THE BEAUTIFUL BLACKWATER WATERSHED
STATE OF THE RIVER REPORT I

Produced by: Friends of Blackwater
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Thomas, WV 26292

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Steve Shaluta
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Kathryn Davis
Lon Marshall
Dave Watson
OVERVIEW

The high elevation Blackwater River flows through the Allegheny Mountains of Tucker County West Virginia. It is a principal tributary of the Cheat River which flows north to the Monongahela forming the Ohio at Pittsburgh. The name “Blackwater” originated from the reddish-brown hue of the River caused by tannic acid from evergreens growing along the river’s banks and iron oxide from the Mauch Chunk shales underlying a large part of Canaan Valley where the river’s main stem originates. At 3,250 feet the headwaters of the Blackwater River in the Valley wetlands, are placid -- compared to the raging river’s tumultuous descent through the Blackwater Canyon below Blackwater Falls. Within the Canyon the river drops 1,500 feet over 10 miles. The Blackwater River is 31 miles long and drains an area of 142 square miles.

The principal tributaries of the Blackwater River starting at the mouth are Big and Tub Runs, the North Fork running through Thomas, (Long, Middle, and Snyder enter here) Pendleton which forms the lake at Blackwater Falls State Park, Beaver and Devil’s Run (just above Davis), Yellow Creek, Little Blackwater River, North Branch, Sand, Yoakum, Freeland, Club, and Mill Runs in Canaan Valley. In Blackwater Falls State Park the tributaries are Tank, Engine, Shays and Lindy Run which run down the north-facing slope of the Blackwater Canyon.

Map courtesy of Evan Fedorko, GISP
WV GIS Technical Center, WVU
FLORA AND FAUNA OF THE LAND OF BLACKWATER

Northern plant life meets southern in the Blackwater watershed. The sourwood, a southern tree, grows on the mountain rim, just a few miles from a patch of cottongrass, a bog-loving plant found far into the Arctic. The high elevation of this area provides a cool refuge for plants and animals left over from the Ice Age. The Blackwater forest ecosystem is similar to northern Quebec. Red spruce and balsam fir, false hellebore and dwarf cornel are examples as well as the northern water shrew, the West Virginia northern flying squirrel, the snowshoe hare, the Cheat Mountain salamander and the chatty little Red Squirrel, also called a “fairydiddle”. Native brook trout shelter in the headwater streams in Canaan Valley.
Few pioneers settled in the upper Blackwater of West Virginia due to cold temperatures, dense forests and the rugged terrain. Early settlers that arrived in the 1800’s settled near Parsons, Hendricks and Lime Rock as pioneer farmers. One early chronicler of the beautiful Blackwater River watershed was writer Philip Pendleton Kennedy, or “Pent” Kennedy, cousin to the artist David Hunter Strother. “This land of Canaan was as perfect a wilderness as our continent contained... a howling wilderness of twenty or thirty miles compass, begirt on all sides by civilization, but unexplored” Kennedy wrote in 1851.

After an arduous trek into the depths of the Blackwater wilderness, the Strother party camped near Blackwater Falls “surrounded by a tangled thicket of rhododendron, canopied by the loftiest firs, the thunder of the cataract in their ears day and night, and the spray freshening the atmosphere they breathed.” Their Blackwater adventures were chronicled in Harpers Weekly in the 1870’s.

The first industrialist to visit the Blackwater region was Henry Gassaway Davis, who began his career supplying horses and mules to the Union Army, and timber to the Baltimore & Ohio Railroad. After the war, Davis built a railroad along the North Branch of the Potomac which reached down the Blackwater Canyon by 1884. Davis Coal and Coke developed deep mines along the North Fork tributary at Coketon that supported thousands of miners at their peak and lasted until the 1950’s. Early on the coal was made into coke for steel mills in Pittsburgh and the remains of these coke ovens can still be seen today along the rail trail downstream of Thomas.

The building of the railroad through Blackwater Canyon was a world wonder at the time and the steepest railroad grade in the east in the 1880’s. Railroads linked these remote mountain towns and carried coal, coke and timber to the outside world. The remains of the railroad bridges

“I love the Blackwater river to walk along and watch the herons fish – to sit beside and listen to the sounds. I love the peace and serenity just being near the river and in the woods. I love watching the changes; fast and slow, high after rains and low in the late summer and all the variations. I like to imagine the water flowing to Parsons, then on into the Cheat and Mon and the Ohio and Mississippi and into the Gulf. Where does it go from there? It stirs my imagination”

- Lori Haldeman, FOB Staff and local artisan
and cut stone archways can still be seen along the Blackwater Canyon Trail from Thomas to Hendricks. The cemetery and school foundation from the railroad/river town of Lime Rock are also along the trail.

Thomas and Davis were boom towns attracting thousands of immigrants looking for work. Fourteen nationalities including Lithuanians, Croats, Italians, Swedes, Slovaks, Germans, Poles, Russians, and Swiss moved to the area. Jewish and African American families were part of the mix. The nationally famous legal case that created equal schooling in West Virginia in 1897 was brought by African American Carrie Williams, teacher at the Coketon Colored School along the North Fork. (See Historic Markers in Parsons and at the Buxton Landstreet Building along the Douglas Road). Coal and coke defined Thomas and logging Davis. Timber was cut for sawmills, tanneries and a pulp mill at Davis and Parsons and by 1917 most of the valuable timber was gone. The removal of the forest cover led to flooding downstream all the way to Pittsburgh. This caused the creation of the Monongahela National Forest, a federal forest restoration project.

"I love the Blackwater because I fish eleven months out of the year and I like to kayak it too"
- Tommy Ashton, Friends of Blackwater Volunteer and Davis Resident
POLLUTION PROBLEMS IN THE BLACKWATER

For over 100 years the Blackwater River has suffered from several water impurities throughout its tributaries - but mainly from acid mine drainage (AMD). Below is a chart outlining the water pollution from historic mining in Blackwater River tributaries.

AMD is the outflow of acidic water from abandoned mines into a body of water. It takes oxygen, and water flowing over pyrite associated with coal seams to create AMD. Much of the river is affected by acid mine drainage but in particular the tributaries of Tub Run in the Canyon, Finley and Long Run on the North Fork and the mine portal near Douglas and Yellow Creek on the main stem. More resources should be focused on the North Fork of the Blackwater which is the main source of AMD pollution in the river today.

Acid rain is air pollution from power plants in the Ohio River Valley. Tucker County gets high levels of rain fall and the acid in the rain has a negative impact on Tucker County streams. Little buffering capacity due to fire and logging. These streams need treatment too. Tank, Engine, Shays and Lindy flowing through the BFSP and Big Run near the High School.

Friends of Blackwater’s water monitoring project takes monthly sample of water quality on Blackwater tributaries. The severity of the AMD impact can be measured by the pH level of the water. A normal range for pH is 6.5 to 8.5 on a pH meter. Too high is too alkaline and below six is too acidic for aquatic life. Streams impacted by AMD in the watershed are often at a pH of 4 or lower. See the chart below for average pH’s in the watershed.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Avg. pH</th>
<th>Site Name</th>
<th>Avg. pH</th>
<th>Site Name</th>
<th>Avg. pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Fork Above Dam</td>
<td>7.11</td>
<td>End of WALD</td>
<td>3.30</td>
<td>Sand Run of North Fork</td>
<td>4.97</td>
</tr>
<tr>
<td>North Fork below Dam</td>
<td>6.90</td>
<td>Middle Run above WALD Discharge</td>
<td>6.19</td>
<td>Shays Run</td>
<td>3.55</td>
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<tr>
<td>Aluminum Run</td>
<td>6.61</td>
<td>Middle Run Below WALD Discharge</td>
<td>4.08</td>
<td>Tank Run</td>
<td>3.47</td>
</tr>
<tr>
<td>North Fork at Railroad Trestle</td>
<td>7.23</td>
<td>North Fork below Middle Run</td>
<td>4.92</td>
<td>Wimer Run</td>
<td>7.92</td>
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<tr>
<td>Snyder Run</td>
<td>7.00</td>
<td>North Fork Above Long Run</td>
<td>5.96</td>
<td>Beaver Creek</td>
<td>6.44</td>
</tr>
<tr>
<td>North Fork below Snyder Run</td>
<td>7.41</td>
<td>Long Run</td>
<td>3.36</td>
<td>Yellow Creek</td>
<td>4.22</td>
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<tr>
<td>North Fork Above Burns Blowout</td>
<td>6.68</td>
<td>North Fork below Long Run</td>
<td>4.12</td>
<td>Finley Run</td>
<td>3.47</td>
</tr>
<tr>
<td>Burns Blowout</td>
<td>3.11</td>
<td>North Fork above Douglas Falls</td>
<td>4.19</td>
<td>Tub Run</td>
<td>5.61</td>
</tr>
<tr>
<td>North Fork above Mine Portal 29</td>
<td>6.25</td>
<td>Big Run</td>
<td>3.73</td>
<td>Yoakum Run</td>
<td>8.04</td>
</tr>
<tr>
<td>Mine Portal 29 -combined</td>
<td>3.42</td>
<td>Devils Run</td>
<td>6.47</td>
<td>Freeland Run</td>
<td>7.92</td>
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<tr>
<td>Mine portal 29 - Entering WALD</td>
<td>3.39</td>
<td>Lindy Run</td>
<td>3.59</td>
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<tr>
<td>North Fork below Mine Portal 29</td>
<td>5.79</td>
<td>Engine Run</td>
<td>3.58</td>
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</table>
PAST AND FUTURE TREATMENT

There have been recent efforts to clean the river and reverse the effects of AMD on the river. One milestone in water treatment was the Blackwater River Limestone Drum Station. A rotary drum system was used with six water powered cylinders grinding limestone aggregate into a slurry provided the main source of treatment. As the river’s flow changes the drums automatically adjust their slurry output. The limestone raises the pH of the water to normal levels so fish can survive.

The new treatment at Davis is a doser which is operated by computer. The doser is activated when the pH as measured at the gauging station on the River at Davis drops too low. The doser creates a limestone slurry that enters the River above the mouth of Beaver Creek. As the slurred calcium carbonate limestone enters the River and dissolves it provides alkalinity to neutralize acid water. These treatment systems were originally put in place to treat AMD from Beaver Creek. However recent reading of pH on Beaver Creek show improvement. In our opinion this treatment system could be better used on the North Fork.

Land reclamation has played an important role in reducing water pollution by covering up mineral soils, old gob piles and stopping infiltration of water into old mine tunnels but it is not enough. This has been the main focus of the Abandoned Mine Lands program of the DEP. See Chart and map on pages 8 and 9.

STATE INVESTMENT IN THE RIVER

<table>
<thead>
<tr>
<th>TABLE: AML PROJECTS BY WVDEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name</td>
</tr>
<tr>
<td>Davis Highwall</td>
</tr>
<tr>
<td>Davis Highwall #2</td>
</tr>
<tr>
<td>Davis Strip #2</td>
</tr>
<tr>
<td>Benbush Refuse Pile</td>
</tr>
<tr>
<td>Blackwater River/ Beaver Creek</td>
</tr>
<tr>
<td>Burns Blowout</td>
</tr>
<tr>
<td>Pierce Refuse Pile</td>
</tr>
<tr>
<td>Albert Highwall #1</td>
</tr>
<tr>
<td>Beaver Creek Refuse</td>
</tr>
<tr>
<td>Douglas Run Highwall #1</td>
</tr>
<tr>
<td>Long Run</td>
</tr>
<tr>
<td>Blackwater Manor</td>
</tr>
<tr>
<td>Albert Highwall Enhancement A</td>
</tr>
<tr>
<td>Pendleton Creek Highwall</td>
</tr>
<tr>
<td>Pendleton Creek Strip Phase I</td>
</tr>
<tr>
<td>Thomas (Sunrise Sanitation) Blowout</td>
</tr>
<tr>
<td>Long Run Highwall #1</td>
</tr>
<tr>
<td>Pierce Refuse Pile #2</td>
</tr>
<tr>
<td>Tub Run Highwall &amp; Refuse Phase I</td>
</tr>
<tr>
<td>Tub Run Highwall &amp; Refuse Phase II</td>
</tr>
<tr>
<td>Albert Highwall #1 Phase II</td>
</tr>
<tr>
<td>Chaffey Run Strip</td>
</tr>
<tr>
<td>Pendleton Creek Strip Phase II</td>
</tr>
<tr>
<td>Roger Camp Hill Refuse</td>
</tr>
</tbody>
</table>

Total Expenses Reported To Date: $9,457,968.34
THE BLACKWATER WATERSHED ... A TOURISM MECCA

The Blackwater Watershed is an outdoor recreation paradise. From skiing and snowboarding in Canaan Valley to hiking and mountain biking on the Monongahela National Forest and Blackwater Falls State Park!

River sports include canoeing and kayaking, fishing and bird watching. Heritage tourism sites are available in Thomas where the main street overlooking the river is a National Register site and the coke ovens of Davis Coal and Coke still stand along the old railroad grade downstream from Thomas. Visit the restored Buxton Landstreet Building an old company store, now an art gallery on your way and view the preserved Davis Coal and Coke Engineering Building.

Nature walks in the Canaan Valley National Wildlife Refuge are led by staff and local experts. The annual Birding Festival is held at Canaan Valley Resort State Park. The area is famous for gnarly mountain bike races like the Blackwater Classic and the Revenge of the Rattlesnake put on by the West Virginia Mountain Biking Association. The “Run for It” charity race put on by the Tucker Community Foundation is another great outdoor event in Davis in September. Great restaurants in Thomas, Davis and the Valley welcome outdoor enthusiasts and art galleries and specialty shops along the river are fun to explore.
PUBLIC LANDS THE RIVER FLOWS THROUGH

The Blackwater River flows through public lands during its winding journey. These lands include Canaan Valley State Park, the Canaan Valley National Wildlife Refuge, Blackwater Falls State Park, Little Canaan Wildlife Management Area and the Monongahela National Forest and the Thomas and Davis City Parks.

Canaan Valley State Park, located in the highest valley east of the Mississippi River and contains part of the second-largest inland wetland area in the United States. The Park is the source of the southern-most headwaters of the Blackwater River. Sarah Maude Thompson Kaemmerling granted 3,149 acres to the state in the 1950s for the formation of a state park dedicated to preserving nature with the stipulation that the state match the gift with another 3,000-acres which they did. In 1971 the Canaan Valley Resort State Park was established centering on the ski slopes at the southern end of the Valley. Other skiing opportunities are at Timberline Resort and Whitegrass Cross Country Touring Center.

Canaan Valley National Wildlife Refuge was established in 1994 with the assistance from the Conservation Fund. It is one of the largest and most diverse freshwater wetland areas in central and southern Appalachia. More than 580 plant species and at least 290 species of vertebrates are known to exist in the Canaan area including the endangered Virginia northern flying squirrel and the Cheat Mountain salamander. The refuge’s goal is to preserve 24,000 acres of fragile wetlands and unique habitats of the upper Blackwater River.
The Little Canaan Wildlife Management Area further protects the Blackwater River upstream of the town of Davis. Hunting and fishing are popular on this recently acquired 3,168 acre tract of land. The property is assessable along Camp 70 Road going out of Davis near the mouth of Beaver Creek.

Blackwater Falls State Park is downstream. The centerpiece of the 2,456 acre Park is Blackwater Falls, the most photographed scenic area in West Virginia. Equally stunning is the view from its beautiful Lodge overlooking the Blackwater River Gorge. The Park is located just southeast of Davis. It protects 2,358 acres of red spruce and eastern hemlock upland forest. The Park was formally established in 1937, with several land donations added since. In 2000 under Governor Cecil Underwood added 150 acres to the State Park. In 2002 Governor Bob Wise bought 500 acres along the river upstream of the Falls from Allegheny Power for the State Park connecting it to the town of Davis along the River Trail.

The Monongahela National Forest (The Mon) was established by Congress in 1915 as the then 7,200 acre “Monongahela Purchase”. It became a U.S. National Forest on April 28, 1920. It now encompasses 910,155 acres. In Tucker County the Mon wraps around Blackwater Falls State Park on Canaan Mountain and along the Canaan Loop Road, famous for camping, hiking, mountain biking and bear hunting. Iconic Dolly Sods is a high plateau above the Blackwater River with flag trees, huckleberry plains and fantastic views. Spring and fall the Brooks Bird Club tags migrating birds here at the Allegheny Front Migratory Bird Observatory near the Red Creek Campground. Other high points are the Olsen Fire Tower and Bog on the North Side of the Blackwater Canyon.

A foggy morning on Dolly Sods.

“The wild Blackwater River threads it way through the reeds and sedges of the Canaan Valley wetlands, glides through the high mountain town of Davis before carving its boulder strewn whitewater pathway through Blackwater Canyon! Spectacular! “

-Judy Rodd, Friends of Blackwater Executive Director
FRIENDS OF BLACKWATER

Friends of Blackwater (FOB) is a 501(c)(3) non-profit organization formed in 2000 with the purpose of protecting and promoting the unique scenic, recreational, and ecological values of the land and waters in the Blackwater area of northeastern West Virginia. Remediating AMD pollution that degrades the Blackwater River is an FOB priority. In 2002, FOB established a North Fork Watershed Project office in Thomas, West Virginia on the banks of the North Fork of the Blackwater, and began to build local support for remediation and restoration of the watershed. Now in Davis, we work on trails, water monitoring, flying squirrel research and educating folks about the amazing Blackwater River Watershed: celebrating West Virginia’s scenic “Crown Jewel” while pushing for solutions to water pollution.

“...I love the Blackwater River and her amazing canyon because of the sheer natural beauty. To ride her rapids is unlike any other feeling I have ever experienced in my life, to sit on her canyon rim to watch a sunset or watch a storm roll in is awesome. Natural wonders like this need and deserve to be protected, now, and for future generations to enjoy and marvel at.”

- Mike Moore, VP of Harpers Ferry Outdoor Festival and lover of the Blackwater
OUR RECOMMENDATIONS AND GOALS FOR THE RIVER

The Blackwater River Watershed has attracted adventurers, nature lovers, and tourists for one hundred and fifty years. We who love this River want to heal its wounds.

The North Fork of the Blackwater, as well as Tub Run and Findley Run in the main stem of the Blackwater, are significantly impacted by acid mine drainage ("AMD"). This pollution degrades these waterways by making the stream chemistry too acidic (low Ph.) to support healthy aquatic life.

The West Virginia Department of Environmental Protection ("DEP") has spent some $9,000,000 to clean up mine-scarred lands in the Blackwater Watershed. This has reduced the amount of AMD entering the River -- because old mine spoil is covered, and draining mine portals are closed. However, some experimental passive water treatment systems have not been effective, and low pH levels are still injuring the river.

The DEP currently operates a limestone “doser” above the Town of Davis, to deal with pollution from Beaver Creek. Because AMD in Beaver Creek has been reduced, we recommend moving the doser (or putting another doser) below Thomas, in-stream on the North Fork, to better deal with three major sources of pollution in the Blackwater: Mine Portal 29, Long Run, and Tub Run. This limestone treatment would also remediate acid rain-impacted water coming from Blackwater Falls State Park and Big Run.

The Blackwater River is one of the most iconic waterways in West Virginia. Improving and cleaning up this beloved landscape will be good for the local economy and will make these waters safer for the public and the natural world. Let’s act together to have a clean Blackwater River Watershed!

“\textit{The Blackwater is the most unique, compelling and captivating river in the state. It has something for everyone from slow water in the headwaters, to the rush and crash of whitewater in the canyon. The change in scenery is severe, beautiful and transforming of people as it is of its view.}”

- Gary Berti, Trout Unlimited
SUPPORT FOR OUR WORK

BUSINESS
AmericaView
Big Johns
Boomtown Java
Canaan Trading Company
Colabrese Old General Store
East West Printing
The Golden Anchor
H and H Hardware
Hellbenders Burritos
Highland Prospects
Home Depot
Lowes
Massage Therapies of Davis
McClain Printing
Mountain Mist
Mountain State Brewing
Mt. Top Citgo
Mt Top Realty
Phillips Electronics
Purple Fiddle
Siriannis
Stevens Florist
The Ski Barn
Timberline
Tip Top
White Grass
Wild Ginger & Spice
Windwood

NONPROFITS
Canaan Valley Institute
Girl Scouts
Google Earth
International Mountain Biking Association
Thomas Education Center
Trout Unlimited
Tucker County Trails
Tucker County Historical Society
Winter Wildlands Alliance

GOVERNMENT AGENCIES
Canaan Valley National Wildlife Refuge
Monongahela National Forest
Blackwater Falls State Park
WV Department of Environmental Protection
WV Division of Natural Resources
Office of Surface Mining and Reclamation

FUNDEES
Appalachian Community Fund
Appalachian Stewardship Foundation
Best Buy
Colcom Foundation
Friends of the 500th
Generations United
MARPAT
National Fish and Wildlife Foundation
Nisource
Norcrossie
Oakland Foundation
Project FLOW
Southern Partners
Three River Quest
Tucker Community Foundation
WV Humanities Council
WV Stream Partners

OUR AMERICORPS VISTAS
Janel Farron
Meredith Ballard
Athey Lutz
Derek Napenas
Nick Fiorino
Josh Nease
Seth Pitt
Rachelle Thorne
Andy Herrmann
Ben Wiercinski
Emily Samargo
Corrine Evans
Joyce Edgell
Lisa Porter
Ilona Volker

AmeriCorps VISTAs Meredith Ballard and Janel Farron.
GOVERNMENT AGENCIES WHO WORK ON WATER QUALITY

WV Department of Environmental Protection (DEP)
Division of Abandoned Mine Lands
Rob Rice 304-926-0499
Jon Knight Planner 304-842-1900
Special Programs: Ed Hamrick 304-926-0499
Environmental Advocate John King 1-800-654-5227
DEP Environmental Enforcement Romney:
Robin Dolly 304-822-7266

Office of Surface Mining and Reclamation WV Field Office:
Rick Buckley & Nancy Roberts Charleston 304-347-7162

WV DNR
Endangered Species Specialist Craig Stihler Elkins 304-637-0245
Conservation Officer Tucker County: Terry Fluharty 304 771-3431
Blackwater Falls State Park & Canaan Valley State Park
Rob Gilligan Superintendent: 304-259-5216

U.S. Forest Service, Monongahela National Forest
Headquarters Elkins 304-636-1800
Cheat Potomac Ranger District: Troy Waskey, District Ranger
Petersburg Office: (304) 257-4488 ext. 13
Parsons Office: (304) 478-2000 ext. 104

Canaan Valley National Wildlife Refuge
Main Office 304-866-3858
Friends of the 500th 304-866-3858

“I love the Blackwater River because it provides food if you fish, recreation of you canoe or kayak, and beauty for anyone that takes the time to look at it.”

- Briana All, Former FOB Staff Member and Student
YOU CAN HELP

Our Projects:
Save Our Squirrel field work
Water Monitoring and Planning
Research and Celebrate Heritage
Trail Building & Maintenance
Bike Park Initiative

Join, Volunteer, Donate: www.saveblackwater.org

Friends of Blackwater
Davis Office:
571 Douglas Road
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Thomas, WV 26292
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info@saveblackwater.org www.saveblackwater.org