

Esopus Creek News

Upper Esopus Creek Management Plan Newsletter

Volume II, Issue I

Spring 2007

A Watershed Moment: Draft Esopus Management Plan Unveiled

Sometimes, it's easy to think that a whole lot of planning never gets us anywhere. But as A.A. Milne said, "organizing is what you do before you do something, so that when you do it, it is not all mixed up." After three years, the completed Draft Management Plan for the Upper Esopus Creek (above the Ashokan Reservoir) provides a tool so that we can actually start doing things to mitigate problems on the Esopus.

"Hopefully, this plan will become an information and learning tool used not only by government agencies but also private landowners and anyone interested in good stewardship of the stream," said Christine Baltz, a streamside landowner who participated on the Esopus Creek

Project Advisory Committee.

The advisory committee has been meeting for three years, bringing together sometimes conflicting interests in order to decide how best to manage the Esopus. The draft plan, though largely written by project staff and consultants, provides a framework for moving forward with coordinated stewardship actions.

To help put the plan into action, the New York City Department of Environmental Protection (DEP) has earmarked at least \$2 million in its budget for projects that lie within the Ashokan Reservoir watershed over the next five years.



But as Baltz emphasizes, involvement from local citizens is essential to turn the plan into a successful reality. "Without public input and commitment, the best developed management tool cannot be effective," she said.

"With the commitment of money from the DEP and the unveiling of the draft management plan, we

(Continued on page 4)

Plan Proposes Long-Term and Best Management Practices on the Esopus

Considering the amount of development in the Esopus Creek valley, the creek is in good shape. According to the 2005-2006 stream assessment, only 9 percent of the creek banks along the Esopus are actively eroding, a percentage that Dr. Craig Fischenich of the U.S. Army Engineer Research Development Center says is within the norm for well-forested mountain rivers. That said, there are a number of trouble spots along the

creek that are of concern to all stakeholders that merit monitoring and investigation to see if, and how they can be addressed.

To that end, we have identified 17 sites up and down the creek to begin monitoring in the summer, 2007. Reach 12 (between Bushnellsville and Fox Hollow) is an excellent example of a section of stream to monitor. It includes



representative examples of the type of erosion that can impact roads in other stream locations

(Continued on page 5)

Features...

Help Knock Back 2
Knotweed!

Mapping Crucial 3
Trout Habitat

"Paint the Stream" 3
Youth Arts Project

EPA Proposes Ten 4
Year Renewal of
Filtration Waiver

Calendar of Events 6

Upcoming events...

- Esopus Creek Cleanup
5/19/07 8:30am
- Esopus Creek Quarterly Meeting
6/23/07 9:30am
- Stream Team Workshop
7/21/07 9am-4pm
- Paint the Stream Art Opening
8/11/07 5pm-7pm



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Help Knock Back Knotweed!



“The plant must be pulled, cut, and then dried and burned or put in plastic bags and buried in a landfill.”



Cornell Cooperative Extension of Ulster County, partnering with Soil and Water Conservation District of Ulster County, are asking landowners in the upper Esopus Creek watershed to help stop one of our region’s most aggressive invasive plants: Japanese knotweed (*Polygonum cuspidatum*). Initially introduced to the United States as an ornamental in 1825, this rapidly advancing plant disrupts native

ecology by taking over stream banks and replacing indigenous plants normally found there. Knotweed provides little or no benefit to fish or wildlife and appears to have no natural enemies in this area.

With its large heart-shaped leaves, stems resembling bamboo that grow up to ten feet tall, and distinctive sprays of delicate white flowers that bloom in August, Japanese knotweed is easy to identify. In 2005, Esopus Creek Management Plan staff began mapping infestations along the upper Esopus Creek. Last year, the Ulster County Soil and Water Conservation District set up a control project at the Esopus Creek Stream Restoration Demonstration Project Site at Woodland Valley, where three different methods for reducing and eliminating knotweed were tested throughout the spring and summer months.

This year, Cornell Cooperative Extension is talking with landowners to find one or two sites to further pilot knotweed eradication methods on the upper Esopus Creek. The plan is to start above Birch Creek in areas where further infestations are still preventable. “Thick infestations are much more difficult to eradicate, so immediate efforts are best spent on preventing infestation of more



pristine upper reaches,” says Sarah Tarallo, an Extension intern for the knotweed project.

Japanese knotweed’s deep and dense root structure makes it particularly hard to get rid of. The plant must be pulled, cut, and then dried and burned or put in plastic bags and buried in a landfill. This rather arduous procedure is required, because even small plant remains can start new infestations. And it usually takes several years of this work to exhaust this pesky invasive.

But just clearing the knotweed is not enough. As is the case with other invasive plants, native plants need to be planted in streamside areas in order to prevent this plant pest from coming back.

The best candidates for our project are streamside landowners with recent infestations (one to two years old) who are willing to try out different methods of eradication and then plant native streamside plants. We can connect community volunteers and/or youth groups to help with eradication and planting. Financial assistance may also be available through our project to share the costs for planting native species. Additionally, the New York State Department of Environmental Conservation (DEC) is offering matching grants of \$7,500 to \$100,000 for eradication of invasive species. For more information, go online to:

www.dec.state.ny.us/website/dfwmmr/habitat/erad.html.

To learn more, call us or attend our quarterly meeting on Saturday, June 23rd (location TBA). The meeting will focus on getting a variety of volunteer stream projects going, followed by a stream walk that will include how to identify invasive plants, find them on your property, get rid of them, and help restore ecological health in our waterways.

Mapping Crucial Trout Habitat

It's common knowledge that trout need cold, clean water to survive, and—being sensitive creatures—when their waters are polluted or disturbed, trout are among the first species to disappear. So, as temperatures in all kinds of environments increase due to global warming, and as development and other projects disrupt our local waterways, it's important to understand as fully as possible the habitats that trout and other highly valued native watershed species need in order to survive.

The natural flow of the Esopus Creek is altered significantly by the Shandaken Tunnel, which brings substantial amounts of cold water into the Esopus from the Schoharie Reservoir as the water makes its way to downstate faucets. In the summer, this cold water helps to sustain trout below the Portal.

But on the Esopus above the Portal, in its tributaries and the tributaries to the Ashokan Reservoir, trout depend on what are called “thermal habitats”—pockets in the stream where the water temperature differs from that of the nearby flowing water. Except for when the snow is melting or when it's raining, most of the water in streams, creeks and rivers comes from groundwater that enters these waterways along their banks or in their beds. Because groundwater temperature stays relatively constant throughout the year and generally correlates with the *average* annual air temperature where it percolated up from the ground, groundwater is cooler than the running stream in the summer and warmer in the winter.

Thermal habitats occur where groundwater seeps up into creek

or streambeds. They can also form at mouths of tributaries, in the downstream ends of gravel bars, and at bridge abutments. Thermal habitats vary in size—some can be quite small—and trout may concentrate in them on hot days. Dark green algae mats can grow in them, and in the wintertime, their location is revealed by areas of streambanks where the snow melts first.

Some thermal habitats are more important to trout than others, and some are also more at risk. In the summertime, road runoff downstream of stormwater outfalls can raise the temperature in thermal habitats. Those located on the inside of bends in streams, where flows are slowest and waters don't mix as fast, may be lost if the stream is realigned.

The Ashokan-Pepacton and

(Continued on page 6)



Volunteers from the Phoenicia Fish and Game Club and others helped the NYS DEC stock the Esopus Creek with 6,000 brown trout yearlings on April 19.

“Thermal habitats occur where groundwater seeps up into creek or streambeds.”

“Paint the Stream” Youth Arts Project to Brighten Phoenicia

As a result of local artists' initiative, Main St. Phoenicia will be adorned with stream-inspired artwork created by young people this summer. Christie Scheele and Michelle Spark, two local artists living in the town of Shandaken are organizing the project. “Paint the Stream” will be a series of 2 foot by 4 foot and 4 foot X 8 foot panels that will be installed throughout the town of Phoenicia for a minimum of six weeks; some may stay more permanently. The painted lightweight aluminum panels can be offered as a traveling exhibition to other towns. A grand opening event and youth-lead art tour is planned on completion of the installation on Main Street,

Phoenicia for Saturday, August 11 at 5pm.

This summer project is for a group of 15 youths aged 9-13 from the hamlets in the upper Esopus Creek Watershed (above the Ashokan Reservoir). The project is estimated to run for one week from 10:00am - 3:00 pm and will include introductory education on stream habitat and physical functions. The topic for the mural will ultimately come from the youths' experience of the stream. Exercises that include direct observation of stream life, drawing, photos and 'expert' naturalist guests will stimulate development of images.



Cornell Cooperative Extension of Ulster County Cooperative Extension is the sponsoring agency with additional funding from the Catskill Watershed Corporation, Kids in the Catskills, and the Phoenicia Rotary (as of publication).

For a participant application or to host a painting, contact Cornell Cooperative Extension of Ulster County at (845) 340-3990, stop by the Phoenicia Plaza Office, or download an application from our website at www.esopuscreek.org.

EPA Proposes Ten Year Renewal of Filtration Waiver

After an extensive review of New York City's current and future plans to protect the source of 90 percent of its drinking water, the U.S. Environmental Protection Agency (EPA) has proposed to continue allowing the city to not filter drinking water from the Catskill/Delaware system (which includes the Esopus Creek) for a ten-year period. Previous renewal periods were for five years.



The renewal is contingent upon the city ensuring that the quality of the water from this system remains excellent. Toward that end, EPA is proposing to require several measures that will enhance the city's watershed protection plan, including the city's commitment of \$300 million over ten years for purchasing and preserving land in the Catskill-Delaware watersheds.

The federal Safe Drinking Water Act requires that all drinking water taken from surface water sources must be filtered to remove microbial contaminants. However,

the law allows EPA to grant water suppliers a waiver from this requirement if they demonstrate that they have an effective watershed control program and that their water meets strict quality standards.

EPA can at any time within the proposed ten-year period require the city to filter the water from this system if the agency determines that the quality of the drinking water is threatened. To keep the FAD renewals in place, the city has had to implement a number of specific long-term watershed protection measures, according to a set time frame. Development of stream management plans for streams feeding the drinking water system, such as the Esopus Creek Plan, is a part of those protection measures.

The new draft FAD covers all of the city's ongoing watershed protection programs and includes enhancements to many of them. The additional \$300 million to purchase and preserve land

throughout the Catskill and Delaware watersheds over the next ten years is a significant boost to the city's land acquisition program.

The EPA will re-evaluate all other watershed protection programs prior to the mid-point of the FAD in 2012, and revised commitments will be established as appropriate.

The EPA welcomes public comment on the proposed FAD renewal. Written comments should be sent to New York City Watershed Team, EPA Region 2, 290 Broadway, 28th Floor, New York, NY 10007. They may also be submitted via email at sweeney.philip@epa.gov. Comments will be accepted through May 31, 2007.

For more information on the New York City filtration avoidance determination or a copy of the proposed FAD, please visit: <http://www.epa.gov/Region2/water/nycshed/public.htm>.

A Watershed Moment: New Draft Management Plan Unveiled (con.)

(Continued from page 1)

now have the opportunity to really do some things that will benefit the Esopus and its tributaries as well as the landowners who live by these waterways," said Cornell Cooperative Extension Community Educator, Michael Courtney. "The next step is to develop a process to help community members, project staff, consultants and others involved prioritize the projects in the plan." Courtney added that the group



that evolves to implement the plan would also seek other grant sources for matching funds in order to multiply the money available.

So, what does the plan actually say? Over the course of three volumes, there are 47 different recommendations. (The entire draft management plan is available online at www.esopuscreek.org or on a free CD-ROM from Extension by calling (845) 340-3990.)

Flooding and Erosion

As we are reminded each time there is a flood, floods are destructive—and expensive! The total 2005 flood expenses for the Town of Shandaken Highway Department were \$2,172,109. Though the Federal Emergency Management Agency (FEMA) reimbursed the Town \$1,094,363—slightly more than half—the 2005 flood still left locals with a tab of \$1,077,746. To the

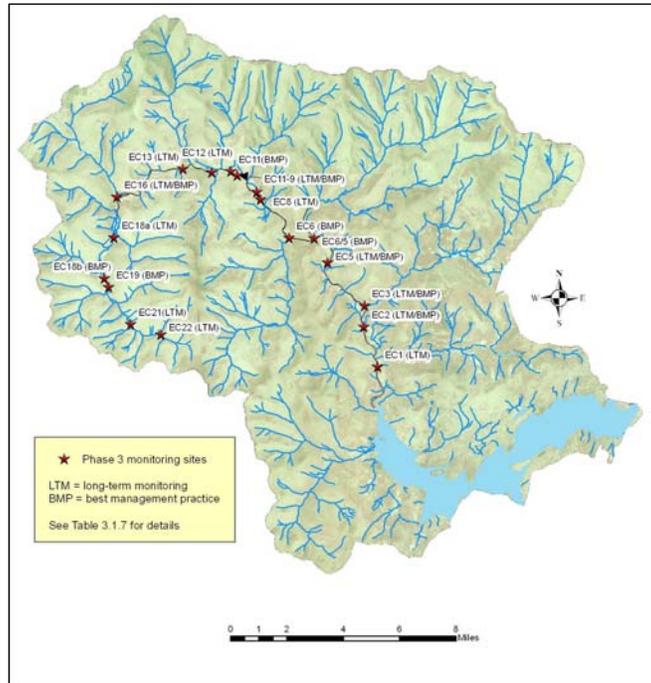
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Plan Proposes Long-term Monitoring (con.)

(Continued from page 1)

and cause turbidity. The reach also contains examples of channel shifting, flooding and variable streamside conditions. A US Geological Survey stream gage is located at the downstream end of Reach 12 to provide water level and flow information. With all of these features, this stretch of the creek is a good area to study to see if we can figure out how to deal with some of the classic Catskill stream erosion problems.

The Upper Esopus Creek Draft Management Plan also supports putting in place “best management” practices for stream-related projects. Best management practices are a system of methods, measures, or practices designed to protect property and structures while also preventing or reducing adverse



impacts on the stream.

Five sites with chronic or acute erosion or flooding problems were identified for developing best management practice (BMP)

designs and analysis to find the most effective way to mitigate these problems. Here’s an update on the work done so far at these sites:

- ◆ Work has started to evaluate the effectiveness of removing streambed sediment in the Stony Clove Creek at the Main Street bridge in Phoenicia to alleviate flooding. A HEC-RAS computer model of the stream was used to assess this option. However, the model showed that the streambed would fill in again following a single 10 year flood, limiting the usefulness of dredging. Thus, the plan recommends further long term options be sought out.
- ◆ The section of the Esopus by the Shandaken Town Hall has serious stream alignment problems, bank erosion, and excessive deposition of gravel and cobble. A topographic survey and conceptual design for realigning this section of the stream is presented in the plan.
- ◆ Aerial photos and anecdotal history reveal that chronic and occasionally severe erosion has been an ongoing problem between Broadstreet Hollow and the Allaben cemetery for decades. This section, just below the Shandaken Tunnel, needs to be surveyed, and a solution should be developed for the entire reach of several thousand feet.
- ◆ The section of stream between the old railroad trestle in Big Indian and the confluence with Birch Creek at Route 28 is very unstable. Some of the problems there may be able to be addressed with bioengineering techniques, which use a combination of physical engineering concepts and plants to stabilize stream banks.
- ◆ The Ulster County Soil and Water Conservation District and the New York Natural Resources Conservation Service (NRCS), a division of the U.S. Department of Agriculture, are working on a natural channel best management practices assessment and design for the reach upstream of McKenley Hollow that washed out parts of both Brown and Rustic Roads in April 2005.

There’s plenty more sites that could be on an active list to evaluate and address. In this planning effort, we intend to keep the list active and productive.



“..the streambed would fill in again with the next 10-year flood...”



Project Advisory Committee (PAC)

Broadstreet Hollow Landowners Association

Catskill Center for Conservation & Development

Catskill Mountain Railroad

Natural Resources Conservation Service

New York City DEP

New York State DEC, Region 3

New York State DOT Region 8

SUNY Ulster

Town of Olive

Town of Shandaken

Town Tinker Tube Rentals

Trout Unlimited

Ulster County Highway Department

Ulster County Dept. of Planning

Ulster County Soil & Water Conservation District

Woodland Valley Landowners

Zen Environmental Studies Institute

Cornell Cooperative Extension of Ulster County—Facilitator

Calendar of Events



Join us for these upcoming events!

Contact Michael Courtney via email(mcc55@cornell.edu) or by calling 688-5496 or 340-3990 to let us know you will be attending.

**Sat., May 19, 8:30 am-1pm
Esopus Creek Cleanup
(June 16 Rain Date)
Meet at Phoenicia Plaza on Rt 28. We'll carpool to cleanup locations. Lunch provided after the cleanup.
Please sign up! (845) 340-3990**

What to Bring: Water, work boots, long pants, long sleeve shirt, sunscreen & hat, insect repellent, trash poker & BBQ tongs for trash

pickup. We'll provide gloves if you don't have them and trash bags.

**Sat., June 23, 9:30am-12:30pm
Esopus Creek Watershed Quarterly Meeting
Location TBA**

Meeting to focus on organizing local stream projects including invasive species control, streamside restoration projects, and stream monitoring. Stream walk to follow meeting on invasive plants and existing restoration project.

**Sat., July 21, 9:00 am- 4:00 pm
Stream Team Workshop
Phoenicia Plaza Office**

Be a part of the Stream Team! Learn to sample and identify stream-dwelling insects. Impress your friends with insect names like

“hellgrammite,” and tell the difference between caddisflies and stoneflies. We'll tabulate the diversity of stream insect life and post results on the internet. Free.

**Sat., Aug. 11 5:00pm-7:00pm
“Paint the Stream”
Community Youth Art Project
Main St. Phoenicia at the “Boardwalk”**

Stream-inspired artwork painted on panels by youth aged 9-13 adorning local businesses in Phoenicia. Opening includes youth-led tour.



Mapping Crucial Trout Habitat (con.)

(Continued from page 3)

Catskill Mountain chapters of Trout Unlimited are working with Cornell Cooperative Extension of Ulster County to inventory and map thermal habitats in tributaries to the Esopus and Ashokan Reservoir and on the Esopus above the Portal. This endeavor will help minimize impacts to these crucial cold-water trout refuges during work that is planned for the watershed.

If you identify thermal habitats, please contact Walt Keller at (607) 652-3143 or by email at kelcon@dmcom.net so that we can include your information in the inventory. Your efforts will help keep trout safe!

A Watershed Moment: New Draft Management Plan Unveiled (con.)

(Continued from page 4)

extent that preventative measures can be taken where infrastructure and stream processes intersect, the efforts pay off.

The plan recommends providing affected streamside landowners with technical assistance to deal with erosion and flooding problems in cost-effective ways. There are tentative plans to create a staff position by next year to provide this expertise through the Ulster County Soil and Water Conservation District. This position would be housed at Cooperative Extension's Phoenicia Office.

The plan also suggests developing funding mechanisms to help

landowners prevent erosion, particularly for maintaining forested streamside buffers. The program is still in the very early stages of development.

Volume III of the plan also identifies five locations needing special attention to be evaluated



for possible stream management projects, and it lists management options for watershed leaders and

(Continued on page 7)

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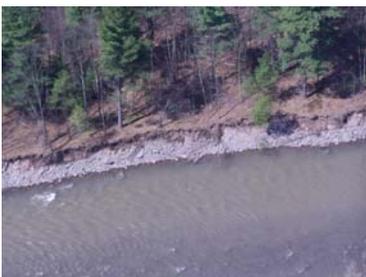
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the community to consider implementing. (See article pg 1).

The plan also calls for seeking local town adoption of the plan and land use practices that incorporate sustainable stream management principles.

Education

Good, cost-effective management practices that help landowners prevent erosion and flood damage can only be put in place if people



know about them. As a result, the plan has a heavy emphasis on education.

One of the most important ways to protect property from erosion is to maintain a wide and healthy forested buffer along the stream. Some of the worst erosion problems occur in areas where all the trees and shrubs have been mowed down to the bank's edge. Spots with only one row of trees along the bank are also vulnerable, because if the trees go, there is nothing left to slow the process of erosion—especially during high floods.

Streamside buffers, often referred to as “riparian buffers,” are wide sections of tree and shrub areas that provide numerous important functions. The roots hold the soil

together and filter many contaminants out of the water.

Water Quality

But what about that Yoo-Hoo brown color that is too often seen in the Esopus? Research conducted in the preparation of the plan found that a significant source of turbidity is fine sediments in the creekbed as well as clay exposures. Yet, because the creek is constantly shifting, clay exposures that are eroding during one storm may cover over and “heal” within weeks or months. Nevertheless, the plan recommends finding and addressing long-term, chronic sources of turbidity in the tributary streams of the Esopus.

Over time, development in the watershed has increased runoff flows, which can increase the flow of sediment into the creek.

Limiting sediment contributions from ditches and other runoff are important in order to help reduce turbidity.

The plan does support the development of operational and/or structural modifications at the Shandaken Tunnel to reduce turbid water flows that are being evaluated in the DEP Catskill Turbidity Control Study.

In that study, the DEP compared several alternatives for reducing the amount of clay sediment delivered to the Esopus by the Shandaken Tunnel from the Schoharie Reservoir. Based on the study results, one likely scenario is to adjust the rates of water flowing through the Shandaken Tunnel depending on the conditions in the Schoharie Reservoir at any given

time. This would require complex changes across the reservoir system to meet flow demands for New York City's taps, provide enough water for recreational flows, and save enough cold water to flow throughout the summer for trout. The study is available on our website at www.esopuscreek.org.

Aquatic Ecosystems

Despite the variations in turbidity and flows in the Esopus, most fish and the ecosystems that support them are generally healthy. The plan strongly recommends continued biological monitoring and mapping cold-water, or “thermal,” pockets which trout need in order to survive during extra-warm periods. Thermal pockets are created by underground seepage into the creek, and they are critical for trout, since cold water holds more oxygen (see article p 3).

The project's Aquatic Ecosystem Work Group is developing studies recommended by the plan. Examples include monitoring the biodiversity of macroinvertebrates (tiny stream-dwelling insects) to learn more about how they are affected by the Shandaken Tunnel

and further mapping of wetlands in the Esopus Creek corridor, since these critical areas may also seep cold water into the creek.

Recreation

The Esopus Creek provides an outstanding recreational resource for angling, tubing, paddling, swimming, and hiking for thousands of people each year. Flows from the Shandaken Tunnel often provide critical flows for white-water recreation. At the same time, turbidity from the Shandaken Tunnel reduces the aesthetic quality of recreation. So, operational changes to how water flows through the Shandaken Tunnel would also benefit recreational activities on the Esopus. In addition to reducing turbidity, the plan also calls for improving the predictability of recreational releases through the proposed operational changes for the tunnel. Another recommendation includes enhancing coordination between those who request recreational Tunnel flows and the agencies that control them: the DEP and the New York State Department of Environmental Conservation (DEC).

(Continued on page 8)





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A Watershed Moment: New Draft Management Plan (con.)

(Continued from page 7)

To address conflicts between different stream enthusiasts, the plan advocates the creation and promotion of a code of conduct for creek users. It also calls for a community bulletin board on the kiosk erected at the Woodland Valley confluence, which will identify the location of hazardous spots on the stream. Other recommendations include improving or creating new recreational access areas with bathrooms and considering enhancing white-water recreation features when stream restoration projects are completed.

Making It Happen

How will all of this become a reality? The plan also has specific recommendations for coordinating the watershed decision makers. The current Esopus Creek Advisory Committee is encouraged to expand and continue meeting to establish a more formalized and permanent watershed organization. The plan suggests action plans be developed every two years to update management priorities. It also recommends that a set of stream stewardship principles and a protocol for post-flood response be devised and adopted by town governments.

Overall, the prognosis for the Esopus Creek is good, but there are also many ways to improve the quality of the creek and preserve this precious resource well into the future. And while there is still more to learn, there is plenty of work to be done. Contact us to get involved or come to one of our events this spring and summer!

Although the plan will be an evolving document, comments on the draft are invited through June 30. See contact information on left of this page.

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