

NEWS FROM THE MID-ATLANTIC HIGHLANDS

ECHO

Twin Lakes Park Alternative Wastewater System

two years later and still a model for success

Challenging site conditions required an innovative design for this onsite wastewater treatment system at a Pennsylvania county park. Two years later, the system is a valuable model for other rural onsite systems in areas with thin soils.

Twin Lakes Park is considered by many to be the crown jewel of the Westmoreland County, Pennsylvania parks system. Paved walkways circle both the lower and upper lakes and are popular walking and exercise paths.

But in a 1999 survey, the county Bureau of Parks found the major complaint of park users was the primitive pit toilets they had to use. The toilets frequently smelled. Besides this, it was costly to pump the toilets and dispose of the waste. The Parks and Recreation planners were also concerned that inadequate wastewater treatment might harm the water quality of the lakes—so they began to investigate options to improve the situation.

Identifying viable alternatives was a challenge, given the difficult topography and thin soils that defined the site where the treatment system needed to be constructed. Site conditions did not allow for a conventional onsite septic system. And the park is used every summer for the Westmoreland Arts and Heritage



The lower lake at Twin Lakes Park.

Festival (one of the Top 100 Events in America) and a summer concert series—both bring surges of thousands of park visitors. Any design solution would require innovative technology and flexibility from regulators in terms of permit conditions.

A partnership formed to begin evaluating various technologies, made up of the Westmoreland County Bureau of Parks, Penns Corner Resource Conservation and Development Council, Canaan

Valley Institute, the Pennsylvania Department of Environmental Protection, the USDA Rural Development, Unity Township Municipal Authority, and local engineers. Small Flows Clearinghouse provided onsite technical advice to help with the decision-making process.

After much consideration, a decision was made to install a peat filter-type system as an experimental design. Congressman John Murtha secured federal funding and Canaan Valley Institute provided \$33,000 for the technical design. Construction was completed in April of 2002.

CVI's Priority Areas: Reaffirming our Focus

In the spring of 2004, Canaan Valley Institute's Outreach, Education, and Science & Technology teams got together to look ahead and plan for our future.

We asked ourselves several questions:

What are the needs of our stakeholders?

What are our capabilities? In other words, what expertise do we currently possess—and what kind of work does our funding permit us to do?

How can we best fit the needs of our stakeholders with our capabilities?

Over the past nine years of working with hundreds of organizations across the Mid-Atlantic Highlands (for example, community watershed groups, state agencies, and local governments), the needs of our stakeholders have become clear to us. Our expertise has

become established in several areas of innovation. And our funding, primarily in the form of federal grants, specifies what kind of projects we are able to collaborate on and what services we are able to provide.

As the result of meshing our stakeholders' needs with our own capabilities, CVI has formalized five "Resource Priority Areas." These priority areas do not mean we're doing anything new at CVI; it means that we are structuring our work into five broad categories and reaffirming our focus.

CVI has committed to these five program areas:

- Stream restoration
- Wastewater
- Source water
- Flooding
- Conservation planning.

In addition, we will devote 30% of our time to projects that don't neatly fall into the above categories, but that are innovative, fundable, can produce measurable results, and fall within CVI's general mission.

The impetus for this formalization into five program areas was the increasing demand for our services. There is growing demand for decreasing resources from all service providers—state, federal, county, local, and foundations. With resources for public agencies becoming scarcer and budgets tighter, many more groups are turning to CVI. With greater demand for our services, we don't want our efforts to be diluted and our effectiveness to be decreased. We want to ensure that CVI continues to provide a high quality of service to our stakeholders.

Canaan Valley Institute's Resource Priority Areas

Stream restoration—Promote the use of natural stream channel design principles to enhance the natural form and function of stream systems, and to return them to desired uses.

Wastewater—Promote alternative and decentralized wastewater treatment systems.

Source water—Promote protection and management of water sources to achieve desired community uses.

Flooding—Promote and support stakeholders in flood management planning

Conservation planning—Promote and assist local land management efforts through local landscape assessments and development of targeted protection strategies in support of other resource priorities.

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Unfortunately, we won't be able to help all those who request assistance, so we must prioritize requests for assistance according to their relevance to our priority areas and capabilities. CVI has been working in these priority areas for several years and has a successful track record in each. This issue of *Echo* highlights just a small sample of this work.



Kiena Smith, Executive Director



Canaan Valley Institute
WORKING FOR THE SUSTAINABILITY OF THE MID-ATLANTIC HIGHLANDS SINCE 1993

Canaan Valley Institute helps communities identify environmental problems and brings scientific information, technology, and funding to implement locally accepted solutions.

Rick Eades, CVI Watershed Educator

Source Water—Are Fish Trying to Tell Us Something?

On October 15, 2004 *The Washington Post's* front page amplified a key question related to “source water,” which is generally defined in the Safe Drinking Water Act as public and private drinking water sources. *What is happening to our fish? What is happening to organisms that live 24/7 in waters that then serve as drinking water sources downstream?*

The answer, which *The Washington Post* has now elevated in terms of public discussion: bass in the South Branch of the Potomac in West Virginia are becoming feminized. They are transgendering, intersexing, or producing female eggs inside male gonads. Pharmaceuticals, at least those that disrupt hormonal function or endocrine system function, are the most suspected culprits.

In recent talks before the Friends of the Shenandoah River, the West Virginia Rural Ministries, the WV League of Women Voters, and the WV Environmental Council, I repeatedly found audiences stunned by reports I shared indicating the presence of pharmaceuticals in our water and growing concerns about aquatic life reproduction.

With serious concerns such as pharmaceuticals in water, lead

showing up in drinking water supplies, droughts, and dewatering and undermining of aquifers, CVI will focus its efforts in the area of source water. Specifically, how can we assist stakeholders who hope to ensure adequate supplies of source water, in terms of both quantity and quality?

The CVI Source Water Priority Area

The above-mentioned threats to water quality—and many others that affect our stakeholders—have guided CVI in crafting a mission statement (*see inset*) that expands on the legal definition of source water to include uses for recreation, wildlife habitat, and industry.

Make no mistake—water quality and quantity do have, and will continue to have, major roles in the economic sustainability of the Mid-Atlantic Highlands.

Many CVI partners, from public health and environmental agencies to rural water associations, have for years addressed source water protections related to drinking water wells, surface water intakes, and now, increasingly, springs. We hope to dovetail CVI initiatives and draw on those organizations as well as scientific researchers such as the United States Geologic Survey and partnering universities, with the goal of increasing the availability of information for community decision-makers dealing with source water issues.

Sometimes, the calls for assistance on source water protection occur after damage is observed, after surface water or groundwater has already become seriously contaminated. In other cases, our

Water quality and quantity will continue to have major roles in the economic sustainability of the Mid-Atlantic Highlands.

stakeholders reach out for assistance to protect their source waters before they are adversely impacted.

An additional concern for some communities could be the over-exploitation of high-quality and high-quantity source waters. CVI believes an informed public is critical to effective community decision-making, so we are planning several initiatives, including:

- developing and sharing a clearinghouse database of information on source water to assist community decision-makers;
- developing and delivering training for citizens and communities to teach them to assess their own source waters, especially their water quantity; and
- developing measurement methods to track and quantify community water reliance, existing uses, and economic sustainability.

As an example, the WV Department of Environmental Protection (WV-DEP) is already struggling with the responsibilities of West Virginia's first-ever water protection law, which directs the agency to quantify water use in a survey. Their task is daunting, as no funding for doing this important work accompanied the bill (Senate Bill 163, signed into law in April 2004). Hopefully, a long-term outcome of CVI's source water priority area will be to increase the

CVI's mission in regard to source water is to promote the protection and management of water sources to achieve desired community uses.

2005 Rosgen Natural Stream Channel Design Training

Instructor: David L. Rosgen, Wildland Hydrology Consultants

Applied Fluvial Geomorphology (Rosgen I) April 18 -22, 2005, Blackwater Falls (near Davis), WV

Fluvial Geomorphology for Engineers May 23-27, 2005, Canaan Valley, WV

River Morphology & Applications (Rosgen II) June 6-10, 2005, location TBA—Western Maryland

For more information or to register, call 800/922-3601 or send email to paula.worden@canaanvi.org.

Course descriptions, registration form, and scholarship information are available on CVI's website at www.canaanvi.org in the Events and Education section.

Twin Lakes continued from page 1

The Twin Lakes project used ECOFLO® peat filter technology. This system uses a small fiberglass tank containing a patented sphagnum peat moss filter bed that provides biological pretreatment. Wastewater flows from three main areas in the park and is pumped uphill, equalized and then released into the ECOFLO® unit, where it is cleansed as it percolates through the peat. The cleansed water then flows down to the at-grade soil adsorption field.

The system at the park is designed for an average of 650 gallons per day, but it also works well with single-family housing units that generate about 400 gallons per day. During peak flows, when the park is heavily used, wastewater is stored in tanks that release it to the peat filter over a period of two or three days.

While peat filter systems are approved by the Pennsylvania Department of Environmental Protection (PA-DEP), they require 20 inches of suitable soil between the soil adsorption field and the groundwater. The soils at Twin Lakes could not meet this requirement, but the system was installed as an experimental technology with an adsorption field of 14 to 18 inches of suitable soil. ECOFLO® was chosen because it provides pretreatment of wastewater before it enters the adsorption field.

CVI recently followed up with its partners on the Twin Lakes project, two years after the system was installed. The planning coordinator for the Westmoreland County Bureau of Parks reports that the system is working very well and estimates that the county is saving \$2,000-\$5,000 annually in pumping fees. Unity Township Municipal Authority monitors the system as required by the PA-DEP permit. Test results show that the effluent meets state water quality discharge standards and that the system functions very similar to an active sewage plant.

Monthly water samples taken before and after treatment are analyzed to determine the quality of water that is eventually recharging the lake. Sampling results prove that the experimental soil depth of 14 inches is working, and this data provide the basis for new technical guidance documents for alternative technology applications by the PA-DEP.

This successful demonstration project required close cooperation among local citizens, township boards, state and local agencies and nonprofit organizations. The project is demonstrating how incorporating a peat-based filter into the design would allow for alternative systems to be installed in many rural areas of the Mid-Atlantic Highlands where soils are unsuitable for conventional septic systems.



The at-grade adsorption field for the Twin Lakes wastewater treatment facility.

Source Water (continued from page 3)

capacity of communities and those relying on source waters to support and assist the WV-DEP as they benchmark water quantity uses.

The Monroe County Source Water Initiative

In West Virginia, Monroe County's diverse interests in source water illustrate the importance that good source water can have to the economic sustainability of an area. Roughly 15,000 residents share the following special source water connections:

- Sweet Springs Valley Bottled Water sales are about \$1,000,000 annually (this source water won the International Bottled Water taste-testing competition on five consecutive occasions).
- New bottled water interests are afoot at the historic Sweet Springs Hotel.
- Aquaculture (i.e., Trout House and Brewers' Ponds) rely on high quantity and quality source water.
- Union, Peterstown, and Gap Mills primary drinking water sources are gravity fed spring water, which can reduce operation, maintenance, and treatment costs.
- Agricultural production—Monroe County is in the top five counties in the state.
- Reproducing trout streams spill from naturally protected areas of Second Creek or Turkey Creek.
- The magic of Monroe County source water did not escape historical heavyweights either (among numerous historic spas and baths, Thomas Jefferson reportedly offered architectural designs for the Sweet Springs Hotel).

For the past four summers, the Monroe County school system's 21st Century Learning Grant has offered high school students an intensive summer research experience during which they sampled the chemistry and biology of streams, interviewed government officials, state and federal regulatory program staff, university educators and other water-interested parties. They conducted technical and economic tours of water, wastewater, and bottled water plants and then offered the community access to the information they uncovered in Open Houses.

Community groups have increasingly sought more information on source water, including the Bluegrass Ruritan Club, the Route 219 Association, and school, business, and political officials. West Virginia University geologist Joe Donovan and his graduate programs are assisting the county with studies on hundreds of



The bathhouse at the Sweet Springs Resort in Monroe County. The resort drew vacationers in the 18th and 19th centuries and is listed on the National Register for Historic Places.

springs. WVU Law Professor Joyce McConnell just delivered a lecture addressing water rights. In short, the community is growing increasingly aware of their source water resource, its wise use and proper management. All of these initiatives are now merging under the leadership of the Indian Creek Watershed Association.

Canaan Valley Institute is offering outreach, education, and technical support to assist the Indian Creek Watershed Association's efforts. The range of services includes group facilitation, the development of a flow monitoring course for stakeholders, training in oral history collection, and a suite of GIS maps locating spring source waters. In addition, CVI will assist the group with development of a water protection plan for Monroe County. All of this will help them guide the wise use and proper management of their source waters.

What might the future hold?

CVI sees the Monroe County community vision and initiative as an exciting opportunity. Earlier this year, CVI assisted Berkeley County as they developed a source water assessment and planning program, becoming the first county in West Virginia to undertake such an effort. In the source water area, we look forward to serving even more communities who share this vision.

For more information on CVI's source water initiative, contact Rick Eades, Source Water Work Group leader: rick.eades@canaanvi.org; 800/922-3601.

A coalition of stakeholder groups that consider illegal trash dumping to be their most significant problem organized a conference to examine this issue in depth. They are using GIS technology to map the extent of the problem and to develop cleanup strategies.

Talking Trash in Southwest Virginia

Roadside trash and illegal dumpsites are not just eyesores—they're a water quality problem and a hindrance to economic development, according to several southwest Virginia citizen's groups who feel so strongly about the issue that they held a litter summit this spring.

Over the past two years, watershed organizations throughout this region have told Canaan Valley Institute that illegal trash dumping is perhaps their most significant problem. Most illegal dumpsites are located right on top of small tributaries. Many are in sinkholes (southwest Virginia has an abundance of caves and sinkholes). Many of the items dumped contain toxic substances and this is causing concern over water quality.

As for the economic development issue—a participant at a recent annual meeting of the Big Sandy River Basin Coalition summed it up by saying, "nobody wants to visit southwest Virginia to see our trash." Visitors to the region are often left with the false impression of sadness, desperation, and poverty.

In early 2003, CVI began to have discussions with many stakeholders who wanted to improve the situation. A strong interest grew in having a "trash summit" in order to examine the issue in depth with key stakeholders and decision makers. Black Diamond Resource Conservation & Development (RC&D) Council expressed a desire to be the lead group to organize and offer the summit. With modest funding from CVI and other local partners, Black Diamond created a planning team and offered the summit in April 2004.

CVI's Science and Technology Team members Janette Bennett and Josh Beck were enlisted to work with a group of volunteers throughout the region to map the extent of the trash problem using geographic information system (GIS) technology. With GPS units supplied by CVI and other partners, volunteers from



Jean Taylor, President of the Mountain Empire Community College Environmental Science Club, is seen here with the Honorable Jerry Kilgore, Attorney General of the Commonwealth of Virginia, at the Litter Summit this spring. Jean is thanking the Attorney General for his awareness of environmental concerns in southwest Virginia, and especially for his support with efforts to change public attitudes about litter. Jean attended the Summit to learn new ways for her Environmental Science Club to increase its involvement in helping clean up the illegal dumpsites that plague the community.

citizen's groups and various local and state agencies went to the field and located as many illegal dumpsites as possible. Janette and Josh have combined data from many sources to create a GIS "characterization" of the trash problem in southwest Virginia, a tool that was presented to summit participants as a work in progress.

The summit discussed the two types of trash dumping: (a) disseminated roadside litter and (b) illegal dumpsites. Jerry Kilgore, Virginia's Attorney General, was the keynote speaker at the summit. Technical workshops addressed topics such as "Litter & the Law," "Getting Litter Prevention Grants," and "Ohio's Successful Public Relations Campaign about Litter." The very

cleanup days each spring, but they are burning out. It's hard to understand why people will drive right by a trash receptacle, yet turn down a side road and toss trash bags down a hill on a weekly basis. Litter coordinators realize that part of their job is to promote culture change through education as well as increased enforcement of litter laws.

H. William Smith, Vice-Chair of Black Diamond RC&D stated, "I think many southwest Virginians have finally become aware that roadside trash is not just an eyesore. Trash has become an economic development issue in that it creates yet another negative stereotype of our region that hinders development. Hopefully, this Litter Summit

mapped. Lisa Harris, Watershed Coordinator for the McClure River/Russell Fork River Restoration Groups, stated, "Incredibly, 173 illegal dumpsites in Dickenson County have been mapped on a geographic information system. This map will be on display at the Litter Summit." Similar mapping efforts are underway in Buchanan and Lee counties.

Both roadside trash and illegal dumpsites are serious problems in southwest Virginia that will require a combination of education and stricter law enforcement. By getting an accurate view of the extent of its trash problems, southwest Virginia's counties can begin to develop strategies for effective solutions.

Litter coordinators realize that part of their job is to promote culture change through education as well as increased enforcement of litter laws.

successful Assign-A-Highway Program recently implemented in Buchanan County to address the roadside litter problem was described. The summit's planning committee wants to see Assign-A-Highway sweep across southwest Virginia in the next year.

The objectives of the summit were to convince local governments to establish a regional task force to seek solutions for litter issues; to get additional counties to implement the Assign-A-Highway Program; to assist local governments in developing a timetable to clean up their illegal dumpsites by including this goal in their Solid Waste Management Plans; and to map all illegal dumpsites in nine southwest Virginia counties using GIS technology.

Thousands of volunteers pick up countless tons of trash in annual



can bring the entire region together in an effort to solve this very important problem."

Illegal dumpsites were another hot topic at the summit. With technical support from Canaan Valley Institute, most of Dickenson County's illegal dumpsites are now

Janette Bennett (CVI Science and Technology Team) works on mapping illegal dumpsites in southwest Virginia with students in a GIS class.

By providing technical assistance and a concept plan for restoration of the 11-mile-long stream that runs through the city, CVI is helping a community coalition reinvigorate Harrisonburg, Virginia's downtown area.

Friends of Blacks Run Greenway restoring an urban stream to connect a community



CVI's technical team, folks from the Friends group, and City personnel conduct a field assessment of portions of Blacks Run in Purcell Park.

A community coalition in Harrisonburg, Virginia envisions a green corridor that follows the 11-mile length of Blacks Run as it winds through the city and its outskirts, connecting neighborhoods in the north and south with downtown businesses, parks, and housing.

Friends of Blacks Run Greenway is leading the effort to bring this vision into existence. Formed in the fall of 2000, the

Friends group is a public-private partnership composed of individuals, city staff, and representatives from businesses and civic organizations. A variety of projects are in the works, and these involve a wide array of collaborators.

The group took a big step toward its greenway goal when its first major project broke ground this summer: Liberty Park. A living, breathing green park in downtown Harrisonburg—a place to escape and stroll, eat lunch or enjoy a summer concert, or work the earth of a garden—this is the vision that the group holds for this component of the greenway.

Liberty Park will have raised gardening beds for wheelchair access. There will be sensory gardens where touch, taste, and smell entice visitors to experience the beauty of plants and flowers. The land, formerly two gravel parking lots, was donated to the Friends by the Harrisonburg Redevelopment and Housing Authority. A high-rise apartment building for the elderly owned by the Authority is within walking distance, and it was the Housing Authority's idea to build a "universal garden" where members of senior housing could plant gardens alongside schoolchildren. In fact,

third-graders, high schoolers, and residents of the senior complex were called upon to help design Liberty Park.

Harrisonburg struggles with flooding, and Blacks Run is polluted to the point of not sustaining stream life. Pollution comes mainly

examples. Their mission is to build the greenway—but restoration of the stream and community building are of equal importance.

Recently the group requested help from CVI to address severe erosion problems along another section of the proposed greenway,

restoration model that will enhance the chances for success of the greenway project as a whole. As part of its involvement, CVI will also present a three-day Stream Restoration Basics workshop for city personnel and interested citizens.

Restoration of this segment of Blacks Run would serve as a training tool and public education demonstration—a very visible restoration model that will enhance the chances for success of the greenway project as a whole.

from stormwater runoff and erosion. Urbanization has dramatically affected the natural stream channel: channelization, tunneling, and runoff from extensive paved areas have caused much damage.

Liberty Park will serve as an outdoor classroom, demonstrating best stormwater management practices: amended soils, porous paving materials wherever possible, a rain garden, a vegetated filter strip, greenspaces, and a stabilized stream bank with a floodplain bench. Native plants will be used to stabilize stream banks and filter pollutants out of stormwater.

The Virginia Departments of Forestry and of Game and Inland Fisheries helped the Friends restore the banks of the stream adjacent to Liberty Park and have installed a “J hook” in the streambed to protect the banks from erosion. A landscape designer who is a member of the group’s board is designing the plant material.

This is just one example of the cooperative partnerships that have made the Friends such a successful organization. They’ve developed strong alliances with the City of Harrisonburg, James Madison University, Harrisonburg Public Schools, Virginia state agencies and local businesses, just to name a few

an eighty-acre city park (Purcell Park). CVI outreach staff met with the city manager, engineers from Community Development, the head of Parks and Recreation, and members of the Friends for a tour of the watershed to get an understanding of the impacts and importance of the stream to the Harrisonburg community.

A CVI technical team (Ron Preston, Gary Berti and Ed Watson) provided a one-day field assessment of portions of Blacks Run in Purcell Park to determine stream restoration and stabilization needs. The team will provide a concept plan matched to the Friends’ and the City of Harrisonburg’s goals. Restoration of this segment of Blacks Run would serve as a training tool and public education demonstration—a very visible

Friends of Blacks Run Greenway has a very active committee structure and a strong board representing many facets of the community. Recently they received a Virginia Department of Forestry grant to partially fund positions for their Executive Director and Office Manager. As an example of success building on success, the City of Harrisonburg recently received an endowment to fund a full-time Stream Health Coordinator who will work on the greenway project.

The greenway coalition’s partnership with CVI will benefit all parties—it will provide technical expertise to city personnel and community stakeholders, while showcasing CVI’s stream restoration capabilities in an urban setting.

Ed Watson, CVI’s hydrologist, examines a section of Blacks Run during an assessment.



A newly updated website provides map-based access to a rich archive of water quality data collected over an eight-year period by volunteer monitors in the Shenandoah Basin. The user-friendly geographic information system (GIS) tool called the *Water Window* has been two years in the making and can be accessed at www.purewaterforum.org/waterwindow.

The data driving the *Water Window* was collected entirely by volunteers throughout the Basin.

The *Water Window* offers a view into the most extensive network of volunteer-collected water-quality monitoring data that exists in the Mid-Atlantic Highlands. It has greatly improved access to this data—providing a way to not only view water quality information, but to place this information in a greater Basin-wide context.

Shenandoah Water Window Circulates Stream Data

The Friends of the Shenandoah River (FOSR) have coordinated the systematic collection and analysis of river water samples from over 200 locations on the Shenandoah River and its tributaries. Begun in 1995, the sampling program is an ongoing initiative with volunteers collecting samples twice every month and shipping them to the FOSR laboratory in Winchester, Virginia, where the samples are analyzed for water quality parameters such as ammonia nitrogen, dissolved oxygen, nitrate nitrogen, pH, and turbidity. Over the past nine years, the volunteer monitors have collected more information on water quality in their watershed than any other organization, including state agencies. The resulting water quality database, compiled by FOSR, contains information from over 16,000 samples.

The *Water Window* was designed and is now maintained through a series of internships

sponsored by Pure Water Forum 2000 and Canaan Valley Institute. Through this partnership, three interns from James Madison University's Integrated Science and Technology Department have been sponsored. Each intern has focused for ten weeks on updating and analyzing the data displayed by the *Water Window*. Such attention helps to keep the *Water Window* relevant through regular updates and by exploring ways in which the data might better answer questions

and other relevant organizations.

The flexibility of the *Water Window* allows for a custom-designed map of the sampling location to be viewed in juxtaposition with a user-determined graph of selected water-quality parameters. Users can print the *Water Window* graphs and maps or they may download the water quality data for use in other applications.

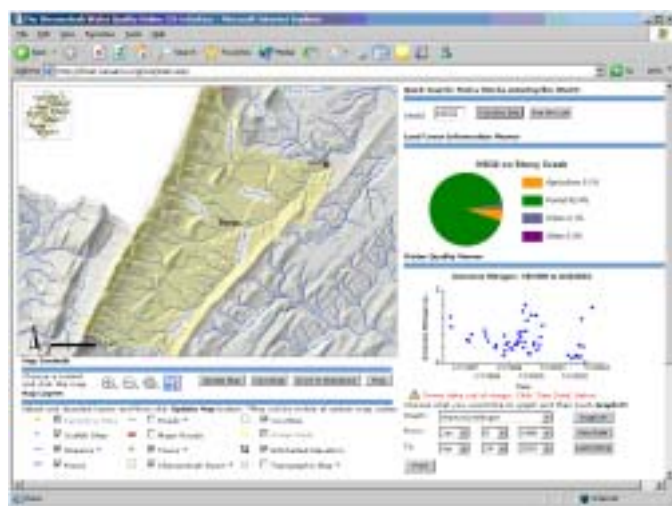
Spin-off projects related to the *Water Window* include a request to CVI from the North Fork Source Water Protection Project for assis-

posed by planners, researchers, and volunteer monitors.

By clicking on any sampling site in the *Water Window*, users can view a pie chart that shows land cover percentages (agricultural, forest, urban, other) for the drainage area. Selecting a sampling site also allows users to graph water quality data for ten parameters and view map overlays showing features such as streams, rivers, roads, counties, and relief. The *Water Window* also provides descriptions of each water-quality parameter and information about water quality standards, and it provides links to the websites of FOSR

tance with mapping well- and spring-water quality data in a number of headwater tributaries. The Shenandoah County Water Advisory Committee may use the *Water Window* as a tool to enhance

—See **Water Window** on page 14



Users can view water quality sampling site locations at a range of scales along with a variety of related data such as streams, roads, point sources (outfall sites), and the contributing watershed.

A week on the Potomac brings sojourners a better understanding of their river, its history, and their watershed's needs for sustainability.

POTOMAC RIVER SOJOURN

Train whistles blew and bystanders cheered as the Potomac River Sojourners departed from Cumberland, Maryland on July 10th during the city's CanalFest celebration. Cumberland Mayor Lee Fiedler and two Allegany County commissioners presented proclamations recognizing the participants as they set off on their 88-mile journey. The event was organized by the Alliance for the Chesapeake Bay and the Interstate Commission for the Potomac River Basin to elevate awareness of the Potomac River's importance to the region and to encourage the participants to play an active role in its protection and restoration.

Over the course of the week-long trip, the Sojourners visited historical sites and towns along the river, and participated in presentations on topics by local experts, including the geology of the region, acid mine drainage, fish assessment methods, the importance of submerged aquatic vegetation, the history of the French and Indian War, and the history of the Chesapeake and Ohio Canal. The Sojourners camped each night at National Park Service and Department of Natural Resources sites including Spring Gap, Paw Paw, Bonds Landing, Woodmont Hunt Club, Hancock, Fort Frederick, and finally Four Locks. Evening activities included campfires, ghost stories, music by local performers, and additional presentations on the history and environment of the region.

The Sojourn sponsors, including CVI, were recognized during a ceremony held at the historic Woodmont Hunt Club. The Spirit of the Sojourn Award was also presented during this ceremony. The award is given to someone who works behind the scenes to protect the river and who isn't often recognized for their significant contributions. This year the award was presented to Craig Hartsock of the

So many people have no appreciation for the natural things around us and until such time a greater general appreciation occurs, I would like those resources not to get any worse. I would like them to improve. I would like my children's children to be able to enjoy some of the things that I have.

—Potomac River Sojourner



Canoeists paddle under Tonoloway Creek Aqueduct, near Hancock, Md., for a closer look." Photo: J. Dotsen/ICPRB

Allegany Soil Conservation District. Craig has been instrumental in helping to restore and protect watersheds in western Maryland and is deeply deserving of the recognition.

CVI provided \$5,000 to support the event and produced a map of the Sojourn route for each participant, highlighting the watersheds and points of interest the Sojourners passed on their way. The

planning committee was a collaborative effort that included members of local watershed groups, representatives of the National Park Service, the Maryland Department of Natural Resources, the Pennsylvania Department of Environmental Protection, and a local outfitter.

Canaan Valley Institute (CVI) continues to upgrade the 3,208 acres of land it now calls home. The public is encouraged to use the property for recreational purposes such as hunting, fishing, biking, hiking, boating and camping. Ten camping sites have been marked along the Camp 70 road, available on a first-come/first-served basis. Permits are not required for camping or any other recreational use.

Parking areas have been established for easy access, with more planned for the future. CVI is currently working with area businesses and outdoor groups to improve over ten miles of multi-use trails using sustainable trail techniques. A one-mile interpretive trail



CVI recently began an experiment that will test the rehabilitative qualities of native plant species in disturbed wetland areas. This project is located in an area on CVI's property that was severely disturbed by wheeled vehicles and heavy equipment. In June of 2004, CVI staff and volunteers installed plugs of three different vegetation types in test plots at the damaged wetland site. In the photo above, CVI Land Manager Ken Dzaack describes the techniques for harvesting the plugs from healthy wetland areas and planting them in the test plots. As of this writing, data has been collected from the first growing season and is being analyzed for a written report that should be available in early 2005.

Update: CVI's Property and Proposed Headquarters & Education Facility

has already been completed. CVI Land Manager Ken Dzaack is excited about the opportunity to work with the local community. "CVI is fortunate that it has knowledgeable and enthusiastic folks to help us with this project."

The proposed construction of CVI's future headquarters and educational facility requires extensive study of the property, access routes and potential building sites. Because federal funds will be used for this project, CVI must comply with the National Environmental Policy Act of 1969 prior to any construction taking place. During the past year, CVI has been in the process of developing a Draft Environmental Impact Statement (DEIS), requiring environmental, archeological, historical and wetland studies. Potesta and Associates and Mackin Engineering along with CVI's Science Coordinator, Jim Rawson, conducted these studies.

The U.S. Fish and Wildlife Service notified CVI that the proposed project could potentially impact the endangered Appalachian northern flying squirrel and Indiana bat and the threatened Cheat Mountain salamander, and Dr. Edwin Michael and Dr. Thomas Pauley conducted

field investigations relating to these species. Habitat was delineated and potential construction impact will be avoided. Additionally, CVI's geologists Ryan Gaujot and Abby McQueen conducted a preliminary geologic assessment of the property as it relates to project construction. Findings of these studies will be used to prepare the DEIS.

The DEIS will be published and distributed to agencies and the public for review and comment in November 2004. Public hearings will be held during the comment period to receive additional feedback. After the comment period, a final Environmental Impact Statement will be prepared and submitted.

Canaan Valley Institute would like to begin road access construction to its selected building site in the spring of 2005, with actual building construction beginning in the spring of 2006. The headquarters and educational complex is being designed by Susan Maxman & Partners.

According to Dan Wheeler, CVI's Construction Manager, the entire construction project will be built using the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) "green building" rating system. The rating system covers five major areas: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. A high score on the rating system will result in LEED certification of the project.

Small Grants Spotlight

Jefferson County Conservation District & Sweet Soil, Inc. Partnering for wetland habitat and water quality improvement in Pennsylvania

The Jefferson County Conservation District in Pennsylvania, as a local county entity, has forged a unique relationship with a private business to demonstrate an innovative approach to environmental restoration and education. Recently, Canaan Valley Institute awarded the Jefferson County Conservation District in partnership with Sweet Soil, Inc. a grant for \$4,400 to teach workshops on wetland habitat improvement: native versus invasive plant species, proper planting techniques, and awareness of the use of indigenous wetland plants as a food source.

Several workshops were held in late September and early October of 2004 for about 400 fourth-grade students from the Brookville Area School District. Students were shown a debilitated streamside buffer area that resulted from the effects of erosion and sedimentation, and were also educated about how wetland plants create aquatic and wildlife habitat. Students planted winterberry, spice-bush, wild plum, and wild ginger.

The site for the workshops was the property of Sweet Soil, Inc., a for-profit business with a very strong environmental stewardship ethic. Sweet Soil purchased a 276-acre strip mine site with the intent to prove degraded land can be reclaimed to support many beneficial activities. To accomplish this, Sweet Soil incorporated an alkaline co-product along with other organic waste into the spoil of the mined site. Paper



The environmental education and observation area at Sweet Soil. Native vegetation inside the chicken wire was recently planted by several students.

mill sludge from Weyerhaeuser (limestone and paper fines) were applied to the surface and seeded with native grasses to produce lush growth. Basically, the residuals that were applied neutralized the acid-forming material found in spoil, preventing water pollution.

The Jefferson County Conservation District's partnership with Sweet Soil not only supports environmental education events but also various water quality, wildlife, and soil research activities. For example, on a similar wetlands improvement demonstration site

—See **Sweet Soil** on page 14

The Jefferson County Conservation District was awarded a grant through CVI's Small Grants Program during the first quarter of 2004. Grants are awarded on a quarterly basis, and most grants are limited to \$5,000. Please see guidelines on CVI's website in the "Community Assistance" section.



County Conservation Districts

Over 50 years ago, state legislators recognized the need to support grassroots conservation efforts in Pennsylvania and passed a law authorizing the creation of County Conservation Districts. Each district is led by a board of directors made up of local landowners from all walks of life. These volunteers study county natural resource issues and make decisions that enhance and protect their communities.

Nationally, there are over 3,000 Conservation Districts. In the other states in CVI's service area, they are known by other names: In Maryland, they are Soil Conservation Districts; in West Virginia and Virginia they are called Soil and Water Conservation Districts. CVI frequently partners with districts because of their local representation and local leadership. Every county in CVI's service area is represented by a district.

Sweet Soil continued from page 13

nearby, upstream and downstream monitoring points have shown significant improvements in water quality, with pH increasing from 4.3 to 7.4, an increase in alkalinity accompanied by undetectable levels of iron and aluminum. In 2001, Sweet Soil, Inc. received the Business-Environmental Stewardship award from the Three Rivers Environmental Awards Program.

In addition to CVI's assistance, the Conservation District received a \$10,000 grant from the Pennsylvania Department of Environmental Protection to enhance its collaboration with Sweet Soil, Inc. A classroom curriculum was developed that focused on acid mine drainage, composting, and recycling. Sweet Soil hosts 500-800 school-aged children per year and continues to expand its education program for all local residents free of charge.

Water Window continued from page 10

a groundwater/source water protection initiative in their watershed. The Cave Conservancy of the Virginias has contacted CVI to discuss assistance with a source water protection project, using a GIS tool based on the *Water Window*.

The *Water Window* is a user-driven project. Since October 2002, the *Water Window* has been presented to more than fifteen stakeholder groups in Virginia, and their comments and suggestions have been incorporated into the online application.

Canaan Valley Institute Grants Awarded Second Quarter 2004

Canaan Valley Institute has awarded the following grants for the second grant period of 2004. To find out more about CVI's grant program, visit the Institute's website at www.canaanvi.org or call toll free 800/922-3601

Coalition for Jobs & the Environment, Washington County, VA
\$5,000 to create wetland habitats on the grounds of three elementary schools in Washington County and to train teachers at each school in hands-on learning activities.

Crellin Community "Corps of Discovery," Garrett County, MD
\$3,580 to help fund a living environmental laboratory on Snowy Creek adjacent to Crellin Elementary School, to be investigated and reported on by students.

Indian Creek Watershed Association, Monroe County, WV
\$4,885 to hire a project coordinator to oversee the development of a water protection plan for all of Monroe County.

Jacobs Creek Watershed Association, Westmoreland and Fayette Counties, PA
\$2,010 for software that will help the group keep financial records and improve their outreach capability, and for brochure development and production.

Lebanon County Conservation District, Lebanon County, PA
\$5,000 for the development of a no-maintenance storm drain marking effort, including signs with text such as "No Dumping: Drains to Stream."

Upper Paint Creek Watershed Association, Fayette & Raleigh Counties, WV
\$1,630 for an education and outreach effort that includes a three-panel display, brochures, and a sound system for an educational puppet show about litter.

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Atmospheric Scientist/NOAA Liaison
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EXPANDING CAPABILITIES

Sarah Deacon joined CVI's Education Team as a field biologist, conducting field work and data management for a variety of projects. Sarah completed a riparian and wetland survey of the CVI property near Canaan Valley and is working on a forest rehabilitation experiment and data analysis. **Jeff Heath** joined CVI's Science & Technology Team as a database programmer. Jeff is working on finalizing the CVI Knowledgebase. He will also be working on other programming needs, including customized software development. **Richard Hoch** joined CVI as a geospatial coordinator. Rick coordinates the long- and short-term workflow of the Geospatial Team. **Debbie Hovatter** is an administrative assistant who will be helping the Outreach Team. **Angela Jessup** joined CVI's Science & Technology Team as a natural stream channel design (NSCD) specialist. Angela is

serving as the Civil Engineer/NRCS Liaison between CVI, conservation partners, and local shareholders for the design and implementation of NSCD projects. She will be working closely with others at CVI to complete the watershed assessment, design and construction of NSCD projects in the Horseshoe Run watershed, as well as other NSCD related work. **Abby McQueen** is a GIS research technician on the Science & Technology Team. She is helping to characterize and prioritize watersheds in the Mid-Atlantic Highlands Region as part of the EPA Science to Achieve Results

(STAR) grant awarded to CVI in conjunction with Penn State University. **Todd Miller** joined CVI as a land use planner. Todd will be assisting the Tucker County, WV Planning Commission as it updates its County Comprehensive Plan, which addresses potential impacts of growth generated by the construction of the Corridor H Appalachian Highway, and will create alternative growth scenarios based on the goals of local stakeholders.

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Mid-Atlantic Highlands Stream Restoration Workshop

**Cacapon State Park (near Berkeley Springs, West Virginia)
November 30 & December 1, 2004 Cost: \$35.00**

Participants in this annual regional workshop will discuss stream restoration goals and activities, share the results of data collection and restoration efforts, and make recommendations concerning future needs for stream restoration programs in the Mid-Atlantic region. The workshop will also provide opportunities for communicating the value of stream restoration for channel stabilization, habitat enhancement, roadway protection, and for addressing flooding and streambank erosion. Topics include the following:

- Regional curves
- Reference reaches
- Watershed approach vs. "patch" approach
- Restoration monitoring and evaluation
- Restoration partnerships
- Sediment transport



The cross vane shown here, constructed along Georges Creek near Westernport, MD, slows the stream flow at the banks, centering high-velocity flows in the channel. Channel modifications like these create pools and drops for better fish habitat and less streambank erosion.

For more information or to register, contact Betty Michael, Canaan Valley Institute, 800/922-3601; betty.michael@canaanvi.org

sponsored by Canaan Valley Institute.

VISIT CVI'S WEBSITE AT WWW.CANAANVI.ORG FOR MORE DETAILS ABOUT CVI'S SERVICE AREA AND MISSION



Canaan Valley Institute

WORKING FOR THE SUSTAINABILITY OF THE MID-ATLANTIC HIGHLANDS SINCE 1995

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