Riparian Corridor Management Plan Schoharie Creek

Kelly Property – Tannersville, NY



January 7, 2011

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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 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 Kelly property on Platte Clove Road

Site Visit Description / Existing Conditions

The Kelly property is 2.33 acres in size, and is used as a secondary residence on Platte Clove Road in the Town of Hunter. The southern property boundary is the Schoharie Creek, a C (TS) stream suitable for trout spawning. The drainage area for this location is 13.2 mi² including runoff from portions of High Peak, Roundtop Mountain, Spruce Top, Sugarloaf Mountain, Pecoy Notch, and Indian Head Mountain. Approximately 97.9% of the drainage area is covered by forest.



USGS Topo map – Kelly property outlined in turquoise

The soil type within the project area is identified as Lewbeach and Willowemoc channery silt loams, 3 to 15 percent slopes (LIC), which is derived from reddish sandstone,

siltstone and shale and is very stony.¹ Most areas with this soil type are used as woodland. Native trees found in this soil type are maple, black cherry, beech, ash, hemlock, and white pine.

Land-use / land-cover in this Schoharie Creek reach is a mix of forest, shrubland, palustrine wetland, and limited residential development. During a site visit in the fall of 2010, minor erosion was evident along 250 feet of the right bank (looking downstream). Beaver activity was visible throughout the property, and is most likely a contributor to several leaning and damaged trees along the stream bank. The bank is 12 - 18 inches in height, and for the most part is well vegetated with mature evergreens. There are some patches of herbaceous ground cover in the sunny patches along the right stream bank, which although healthy, could be susceptible to some erosion due to its shallow rooting depth. This herbaceous cover consisted of a diversity of native grasses, sedges, and asters.

The primary residence on the Kelly parcel is located at the top of a steep hill slope facing the stream. A significant amount of yard debris (branch cuttings, wood piles, etc.) had been placed at the top of this slope. Although the slope is well vegetated with mature trees and appears relatively stable at this point in time, adding the weight of yard debris can add excess stress and lead to slope failures.

Historic Conditions

The Schoharie Creek is one of three major sub-basins of the Schoharie Watershed which provides drinking water to the residents of New York City. Greene County Soil and Water Conservation District (GCSWCD) completed the Schoharie Creek Management Plan in 2007. In the development of this plan, it was determined that the Kelly parcel is located upstream of Management Unit 1.



Beaver dam, September 2010

Due to its rural nature and headwater location in the watershed, this section of the Schoharie has a lot of beaver activity. While beaver impoundments can sometimes be a nuisance, beavers have historically played a beneficial and ecologically important role in the stream system. Beaver activity adds organic debris (trees, leaves, etc. which provide the base of the food chain), reduces water velocities and flood-related hazards downstream, and creates wetland areas that filter sediment and release water to the stream and groundwater slowly throughout the year.

Landowner Issues / Concerns

Mrs. Kelly and her husband have

expressed concerns about erosion occurring on their property's stream banks along the Schoharie Creek. She estimates the total land loss over 30 years has been 15 feet.

Mrs. Kelly is also concerned about the appearance of green algae in water occurring as a result of a beaver dam slowing the water velocity. The pond behind a beaver dam retains nutrients which support the growth of algae, microorganisms, invertebrates and plants. Although the appearance of

algae is unsightly, it is the basis of the food chain in this type of ecosystem.

Beavers can heavily damage riparian plantings, usually most severely in the sapling stage. Most damage occurs in the fall as the beavers are preparing their winter cache of browse. The tree species preferred by beavers include alder, aspen, birch, cottonwood, maple, poplar and willow. Beaver activity is a natural occurrence in the Catskill region, and it is a goal of the CSBI program to enhance riparian zones using methods that are sustainable to local wildlife populations. Under the appropriate conditions, efforts can be made to help prevent planted trees from being damaged by beavers, including the installation of a collar of galvanized steel screening.

The most functional riparian buffers are vegetated with a variety of native plants, including trees and shrubs. Although there is a healthy

herbaceous ground cover at this site, planting additional native shrub species can help restore the riparian buffer to

help prevent future bank erosion.

Mrs. Kelly does not participate in any other watershed programs at this time.

Landowner Goals

- 1) Reduce erosion
- 2) Enhance wildlife habitat
- 3) Improve fish habitat
- 4) Improve aesthetics



Evidence of recent beaver activity in fall 2010

Recommendations – Best Management Practices (BMPs)

1) 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 or cutting vegetation within the riparian 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.

2) Enhance the 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 stream banks and floodplains is one of the most cost effective and self-sustaining methods for landowners to protect streamside property. 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) Underplant the streamside area where trees are falling with native shrubs. Supplementing the existing forest with some native shrubs will help hold the banks in place. Native plants are naturally resistant to insect pests and diseases and by planting them you are helping prevent establishment and spread of invasive non-native plants.

4) Stop adding heavy debris to high slopes. Excess weight from accumulation of yard waste (see figure below) may stress slopes and increase the likelihood of slope failure. Dispose of yard debris away from the stream banks and hill slope.



5) 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). 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. Onsite willows can be used for this treatment.

6) Consider cutting mature, falling trees above beginning of root ball. If the fallen trees become a problem, buck up trunk into smaller (floatable) pieces and leave in place or remove for use elsewhere. Leave root ball in place in bank. Do not cut mature vegetation along the stream bank or hill slope if it is not fallen or severely leaning in a way that is detrimental to the slope.

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 planting native trees and shrubs amongst existing riparian forest, specifically in areas where bank erosion is occurring. This riparian buffer planting is intended to enhance the overall ecological function of the riparian corridor, as well as help to prevent future bank erosion.

In order to proceed with a riparian buffer enhancement project, the landowner must sign a written agreement which specifies the terms of the work being conducted on the property. GCSWCD offers multiple options for these agreements to ensure that each landowner has the opportunity to agree to the terms that best suit their goals. The landowner agreement options range from a basic license agreement to conduct the specified work, to easements which ensure the conservation of the planted buffer over a longer period of time. CSBI coordinators are happy to provide landowners with detailed descriptions of the terms associated with each agreement option.

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

Catskill Streams Buffer Initiative

http://catskillstreams.org/CSBI/

Introduction to Riparian Buffers Fact Sheet

http://northjerseyrcd.org/upload/uploads/Intro.pdf

Restoring Streambanks with Vegetation

http://www.dnr.state.oh.us/Portals/7/pubs/fs_st/stfs07.pdf

Riparian Buffers

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

Beaver Solutions

http://www.beaversolutions.com/tree_protection.asp

Soils

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

Invasive Species Information

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

Japanese Knotweed Information

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

DEC Environmental Resource Mapper

http://www.dec.ny.gov/animals/38801.html



Kelly Riparian Planting Plan Schoharie Creek							
Site Details							
250 ft x 25 ft							
6250 sq ft							
0.14 acre							
94 trees and shrubs with 8 x 8 spacing		Wetland					Stream Profile Zones
	Latin Name	Indicator	Native	Location	Spacing (ft)	Total #	Notes
Evergreen transplants							
White pine	Pinus strobus	FACU	Y	С	8	5	
Red spruce	Picea rubens	FACU	Y	С	8	5	
White cedar	Chamaecyparis thyoides	OBL	Y	А	8	5	RPM - shade tolerant
Eastern hemlock	Tsuga canadensis	FACU	Y	С	8	5	
						20	
Hardwoods							
American hornbeam	Carpinus caroliniana	FAC	Y	B-C	8	5	Greenbelt
River birch	Betula nigra	FACW	Y	В	8	5	
Sweet birch	Betula lenta	FACU	Y	С	8	2	RPM
Red maple	Acer rubrum	FAC	Y	B-C	8	5	
White oak	Quercus alba	FACU	Y	C-B	8	5	
Pin oak	Quercus palustris	FACW	Y	В	8	5	
Red oak	Quercus rubra	FACU	Y	С	8	1	w/ large silky willow in pot!
Pin cherry	Prunus pensylvanica	FACU	Y	С	8	5	
						33	
Shrubs							
Arrowwood	Viburnum dentatum	FAC	Y	В	5	5	fruits eaten by ruffed grouse & chipmunks
Elderberry	Sambucus canadensis	FACW	Y	В	5	5	
Meadowsweet	Spirea alba	FACW	Y	В	5	3	RPM
Shadblow serviceberry	Amelanchier canadensis	FAC	Y	С	5	7	
Speckled alder	Alnus rugosa	FACW	Y	В	5	2	RPM
Redosier dogwood	Cornus sericea	FACW	Y	A-B-C	5	5	
Witch hazel	Hamamelis virginiana	FAC	Y	B-C	5	5	
Button bush	Cephalanthus occidentalis	OBL	Y	A	5	2	
Silky dogwood	Cornus amomum	FACW	Y	A-B	5	7	
						41	
	TOTAL PLANTS					94	

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%).