Riparian Corridor Management Plan
East Kill
Dodson / McCloskey Property – Jewett, NY

March 18, 2010

Prepared by:

Laura Weyeneth
Catskill Streams Buffer Initiative Coordinator
Greene County Soil and Water Conservation District
Cairo, NY

Catskill Streams Buffer Initiative

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.

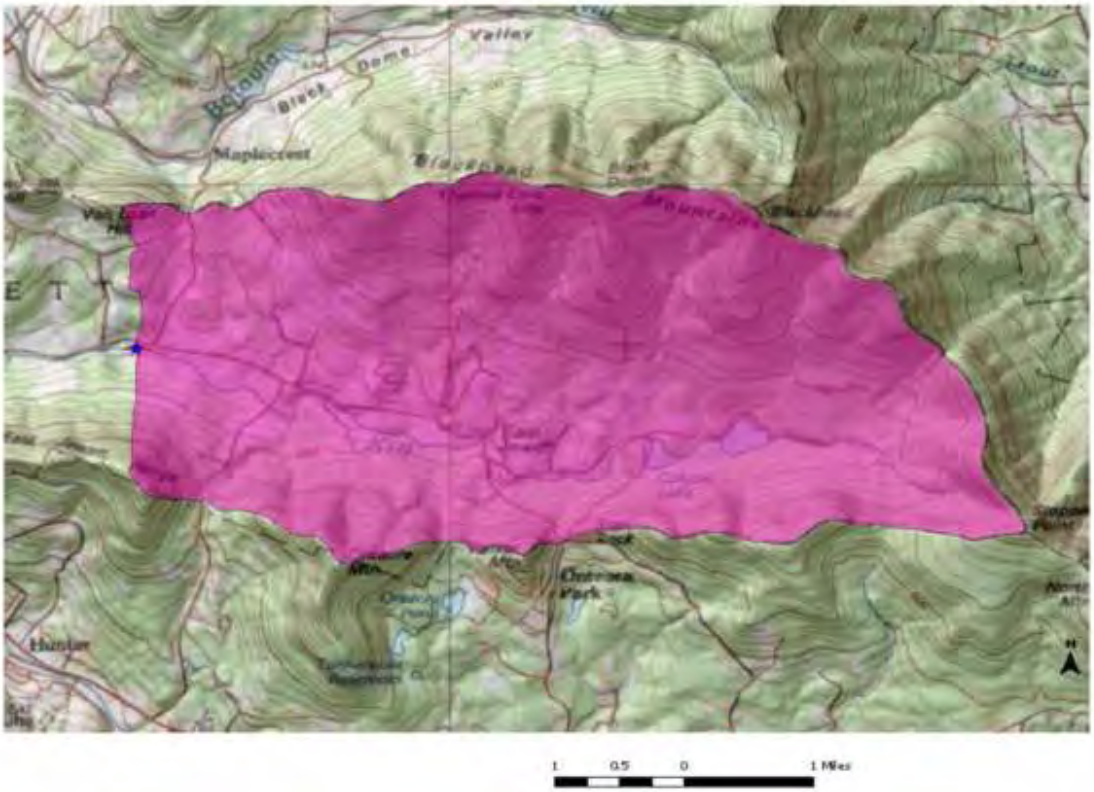
Any watershed landowner with property within the mapped buffer area can receive technical assistance and a Riparian Corridor Management Plan.

Aerial view of Dodson/ McCloskey property

Site Visit Description / Existing Conditions

The Dodson / McCloskey parcel adjacent to the East Kill has recently been experiencing a small amount of land loss with each high water event. The drainage area for the property is 18.59 mi^2, as seen in the map below, and includes runoff from portions of the East Jewett Range, Onteora Mountain, the Blackhead Mountains and Stopped Point. Approximately 96.2% of the drainage area is covered by forest. Land-cover in the reach is a mix of forest, shrubland, palustrine wetland, and limited residential development. In the area where minor erosion is occurring on the property along 250 feet of streambank, no deep rooted woody vegetation was visible next to the stream during a site visit in the winter of 2010. Downstream, on the outside of the stream bend, several mature maple trees along the right bank are at risk of being washed out due to undercutting of the lower portion of the streambank.

The soil type within the project area is identified as Basher silt loam (Bs) which consists of very deep, moderately well drained soils formed in recent alluvial deposits derived from acid, reddish siltstone, sandstone, and shale. Mean annual temperature is 50 degrees F., and mean annual precipitation is 48.3 inches. Depth to high water table is 1.5 to 2.0 feet with occasional flooding. Most areas with this soil type have been cleared and are used to grow corn, small grains, hay, vegetable crops, and pasture. Woodlots contain maple, oak, hemlock, and white pine.[1]



USGS StreamStats map showing Drainage Area for Dodson/McCloskey property

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

Historic Conditions

Greene County Soil and Water Conservation District (GCSWCD) completed the East Kill Stream Management Plan in 2007. The Dodson/McCloskey parcel that GCSWCD visited in February 2010 is located in Management Unit 5. Although historical stream channel alignments show the planform of the channel alignment has not changed significantly over the years along this management unit and the channel has remained fairly stable, bank erosion was noted along the Dodson/McCloskey parcel during the stream feature inventory as seen in the map below. (Red lines indicate locations of bank erosion.)

East Kill Management Unit 5 Stream Feature Inventory with 2009 aerial photograph

Sediment deposition can be seen on aerial photos directly downstream of the private bridge located just upstream of the Dodson/McCloskey property. Excessive sediment deposition upstream and downstream of a bridge commonly occur when an inadequately sized bridge opening causes water to back up upstream of the bridge and reduces stream velocity. As stream velocity slows, sediment drops out causing aggradation of the channel bed. The height and width of this bridge opening posed a constriction to flow. In high stage, floodwater can seek conveyance through alternative paths, forming new channels around the bridge constriction, as appeared to have happened at this site.

Following the 1996 flood, DEC issued an emergency stream disturbance permit (Station 43888) for flood repairs upstream and downstream of the bridge including, removal and excavation of sand and gravel to restore stream flows to pre- flood conditions. A second stream disturbance permit was issued in 2006 to remove sediment downstream of the private bridge; this permit was also issued for the removal of the existing bridge and replacement with a more appropriately sized bridge span that will convey flow during high-water.

Also in 1996, a stream disturbance permit was issued for the removal of tree and brush debris, and excavation of sand and gravel to restore stream flows to pre-flood conditions along 1,500 feet of stream near station 43900.

The Stream Management Plan recommends that management efforts in this unit should focus on preservation of existing wetlands and forested areas and improvements to the riparian buffer by planting *herbaceous* areas and revetted stream banks with native trees and shrubs. Recommendations for this management unit also include establishing a riparian buffer in appropriate locations by planting native trees and shrubs along the streambanks and upland area. 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.

Landowner Issues / Concerns

The landowners have expressed concerns about erosion occurring on the East Kill segment that runs along the back of their property. Heavy rains and two to three high water events each year have led to increased erosion. Localized erosion was noted at the site visit on the right streambank. The ground cover is primarily herbaceous although the ground was covered in snow at the time of the site visit. Planting additional native species such as willow and alder can help restore the riparian buffer to stabilize the streambanks.

There is a small patch of Japanese knotweed that is not too large to eradicate. It would be beneficial to remove the knotweed before it spreads and replant the disturbed area with native species.

Downstream view, March 2010

Landowner Goals

1) Stabilize streambank
2) Plant riparian buffer species
3) Remove Japanese knotweed

Landowner has signed a 10 year temporary easement. Buffer width of approximately 100 ft. is acceptable. Buffer length of 250 ft. has been requested. Mr. Dodson and Mrs. McCloskey do not participate in any other watershed programs at this time.

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 of deep rooted woody vegetation to maintain bank stability**.** 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**.** 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) 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.

4) 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. A live fascine 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) Remove 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 Resources list) to learn how to identify and control Japanese Knotweed.

7) Consider cutting mature trees (at risk of falling) on severely undercut banks above beginning of root ball. Buck up trunk into smaller (floatable) pieces and leave in place or remove for use elsewhere. To minimize soil loss and further erosion of undercut banks, leave root ball in place in bank.

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

Resources and References

East Kill Stream Management Plan
http://www.catskillstreams.org/East_Kill_Stream_Management_Plan.html

East Kill Management Unit 5
http://www.catskillstreams.org/pdfs/EKSMP/25_MU5.pdf

Catskill Streams Buffer Initiative
http://www.catskillstreams.org/pdfs/CSBI_application.pdf

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

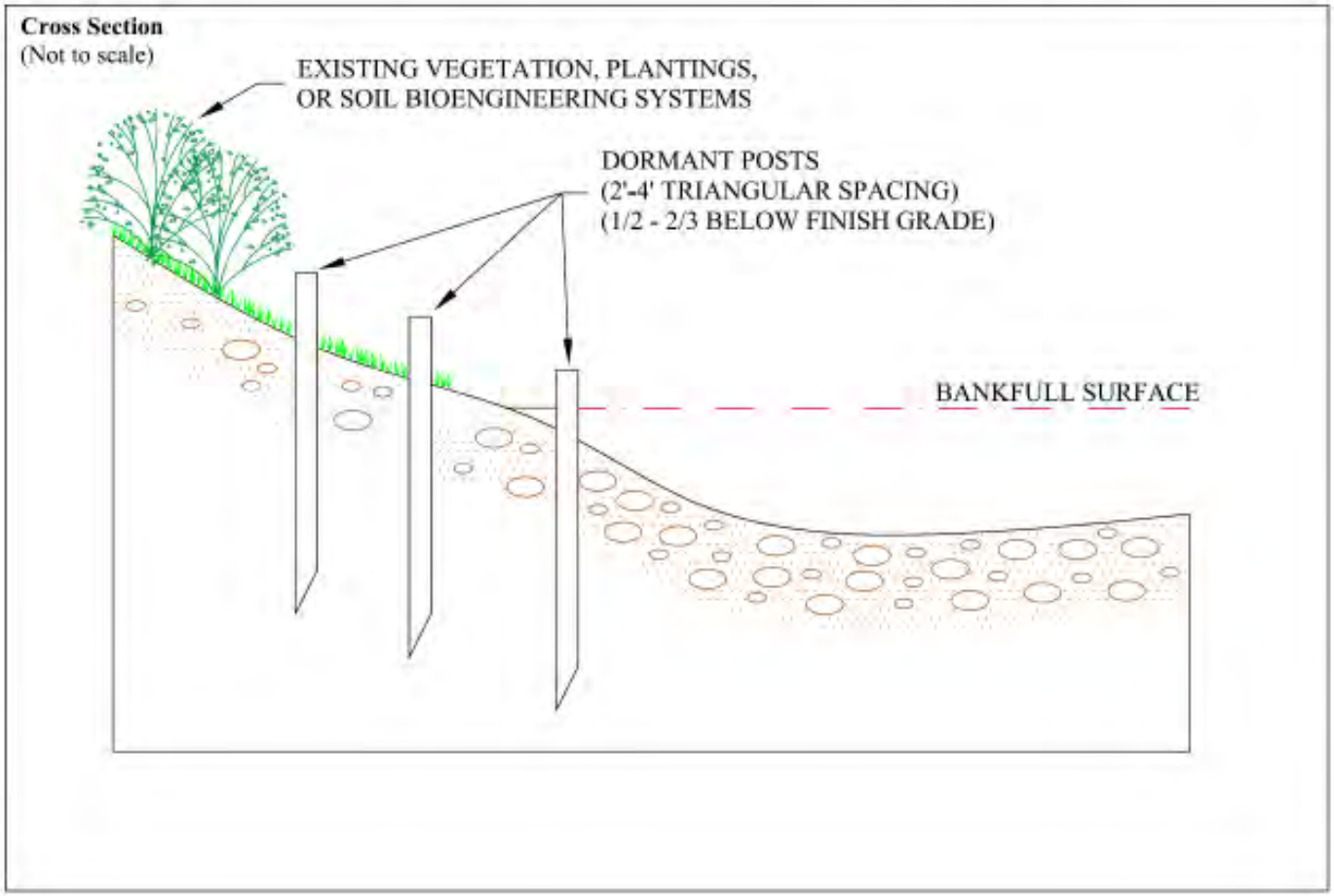
Fascines
Ohio Stream Management Guide
http://www.dnr.state.oh.us/Portals/7/pubs/fs_st/stfs14.pdf

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

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

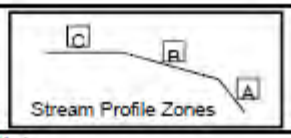
Soils
National Cooperative Soil Survey
Official Series Description Series, 1999
http://soils.usda.gov/technical/classification/osd/index.html
http://www2.ftw.nrcs.usda.gov/osd/dat/B/BASHER.html

DORMANT POST DETAIL (VS-03a)



Dodson / McCloskey Riparian Planting Plan
East Kill

Site Details
300 ft x 100 ft
30,000 sq ft
.68 acre
300 trees and shrubs with 10 x 10 spacing



	Latin Name	Wetland Indicator	Native	Location	Spacing (ft)	Total #	Notes
Evergreen transplants							
White pine	Pinus strobus	FACU	Y	C	10	30	
Eastern hemlock	Tsuga canadensis	FACU	Y	C	10	20	
White spruce	Picea glauca	FACU	Y	C	10	15	
						65	
Hardwoods							
Paper birch	Betula papyrifera	FACU	Y	C	10	15	
Gray birch	Betula populifolia	FAC	Y	C	10	10	
Silver maple	Acer saccharinum	FACW	Y	B-C	10	5	
Sugar maple	Acer saccharum	FACU	Y	C	10	15	
Red maple	Acer rubrum	FAC	Y	C	10	20	
White oak	Quercus alba	FACU	Y	C	10	10	
Red oak	Quercus rubra	FACU	Y	C	10	15	
Green ash	Fraxinus pennsylvanica	FACW	Y	B	10	15	
Black ash	Fraxinus nigra	FACW	Y	B	10	10	
Black cherry	Prunus serotina	FACU	Y	C	10	10	*plant in sun*
						125	
Shrubs							
Speckled alder	Alnus rugosa	FACW	Y	B	10	20	
Black willow	Salix nigra	FACW	Y	B	10	15	
Elderberry	Sambucus canadensis	FACW	Y	B	10	10	
Shadblow serviceberry	Amelanchier canadensis	FAC	Y	C	10	15	
Redosier dogwood	Cornus sericea	FACW+	Y	A-B-C	10	20	
Silky dogwood	Cornus amomum	FACW	Y	A-B	10	30	
Arrowwood	Viburnum dentatum	FAC	Y	C	10	15	
						110	
				TOTAL PLANTS		300	

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%).