Batten Kill Watershed Alliance

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WINTER 2009/2010 NEWSLETTER

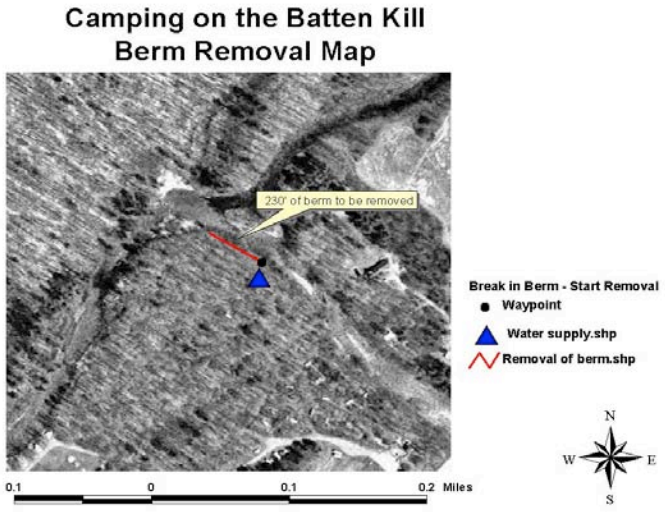
******Alliance completes Berm Removal project on Roaring Branch******
******Bugs Bountiful in the Batten Kill?******
******Ambitious Plans for the New York Watershed******

Berm Removal at Camping on the Battenkill

The removal of a section of the berm along Roaring Branch near the confluence with the Batten Kill in Arlington took place in November. The site was identified as the number one priority in terms of restoring river dynamics in the geomorphic study of the watershed by Dr. John Field. The goal is to increase access to the natural flood plain in order to reduce the velocity and erosive force of the stream, to reduce the level of flooding, and to reduce excess sedimentation from nearby banks.

Looking downstream along area from which the section of the berm was removed, with newly planted trees in the foreground. The big eroded bank is in the distance.

Thank you to Lesley Nase and Peter Pratt, the owners of Camping on the Battenkill, for participating in this project. The lower section of their campground is one of the few areas in the Batten Kill watershed where a section of a berm can safely be removed since there are no structures behind it, and the area already floods from other directions. But that does not diminish the fact that they took a big step in allowing the project to be undertaken. We hope that allowing this added flood plain access may diminish the pressure on other parts of the campground with structures.



Roaring Branch has been bermed repeatedly in the past. This channelization has resulted in a kind of fire hose effect that directed the combined force of the 'Branch and the 'Kill into the high bank opposite, resulting in a mass failure and significant excess sedimentation into the river. Excess sedimentation can smother insects and fish fry, fill in pools, and cause the build up of bars and islands downstream, contributing to erosion.

We removed 230 feet of the berm – just this removal adds hundreds of square feet of flood storage in the area that was the footprint of the berm. As the 'Branch rises it will be able flood out into the new bank area, lessening the force of the flood flow. It is kind of like a safety valve release. It will be interesting to see how the streambed may adjust to this change over time.

Bruce Waite and his 'feller-buncher' seizing a tree to pull it out. Note the height of the berm in the background.

First the trees were removed from the berm. Then an operator and machine excavated the berm. He did this by getting the machine on top of the berm and essentially digging it out from under himself, moving backward gradually. The material of the berm – mostly river stones – was taken away to be processed into gravel elsewhere. A new bank was shaped sloping gradually to the water level. Then trees from Drinkwaters' Nursery in Waterford, VT were planted all over the area, and it was seeded to grass and mulched. I will monitor the site over the winter and probably plant more trees in the spring.

Dydo & Co operator digging the berm out from under his machine and loading the material into the truck.

In addition to thanking the landowners, we need to thank Shannon Pytlik from the Vermont River Management Program for guiding this project, and the Vermont Center for Clean and Clear for funding it. We also need to thank Fred Nicholson, retired Vermont Stream Alteration Engineer. Over 10 years ago, before the Alliance even existed, there was a meeting at the giant eroding bank to discuss the problems of excess sedimentation stemming from it. At that time Mr. Nicholson said that trying to stabilize the bank with stone or tree structures at the base would not work due to the scouring force of the current. He recommended removing a section of the lower berm in order to reduce the fire hose effect. Well, let's everybody take note of the fact that we just did that. It is important to mark these specific accomplishments that are possible only because so many people work together.

[Map from Shannon Pytlik of VTANR, photos by C. Browning.]

"Bugs in the Batten Kill"

The Batten Kill Watershed Alliance of New York and Vermont sponsored a presentation entitled "Biological Assessments of Rivers and Streams in the Batten Kill Watershed" by Steve Fiske in November. Mr. Fiske is an Aquatic Biologist in the Vermont Water Quality Division. The presentation summarized sampling of benthic macroinvertebrates (aka aquatic insects) throughout the Batten Kill watershed over the past twenty years.

The quality and quantity of insect life is one way to evaluate the condition of a stream. A number of factors are measured, including the sheer numbers of insects, the diversity of species, and the proportion of certain species. The measurements are compared to reference criteria of conditions in wild streams. If a stream has a water chemistry that is too acid or too alkaline, has too heavy a nutrient load, is too warm, or has excess sediment it will contain snails, worms, and leeches, but few of the mayflies, caddisflies, and stoneflies on which trout rely for food. Of the sixty seven samples from the

Batten Kill watershed, fifty were ranked good, very good, or excellent. Excellent means as good as a natural stream without degradation from changes in land use or

Mayfly

human activities. Only 3 were ranked as poor: one Munson Brook sample and two Lye Brook samples. These results are related to the water chemistry issue: Munson Brook tends to be quite alkaline because of the marble in the bed, and Lye Brook has high acidity due to acid rain and granite.

Stonefly

Despite the results presented by Mr. Fiske, not everyone is convinced that BK insect life is as good as it should be. Some anglers can recall very heavy hatches, the likes of which are not seen of late. Since there is no comparable data from the 1940s or the 1960s, it is impossible to really know the density and diversity of the insect population at that time. It is certainly possible that particular combinations of weather and water conditions could result in extraordinary hatches: population variation in nature can be extreme. Even though the BK may now be very good, it may have been better. Some think it is the absence of nutrients from sewage and manure from the stream, but I do not thing we are going to put those things back! There is the possibility that certain chemicals used in maintaining lawns and golf courses could be accumulating in the stream sediment, which might be toxic to insects and fish. This is to be studied.

But Mr. Fiske's results do confirm the conclusions of the study of the Batten Kill fishery in Vermont from several years ago. Those scientific studies determined that the missing habitat component is not insects or water temperature or any of 10 other variables studied. It is cover and shelter for the trout, which is especially important to small to medium sized fish. Cover and shelter is provided by any streambed characteristics that can protect the fish from predation, floods, ice, or hot weather. Examples include pools, overhanging trees, undercut banks, large rocks and large woody debris in the stream. Those of you who have been following the activities of the Alliance know that we have been working with our partners to put cover and shelter back into the stream through structures of trees and stone. We have restored almost one and a half miles in Vermont and short sections in New York.

As I mentioned in the announcement of the Annual Meeting, it is possible that the large woody debris involved in the structures may increase the insect population as well as providing cover and shelter. This is because some aquatic insects feed on the biologic film of algae, bacteria, and fungi that form on the surfaces of the wood structures and the smaller organic materials of sticks and leaves that collect on them. In addition, the many small currents and pools that are created as the water flows through them create additional access to the nutrients in the water for aquatic organisms, potentially increasing the biological productivity of the same level of nutrients in the water.

By the way, speaking of conditions in the river: the creamy bubbles and foam visible in the Batten Kill at times result from gases related to the natural processes of decaying organic matter. They do not represent pollution or a bloom of invasive algae.

Caddisfly

The best actions to protect both the river and the people who live along it and love it is to minimize the use of all chemicals, to keep the riverbank planted with trees and bushes, and to let trees that fall into the river stay there as much as possible. Then we will likely have many fish along with many insects.

[Insect photos by Peter Bellamy, BKWA Board member]

New York Plans for 2010

A planning meeting with representatives from the NY Department of Environmental Conservation, the US Fish & Wildlife Service, the Washington County Soil & Water District, Trout Unlimited, and the Alliance was held in November. The group determined to begin on the BK near the NY/VT border and work downstream, removing old inappropriate bank structures of timber that are causing erosion, improving river dynamics, and installing cover and shelter structures. We will also continue to work on the dynamics of White Creek. We will be looking at flooding, sediment transport, and dynamics upstream in in VT to develop solutions to the problems downstream in NY. This work across the state border is the full realization of the mission of the Alliance as a bi-state organization.

Rock vanes angled upstream to restore a meander and improve river dynamics at Foster Farm in Shushan, NY. Vanes with the open end upstream direct the force of the current back to the center and build up sediment deposits behind them.

Looking upstream at stone J-hook to improve river dynamics and stabilize bank at Hibrow Farms, Salem, NY.
[NY photos by C. Browning.]

Please contact me with any questions or suggestions, and visit our website for more information about our projects.
Please renew your membership or join us for the first time. – Cynthia Browning
BKWA Executive Director

$30 basic membership
$50 supporting membership
$100 sustaining member

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