

Friends of the Russell Fork

ISSUE 2

SUMMER 2008

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FORF Kicks Off Household Wastewater Project

by Krista Duty

The Friends of the Russell Fork is working alongside the Virginia Department of Health on a plan for removing straight pipes in the Russell Fork Watershed.

The FORF and VDH are taking initial steps on the project, identifying houses that have defective or nonexistent septic systems, and then helping homeowners apply for financial assistance to install a legal treatment system.

FORF member Justin Stanley takes regular water samples from creeks and streams that empty into the Russell Fork River. Justin labels the water samples and brings them back to the FORF office to test them for E. coli. This method makes it is easy for us to determine which areas have been contaminated by straight pipes or failing septic tanks.

Once an area has tested positive for E. coli, the FORF uses a map provided by the 911 Mapping Office to locate every house near the contaminated stream. We contact the residents to gather information about each house's wastewater treatment system.

After the FORF find homes that have sub-standard treatment systems, failing septic tanks or straight pipes, we begin the Indoor Plumbing Rehabilitation Project application with the Cumberland Plateau Regional Housing Authority. The Housing Authority is working with the FORF to supply grant

money for housing rehabilitation. When the IPR application is complete, we send it to the Cumberland Plateau Regional Housing Authority Office in Lebanon.



FORF members (clockwise from front left) Krista Duty, Justin Stanley, Gene Counts and Chris Eberly.

According to VDH, only 80 percent of homes in Dickenson and Buchanan counties have approved septic systems. Our goal is to install legal wastewater treatment systems in the remaining twenty percent of homes. So far, the FORF has visited homes in Little Lick, Tom's Bottom, Trace Fork, and Crow Pass.

Residents who do not have proper septic systems are encouraged to call us. We will help you fill out an IPR application for a free septic system and needed home repairs.

FORF Submits Grant for Outdoor Classroom

On July 8th the FORF submitted a proposal for an outdoor classroom to the Foundation for Virginia's Natural Resources (FVNR), an organization whose goal is to fund programs for environmental education, volunteer water monitoring and pollution prevention. The grant request is for \$5,000 in construction funds for an outdoor learning area that can be used year-round by Sandlick Elementary School and Haysi High School. The proposed outdoor classroom is a wooden shelter with

easy river access. Future grants would enhance the shelter with various learning stations for the study of forestry, aquatics, wildlife and soils. Principal Compton (HHS) and Principal Whitner (SES) expressed interest in using the proposed outdoor learning area to implement Virginia Standards of Learning. If the shelter is approved, the FORF would assist teachers in the development of lesson plans that offer students meaningful experiences as well as useful instruction in environmental science.

DID YOU KNOW?

- The Russell Fork watershed covers nearly 140,000 acres in Dickenson and Buchanan Counties.
- The primary contaminants in our watershed arise from sedimentation, straight pipe pollution, acid mine drainage and illegal dumping.
- You can help your community by becoming a volunteer water monitor.
- The 2008 State of Virginia Envirothon competition was held May 17-19 in Harrisonburg. Congratulations to the team from Clintwood High School, who placed second in the State!

Do You Know What I Found in the Water? by Justin Stanley

During my summer internship with the Friends of the Russell Fork I have tested about 20 locations for bacteria, pH, and dissolved oxygen levels, including sites in Bartlick, Camp Branch, Grassy Creek, Happy Hollow, Crow Pass, Trace Fork, and Haysi.

The bacteria I test for is *E. coli*, a fecal coliform bacteria that comes from the intestines of warm blooded animals and can indicate where household wastewater is being discharged into a creek. *E. coli* can cause stomach cramps, eye infection, gastrointestinal infection, and even respiratory illness in humans. To test for *E. coli*, I collect a water sample and mix it with a solution that makes the bacteria grow. Then I put each sample into a Petri dish, where it gels, and after about an hour I put all the Petri dishes into an incubator kept at 98 degrees Fahrenheit. After 24 hours in the incubator, we count the number of *E. coli* colonies that have grown in the Petri dish. This tells us how much harmful bacteria is present in the water. The table below summarizes some of the data I've collected.

The pH testing I do tells how acidic the water is. I use a wide-range pH test kit and read the results using a color chart. Acid mine drainage from abandoned coal mines can cause streams to become so acidic that nothing can live in them. So far, every site I have tested has been between 6.5 and 8, which indicates the water's pH levels are normal.

Testing for dissolved oxygen is useful because the water must have enough oxygen in it for fish and other aquatic organisms to survive. The Virginia Department of Health loaned the FORF a dissolved oxygen meter for the summer. The meter reads the water temperature as well so I can record it when I collect DO data. Like pH, dissolved oxygen is not a major problem in this area. The streams and rivers I've sampled between the Breaks and Haysi have enough dissolved oxygen for fish to live. Our main problem is *E. coli*.

Another type of monitoring we do is benthic macroinvertebrate monitoring. This involves taking a net and collecting bugs from the streambed. The insects indicate how healthy the stream is. Benthic macroinvertebrate monitoring is probably the most fun type of monitoring we do. Another name for this type of monitoring is SOS (Save our Streams) monitoring, and it is done all over the state.



ACCWT Summer Associate Justin Stanley takes a water sample from Camp Branch.



Water Quality Data - *E. coli* Measurements for Local Streams

Site	<i>E. coli</i> colonies per 100mL sample	Site	<i>E. coli</i> colonies per 100mL sample
Upper Grassy Creek	325	Russell Fork at Haysi HS	55
Middle Grassy Creek	140	McClure Bottom	less than 50
Middle Bartlick	220	Lick Creek	less than 50
Mouth of Bartlick	less than 50	Splashdam	less than 50
Trace Fork (KY)	1600	Russell Prater at Route 80/83	275
Camp Branch	650	Crow Pass	50
Cow Fork	320	Middle Happy Hollow	350

Note: This data represents average results from the last 2 months, during which time 2 to 4 samples were taken from each site. The VA Dept. of Environmental Quality establishes a standard of 235 colonies per 100mL sample as the maximum allowable limit.

Haysi and Council Students Spend a Morning on the Creek

The Friends of the Russell Fork and the McClure River Restoration Project got together this spring to visit science classes at Haysi and Council High Schools. To find out how much the students knew about *benthic macroinvertebrates*, we brought waders and nets to Ronnie Owens' Ecology class at Council and to Glenda O'Quinn's Earth Science class at Haysi. Each group had an opportunity to see what they could find in the Russell Fork River behind their school.

The students weren't shy about strapping on waders and venturing out midstream to rub rocks and stir up the streambed to collect insects in their nets, but some of them were surprised to find out what lives in the river.

When they brought their nets back up the bank and set them on a table to analyze the contents, they counted midges and beetles and caddisflies and almost everything inbetween. Then they identified and counted each one of them in order to calculate an overall score for the health of the river.

Because the insects are collected from the streambed, the bugs that flow into the net are not adult flies but larvae and other benthic life, like worms and crayfish. None of them can fly or bite. The only one they had to be wary of was the hellgrammite, but on this occasion nobody got pinched.

Insects are an indicator of the health of the stream because some types of bugs can live in polluted water while others can't. For example, mayflies, stoneflies and beetles are intolerant of pollution, so if you find a lot of them it is a good sign for the river. On the other hand, an abundance of worms, midges and net-spinners indicates the stream is in bad condition.

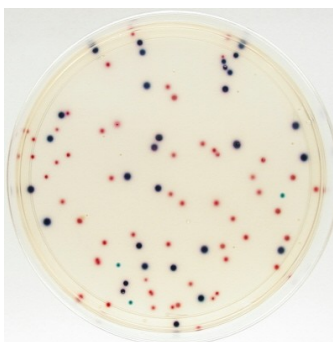
At Haysi, Ms. O'Quinn's class examined a total of 230 bugs and the river received an overall score of 9 points (out of a possible 12), meaning that on that day the Russell Fork had an "acceptable ecological condition," according to the Virginia Save Our Streams organization. We plan to return to both schools for monitoring in the fall.



Students from Haysi High School examine insects they've collected from the bed of the Russell Fork River.

How Can You Help the Friends of the Russell Fork?

Become a Water Monitor



A Petri dish with bacteria colonies.

Are you curious about how clean the water is in the creek that runs past your home? Would you like to have it tested once a month to find out how safe it is for your children to play there? If so, please consider becoming a citizen water monitor for your area. As a volunteer monitor, your efforts will lead to cleaner rivers. You can choose to simply drop off your water samples at our lab, or if you prefer, you can learn in depth

about any of the monitoring methods we use. We do several kinds of water testing and we'd be more than happy to teach you any of them. If you're interested please call our office: 865-4918.

The most difficult and costly part of water monitoring for us is travelling to all of the sites we want to test. That's why it is so important to have volunteer citizen monitors. If you travel into Haysi once a month you can drop off your sample at our office and save us a lot of time and money. We will give you all the equipment and training you need.

Volunteer Environmental Surveys

One of the FORF's highest priority projects - one that affects the health and safety of the residents of Dickenson and Buchanan Counties - is to help the Virginia Department of Health update its database of environmental risks in our watershed. Specifically, the goal of our project is to locate and map household wastewater and graywater discharges (straight pipes), sewage failures, eroded streambanks and illegal dump sites along the Russell Fork River and its tributaries. This effort is a critical first step in addressing these problems, because residents and communities who organize



Straight pipe discharge of wastewater.

themselves to tackle local issues are normally the ones who are awarded state and federal money to solve them. The Friends of the Russell Fork would like to sponsor a series of *streamwalks* for mapping health risks in our creeks and hollows so that together we can find solutions for them. If you would like to see this happen in your small community, give us a call at

865-4918. We'll provide extra volunteers, training, and all the necessary equipment, and the whole process can be finished in one day.



Upcoming Meetings:

Tuesday August 12

Wednesday Sept 17

6PM

at the FORF office

(Haysi High School)



Appalachian Coal Country Watershed Team

The Appalachian Coal Country Watershed Team (ACCWT) helps rural communities by building local organizational capacity and partnerships. The Team coordinates a group of 45 OSM/VISTA volunteers who live and work in their Appalachian host communities to promote environmental change.



The Appalachian Coal Country Watershed Team.

Through partnerships between the Office of Surface Mining, AmeriCorps*VISTA, and coal country watershed groups, the ACCWT targets environmental problems in eight Appalachian states (AL, KY, MD, OH, PA, TN, VA and WV).

Founded in response to requests from local watershed groups throughout coal country, the Appalachian Coal Country Watershed Team arms citizen groups with the knowledge, skills, and tools necessary to make them effective environmental stewards, community leaders, and accelerators of change. Together, the Team and its local partners work to propel a new Appalachian economy based on conservation and development, strong and wide-ranging partnerships, and community mobilization and empowerment.

Founded and directed by Dr. T. Allan Comp, the ACCWT and Allan are both recipients of numerous national awards. The ACCWT was named the Governmental Partner of the Year by the National Summit of Mining Communities in 2006 and received the U.S. Department of the Interior Environmental Achievement Award in 2004. Allan's work with his AMD&ART Project won a Green Design Award from the PA Environmental Council and the prestigious Phoenix Award from the EPA Brownfields Program, among others.