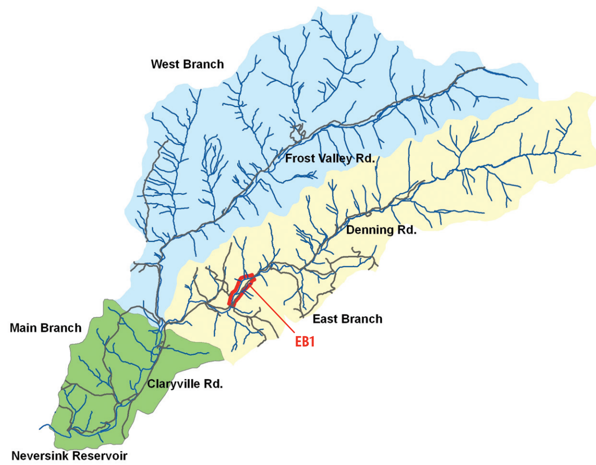
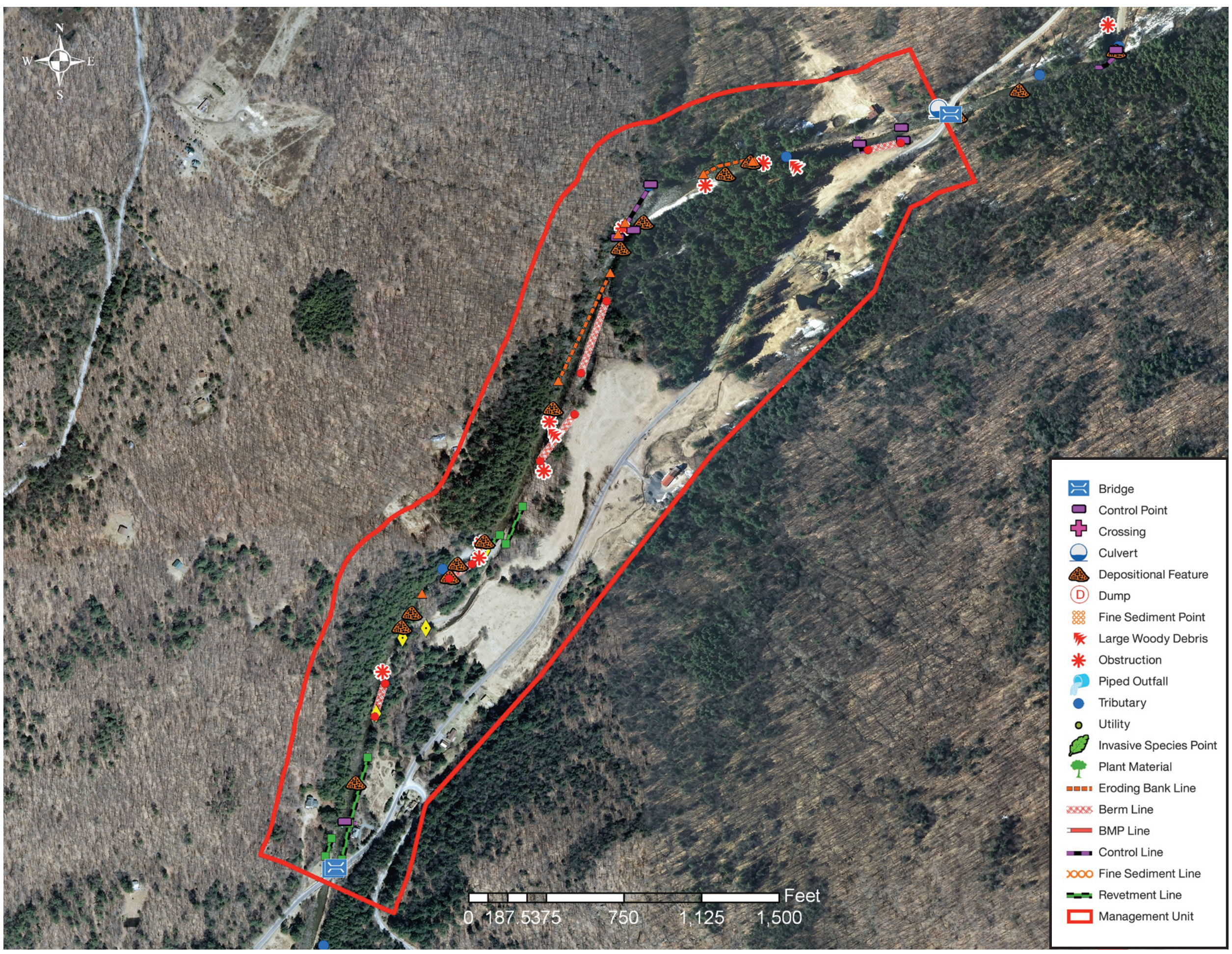
Neversink River East Branch

MANAGEMENT UNIT 5

STREAM FEATURE STATISTICS

- 9% of stream length is experiencing erosion
- 9.23% of stream length has been stabilized
- 36.56 acres of inadequate vegetation within the riparian buffer
- 225 ft. of the stream length is within 50 ft. of the road
- 2 structures are located within the 100-year floodplain boundary





Stream Feature Inventory 2010 (Figure 1)

Management Unit Description

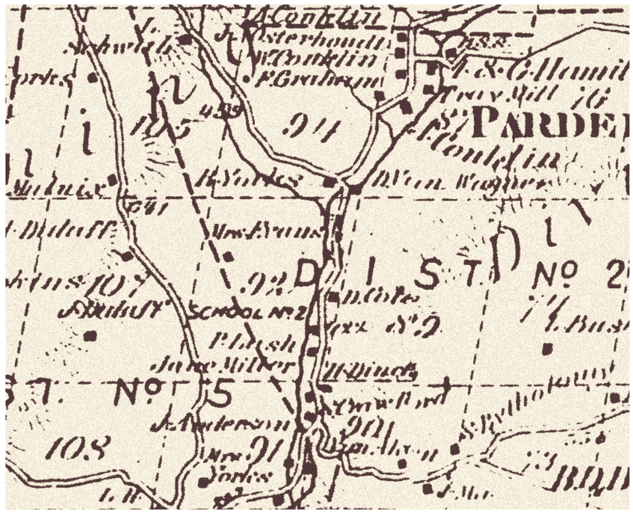
This management unit begins at a bridge crossing of Denning Road, continuing approximately 5,198 ft. before the stream is again crossed by a bridge on Denning Road. The drainage area ranges from 21.40 mi^2 at the top of the management unit to 23.0 mi^2 at the bottom of the unit. The valley slope is 1.22%. The average valley width is 796.24 ft.

Summary of Recommendations East Branch Management Unit 5

Intervention Level	Passive restoration of the bank erosion site between Station 17700 and Station 17450 (BEMS # NEB5_17400). Passive restoration of the bank erosion site between Station 16760 and Station 16180 (BEMS # NEB5_16100). Passive restoration of the bank erosion site between Station 14910 and Station 14835.
Stream Morphology	Assess sediment deposition from the accumulation of large woody debris supplied by the watershed upstream. Conduct baseline survey of channel morphology.
Riparian Vegetation	Improve riparian buffer between Station 16600 and Station 14800.
Infrastructure	Investigate flood threats to Denning Road. Assess ability of Denning Road bridge to effectively convey flood flows.
Aquatic Habitat	Fish population and habitat survey.
Flood Related Threats	Assess threats to building structures in 100-year floodplain. Floodproofing as appropriate. http://www.fema.gov/library/viewRecord.do?id=1420
Water Quality	None.
Further Assessment	Long-term monitoring of erosion sites.

Historic Conditions

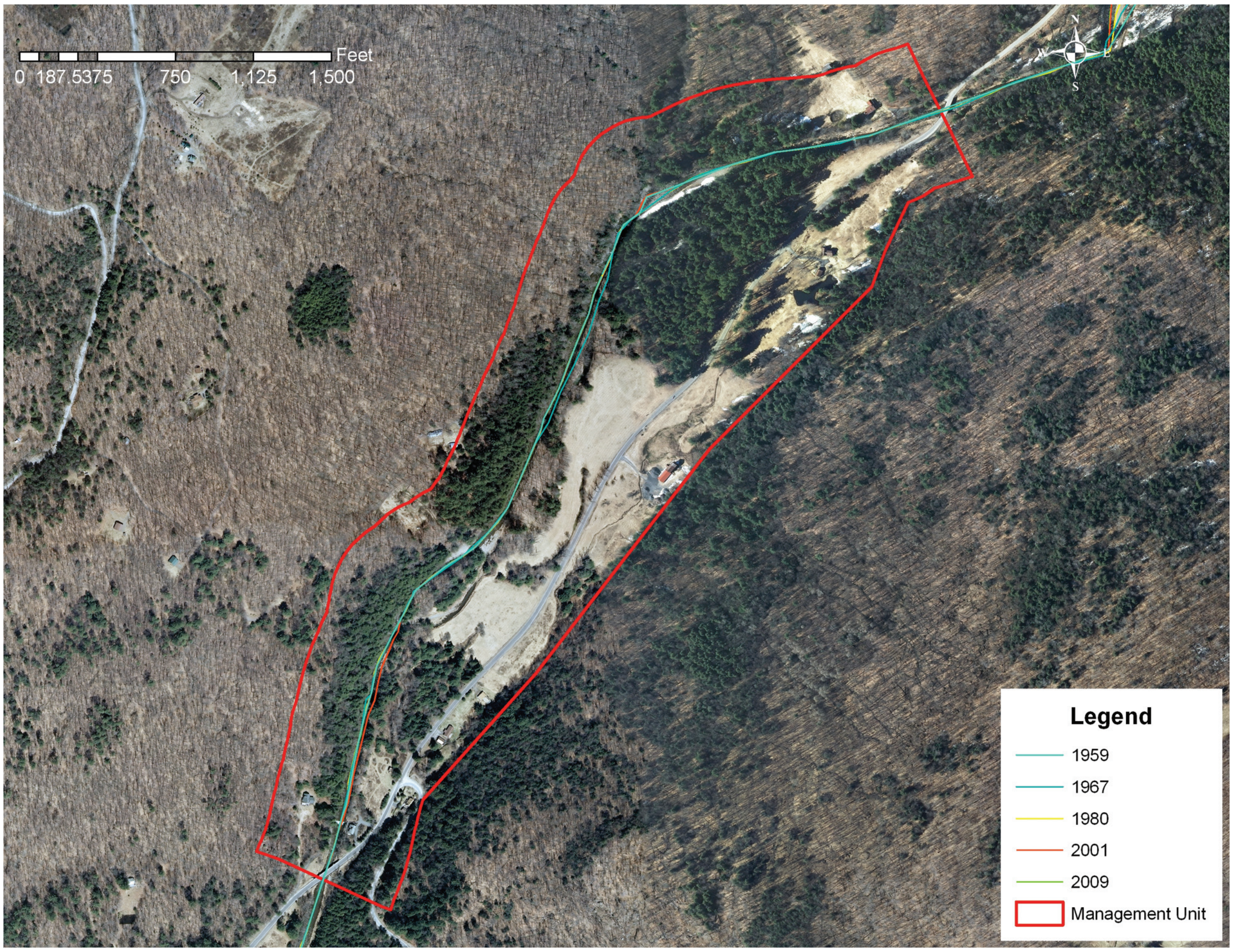
As the glaciers retreated about 12,000 years ago, they left their "tracks" in the Catskills. See Section 2.4 *Geology of Upper Neversink River,* for a description of these deposits. These deposits make up the soils in the high banks along the valley walls on the Neversink mainstem and its tributaries. These soils are eroded by moving water, and are then transported downstream by the River. During the periods when the forests of the Neversink watershed were heavily logged for bark, timber, firewood and to make pasture for livestock, the change in cover and the erosion created by timber skidding profoundly affected the Neversink hydrology and drainage patterns.



Excerpt from 1875 Beers Map (Figure 2)

The 1875 Beers Atlas of this area indicates that by that time, the stream had been harnessed for manufacturing, primarily saw mills, woodworking shops and tanneries *(Figure 2).* Raceways were built in the floodplains to divert water to ponds for use as needed. Floodplains were profoundly altered in the process, as these watercourses also became areas of preferential channelized flow when floodwaters inundated the floodplains. When woody debris jams blocked the primary channels, these raceways sometimes eroded out to become major secondary channels, or even took over the full flow to become a new primary watercourse.

During large runoff events, floodplains adjacent to the confluence of major tributaries receive large slugs of material eroded out of the steep streams draining the valley walls. overwhelmed the Neversink's ability to transport it, creating an alluvial fan. Like changes in the floodplains made by humans, these episodes can result in catastrophic shifts in channel alignment. In the roughly one hundred and twenty centuries since the retreat of the glaciers, the position of Neversink River has moved back and forth across its floodplain numerous times in many locations. While a comparison of historical channel alignments *(Figure 3, following page)* and in-stream observations made during a stream feature inventory in 2010 *(Figure 1, page 1)* indicate little lateral channel instability, 9 NYS Article 15 stream disturbance permits for bank stabilization have been issued in this management unit, according to records available from the NYSDEC DART database (**http://www.dec.ny.gov/cfmx/extapps/envapps/**).



Historical channel alignments from five selected years (Figure 3)

Stream Channel and Floodplain Current Conditions

The following description of stream morphology references stationing in the foldout Figure 4. "Left" and "right" references are oriented looking downstream, photos are also oriented looking downstream unless otherwise noted. Stationing references, however, proceed upstream, in feet, from an origin (Station 0) at the confluence with the Neversink Reservoir. Italicized terms are defined in the glossary. This characterization is the result of surveys conducted in 2010.

EBMU5 begins just downstream of where a bridge crosses Denning Road over the stream channel at Station 18700. As described in EBMU6, this bridge is in good condition but may not be constructed wide enough to effectively convey large flows. A plastic culvert conveys road drainage from the right side of the stream, making it a potential source for contaminants from road runoff. It is likely that this drainage contributes chlorides (salt) and petroleum by-products from road runoff to the Neversink. *(B130)*

At Station 18400 relict bridge abutments now serve as control points to high flows on both sides of the stream. *(B132)* There is a house on the right bank that is less than 100-feet from the stream and at risk during flood events. There is very little mature riparian vegetation on this bank, which does little to mitigate flood risk or stabilize the bank. The left bank in this area also has insufficient riparian vegetation buffering the stream from the road. A stone berm begins at Station 18400 and continues downstream until Station 18230. *(B135)* This berm was most likely installed to prevent flood waters from reaching the nearby road. A riparian buffer including woody vegetation can restore the forest connectivity and help mitigate flood threats to surrounding infrastructure. It is highly recommended that both the left and right banks from Station 18600 and Station 18000 be assessed for restoration using riparian planting techniques.

At Station 18100 there is an old wooden dam that spans the entire width of the stream and is supported by large boulders on both sides. *(B137)* This structure appears to have been placed to provide habitat for trout. The water faces an abrupt vertical drop as it flows over the dam, resulting in a deep scour pool below. The structure appears to be relatively new and continues to function for the creation of habitat. Structures such as this were observed frequently in the East Branch of the Neversink River.

Continuing downstream, the riparian zone becomes well forested on both sides of the stream after Station 18000. A large pile of woody debris has accumulated in the left floodplain at Station 17900. *(A120)* Deposition this far from the active

Plastic culvert conveying road drainage on right bank (B130)

Relict bridge abutment controlling high flows (B132)

Stone berm on left bank (B135)

Wooden dam spanning length of stream (B137)

Woody debris accumulation on left floodplain (A120)

channel indicates that the stream maintains good floodplain connectivity on the left side throughout this reach. Just downstream of this point, a tributary enters the main channel near Station 17850. Large woody debris obstructions at Station 17720 and Station 17410 are contributing to a series of sediment deposition points that characterize the next several hundred feet of stream. *(B141)* A cobble side bar begins along the left side of the stream at Station 17700, continuing approximately 600-feet downstream before ending at Station 17100. *(A125)* This bar is clear of any significant vegetation or debris, indicating that it is frequently inundated during flood events.

Large woody debris contributing to sediment accumulation (B141)

Erosion of the right bank also begins at Station 17700, continuing approximately 250-feet to Station 17450 (BEMS # NEB5_17400). Hydraulic pressure on this bank is exposing cobble sized materials which are being plucked from the bank and deposited near the toe. *(B155)* These cobbles, along with the establishment of sedges at the toe of the bank can assist with the re-stabilization of this erosion site. It also appears that the undercut sod mats are beginning to slump down and cover the exposed portion of the bank, offering additional protection from further erosion. It is possible for

Cobble side bar along left side of stream (A125) this bank to stabilize without treatment (passive restoration); however, it is recommended that this site be monitored for changes in condition.

The stream flows into contact with the right valley wall at Station 17200 and is forced into a relatively sharp left turn. *(A146)* This exposed bedrock control continues downstream for approximately 90-feet to Station 17110. The right valley wall effectively cuts off floodplain connectivity on the right side for the remainder of EBMU5. A small tributary enters from the right bank at the upstream end of the bedrock wall. *(A143)* On the left side opposite of the bedrock wall, large boulders are preventing the stream from moving laterally into the left floodplain at Station 17000. Sediment is being stored in the form of a lateral bar beginning at Station 16900 and continuing approximately 100-feet downstream. *(B161)*

A series of re-vegetated hill slope failures begins along the right bank at Station 16760, continuing approximately 580-feet until Station 16180 (BEMS # NEB5_16100). *(A165)* At one point this steep length of bank was destabilized, most likely through hydraulic erosion of the toe. However, at the time of that this stream feature inventory was conducted, the slope appears to

Hydraulic erosion on right bank (B155)

Bedrock control along right valley wall (A146)

Small tributary entering on right (A143)

Lateral bar (B161)

Re-vegetated hill slope failure (A165)

Berm along left bank (B165)

Significant channel aggradation (B169)

have reached an angle of repose and maintains established mature vegetation. It is likely that this site will remain stable without treatment (passive restoration); however, it is recommended that it be monitored for future changes in condition.

The dense riparian forest that characterizes much of this management unit transitions to open field on the left near Station 16500. A berm begins along the left bank at Station 16620 and continues downstream until Station 16260. *(B165)* A second stone berm begins at Station 16070, continuing for 280-feet until Station 15790. These berms were most likely installed to prevent flood flows from reaching the road and building structure which are located in the right floodplain. This floodplain is very accessible to the stream and could be easily inundated during large events. Without established mature woody vegetation, these fields do little to mitigate the flood risks to nearby infrastructure. It is recommended that the riparian zone on the left side of the stream between Station 16600 and Station 14800 be further investigated for riparian restoration using planting techniques.

Significant channel aggradation begins at Station 16050, likely resulting from the frequent deposition of large woody debris obstructions, as well as backwater effect from the bridge downstream. *(B169)* Woody debris has been deposited within the channel at Station 16000 and Station 15750 *(A168)*, and further into the left floodplain at Station 15950. Moving downstream, a portion of the stream flow diverts into a side channel into the field in the left floodplain at Station 15290. In an attempt to prevent flow from entering this side channel, the left bank has been stabilized with stacked rock revetment in two separate locations adjacent to the open field. The first begins at Station 15560, continuing nearly 200-feet to Station 15400. The second begins at Station 15400 and continues downstream for approximately 120-feet. Both of these revetments appear washed out and ineffective. *(A174)*

A side bar begins on the right side across from the downstream end of the revetment at Station 15320, continuing approximately 200-feet to Station 15120. *(A189)* The width of this depositional bar varies between 50 and 70 feet. Large woody debris has deposited on the bar at Station 15300, causing and obstruction to flow and contributing to the accumulation of sediment. *(A187)* Another woody obstruction was documented on the left side of the stream across from the berm at Station 15250. This obstruction is causing a diversion of flow into a small side channel in the left floodplain.

Just downstream of the channel divergence, a 130-foot long berm starts along the left bank at Station 15200. *(B180)* This structure was likely intended to prevent flows from reaching the side channel, but appears to be relatively old as it has mature trees growing through it. A significant amount of cobble sized

Woody debris deposition (A168)

Washed out stacked rock revetment on left bank (A174)

Side bar on right (A189)

Large woody debris deposited on side bar (A187) materials have been deposited into a side bar along the left side of the stream in front of the berm beginning at Station 15080, continuing approximately 240-feet to Station 14800. *(B181)* In the same location on the right side, a small drainage enters the stream through the exposed bedrock of the valley wall. *(A193)*

The right bank is experiencing hydraulic erosion for approximately75-feet, beginning at Station 14910 and continuing until Station 14835. *(A194)* At one point scour of the toe caused the bank materials to slide down at this location. However, at the time of this stream feature inventory it appeared that this bank had reached an angle of repose and should be able to recover without assistance (passive restoration). Large rocks accumulating at the toe of the bank will further assist in natural re-stabilization of this bank. However, it is recommended that this site be evaluated for future changes in condition.

Part of the flow from the side channel that diverged upstream at Station 15290 rejoins the main channel at Station 14700, while the remaining portion continues through another side channel in the left floodplain. *(B185)* During high flows, the backwater effect caused by this convergence prevents sediment from being effectively transported downstream. As a result, a lateral bar consisting of cobble sized materials has formed at Station 14720. *(B187)* Scour is occurring directly downstream of the aggradation because the water faces an abrupt vertical drop as it flows over the depositional bar. This continuous scour is resulting in a headcut which is actively migrating upstream, and will continue to do so until it meets a substrate that is not erodible.

Berm on left bank (B180)

Cobble side bar (B181)

Small drainage entering through right bedrock wall (A193)

Erosion along right bank (A194)

Obstruction causing deposition upstream (A197)

Convergence with side channel (B185)

Well vegetated berm on left bank (A201)

Lateral bar consisting of cobble sized material (B187)

At Station 14500, a large evergreen tree has blown down into the channel from the right bank. This woody debris has deposited deep enough in the channel to cause an obstruction under low flows as well as flood events, resulting in deposition directly upstream. *(A197)* Another old berm was documented along the left bank, beginning at Station 14450 and continuing downstream until Station 14280. Much like the other berms in this reach, it was overgrown with mature vegetation and does not appear to have been recently maintained. *(A201)* The aforementioned

Stacked boulder wall along left bank (B196)

Looking upstream at wooden dam (B195)

Stacked rock wall revetment along right bank (B199)

side channel in the left floodplain makes a final convergence with the main channel at the downstream end of this berm.

More recent attempts at mitigating flood risks to homes in the left floodplain were documented near the downstream end of EBMU5. A relatively new stacked boulder wall begins along the left bank at Station 14100, continuing approximately 500-feet until the end of this management until Station 13500. *(B196)* The building structures located behind this revetment are located in very close proximity to the stream channel in a low elevation floodplain, putting them at a high risk of inundation during flood events. At Station 13730 a wooden dam is located directly in front of the house on the left bank, spanning the entire width of the stream. The vertical drop over this dam has created a deep scour pool which may serve as trout habitat. *(B195)* This structure appears to be well maintained and in good structural condition.

A stacked rock wall leading up to an old bridge abutment is now serving as a revetment along the right bank between Station 13650 and Station 13550. *(B199)* The stacked revetment was likely intended to protect the private driveway that runs behind it, but has since fallen into disrepair. The relict bridge abutment represents the location where the road used to cross this section of the East Branch years before the current bridge was constructed.

EBMU5 ends at Station 13450 where the stream is again crossed by a bridge on Denning Road. *(A204)* This bridge appears to be in good structural condition, but does encroach on the bankfull channel by several feet on both sides of the stream. Improper spacing of bridge abutments does not allow the bridge to effectively convey large

Denning Road bridge (A204)

flows and can cause a backwatering effect which can lead to excessive sediment deposition and flooding of nearby infrastructure. This bridge is most likely a contributor to the numerous points of channel aggradation documented in this management unit, and should be assessed for associated flood risks.

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).

This management unit is largely dominated by sediment storage reaches and occasionally punctuated by short transport reaches. The channel in EBMU5 is controlled on the right throughout much of the management unit by the valley wall, but does maintain good floodplain connectivity on the left. The densely forested portion of the watershed upstream of this management unit serves as a continuous source of large woody material that is transported downstream and deposited during flood events. This large woody debris often serves as an obstruction to sediment transport, resulting in the aggradation of bed material. Sediment is stored where large woody debris has accumulated in the management unit, and is transported relatively effectively in most other locations. Transport reaches are in a state of *dynamic equilibrium,* effectively conveying sediment supplied from upstream during each flow event. Storage reaches act as a "shock absorber", holding bedload delivered during large flow events in depositional bars and releasing it slowly over time in more moderate flood events. These depositional areas are very dynamic, with frequent lateral channel migration through bank erosion, *avulsions* and woody debris accumulations. This is one process by which floodplains are created and maintained. Sediment storage reaches can result from natural conditions or as the unintended consequence of poor bridge design, check dams or channel overwidening. Infrastructure influenced deposition of sediment is evident in EBMU5 at Denning Road bridge, which is inadequately designed to effectively transport sediment. Such unpredictable conditions represent risks for nearby property owners, these dynamic disturbance regimes produce unique and diverse habitat patches, attracting equally diverse plant communities and wildlife.

To better understand sediment transport and sediment transport dynamics a baseline survey of channel form and function is recommended for this management unit.

Riparian Vegetation

One of the most cost-effective methods for landowners to protect streamside property is to maintain or replant a healthy buffer of trees and shrubs along the bank, especially within the first 30 to 50 ft. of the stream. A dense mat of roots under trees and shrubs bind the soil together, and makes it much less susceptible to erosion under flood flows. Mowed lawn does not provide adequate erosion protection on stream banks because it typically has a very shallow rooting system. Interplanting with native trees and shrubs can significantly increase the working life of existing rock rip-rap placed on stream banks for erosion protection. Riparian, or streamside, forest can buffer and filter contaminants coming from upland sources or overbank flows. Riparian plantings can include a great variety of flowering trees and shrubs, native to the Catskills, which are adapted to our regional climate and soil conditions and typically require less maintenance following planting and establishment.

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 it's 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 increase surface runoff impacts.

An analysis of vegetation was conducted using aerial photography from 2009 and field inventories *(Figure 5).* In this management unit, the predominant vegetation type within the riparian buffer is herbaceous vegetation (28.58 %) followed by evergreen-closed tree canopy (22.21 %). *Impervious* area makes up 3.64% of this unit's buffer. No occurrences of Japanese knotweed were documented in this management unit during the 2010 inventory.

There are 3.82 acres of wetland (3.31% of EBMU5 land area) within this management unit mapped in the National Wetland Inventory (see Section 2.5, Wetlands and Floodplains for more information on the National Wetland Inventory and wetlands in the Neversink watershed). 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 (See Section 2.5 for wetland type descriptions and regulations).

Freshwater-forested shrub is the largest wetland type in EBMU5, totaling 2.09 acres in size. Other wetland types in this management unit include Riverine (1.51 acres), and Freshwater Pond (0.22 acres).

Flood Threats

INUNDATION 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. Two building structures are located in the 100-year floodplain in EBM5. The upper Neversink River is scheduled to have its FIRMs updated with current surveys and hydrology and hydraulics analysis in the next few years, and the mapped boundaries of the 100-year floodplain are likely to change.

Small portions of Denning Road at the top and bottom of this management unit fall within the 100-year floodplain boundary and are at high risk of inundation during flood events. Throughout most of EBMU5 the road falls just outside of the floodplain boundary, but could still be inundated during large floods. FEMA provides guidance to homeowners on floodproofing at:
http://www.fema.gov/library/viewRecord.do?id=1420

BANK EROSION Due to a number of conditions, bank erosion was documented at 3 locations in this management unit. All of these erosion sites are likely to stabilize without treatment, and are therefore candidates for passive restoration. The first site consists of hydraulic erosion on the right bank for approximately 250-feet from Station 17700 to Station 17450 (BEMS # NEB5_17400). A series of re-vegetated hill slope failures begins along the right bank at Station 16760, continuing approximately 580-feet until Station 16180 (BEMS # NEB5_16100). The third bank erosion site begins along the right bank at Station 14910 and continues for 75-feet until Station 14835. Hydraulic pressure on the toe of the bank is the cause of this erosion.

INFRASTRUCTURE 9.23% (961 ft.) of the stream bank length in this management unit has been stabilized with stacked rock revetments in four different locations. The first two revetments are in close proximity along the left bank between Station 15560 and Station 15400, and Station 15400 to Station 280. A more recently installed revetment begins along the left bank at Station 14100, continuing until the end of this management until Station 13500. The final revetment is a stacked rock wall leading up to an old bridge abutment along the right bank between Station 13650 and Station 13550

There were 5 berms documented in EBMU5, totaling 10.67 % (1,109.7 ft) of the total length of stream banks. These berms were all constructed from local stones and earthen materials.

Aquatic Habitat

Aquatic habitat is an important aspect of the Neversink River ecosystem, providing recreational, aesthetic, and economic benefits to the community. While ecosystem health includes a broad array of conditions and functions, what constitutes "good habitat" is specific to individual species. When we refer to aquatic habitat, we often mean fish habitat, and specifically trout habitat, as the recreational trout fishery in the Catskills is one of its signature attractions for both residents and visitors. Good trout habitat, then, might be considered one aspect of "good human habitat" in the Neversink River valley.

Even characterizing trout habitat is not a simple matter. Habitat characteristics include the physical structure of the stream, water quality, food supply, competition from other species, and the flow regime. The particular kind of habitat needed varies not only from species to species, but between the different ages, or life stages, of a particular species, from eggs just spawned to juveniles to adults.

New York State Department of Environmental Conservation (DEC) classifies the surface waters in New York according to their designated usses in accordance with the Clean Water Act. The following list summarizes those classifications applicable to the Neversink River.

1. The classifications A, AA, A-S and AA-S indicate a best usage for a source of drinking water, swimming and other recreation, and fishing.
2. Classification B indicates a best usage for swimming and other recreation, and fishing.
3. Classification C indicates a best usage for fishing.
4. Classification D indicates a best usage of fishing, but these waters will not support fish propagation.

Waters with classifications AA, A, B and C may be designated as trout waters (T) or suitable for trout spawning (TS). These designations are important in regards to the standards of quality and purity established for all classifications. See the DEC Rules & Regulations and the Water Quality Standards and Classifications page on the NYSDEC web site for information about standards of quality and purity.

In general, trout habitat is of a high quality in the Neversink River. The flow regime above the reservoir is unregulated, the water quality is generally high (with a few exceptions, most notably low pH as a result of acid rain; see Section 3.1, Water Quality), the food chain is healthy, and the evidence is that competition between the three trout species is moderated by some partitioning of available habitat among the species. The East Branch of the Neversink River been given a "C(T)" class designation, supporting fishing and indicating the presence of trout. Trout spawning likely occurs in this management unit, but has not yet been documented in the DEC classification.

Channel and floodplain management can modify the physical structure of the stream in some locations, resulting in the filling of pools, the loss of stream side cover and the homogenization of structure and hydraulics. As physical structure is compromised, inter-species competition is increased. Fish habitat in this management unit appears to be relatively diverse.

It is recommended that a population and habitat study be conducted on the Neversink River, with particular attention paid to temperature, salinity, riffle/pool ratios and quality and in-stream and canopy cover.

Water Quality

The primary potential water quality concerns in the Neversink as a whole are the contaminants contributed by atmospheric deposition (nitrogen, sulfur, mercury), those coming from human uses (nutrients and pathogens from septic systems, chlorides (salt) and petroleum by-products from road runoff, and suspended sediment from bank and bed erosion. Little can be done by stream managers to mitigate atmospheric deposition of contaminants, but good management of streams and floodplains can effectively reduce the potential for water quality impairments from other sources.

Storm water runoff can have a considerable impact on water quality. When it rains, water falls on roadways and flows untreated directly into the Neversink River. The cumulative impact of oil, grease, sediment, salt, litter and other unseen pollutants found in road runoff can significantly degrade water quality. There was one piped outfall documented during this stream feature inventory which conveys storm runoff from Denning Road.

Sediment from stream bank and channel erosion pose a potential threat to water quality in the Neversink River. Clay and sediment inputs into a stream may increase *turbidity* and act as a carrier for other pollutants and pathogens. There are currently 3 documented bank erosion sites in EBMU5 that could be sources of fine sediment. None of these sites represent a significant source of turbidity.

Nutrient loading from failing septic systems is another potential source of water pollution. Leaking septic systems can contaminate water making it unhealthy for swimming or wading. Four structures are located in relatively close proximity to the stream channel in this management unit. These homeowners should inspect their septic systems annually to make sure they are functioning properly. Each household should be on a regular septic service schedule to prevent over-accumulation of solids in their system. Servicing frequency varies per household and is determined by the following factors: 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 out more often.

The New York City Watershed Memorandum of Agreement (MOA) allocated 13.6 million dollars for residential septic system repair and replacement in the West-of-Hudson Watershed through 2002, and the program was refunded in 2007. Systems eligible included those that are less than 1,000-gallon capacity serving one-or-two family residences, or home and business combinations, less than 200 feet from a watercourse. Permanent residents are eligible for 100% reimbursement of eligible costs; second homeowners are eligible for 60% reimbursement. For more information, call the Catskill Watershed Corporation at 845–586–1400, or see **http://www.cwconline.org/programs/septic/septic_article_2a.pdf**.

Community Comments
Fall 2012

Station 14800 (Rio Alto) *"Debris pile makes more water flow through forested back channel."*

"Interested in stream bank protection, elevating my residence and new FEMA flood maps"

"Interested in stream bank protection, elevating my residence, channel maintenance, new FEMA flood maps and relocating my residence"