East Kill Management Unit 8

Town of Jewett – Route 296 Bridge (Station 26386) to Station 15760

This management unit began at the Route 296 Bridge (#1045150), and continued approximately 10,626 ft. to Station 15760.

Stream Feature Statistics

8.6% of stream banks experiencing erosion
1.2% of stream banks have been stabilized
0% of stream banks have been bermed
505 feet of clay exposures
24.4 acres of inadequate vegetation
405 feet of road within 300ft. of stream

Management Unit 8 location
see Figure 4.0.1 for more detailed map

Summary of Recommendations Management Unit 8	
Intervention Level	Assisted Self-Recovery
Stream Morphology	No recommendations at this time
Riparian Vegetation	Treat, remove and prevent the spread of Japanese knotweed where feasible. Monitor Japanese Knotweed and eradicate new introductions. Increase width of riparian buffer in appropriate locations.
Infrastructure	Interplant rip-rap installations
Aquatic Habitat	Watershed Aquatic Habitat Study
Flood Related Threats	No recommendations at this time
Water Quality	No recommendations at this time
Further Assessment	Establish monitoring for proposed Bank Erosion Monitoring Site (Station 24278 – 24045). Consider hydraulic analysis of private bridge opening

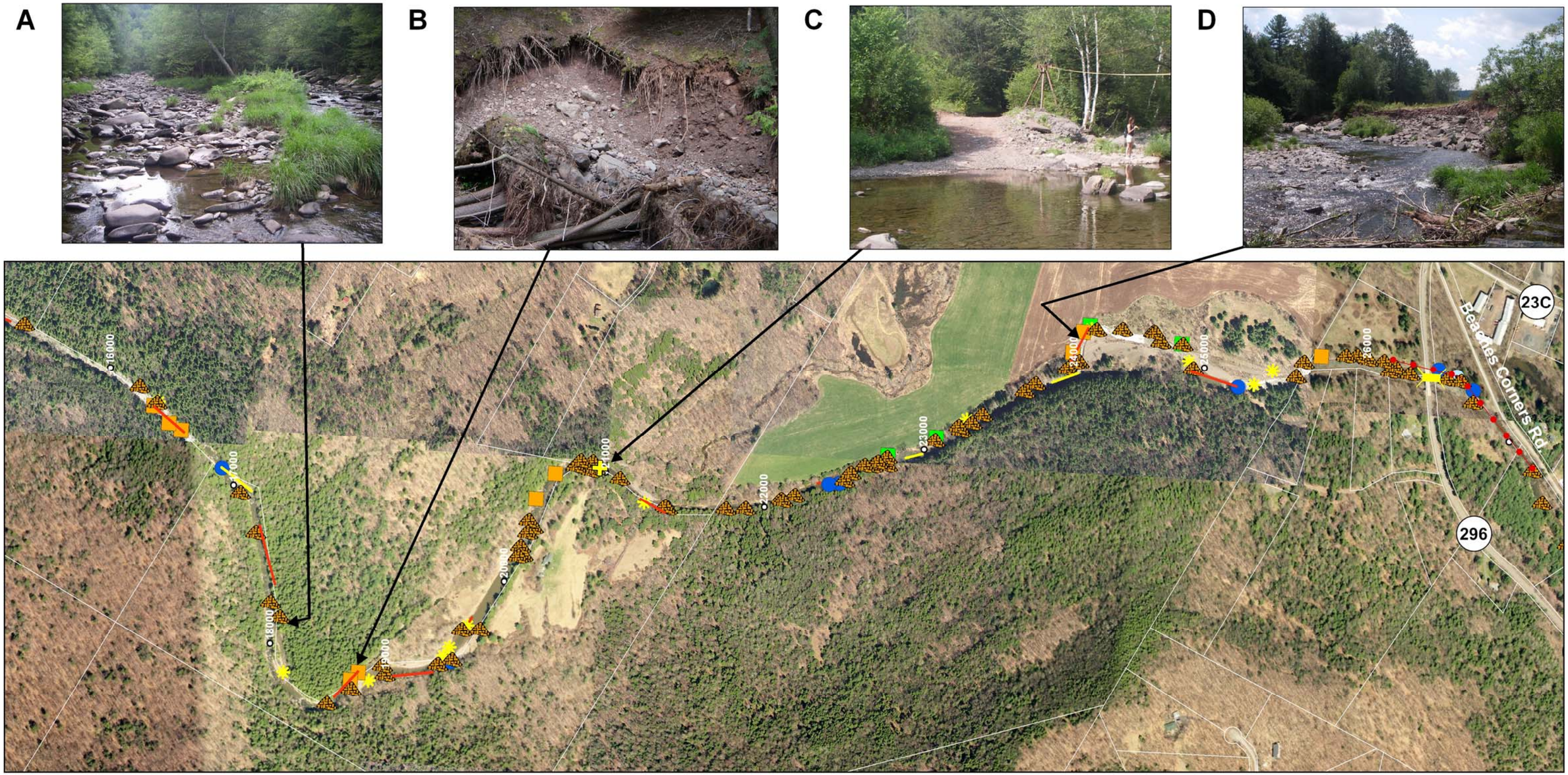
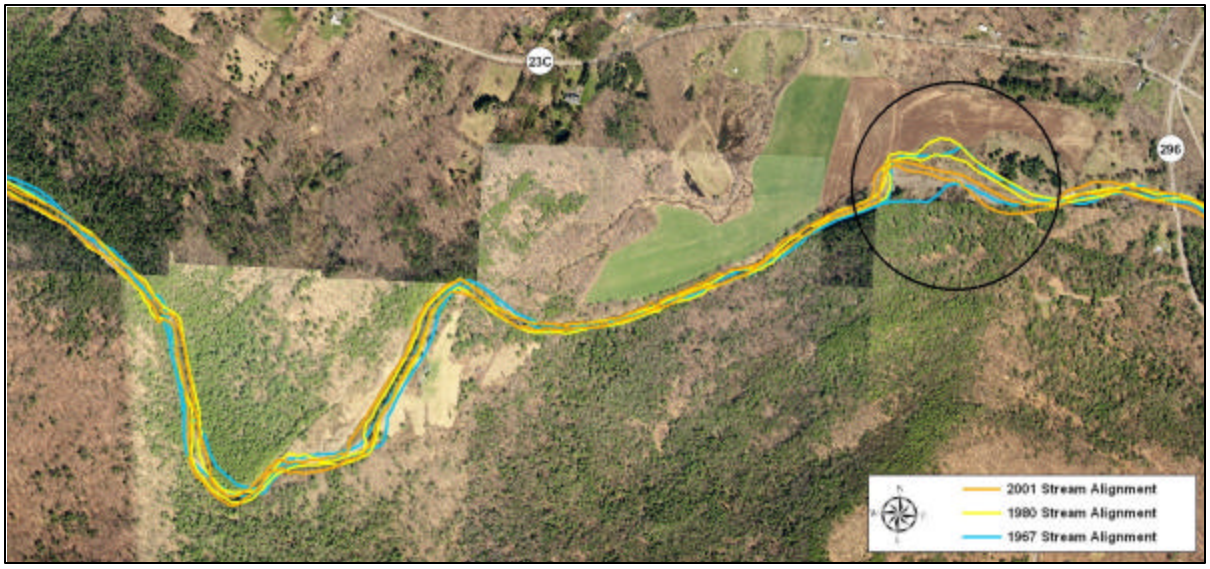


Figure 4.8.1 Management Unit 8 - 2006 aerial photography with stream feature inventory

Historic Conditions



Historic stream channel alignments overlayed with 2006 aerial photograph

As seen from the historical stream channel alignments (above), the *planform* of the channel alignment has not changed significantly over the years along much of this management unit; the channel has remained fairly stable. However, there has been lateral migration of the channel along the upstream portion of this management unit as indicated on the alignment map above (between Stations 25500 and 24000).

As of 2006, according to available NYS DEC records dating back to 1996, there have been no stream disturbance permits issued in this management unit.

Stream Channel and Floodplain Current Conditions (2006)

Revetment, Berms and Erosion

The 2006 stream feature inventory revealed that 8.6% (1,823 ft.) of the stream banks exhibited signs of active erosion along the 21,253 ft. of total channel length in the unit (Figure 4.8.1). *Revetment* had been installed on 1.2% (262 ft.) of the stream banks. No berms were identified in this management unit at the time of the stream feature inventory.

Stream Channel Conditions (2006)

The following description of stream channel conditions references insets in foldout, Figure 4.8.1. Stream stationing presented on this map is measured in feet and begins at the

confluence with the Schoharie Creek at Jewett. "Left" and "right" stream bank references are oriented looking downstream, photos are also oriented looking downstream unless otherwise noted. Italicized terms are defined in the glossary. This characterization is the result of an assessment conducted in 2006.

Management unit #8 began at the Route 296 Bridge. The drainage area ranged from 25.76 mi^2 at the top of the management unit to 29.33 mi^2 at the bottom of the unit. The valley slope was 0.75%.

Valley *morphology* was relatively unconfined with a broad glacial and *alluvial* valley flat along the majority of the management unit. Along the downstream portion of this unit, valley morphology was laterally controlled by a narrow valley floor. Generally, stream conditions in this management unit were somewhat unstable. There were nine eroding banks documented in this management unit, including two mass failures. 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.

1980 USGS topographic map – Ashland and Lexington Quadrangles - contour interval 20ft

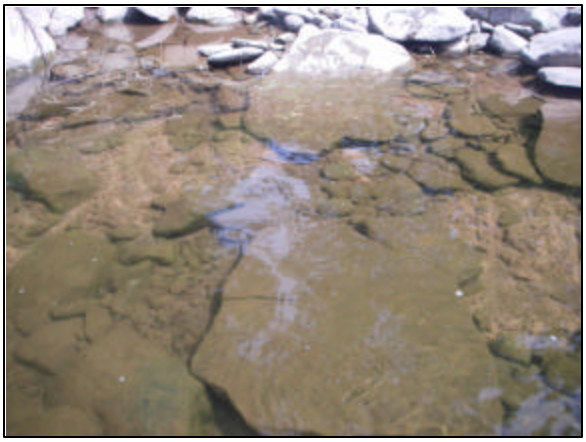
This management unit began as the stream flowed under the Route 296 bridge (Station 26386, Bridge # 1045150). There were aggradational conditions upstream and downstream of the bridge, which is commonly caused by inadequate sizing of the bridge opening. An undersized bridge opening causes water to back up upstream of the bridge, reducing stream velocity, which results in sediment deposition. While bankfull flows may

Route 296 Bridge at Station 26386

flow freely through this bridge, higher flows may backwater, resulting in upstream aggradation. If this bridge is replaced in the future, it is recommended that a hydraulic analysis be conducted in order to determine the appropriate bridge width that will provide the capacity to convey flood flows through the opening. Rip-rap (Stations 26386 – 26124) continued from management unit #7 into this unit, reinforcing approximately 262 feet of the right stream bank. The revetted bank downstream of the bridge had herbaceous vegetation established throughout the rip-rap. Interplanting native shrub and sedge species through the rip-rap and along the toe of this streambank is recommended. This planting will help to strengthen the revetment, while enhancing aquatic habitat.

Downstream of the bridge, along the left stream bank, there was a channel *divergence* (Station 26138) where a flood chute split off from the main channel. Flood chutes convey flow through a secondary channel during periods of high flows; this flood chute converges (Station 25561) with the main channel approximately 577 feet downstream. Along the right stream bank, there was a Japanese knotweed stand. Japanese knotweed is an invasive non-native species which does not provide adequate erosion protection due to its very shallow rooting system, and it also grows rapidly to crowd out more beneficial streamside vegetation. Where feasible, removal of Japanese knotweed is recommended to prevent further spread of this invasive specie (See Section 2.7 Riparian Vegetation).

Along the right channel bed, there was a clay exposure (Station 25739). Clay inputs into a stream are a serious water quality concern because they increase *turbidity,*



Clay exposure at Station 25739

degrade fish habitat, and can act as a carrier for other pollutants and pathogens.

Woody debris at Station 25423

Continuing downstream, there was a flood chute along approximately 797 feet of the right stream bank (Stations 25618 – 24821); the flood chute channel was comprised of cobble and there was herbaceous vegetation and willows at the divergence and at its' confluence with the East Kill. Large amounts of woody debris (Station 25423) had accumulated along the flood chute.

Along the stream there was a large complex of federally designated wetlands. The first wetland (Stations 25400 – 24328) of this complex was a 2.7 acre riverine wetland classified as R3USA, followed by a 1.9 acre palustrine wetland (Stations 24753 – 24071) dominated by woody vegetation and classified as PSS1A. The third wetland (Stations 24449 – 23842) was a 1.8 acre riverine wetland classified as R3USA (see Section 2.6 for detailed wetland type descriptions). 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.

Wetland boundary approximately delineated by NWI (Stations 25400 - 23842)

Along the upstream portion of this wetland complex, an unnamed tributary (Station 25224) entered along the left stream bank. At the time of the assessment, there was excess sandy deposition at the confluence and flow was not visible, it may have been subsurface or intermittent. Just downstream of the tributary, the channel had

Erosion at Stations 25219 - 24929

caused approximately 1,742 ft^2 of erosion (Stations 25219 - 24929) along 290 feet of the left stream bank. Along the eroded bank there were exposed roots and some small trees had been compromised. The land use along the top of the left bank and the adjacent upland area was forested, providing a well vegetated riparian buffer. This erosion site appeared to be slowly recovering with herbaceous vegetation becoming established on the face of the bank. Along the downstream end of this erosion site, there was a divergence (Station 24956) forming multiple diffuse channels through the forested stream bank and behind the deposited *point bar* (Stations 24949 – 24066), which had abundant accumulations of woody debris. During periods of high water these channels conveyed flow for approximately 690 feet before converging (Station 24000) with the main channel. There was excessive sediment deposition at the confluence of this flood chute, it appeared to contribute to aggradational conditions observed along the main channel.

Along the meander bend downstream of the erosion site, a proposed riparian planting site (Stations 24813 – 24113) was identified on the right. The riparian zone had herbaceous vegetation with some shrubs and small trees interspersed along the top of the stream bank. A vigorous buffer with mature trees is important at this site because it may filter nutrients and pollutants, if any, from the adjacent agricultural fields. Recommendations for this site include augmentation of the existing buffer with the planting of additional native trees and shrubs along the streambank and the upland area. Increasing the buffer width to at least 100 feet will help to stabilize the stream bank and protect water quality through this reach by slowing stormwater runoff and filtering pollutants associated with nearby

Riparian planting site at Stations 24813 - 24113

land use. While riparian planting activities are appropriate along the majority of this site, careful consideration should be given to planting activities along the eroding portion (discussed below) of the site. Prior to proceeding with any work along the erosion, this site would require a more detailed assessment.

Beaver dam at Station 24274
photo orientation – looking upstream

Along the proposed planting site there was a beaver dam across most of the channel that provided a partial obstruction to flow, causing water to back-up upstream of the dam. 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.

Along the downstream portion of the proposed riparian planting site, the right stream bank had eroded (Stations 24278 – 24045, Figure 4.8.1 Inset D) along approximately 233 feet of the bank. The top of the bank had herbaceous vegetation and there were two clay exposures (Stations 24235 and 24115) along the toe of the bank and the right channel bed. During the field assessment, this bank was identified as a proposed Bank Erosion Monitoring Site (BEMS) to study erosion along this reach. To monitor BEMS, a cross-section and long profile may be conducted to collect baseline data. Once the baseline data has been collected, this cross-section can be resurveyed in the future to calculate the bank's erosion rate. Improving the riparian buffer along this site is important however, other stream bank stabilization techniques

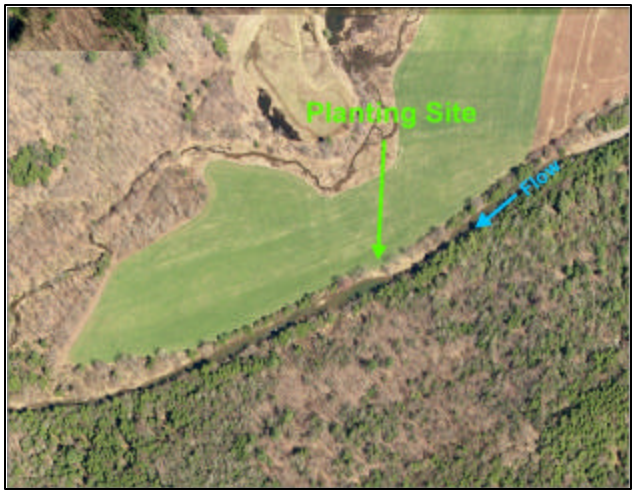
Clay exposure at Station 24235
photo orientation – looking at

Full channel aggradation at Station 24050

may be required to reinforce the bank and to minimize any loss of planted vegetation.

Along the meander bend with the planting site and wetland complex, there was excessive sediment deposition (Stations 24949 – 24050) throughout the reach including, side, *point*, and *transverse bars*, as well as full channel aggradation. Continuing downstream, there was bedrock (Stations 24021- 23861) along approximately 160 feet of the left stream bank and some of the channel bed. The bedrock provided lateral control along the left by limiting stream bank erosion. Aggradational conditions persisted downstream of the bedrock.

Continuing downstream along the agricultural fields on the right, a second proposed riparian planting site (Stations 23116 – 22800) was identified. The riparian zone along this site had herbaceous vegetation with a few small trees interspersed along the bank and a maintained field along the top of the bank. Upstream and downstream of the site (as seen in the aerial photo) the riparian zone had mature woody vegetation but the buffer was narrow. Recommendations for this site are similar to the recommendations for the first planting site and include enhancing the buffer width by planting native trees and shrubs along the bank 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 functionality, such as filtering nutrients and pollutants, if present, from the nearby agricultural fields.



Riparian planting site at Stations 23116 - 22800

Opposite the planting site, there was bedrock (Stations 22985 – 22887) along approximately 98 feet of the left bank and channel bed. The bedrock provided lateral control along the left, and provided grade control for the channel by preventing *degradation* or *downcutting* of the stream, the process by which streambeds and floodplains are lowered in elevation by eroding downward into the stream bed over time. Aggradational conditions persisted through this stretch of the stream.

Bedrock at Stations 22985 - 22887

Further downstream there were two small unnamed intermittent tributaries (Station 22468 and 22412) that entered along the left bank. An *intermittent stream* flows periodically or seasonally, and is dry for part of the year; both tributaries were flowing at the time of the assessment. Along approximately 27 feet of the right stream bank, there was a minor erosion site (Station 22371). There was a thin line of trees at the top of the bank, many of their roots had become exposed and the face of the bank had bare soil. This erosion site was along the agricultural field that had previously been identified for streamside planting upstream. Although it is a minor erosion site, and may self-recover over time, enhancing the buffer width may help to stabilize the bank and protect water quality.

Tributary at Station 22412

As the stream meandered to the right, excessive sediment deposition continued including a point bar (Stations 21411 – 21087) along the right channel bed. Point bars are commonly located on the inside of a meander bend and are caused by a decrease in the stream's capacity to transport sediment. Opposite the point bar, there was a *mass failure* (Stations 21427 – 21251) along 176 feet of the left stream bank. A mass failure is a large slope failure associated with downcutting stream channels and undermined support of steep

Mass failure at Stations 21427 - 21251

slopes. Streambank erosion often occurs on the outside of meander bends where the stream velocity is greatest during high flows. This site had an erosion area of approximately 5,261 ft^2 and mature trees had been compromised along the bank. Along the downstream portion of this erosion site, some of the trees along the toe of the bank had fallen into the stream channel. This woody debris (Station 21287) caused a minor obstruction at low flows and appeared to exacerbate the erosion upstream and downstream of the debris.

There was a 2.8 acre forested palustrine wetland (Stations 21700 – 20900) that was set back approximately 490 feet from the right stream bank at its upstream end and extended across both banks at its downstream end. This wetland was classified as PFO1C (see Section 2.6 for detailed wetland type descriptions). Along this wetland, there was a channel divergence (Station 21066) where a flood chute split off from the main channel. At the time of the assessment, the location of the channel convergence was not observed. There was also an unnamed tributary along the right stream bank (Station 21100) that drained Cave Mountain, which was not observed during the assessment. The New York State Department of Environmental Conservation classifies streams and rivers based on their "best use" (NYSDEC, 1994). The headwaters of this tributary were classified C by the NYS DEC, indicating that the best uses for this stream were the support of fisheries and other non-contact activities. There was also a channel crossing (Station 20959, Figure 4.8.1 Inset C) with a dirt road on both sides of the stream, and a zip line

Wetland boundary approximately delineated by NWI (Stations 21700 - 20900)

Clay exposure at Stations 20700 - 20669

that crossed above the stream. To reinforce the base of the zip line and the right side of the dirt road, a *gabion basket* had been installed perpendicular to the left bank. Maintenance of the dirt road may contribute to the aggradational conditions downstream where excessive sediment deposition had caused full channel aggradation and the formation of side, point, transverse and center bars along the meander bend.

As the stream meandered to the left, there was a clay exposure along the bank and channel bed along approximately 31 feet of the right stream bank. As mentioned previously, clay exposures are of concern due to the negative impact fine sediment has on water quality and aquatic habitat.

Continuing downstream, there were two palustrine wetlands directly adjacent to each other along the right stream bank. The first wetland (Stations 19900 – 19337) was 1.4 acres in size, dominated by emergent vegetation and classified as PEM1A. The second wetland (Stations 19635 – 18733) was 3.3 acres in size, dominated by deciduous forest and classified as PFO1A. Along the first wetland, there was a minor erosion site (Station 19700) on the right that appeared to be self recovering with herbaceous vegetation on the face of the bank. Along both of the wetlands there were multiple locations of woody debris accumulation. At the time of the assessment, each appeared to cause minor obstructions at low flow. Two of the woody debris obstructions (Stations 19434 and 19356) seemed to contribute

Wetland boundary approximately delineated by NWI (Stations 19900 - 18733)

Erosion at Stations 19282 - 19040

to the aggradational conditions upstream and downstream of the debris, while one of the obstructions (Station 18863) appeared to contribute to localized scour. Opposite the wetland, a small unnamed tributary (Station 19394) entered along the left stream bank. Downstream of these wetlands, land cover on both sides of the stream was forested for the remainder of this management unit.

As the stream meandered to the right, there was erosion (Stations 19282 – 19040) on the outside of the meander bend along approximately 242 feet of the left stream bank. There was some herbaceous vegetation along the face of the stream bank, with some exposed roots and fallen trees. The top of the bank was forested. This erosion site may be a good candidate for remediation using vegetative toe and bank protection, but may self recover with time. Recommendations include reinforcing the toe of the stream bank with sedge species and planting native shrubs and trees along the bank. Prior to proceeding with any vegetative plantings, the erosional conditions should be given careful consideration when identifying the appropriate species and locations for plantings.

As the stream meandered to the left, there was a mass failure (Stations 18856 – 18642) along the right stream bank. This mass failure had resulted in an erosion area of approximately 3,215 ft^2, exposing areas of mixed till and compromising mature trees along the bank. The fallen trees that have accumulated along the toe of the bank appeared to be exacerbating the erosion upstream and downstream of the debris. Along the upstream portion of this eroding bank, there was a lacustrine clay exposure (Stations 18854 – 18789, Figure 4.8.1 Inset B)

Mass failure at Stations 18856 - 18642

Channel divergence at Station 18284

for approximately 65 feet. During high flows and times of active erosion, a significant amount of clay may enter the stream from this bank; this poses a water quality threat due to the turbidity associated with clay exposures. Excessive sediment deposition continued along this stretch of the stream.

As the stream meandered to the right, there was a channel divergence (Station 18284), forming a split channel, for approximately 410 feet that flowed around a well vegetated center bar with trees, shrubs and herbaceous vegetation. Flow through the secondary channel on the right side of the center bar was intermittent; at the time of the assessment, flow appeared to be subsurface at the divergence and through most of the channel until further downstream when there was a small amount of flow through the secondary channel as it converged (Station 17874, Figure 4.8.1 Inset A, photo orientation looking upstream) with the main channel. The secondary channel appeared to exacerbate the aggradational conditions at the confluence and further downstream; there was excessive sediment deposition including, point and center bars and full channel aggradation.

Continuing downstream, there was erosion (Stations 17670 – 17306) along approximately 364 feet of the right stream bank. There was a narrow line of trees with exposed roots along the stream bank, which had a gentle slope until it leveled off at the top forming a terrace approximately five feet in height from the stream's edge. There was a hiking/all-terrain vehicle trail on the terrace, beyond the trail the hillside was forested. Although this erosion site did not appear to pose a significant threat to water quality, if it continues to erode, the trail may be compromised. This erosion site may be a good candidate for remediation using vegetative toe and bank protection.

As the stream meandered to the left, there was bedrock (Stations 17118 - 16898) along approximately 220 feet of the right stream bank and bed, gradually covering the full bed of the stream channel. The bedrock provided lateral control by limiting stream bank erosion and provided grade control by preventing *degradation* or *downcutting* of the stream. There was seepage along most of the bedrock including a small intermittent tributary (Station 16875) that entered along the right stream bank. Aggradational conditions persisted along this stretch of stream and continued downstream.

Bedrock at Stations 17118 - 16898

Further downstream, there was erosion (Stations 16572 – 16332) along approximately 240 feet of the left stream bank. The erosion was compromising trees and shrubs along the bank, many roots were exposed and some of the woody vegetation was slumping or had fallen along the bank. The erosion had also caused a 215 feet clay exposure (Stations 16546 – 16331) along the bank and right channel bed. The stream banks and the upland area were forested along this stretch of stream. This erosion site may be a good candidate for remediation using vegetative toe and bank protection, but may self recover with time. Management unit #8 ended downstream at Station 15760.

Erosion at Stations 16572 - 16332

Sediment Transport

Streams move sediment as well as water. Channel and floodplain conditions determine whether the reach aggrades, degrades, or remains in balance over time. If more sediment enters than leaves, the reach aggrades. If more leaves than enters, the stream degrades (See Section 3.1 for more details on Stream Processes).

Sediment transport in this unit was influenced by valley morphology. The relatively unconfined valley form and topography suggest that this unit was a sediment storage zone. This unit has experienced wide-spread sediment transport deficiencies. Bed load transported by the stream channel exceeds the transport capacity of management unit #8, resulting in channel aggradation, and one area of lateral migration along the upstream portion of this unit. Sediment storage areas can benefit the general health of the stream system by limiting bed load delivered to downstream reaches during large storm events. Sediment sinks such as this throughout the watershed should be preserved where adjacent land uses permit. Mature riparian vegetation will be important in such settings to limit the extent of lateral channel migration and bank erosion. The ability of the channel to convey sediment also appeared to be affected by the bridge at the start of the management unit and multiple flood chutes along this reach of stream.

Riparian Vegetation

One of the most cost-effective and self-sustaining methods for landowners to protect streamside property is to maintain or replant a healthy buffer of trees and shrubs along the banks and floodplains, especially within the first 50 to 100 ft. of the stream. A dense mat of roots under trees and shrubs binds the soil together, making it much less susceptible to erosion. Mowed lawn (grass) does not provide adequate erosion protection on stream banks because it typically has a very shallow rooting system and cannot reduce erosive forces by slowing water velocity as well as trees and shrubs. One innovative solution is the interplanting of revetment with native trees and shrubs which can significantly increase the working life of existing rock rip-rap, while providing additional benefits to water, habitat, and aesthetic quality. *Riparian*, or streamside, forest can buffer and filter contaminants coming from upland sources, shallow groundwater or overbank flows, and slow the velocity of floodwaters causing sediment to drop out while allowing for *groundwater recharge*. Riparian plantings can include a great variety of flowering trees, shrubs, and sedges native to the Catskills. Native species are adapted to our regional climate and soil conditions and typically require less maintenance following planting and establishment. Two suitable riparian improvement planting sites were documented within this management unit.

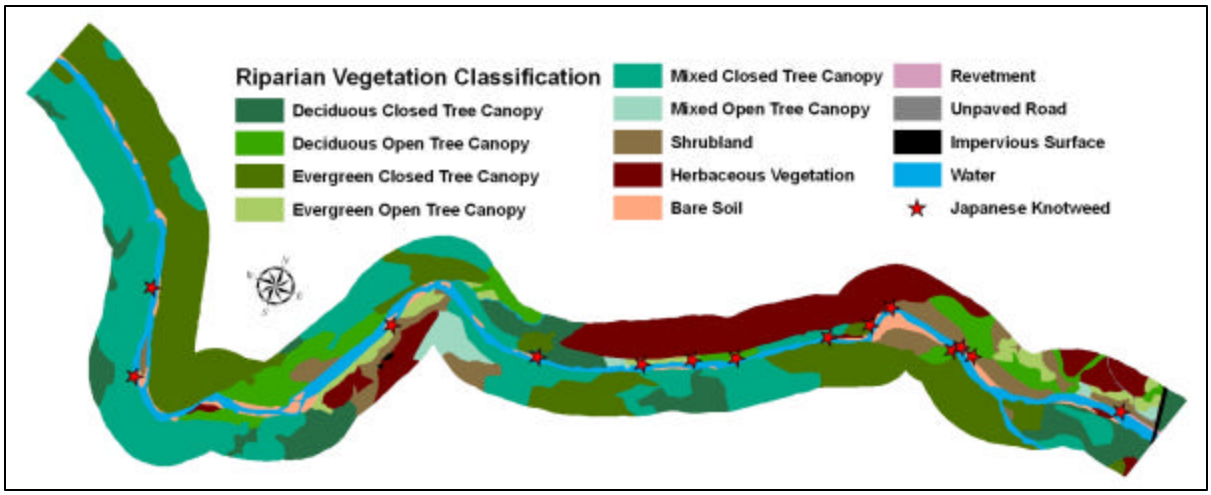
Some plant species that are not native can create difficulties for stream management, particularly if they are invasive. Japanese knotweed (*Fallopia japonica*), for example, has become a widespread problem in recent years. Knotweed shades out other species with its dense canopy structure (many large, overlapping leaves), but stands are sparse at ground level, with much bare space between narrow stems, and without adequate root structure to hold the soil of stream banks. The result can include rapid stream bank erosion and increased surface runoff leading to a loss of valuable topsoil. Japanese knotweed locations were documented as part of the stream feature inventory conducted during the summer of 2006 (Riparian Vegetation Mapping, Appendix B). The first appearance of Japanese knotweed on the East Kill occurred in management unit #7, although there are some significant stands of knotweed in management unit #7, the knotweed occurrences in management unit #8 were primarily small patches. In total, nine Japanese knotweed occurrences along an estimated length of 97 feet were documented in this management unit during the stream feature inventory.

The best means for controlling knotweed is prevention of its spread. Therefore, efforts should be made to ensure that all fill brought into the area is clean and does not have fragments of knotweed or other invasive plants. If Japanese knotweed sprouts or small stands are observed, they should be eradicated immediately to avoid further spread. The Japanese knotweed patches that were observed in this unit may be removed to prevent further spread, see appendix B for more information on knotweed removal methods.

Japanese knotweed at Station 17560

An analysis of vegetation was conducted using aerial photography from 2001 and field inventories (see below map and Riparian Vegetation Mapping, Appendix B). In this management unit, the predominant vegetation type within the 300 ft. riparian buffer was forested (76 %) followed by herbaceous (14%). *Impervious* area (0.23 %) within this unit's buffer was primarily the local and private roadways, and residential structures. Areas of herbaceous (non-woody) cover may present opportunities to improve the riparian buffer with

tree plantings in order to promote a more mature vegetative community along the stream bank and in the floodplain.



Riparian vegetation classification map based on aerial photography from 2001

Flood Threats

As part of its National Flood Insurance Program (NFIP), the Federal Emergency Management Agency (FEMA) performs hydrologic and hydraulic studies to produce Flood Insurance Rate Maps (FIRM), which identify areas prone to flooding. The NYS DEC Bureau of Program Resources and Flood Protection has developed new floodplain maps for the East Kill on the basis of recent surveys. The new FIRM hardcopy maps are available for

100-year floodplain boundary map

viewing at the Greene County Soil & Water Conservation District Office and the Jewett Municipal Building. The FIRM maps shown in this plan are in draft form and currently under review. Finalization and adoption is expected by the end of 2007.

According to the current floodplain maps (above), no existing structures in this unit appeared to be situated within the estimated 100-year floodplain. The 100-year floodplain is that area predicted to be inundated by floods of a magnitude that are expected to occur once in any 100-year period, on the basis of a statistical analysis of local flood record. Most communities regulate the type of development that can occur in areas subject to these flood risks.

Aquatic Habitat

Generally, habitat quality appeared to be good throughout this management unit. Canopy cover was adequate along much of both stream banks. Woody debris within the stream channel was observed throughout the unit. This woody debris was providing critical habitat for fish and insects, and added essential organic matter that will benefit organisms downstream.

It is recommended that an aquatic habitat study be conducted on the East Kill with particular attention paid to springs, tributaries and other potential thermal refuge for cold water fish, particularly trout. Once identified, efforts should be made to protect these thermal refugia locations in order to sustain a cold water fishery throughout the summer.

Water Quality

Clay/silt exposures and sediment from stream bank and channel erosion pose a potential threat to water quality in the East Kill. Fine sediment inputs into a stream increase *turbidity* and can act as a transport mechanism for other pollutants and pathogens. There were six significant clay exposures in this management unit.

Stormwater runoff can also have a considerable impact on water quality. When it rains, water falls on roadways and parking areas before flowing untreated directly into the East Kill. The cumulative impact of oil, grease, sediment, salt, litter and other unseen pollutants found in road runoff can significantly degrade water quality. However, there were no stormwater culverts documented in this management unit in 2006.

Nutrient loading from failing septic systems is another potential source of water pollution. Leaking septic systems can contaminate water with nutrients and pathogens making it unhealthy for drinking, swimming, or wading. There were a few buildings located in close proximity to the stream channel in this management unit. These building owners should inspect their septic systems annually to make sure they are functioning properly. Servicing frequency varies per household and is determined by household size, tank size, and presence of a garbage disposal. Pumping the septic system out every three to five years is recommended for a three-bedroom house with a 1,000-gallon tank; smaller tanks should be pumped more often. To assist watershed landowners with septic system issues, technical and financial assistance is available through two Catskill Watershed Corporation (CWC) programs, the Septic Rehab and Replacement program and the Septic Maintenance program (See Section 2.12). Through December 2005, two homeowners within the drainage area of this management unit had made use of these programs to replace or repair a septic system.

References

NYSDEC, 1994. New York State Department of Environmental Conservation. Water Quality Regulations: Surface Water and Groundwater Classifications and Standards, NYS Codes, rules and regulations, Title 6, Chapter 10, Parts 700-705.

NYSDEC, 1998. New York State Department of Environmental Conservation. Rules and Regulations: Classifications- Surface Waters and Groundwaters, 6NYCRR Part 701, effective 1967, last amended March 1998, NYSDEC, Albany, New York. http://www.dec.state.ny.us/website/regs/part701.html

ACE, 1998-1999 (updated 2005) National Inventory of Dams Data Dictionary. Army Corps of Engineers. 1998-1999, updated 2005: http://crunch.tec.army.mil/nid/webpages/nid.cfm

Koltun, G.F., Landers, M.N., Nolan, K.M. & Parker, R.S. (1997) Sediment transport and geomorphology issues in the water resources division. In *Proceedings of the U.S. Geological Survey (USGS) sediment workshop: expanding sediment research capabilities in today's USGS, February 4-7, 1997, Reston, VA. and Harpers Ferry, WV*. Reston, VA: US Geological Survey.