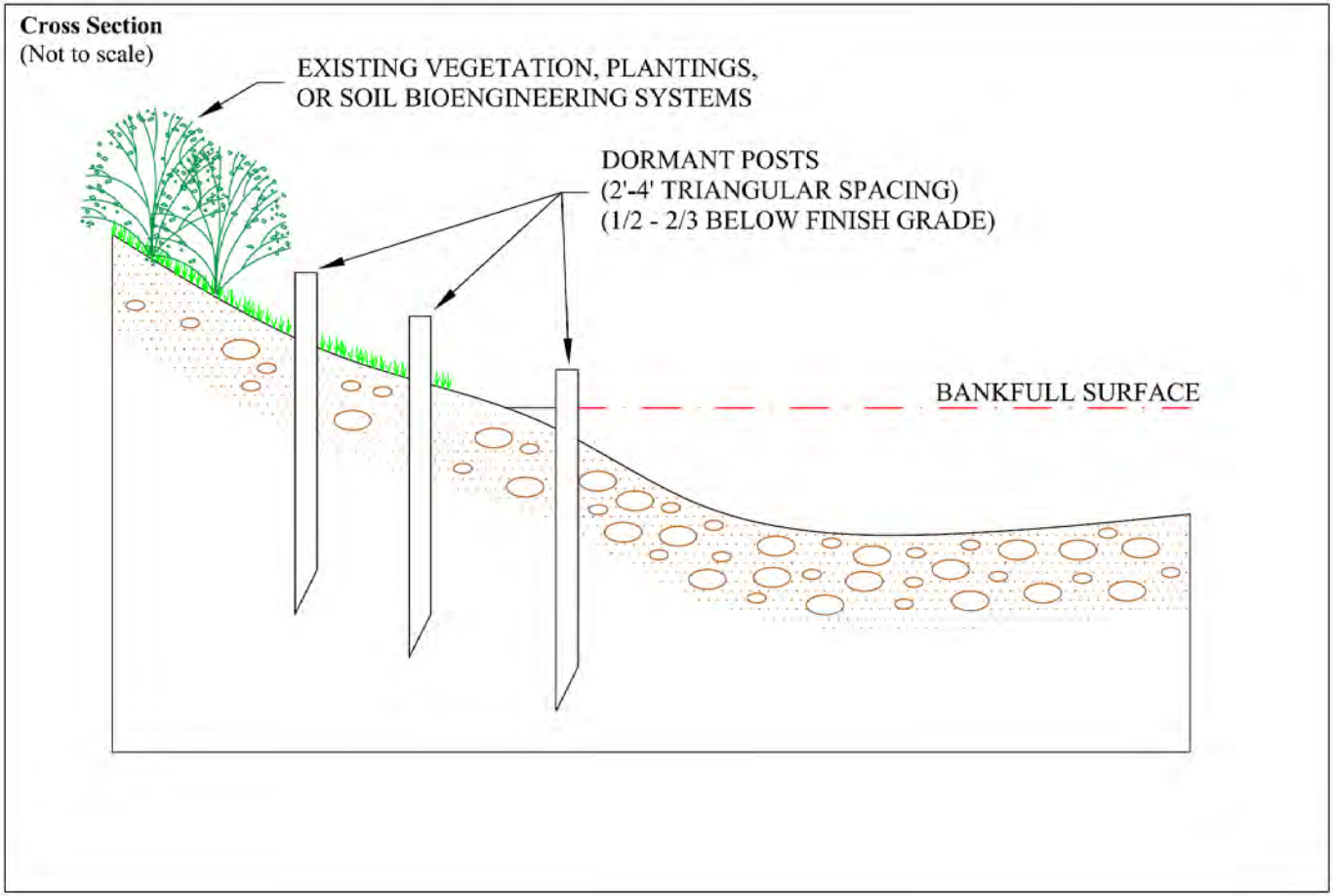
DEC Environmental Resource Mapper
http://www.dec.ny.gov/animals/38801.html

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

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

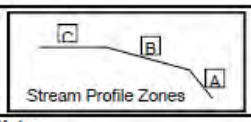
Burns, D.A., Klaus J., and McHale M.R. (2006). Recent Climate Trends and Implications for Water Resources in the Catskill Mountain Region, New York, USA. Journal of Hydrology.

DORMANT POST DETAIL (VS-03a)



Slutzky Riparian Planting Plan
Schoharie Creek

Site Details
950 ft x 50 ft
47,500 sq ft
1.09 acres
793 trees and shrubs with 8 x 8 spacing



	Latin Name	Wetland Indicator	Native	Location	Spacing (ft)	Total #	Notes
Evergreen transplants							
White pine	Pinus strobus	FACU	Y	C	8	67	
White cedar	Thuja occidentalis	FACW	Y	B	8	35	
Eastern hemlock	Tsuga canadensis	FACU	Y	C	8	63	
White spruce	Picea glauca	FACU	Y	C	8	63	
						228	
Hardwoods							
Paper birch	Betula papyrifera	FACU	Y	C	8	10	
River birch						15	
Gray birch	Betula populifolia	FAC	Y	C	8	22	
Sweet birch	Betula lenta	FACU	Y	C	8	32	
American hornbeam	Carpinus caroliniana	FAC	Y	B-C	8	10	
Red maple	Acer rubrum	FAC	Y	C	8	30	
Silver maple	Acer saccharinum	FACW	Y	B	8	22	
American sycamore	Platanus occidentalis	FACW	Y	B	8	7	
Quaking aspen	Populus tremuloides	FACU	Y	C	8	27	*shade intolerant*
White oak	Quercus alba	FACU	Y	C	8	22	
Red oak	Quercus rubra	FACU	Y	C	8	70	
Black ash	Fraxinus nigra	FACW	Y	B	8	37	
White ash	Fraxinus americana	FACU	Y	B	8	10	
Pin cherry	Prunus virginiana	FACU	Y	C	8	10	*plant in sun*
						324	
Shrubs							
Speckled alder	Alnus rugosa	FACW	Y	B	8	12	
Meadowsweet	Spirea alba	FACW	Y	B	8	37	
Elderberry	Sambucus canadensis	FACW	Y	B	8	37	
Shadblow serviceberry	Amelanchier canadensis	FAC	Y	C	8	32	
Redosier dogwood	Cornus sericea	FACW+	Y	A-B-C	8	14	
Grey dogwood	Cornus racemosa	FAC	Y	C	8	25	
Silky dogwood	Cornus amomum	FACW	Y	A-B	8	37	
Chokecherry	Prunus virginiana	FACU	Y	C	8	12	
Nannyberry	Cephalanthus occidentalis	OBL	Y	A	8	15	
Arrowwood	Viburnum dentatum	FAC	Y	C	8	20	
						241	
				TOTAL PLANTS		793	

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%).