

Esopus Creek News

Ashokan Watershed Stream Management Program Newsletter

A publication of Cornell Cooperative Extension Ulster County

Broadstreet Hollow - Woodland Valley - Stony Clove - Fox Hollow - Birch - Beaverkill - Little Beaverkill - Peck - Bushnellsville - Bush Kill

Group Addresses Phoenicia & Shandaken Area Flooding

Phoenicia is located in the idyllic mountain setting where the Stony Clove Creek flows into the Esopus Creek. Much of the year the hamlet is an ideal location to enjoy the beauty of these mountain streams. However, when rapid snowmelt or torrential rains turn the creeks into raging brown rivers, Phoenicia is also an ideal location

to observe the impact of powerful floods. The past year's repeated flooding was a forceful reminder of this condition.

Last year was a particularly eventful flood year with two 25-year floods (or floods with a 4% chance of occurring per year) flowing down Phoenicia's Main St within a two-month period.

There are several causes of the increased tendency for flooding in Phoenicia. Bigger and more frequent storms are being recorded. The hamlet is also situated on a broad former flood plain at the tail end of one of the steepest and wettest mountain valleys in the Catskills. The hamlet



State, county NYC DEP, and local officials met in the field on December 8 to discuss flooding issues in Phoenicia.

and Route 214 have pushed this previously wild stream against the base of Sheridan Mountain, halting its natural tendency to wander back and forth before entering Esopus Creek. The consequence is the stream cannot adequately carry all the sediment delivered by a flood, potentially filling in the channel.

Also, the Route 214 bridge on Main Street at the base of the mountain forces the flood water and sediment to push through a relatively small opening resulting in water backing up above the bridge. The Esopus Creek at flood stage can prevent water from the Stony Clove from entering. A backwater effect from this can go all the way up to

the 214 bridge. Both constraints, at the bridge and at the confluence of the two streams induce more sediment deposition in the Stony Clove and flooding in the hamlet.

Historically, until 1980, the Town used to manage this section of stream by dredging (removing sediment) up and downstream of the bridge. Gravel re-

moval was a repeated practice because, in this setting, the next floods will be likely to deliver enough sediment to replace what was removed. Gravel removal is no longer a generally approved stream management practice, as it can potentially create more ecologic damage and channel instabilities than the temporary benefit is worth.

The trauma from the back-to-back floods and the potential for a heavy winter snowpack left the Town of Shandaken and many residents anxiously wondering, what was being done to prevent a spring flood downtown?

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We're on the web!

www.ashokanstreams.org



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Shandaken Area Flooding (Continued)

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In response, local, county, state and federal agencies and other stakeholders began meeting in December to identify strategies to minimize the risk to residents. The group is now known as SAFARI, or Shandaken Area Flood Advisory and Remediation Initiative.

The first action taken in December, at the request of the Town, was to see if the DEC

could expedite an application for a stream permit to remove sediment as a preventative measure against the risk of a rain on snow flood. The Esopus Creek Management Plan had investigated this option in 2006 and concluded that it might help, but only until the next flood filled the dredged area with new sediment.

In December, 2010, DEP agreed to fund the services of the engineering firm Milone & MacBroom (MMI) to develop a computer model to re-evaluate this option. MMI proposed a short term emergency strategy to remove stream bed sediment for about 600 feet upstream of the Main St. Bridge. The goal of this short term strategy was to temporarily increase the channel's ability to convey a similar 25-year flood without flooding downtown Phoenicia.

Based on MMI's design, the Town applied for a stream permit from the DEC in January, hoping for an emergency authorization under the Uniform Procedures Act. However, the project did not meet DEC regulatory requirements for emergency authorization, and the project was reviewed under the regular per-



Illustration depicting proposed gravel removal area for Phoenicia Bridge.

mitting process as a “major project.” DEC officials needed to give the project careful review to determine any negative impacts to people or the environment because of the complex nature of the project, the extent of stream disturbance, and the uncertainty of the benefit. Several specialty departments, such as floodplains, fisheries, and habitat analyzed the project.

The DEC granted the stream permit for the project in mid-April, and the Town must complete the permitted action by September 30, 2011. However, in general, DEC Region 3 does not permit gravel removal in streams due to significant evidence of adverse effects of the practice. This permit for gravel removal is a one-time approval to address immediate concerns, and requires the SAFARI group to develop a longer term plan to address the flooding and to monitor the impact of the stream work. SAFARI and the Town were already planning to develop a longer term strategy, given the temporary benefit expected from the gravel removal project.

The Town of Shandaken has received two grants through the AWSMP Muni-

pal Fund to support the development of a long-term, science-based strategy for mitigating flood risks in Phoenicia. The first grant was to hire MMI to conduct a more thorough investigation of Stony Clove Creek and develop a design to reduce flood elevations in the vicinity of the bridge that could be constructed in the short-run. The other grant is to hire consultants to work with the Town and SAFARI to enhance overall flood mitigation

efforts in the Town. The consultants will develop a plan and assist with carrying out plan recommendations that may include improved notification of pending floods to residents, mitigating flood-prone structures, and further infrastructure and stream channel modifications.

The consultant will also assist the Town in preparing an application into FEMA's Community Rating System (CRS) program. CRS will both help the town improve its floodplain management program and provide a reduction in Shandaken residents' flood insurance rates. Once some of the options are clarified, SAFARI plans to host a public meeting to answer the many questions on this issue.

Ultimately, no solution will entirely remove the threat of flooding in a hamlet located directly in a mountain stream's flood prone area. The goal of all of the efforts that are being undertaken is to reduce the impact that these floods have on residents and businesses while protecting the integrity of the stream corridor.



Catskill Streams Buffer Initiative Breaks Ground in Ashokan Watershed



An auger pre-drills planting holes to make tree planting a snap for these Stream Steward Volunteers.

The AWSMP Catskill Streams Buffer Initiative (CSBI) broke ground last fall on its first project in the Ashokan Watershed. On November 20, 2010, thirty volunteers from the area planted 425 native trees/shrubs and over 600 herbaceous plugs at a private residence in Oliveira, along the banks of the Upper Esopus Creek. This was the first of many planned CSBI projects to restore streamside vegetation in the Ashokan Watershed.

The CSBI is one of the streamside landowner assistance opportunities offered by our program. It is intended to assist landowners in protecting a critical part of the stream corridor – the riparian zone, or the area adjacent to the stream. Streamside (or riparian) areas are important transitional zones that connect water to land, and contribute to the health of the waters they surround. When they are well-vegetated, these buffer areas provide a number of important benefits including:

Streambank stabilization – The dense roots of streamside vegetation protect the bank from erosion.

Wildlife habitat – Many species of plants and animals depend on a healthy riparian zone for some or all of their habitat needs.

Shade and temperature control – The shade from vegetation helps to keep waters cool during the warm summer months when cold water fish, such as trout, become stressed.

Water quality protection – Streamside plants filter water running into the streams by removing pollutants and storing nutrients.

Flood mitigation – Well-vegetated floodplains slow overbank flows and encourage infiltration and replenishment of ground water.

Ideally, streamside areas should have a mix of trees, shrubs and herbaceous plants native to the region. Many of the



Catskill Streams Buffer Initiative

At the Root of Streamside Protection

benefits listed above are directly related to the width of the riparian buffer. The wider the buffer, the more beneficial it becomes!

The CSBI is under the direction of Ulster County Soil and Water Conservation District and its partners, Cornell Cooperative Extension of Ulster County and New York City Environmental Protection. The program develops riparian buffer management plans for land owners, and if an area is suitable for enhancement, can provide plants and labor.

CSBI is available to all streamside landowners within the NYC West of Hudson Watershed. For more information, please contact Adam Doan at the Ashokan Watershed Stream Management Program at **(845) 688-3047 ext. 7** or visit catskillstreams.org



Project site where trees were planted to reconnect forested buffer outlined in yellow.

Get involved in the fun! Join the Stream Stewards. Look for our upcoming events at www.ashokanstreams.org or call 845-688-3047 and ask for Gretchen.



Stream Assessment Begins on Birch Creek May 2011



Aerial view of Birch Creek along Route 28 between Big Indian and Pine Hill

Birch Creek originates north of Pine Hill, running through the hamlet, and then roughly along Route 28 until it joins the Esopus Creek in the hamlet of Big Indian. With a drainage area of 12.7 sq. miles, it is the fifth largest tributary to Esopus Creek.

Ashokan Watershed Stream Management Program staff under the direction of Ulster County Soil and Water Conservation District will perform a stream assessment of Birch Creek beginning in May 2011 as part of our ongoing work to assess the tributaries of Esopus Creek. The field team will also include interns from Ulster County Community College.

Stream assessments are critical to understanding our natural resources through mapping and describing the physical, biological and chemical characteristics of streams. Danny Davis, geologist for the DEP Stream Manage-

ment Program stated, “We use stream assessments to diagnose the condition of the stream channel and adjacent flood plain, much like a doctor completes a diagnostic assessment of a patient before determining what a patient’s condition is and what would be the best prescriptive treatment for that condition. We look at the historical context and available information as well as a detailed examination of the creek corridor by walking and mapping the stream channel from its headwater reaches to its confluence with Esopus Creek.” The AWSMP will use this diagnostic assessment to make recommendations regarding protection, management, and restoration of the stream’s “health.” The plan also presents an opportunity to educate and inform the public, Town, and relevant agencies on Birch Creek’s current conditions. Streamside residents along Birch Creek will receive letters with more information about the assessment, and we hope to meet with as many as residents as possible to learn what they can tell us about the creek.

The Birch Creek assessment will provide information on:

Locations of current stream bank erosion and sites at high risk of erosion in the future;

Likely sources of water quality impairment, including exposures of fine sediment (silt and clay) that lead to turbidity and piped outfalls of road runoff;

Locations along the creek with problematic or at-risk infrastructure, such as bridges, culverts, rockwalls, berms and road embankments;

Current or potential threats to aquatic and streamside habitat, including the presence of exotic invasive species (e.g. Japanese knotweed) and sources of pollution (e.g. road runoff);

A complete assessment of stream banks including: bank stability, revetment (riprap) condition, riparian (streamside) vegetation and sediment composition.

Goals for the Birch Creek assessment include:

1 Diagnose the stream corridor’s overall condition – where is it functioning properly and where is it ailing and could use some assistance.

2 Reach out and communicate with the residents along Birch Creek to share information about the creek and to learn about specific concerns and observations that those of you who live along the creek may have. We want to meet you!

3 Collect data on the physical characteristics of Birch Creek for future monitoring.

4 Create a Geographic Information System (GIS) database for Birch Creek to aid in mapping and assessment.

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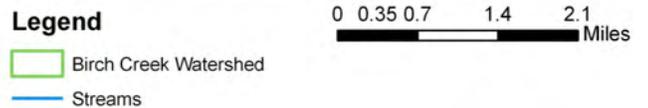
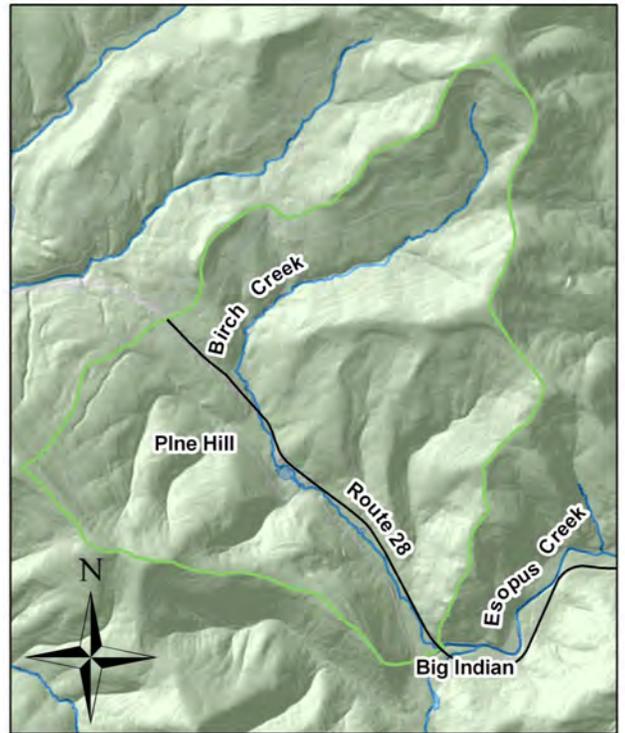
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5 Use the data collected to identify dynamic stream channels and floodplains that may shift in the future to help residents and the town in planning for sound land use practices.

6 Use the information from the assessment to educate the public about stream-friendly activities in the Birch Creek watershed.

If you have any historical photos of Birch Creek, we would be interested in scanning copies. Historical photos help us understand changes the creek has gone through over time. Contact us or stop by the office with your photos.

We hope to see you on Birch Creek this summer! If you have any questions, please call **Cory Ritz at (845) 688-3047** or email **cory.ritz@ashokanstreams.org**.



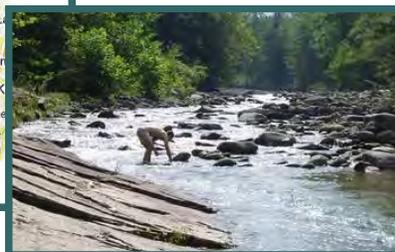
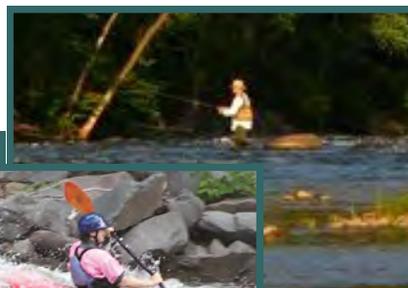
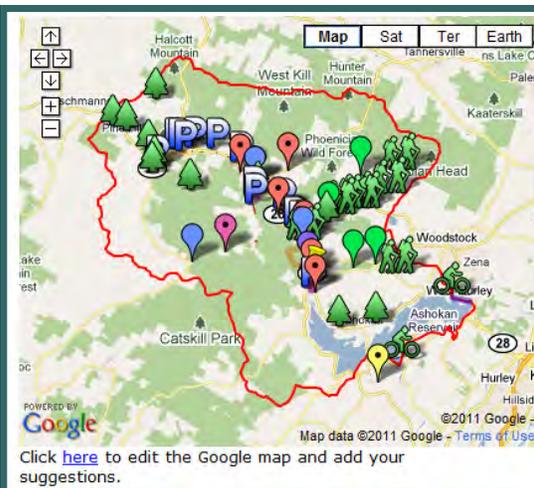
Map of Birch Creek Watershed

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Internship, "It helps me to broaden my scientific experience. It takes into account more than just geology; it also involves biology, ecology, and hydrology." After the internship, Newton has been accepted to study at the University of Michigan Geological Sciences Graduate Program. Sara can be reached at sara.newton@ashokanstreams.org.

Input Needed on Recreational Access to Streams

Online map of recreational access improvements recommended in the Ashokan Watershed



Do you have ideas for improving access to streams for recreation in the Ashokan Watershed? We want your input! Let us know about needs for improving recreational access for fishing, swimming, paddling, parking, hiking, or other recreation.

The Ashokan Watershed Stream Management Program has allocated some Stream Management Implementation Funds for improving recreational stream access in the Ashokan Watershed.

To share your ideas, respond to our online survey and/or mark locations on our online Google map with your comments.

<http://ashokanstreams.org/streamaccess.html>



2011 Calendar of Events & Classes

Streamside Restoration Plantings



Volunteers are needed to plant trees and shrubs for the Catskill Streams Buffer Initiative on the following dates:

Saturday, June 4	9:00 am – 12:30 pm
Saturday, June 11	9:00 am – 12:30 pm
Saturday, September 24	9:00 am – 12:30pm

Volunteers meet at our office 6375 State Rt. 28, Phoenicia (across from the former Margo's Restaurant)

All events are FREE but please RSVP! Call (845) 688-3047 or e-mail Gretchen at gretchen.rae@ashokanstreams.org

Streamside Erosion Class for Landowners Saturday, July 23, 9:30—12:30

CREEK WEEK, SEPTEMBER 16 – 25

Tour Stream Access Areas & Stream Talk
Saturday, Sept. 17, 9:30 am—12:30 pm

Home Stormwater Management Class
Tuesday, Sept. 20, 6:30 pm - 8:30 pm

Environmental Film Night
Friday, Sept. 16, 7:00 pm

Volunteer Tree Planting
Saturday, Sept. 24, 9:00 am – 12:30pm

Check our website for more Creek Week Events
www.ashokanstreams.org

We will have a booth and programs at the following events

Ulster County Fair, August 2-8

Shandaken Day, August 27

Olive Day, September 10

Culvert in Olive to be Improved After Washout

The flood that occurred on October 1, 2010 wiped out a seven foot diameter culvert on Traver Hollow Creek. This washout closed off all passage on Bradkin Road, cutting off access to residences.

Prior to the flood, the culvert had been identified by both the Town of Olive Highway Superintendent Jimmy Fugel and the Ulster County Soil and Water Conservation District as probably being undersized for the stream channel. In fact, prior to the culvert being installed, the crossing was served by a larger bridge, which was washed out during a major flood many years ago.

This case is not unique. Numerous culverts in the watershed are undersized or improperly installed. After damaging floods, culverts are sometimes restored to the same size, even though they are too small. Although cheaper and often expedient, undersized culverts can be more expensive over the long term as they need to be replaced more often and, when their capacity is exceeded, can contribute to stream channel instability and erosion. They are also more likely to become barriers to fish passage.

Upon recommendations from the Ashokan Watershed Stream Management Program, the Town of Olive was willing to install a larger culvert. The Town needed funding to support the project as there was a significant initial cost difference between replacing the existing culvert and designing, purchasing and installing a more appropriately sized culvert. The Ashokan Watershed Stream Management Program partner agencies provided support to the town: the



April, 2011 view of the former culvert location

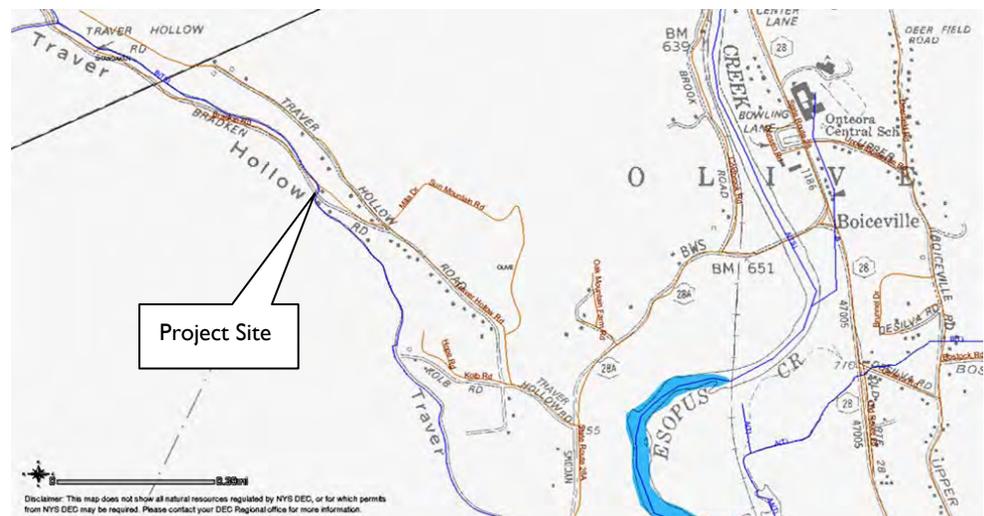
USDA Natural Resource Conservation Service and Ulster County Soil and Water Conservation District provided surveying and engineering design support to the project, with advice from DEP's engineering and DEC fisheries staff. Cornell Cooperative Extension offered funding through the Ashokan Watershed Stream Management Program Implementation Fund.

property, including emergency services access; elimination of the hydraulic channel constriction; reduced maintenance by the Town of Olive Highway Department; and restored habitat.

For more information about correct sizing and installation of culverts, see our website www.ashokanstreams.org, or call us at (845) 340-3990.

A new 25'4" by 9'5" rectangular box culvert designed for a 25 year storm will be installed this summer. A plunge pool will be installed to dissipate energy and the bottom of the culvert will be buried in the stream bed for improved habitat and fish passage. In the interim, the Towns of Olive and Shandaken worked together to provide a temporary crossing at a different location for residents to access their site.

The project's goals included: restore access for multiple residents to their



Map illustrating location of Traver Hollow and Bradkin Road. Culvert replacement is crossing Traver Hollow Creek off Bradkin Road.



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Free to residents by request.

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SCA Interns Provide Valuable Program Support

AWSMP welcomes Sara Newton, who started her Student Conservation Association (SCA) internship in January. The program also bids a fond farewell to Intern Jenine Tobey who completed her internship and a temporary position in March. SCA interns provide valuable assistance to the program by completing a specific project to during their employment from January through November.



(Top) 2010 SCA Intern & Temporary Employee Jenine Tobey.

(Bottom) 2011 SCA Intern Sara Newton on a DEP helicopter flight to Assess Birch Creek

In 2010, Jenine Tobey completed a photo monitoring study of large woody debris in Woodland Creek to investigate the conditions that cause woody debris to remain stable, create erosion, or become mobilized during floods. (see full article in Winter, 2010 Newsletter). Tobey also



provided interim administrative support through March after her internship.

Sara Newton is originally from the greater Cleveland area and completed her B.S. in Geology from Kent State in May, 2010. Sara will be assisting with the stream assessment of Birch Creek (see article p. 4). Her internship project will use a stream bank erosion model to study rates of bank erosion along Birch Creek. Newton states about the SCA

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