

The Appalachian VOICE

October/November 2012
FREE

Saying Goodbye to the

Keeper of the Mountains

1946-2012



Growing
Up Green

Are we preparing
our children for the
environmental
challenges of the future?



ALSO INSIDE: The Hiss-tory of the Timber Rattler • Coal's Finite Frontier

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A Note from our Executive Director



Dear Readers,
 Communities fighting mountaintop removal coal mining lost a leader and a friend in September with the death of Larry Gibson, a man who loved a mountain and refused to sell it to the highest bidder. Larry was connected to a place, and because of that became an inspirational force in the movement to end the reckless destruction of Appalachian mountainscapes.

While many environmentalists get involved in advocacy to protect a special place, others join the movement because they think like a scientist. For me, thinking like a scientist means employing the art of the long view, planning not just for today, but for future generations. Part of that is continuing to educate our youth in environmental and natural science, as we explore in this issue of *The Appalachian Voice*. It also involves prevailing on our politicians — as much as they resist — to consider science when making policy.

We seem to be coming up short on both. A recent Harvard report ranked the United States 17th globally in science education, and a 2011 editorial in *Nature* said, "It is hard to escape the conclusion that the U.S. Congress has entered the intellectual wilderness, a sad state of affairs in a country that has led the world in many scientific arenas for so long."

Appalachian Voices stands for protecting the Appalachian Mountains, because we love them as our homeplace, they provide our drinking water, and we enjoy their beauty and recreation opportunities — and also because they harbor hundreds of species that exist no place else on Earth. Join with us today in saving this special place.

For the mountains and the planet,

Willa

Willa Mays, Executive Director

INSIDE THIS ISSUE

About the Cover

The photo of Larry Gibson was taken by Paul Corbit Brown not long before the Keeper of the Mountains passed away. Brown had these thoughts to share:

To say Larry had an enormous impact on all of our lives wouldn't be enough. To say he was a hero wouldn't be enough. To say he changed our lives wouldn't be enough. To say he was deeply loved and will be missed wouldn't be enough. But let me tell you what was on his heart just days ago.

He stressed that this fight was never about him or his mountain alone. It was, and is, about all of us and our shared future. It is about the thousands of young people that he called his kids. It is about those not yet born.

He wanted to be a voice for all people and the mountains and homes they love. He wanted to speak for Justice and to inspire those too frightened to speak. And even those who called Larry an enemy and wished to do him harm, he spoke of them, still, as "His People."
 Rest in Peace, Larry. It was only appropriate that you should be on your mountain when you left this world. You can rest assured that we who you left behind will not rest until we finish the work you so passionately and courageously began.

Inset Photo by Gary Peebles/USFWS

Growing Up Green p. 8-18

As a popular saying among environmental educators goes, "you protect what you love, and love what you know."

In our special section on education, discover how youth are connecting to the Appalachia that we know and love.

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Bidding Farewell to a Mountain of a Man

By Lenny Kohm

Larry Gibson was an exceptional man — a warrior for the mountains that he loved, an advocate for justice, and a mentor to the thousands of people all across the country who joined with him in his struggle to end the daily tragedy that is mountaintop removal coal mining.

I first met Larry in the early summer of 1998, climbing out of a pickup truck that dwarfed his five-foot-two frame. I had received a call from professor Harvard G. Ayers, the founder of Appalachian Voices, describing to me the devastation that was taking place in the mountains of Central Appalachia and asked if I would travel to see the tragedy first-hand. At that time nobody had heard of mountaintop removal coal mining and there was almost nothing written that described the practice or its terrible impacts on the ecology and the local communities.

The drive through Coal River Valley in central West Virginia was a sobering experience, with processing plants, giant conveyor belts and mounds of coal looming over dust-covered homes lining the road along the narrow valley floor. In the small town of Whitesville, retired teacher Janet Nease met me and immediately told me there was someone she very much wanted me to meet.

Larry, while short in stature, was not afraid of sharing his opinion with anyone. As we drove the winding dirt road on the way up to his family's land on Kayford Mountain, he talked low and fast in a thick Appalachian accent about what he was taking me to witness. "See them big rocks in the middle of the road," he said, pointing over the dashboard. "Well, them are fly-rock, and they come from the mine site when they start-a-blowin' up my mountains!"

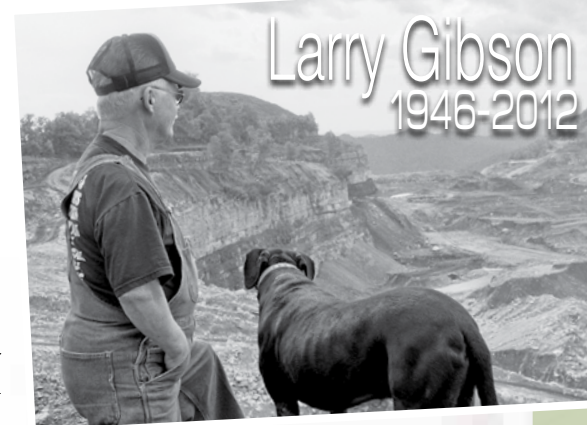
He led me to the edge of his property, past his family's cemetery, to a sweeping overlook of the environmental devastation that surrounded his home. After that moment, looking at the moonscape that used to be mountains, I knew I couldn't turn away from joining Larry's mission.

After that day in 1998, Larry and I shared many more experiences. We attended countless meetings in West Virginia, Kentucky, southwest Virginia and Tennessee, and strode through the endless halls of Congress to garner support for legislation that would end mountaintop removal. Through the press conferences and committee hearings, the briefings and meetings — through it all, Larry was tireless in his quest to educate the entire planet about what was happening to his beloved mountains.

Larry was loveable and made friends easily wherever he went. For more than 20 years, he travelled the country speaking to colleges, community groups, and whomever would listen to the plight of the folks living in the shadow of mountaintop removal. Young people were drawn to Larry, who was always quick with a big smile or a joke, and students from all over the country took up his cause, building an army of young citizens united against injustice.

He continued to work on his land on Kayford Mountain, adding a stage area and camping spots, creating in Stanley Heirs Park a place where people in the movement would gather to celebrate July 4 or the changing of the leaves each fall and revel in their common cause.

Larry never quite received the notoriety and appreciation he deserved. Although CNN network interviewed him as part of their "Heroes" series, and Terry Tempest Williams wrote an article about him and Kayford Mountain for *The Progress-*



Clockwise from top left: Larry looking out over the devastation on Kayford Mountain with his dog, Dog. Photo by Mark Schmerling

Dancing with his wife Carol at Stanley Heirs Park. Photo by Carl Galie

Walking with renowned scientist James Hansen and film director Mari-lynn Evans during the March for Blair Mountain. Photo by Paul Corbit Brown

Background by Paul Corbit Brown

ive magazine, he remained to most folks "just Larry." Fame outside of the anti-mountaintop removal movement was not a concern, though, because to him what mattered was that the coal companies stopped hurting his people and his ancestral land.

Larry is gone now and I for one will miss him. I am sure that there is a special place in heaven for such a mountain of a man. I can still hear his voice every day shouting to me and anybody who will listen:

"They're blowin' up our mountains and there oughta be a law!"

To read more about Larry's legacy or make an online donation, visit: mountainkeeper.blogspot.com

You can also send mail to: Keeper of the Mountains Foundation, 179 Summers St, Suite 234, Charleston, WV, 25301



Federal Grants To Assist Troubled Appalachian Species

A round of special funding by the U.S. Fish and Wildlife Service awarded \$33 million toward helping threatened and endangered species in 21 states, including several projects in the Central and Southern Appalachian region.

In Cumberland County, Tenn., more than \$700,000 will protect aquatic resources and improve habitat for species such as the Indiana bat, gray bat, spotfin chub, and Cumberland rosemary. The service describes this grant as a proactive attempt to guard sensitive areas "experiencing increased development pressures and resource extraction issues."

Federally-listed mussels are poised to benefit from nearly \$200,000 in con-

servation funds in Georgia's Lower Flint River Basin, an area impacted by drought and agricultural water demand. In Pennsylvania, \$600,000 will support Indiana bat habitat on 3.8 million mostly-forested acres throughout the state.

In a joint project between the West Virginia Division of Natural Resources and nonprofit conservation groups, \$700,000 in Fish and Wildlife Service funds will go toward land acquisition in the Cheat River Gorge. The state agency is seeking matching funds to help protect the Indiana bat and a lesser-known creature, the flat-spined three-toothed land snail. Approximately 10,300 acres



Photo by Craig Stihler/WVDNR

of the Cheat River Gorge encompass the rare snail's entire range, where it gravitates toward sandstone outcroppings.

The Fish and Wildlife Service is not the only agency assisting portions

of Appalachia. Also in August, the U.S. Forest Service announced \$3.5 million in matching grants awarded to groups working on community forests.

The Eastern Band of the Cherokee Indians will conserve 108 acres on Hall Mountain near Franklin, N.C., and build a trail system that exhibits uses of natural resources traditionally employed by the Cherokee. And in Pickens County, S.C., the Naturaland Trust will use Forest Service funds to secure 1,648 acres of the state's Nine Times Community Forest to support habitats for black bear, ruffed grouse and peregrine falcons.

Bad Fracking Rules for Tennessee

New fracking rules in the Volunteer State will have little to no effect on the state's emerging natural gas drilling operations, the Tennessee Clean Water Network says. According to the new Tennessee Department of Environment and Conservation rules, the public will be notified of new fracking only if the operation's water use will exceed 200,000 gallons more more, although no current or proposed fracking sites are close to meeting that threshold. Prior to TDEC's finalization of the rules, environmental and citizen groups proposed numerous changes, including lowering the threshold water use, extending public comment periods, prohibiting chemicals such as diesel fuel in fracking fluids and extending the proximity protection for drilling near homes from 200 feet to 1000 feet. TDEC rejected the citizens' proposal, and

passed the new rules at the Oil and Gas Board meeting on Sept. 28. For more information, visit: town.org/frack.

Are Pesky Pests a Plus?

A recently released study from Cornell University shows that getting rid of "unwanted" insects such as mosquitoes, ants and roaches might have unwelcome ecological consequences. The five-year National Science Foundation-funded project that studied the evening primrose and its natural enemy, plant eating moths, found that removing the pests from the plant's environment resulted in significant loss in the plant's natural defenses in as few as three or four generations, leaving it vulnerable to attack. The study also showed a loss in yield and taste, and has generated speculation that the results may

be applicable to other insect-plant interactions — including food-bearing plants. For more details, visit: news.cornell.edu

NC Drags Feet Over Offshore Wind

A new report by the National Wildlife Federation shows that despite having more coastal wind energy resources than any other state on the Atlantic coast, North Carolina has only taken the first of nine steps toward developing offshore wind. Studies indicate that the state's wind resources could produce \$22 billion for North Carolina's economy and create more than 10,000 permanent jobs while

providing up to 130 percent of the state's energy needs.

Old-Growth Trees Survive College Football

University administrators at Virginia Tech in Blacksburg, Va., denied a proposal to raze three acres of old-growth forest to develop an athletic practice area, but fell short of guaranteeing the site permanent protection. A campus-wide petition garnered more than 10,000 signatures in support of the area known as Stadium Woods, which includes dozens of white oaks ranging from 100 to over 400 years old.

Companies to Cough Up Millions for W.Va. Superfund Cleanup

Exxon Mobil Corp., Vertellus Specialties Inc., and CBS Corps have agreed to pay \$29.8 million for current and retroactive cleanup costs for the Big John's Salvage-Hould Road Superfund Site in Marion County, W.Va.

The 38-acre site, located near the east bank of the Monongahela River in the town of Fairmont, became contaminated with hazardous wastes from decades of industrial activity. The cleanup, which has been ongoing since 2001, includes containing contaminated soil and removing 5,500 cubic yards of

tar wastes from the bottom of the river. Between 1932 and 1984, four separate heavy industry operations deposited waste products including lead dust, mercury-tainted waste oil and crude tar on the site. More than \$11 million of the funds will reimburse the U.S. Environmental Protection Agency and the state of West Virginia for previous cleanup efforts. Additional information on this and other superfund sites is available at: cumulis.epa.gov/superpad/cursites.



Ready, Aim, Click: Photo Competition Accepting Entries

Now is your chance to showcase your interpretation of the unique character, people, places and pursuits that distinguish the Appalachian region

The Appalachian Mountain Photography Competition is accepting submissions from amateur and professional photographers for their 10th annual juried exhibition. The show is sponsored by the Outdoor Programs department at Appalachian State University, the Blue

Ridge Parkway Foundation and the Turchin Center for the Visual Arts. Deadline for entries is Fri., Nov. 16, 2012 at 5 p.m.

Categories for this year's competition include: Adventure, Blue Ridge Parkway - Weather on the Parkway, Culture, Our Ecological Footprint, Flora/Fauna, and Landscape. \$4,000 in cash and prizes will be awarded.

For the fourth year, Appalachian Voices will sponsor "Our Ecological Footprint," a category

designed to help spread awareness of environmental problems and concerns in Central and Southern Appalachia through the visual medium of fine art photography. Proceeds benefit Outdoor Programs' Student Outdoor Learning Expeditions.

Finalists will be displayed at the Turchin Center for the Visual Arts in Boone, N.C., from March through August, 2013.

To enter the competition, visit: appmntphotocomp.org.

Wildlife Center Sues for Survival

A non-profit wildlife center known for rehabilitating thousands of animals including red-winged hawks, great horned owls and bobcats has filed a lawsuit against the resort town of Beech Mountain, N.C., for what it says is unjust and illegal treatment.

According to Genesis Wildlife Sanctuary, a new ordinance was passed by the town in early 2009, suddenly rendering the 10-year-old facility in violation of its lease. In Sept. 2010, the town gave the sanctuary six months to comply or vacate. Many animals housed at the sanctuary were taken to other facilities and private properties for care, but some had to be euthanized.

In the spring of this year, the town served Genesis with a lawsuit and eviction notice, claiming the sanctuary was still in violation although no animals had been housed on-site since the initial relocation. "From 1999 to 2009, we had no issue with the town," states Genesis board member Frank Steele. "Out of the clear blue, without even notifying Genesis, we find out the town had voted to adopt this new ordinance."

The wildlife center has a 60-year land lease with Beech Mountain on what is one of the last remaining developable properties beside the town's picturesque Buckeye Lake. According to Steele, the town has sought to gain full-use recreation status for the lake, but the state requires additional parking, security and restroom facilities before the designation will be granted.

The center's most famous resident was North Carolina's official groundhog, Sir Walter Wally, who traveled to the state capital each February to offer his spring weather prediction. Prior to the removal of the animals, the sanctuary says it had hundreds of visitors each week for educational and volunteer purposes.

Where Doing Business is Doing Good

Help build and support a better future for Appalachia at MountainHugger.com, a new online marketplace for small, sustainable businesses in the region. MountainHugger.com connects you with vendors who love their mountain homes and seek to support themselves with work that sustains healthy families, healthy local communities, and a healthy natural environment.

Mountain Hugger.com

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Hiking the Highlands

Getting Wild In Dolly Sods Wilderness

By Joe Tennis

Julie Fosbender stepped carefully down the trail called Fisher Spring Run, heading downhill on a Monday morning. We hiked together for almost two miles along this unmarked-yet-mapped path in the Dolly Sods Wilderness, an expansive and scenic section of the Monongahela National Forest.

The Dolly Sods Wilderness is a hiker's dream, spanning 17,371 acres of bog and heath eco-types, more commonly found in southern Canada. Elevations range from 2,500 feet to over 4,700 feet. The protected area takes its name from a German pioneer family — Dahle — whose livestock grazed the grassy area locally called "sods."

Forty-seven miles of trails in the Dolly Sods Wilderness follow old railroad grades and logging roads, many of which contain creeks that must be forded.

Creek-hopping is generally easier

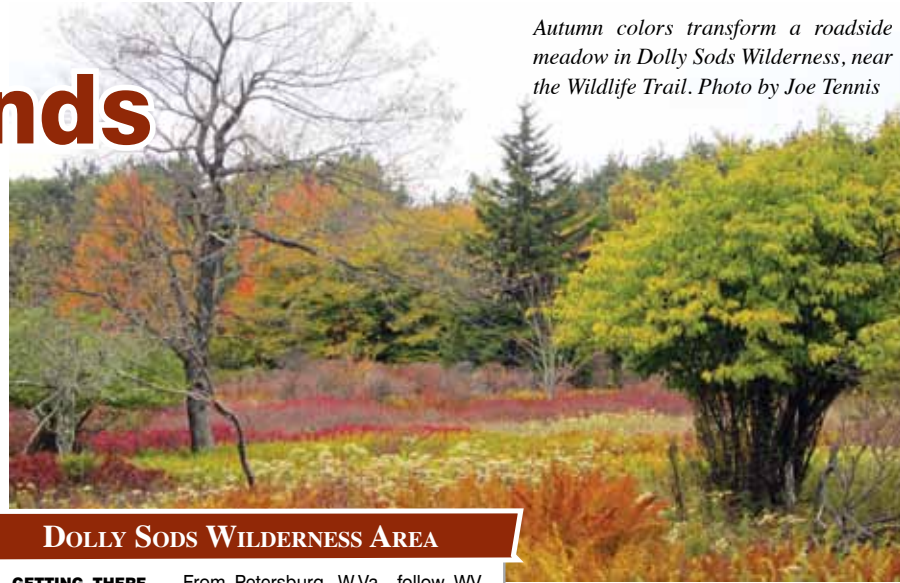
in autumn, when it may not be raining so much, but could grow tricky in the spring.

Trails here range from the Red Creek (6.4 miles) to the Northland Interpretive (0.3 miles). To expand even further on the variety, multiple-trail hikes can be created by using two cars to form a shuttle, or combining parts of trails to form loops.

Choose Your Adventure

Starting at Fisher Spring Run Trailhead, just off Forest Road 75, Fosbender and I immediately descended into the wilderness, rambling over rocks as we passed a wealth of ferns and firs, including hemlocks and several fallen logs.

"This forest provides a range of experiences," says Fosbender, the north zone recreation manager for the Monongahela National Forest. "And we rely on our visitors to self-select the experience that they want."



Autumn colors transform a roadside meadow in Dolly Sods Wilderness, near the Wildlife Trail. Photo by Joe Tennis

DOLLY SODS WILDERNESS AREA

GETTING THERE — From Petersburg, W.Va., follow WV 28/55 south to Jordan Run Road. Turn right and go one mile to Forest Road 19. Turn left and follow FR 19 six miles to the Dolly Sods Scenic Area. The wilderness is directly ahead at the intersection with FR 75.

LENGTH AND DIFFICULTY — 47 miles of trails, varies.

WEBSITE: www.fs.usda.gov/recarea/mnf/

INFO: (304) 257-4488

Every once in a while along this trek, you'll see a campsite with a fire ring left in place, beckoning hikers to extend their stay in Dolly Sods. Beware setting a fire outside of the ring, however; beginning in 1943, this area was used for maneuvers by the U.S. military, and many artillery and mortar shells shot into the area for practice still exist.

Although this sounds scary, a highly trained crew surveyed trails in 1997 for explosives and returned with 15 leftovers. Many more explosives could exist, however, which is why tried-and-true fire rings are best.

"The worry isn't so much that there's a bomb under our feet," Fosbender says. "But if you light a fire, that could make that bad boy go off, and that could ruin your day."

We did not see any bombs on this particular Monday, but our path on the Fisher Spring Run Trail grew increasingly pointy on the backs of rocks as it continued down the mountain.

At a crossroads of trails, Fosbender continued on Fisher Spring Run as I turned on the Rohrbaugh Trail (TR 510) — an even rockier road. At times on the Rohrbaugh Trail there were little, if any, signs of earth beneath my feet. The trail crosses a stream with a miniature cascade and then passes a cliff outcrop the size of a large car. It's a shady path that requires careful footsteps.

After about a half-mile the Rohrbaugh Trail comes to another junction, well-marked by signs and stones. Here, I turned left on the pleasant and more moderate Wildlife Trail (TR 560), which carries you back up the mountain on a 1.5-mile hike that appears fairly well worn by the hikers who love Dolly Sods.

The Wildlife Trail does not cross creeks. It also spreads out enough to make the uphill climb almost seem easy. Its vegetation — more of an upland meadow setting — differs from the rocky forest of the nearby Fisher Spring Run.

You can use a shuttle and return to your vehicle at the head of the Wildlife Trail, as I did. Or you can turn left at Forest Road 75 and take a gentle 1.5-mile walk to the head of Fisher Spring Run to complete the loop.

Picture Perfect

In the upper half of West Virginia, where Grant County merges into Tucker and Randolph counties, you'll find many casual visitors roaming the forest roads of the Dolly Sods Wilderness, shooting pictures of big boulders and documenting the blazing colors of fall.

But Bear Rocks is not the only great overlook. Nor is it the only one with at least mildly easy access. Near the Wildlife Trailhead, along Forest Road 75, you travel only about 400 yards to find a grand view of the Virginias with natural perches on bleach-white boulders.

This is a great place to take a picture, as well as a wonderful cap to a morning of hiking the highlands through the canopied forests and open heaths of Dolly Sods Wilderness.



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Photo taken at Melanie's Restaurant in Doughton, Boone, NC

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Growing Up Green

Teaching the Natural World

By Molly Moore

Lesson Plan

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It's 9:30 a.m., and the sun has yet to offer its full warmth to the fifth-grade class clustered along the bank of the North Toe River in Spruce Pine, N.C. Several students warily eye the chilly current and one girl pulls her

arms into her sweatshirt, insulating herself from the cool morning. But any trepidation vanishes as the U.S. Fish and Wildlife Service's Gary Peeples starts them on a Waterbug Safari, an activity that explores the river's creepy-crawly inhabitants. Within minutes, the kids are sloshing around, scooping water samples and bringing live creatures to a nearby table. One student catches a baby dragonfly and the group learns that it "takes water in through its mouth and squirts it back out of its butt."

Activities like this are a classic example of get-your-feet-wet environmental education. There are no dire warnings about the ecological perils of disturbing the riverbed, and when a student brings an Asian clam to the table, "Those are bad because they're not from around here" provides an introduction to the problems of invasive species. The details can wait — today's goal is to facilitate interest in the water cycle, and the river is just feet away.

"Who's having the best day of school in their entire life?" Peeples calls out. Every hand shoots into the air.

Curiosity about the natural world has been a part of childhood education long before President Nixon passed the first National Environmental Education Act in 1970. But encouraging students to

understand ecosystems and their role in them has never been more imperative.

A ten-year study published in 2005 found that although most American adults were aware of simple environmental issues, their understanding of moderately complex environmental and energy topics was downright abysmal. According to the study, forty-five million Americans thought the ocean was a source of fresh water. Just 12 percent passed a basic energy awareness quiz. Perhaps most sobering, the researchers estimated that only one or two percent of the population were capable of investi-



Two Yancey County, N.C., students eagerly examine a rock for signs of life (above) and Byron Hamstead, a U.S. Fish & Wildlife Service intern, helps students in another county identify stream insects during a morning of outdoor education activities (below). The types of insects in a river can be a useful indicator of water quality. Photos by Gary Peeples/USFWS

gating and making decisions about complex natural-resources issues.

The problem with environmental education isn't lack of public support. According to the study, ninety-five percent of Americans stand behind learning about natural systems and about 85 percent believe that studying the natural world builds character, enhances science learning, encourages community service and creates more environmentally-aware adults.

But even memorable learning experiences such as the Waterbug Safari run up against familiar obstacles: tight school budgets, the dominance of standardized tests, and overburdened teachers facing these challenges.

Some teachers counter these hurdles directly. Kelly Chapman teaches fifth grade at Deyton Elementary in Mitchell County, N.C., and every year she finds a grant to supplement classroom curriculum with experiential instruction methods. "I've become a different teacher from being able to have the hands-on material," she says. "I'm a hands-on learner myself."

Her students participate in the Waterbug Safari as part of the annual Toes in the Toe Watershed Discovery, a program comprised of six activity stations for all fifth graders in a two-county region. The workshops meet state education guidelines, and because the event is sponsored by the U.S. Fish and Wildlife Service and local environ-

mental group Toe River Valley Watch, it's affordable for schools.

Organizations dedicated to outdoor learning play a role as well. Ryan Olson, executive director of nonprofit program Muddy Sneakers, is optimistic about the future of environmental education. His outlook is buoyed by federal initiatives such as President Obama's America's Great Outdoors initiative and bi-partisan efforts to pass the No Child Left Inside Act, a bill that would give states incentives for prioritizing environmental topics and outdoor experiences in schools. According to Olson, now is the time for advocates to ensure that state-level plans are applied in a way that stays true to the movement's outdoor, hands-on roots.

Classes participating in Muddy Sneakers commit to at least six outdoor-learning "expeditions" each school year. Most are on publicly or privately protected lands within a half hour of the school, which exposes kids and their families to nearby natural treasures, and a few expeditions take place in the schoolyard, engaging youngsters with their immediate surroundings.

Once outdoors, students embark on activities such as trying to insulate boiling water in the woods to learn about energy conservation, and talking about how that heat relates to energy sources such as camp stoves and the sun. Add

Continued on page 18

Prescription to Play

Getting Outside Truly is the Best Medicine

By Brian Sewell

Once upon a time, on an ordinary fall afternoon after returning home from school, the kids from the neighborhood would get together. They might take to a nearby creek or hike to a secret fort deep in the woods. There, kingdoms were conjured, epic battles fought and the innocence of childhood imagination reigned supreme.

Outside, children can inhabit two universes — in one, mythical monsters have invaded and jump from tree to tree; in the other, it's time to retreat home for dinner.

Childhood is a time to imagine and create. It is also a time of physical and mental development, charting the course for an individual's future health. In the midst of all those monsters, a child is unlikely to consider how much spending time outdoors will benefit them through childhood and into adolescence and adulthood.

Today, however, children are more likely to take to the couch and battle monsters on screens. Nearly every medical study into the matter concludes that, regardless of ethnicity, children in America are too plugged in, unhealthy and overmedicated. And in Appalachian and southeastern states, the challenges are even greater. The nature of childhood has changed, and growing up green seems more like a fairy tale than ever.

Remembering How to Play

The range of research into the factors affecting children's development is staggering — from the influence of high-calorie sweets advertised on TV to the alarming number of prescriptions written as the prevalence of attention deficit-hyperactivity diagnoses grows. But in many cases the roots of the problem and the benefits of play are being ignored.

The most visible and immediate threat to children's physical health is the obesity epidemic affecting nearly 20 percent of kids between the ages of six and 11. During the past decade, percentages of overweight and obese

children in states such as West Virginia, Kentucky and Tennessee have crept into the upper 30s, according to data from the National Initiative for Children's Healthcare Quality.

The increase in early-onset diabetes provides perspective into the future health of children with poor diets and who grow up mostly indoors. Dr. David Ludwig, a pediatrician at Boston Children's Hospital, recently described the severity of the problem on National Public Radio.

"It's one thing for an overweight or obese 55-year-old gaining a few extra pounds a year to develop diabetes at age 65 and have a heart attack at age 70," Ludwig said. "It's a very different thing if the clock starts ticking at age 10."

When it comes to physical health, parents and schools are beginning to think outside the box — namely the four walls with a TV in which too many children have settled.

Several states and major groups such as the Sierra Club and National Wildlife Federation have endorsed the No Child Left Inside movement, which focuses on environmental literacy through outdoor recreation and healthy living. The initiative is helping schools understand the importance of something as common as having recess, and reminding towns of the role parks and public spaces play in their communities.

For children, exercising outdoors, better known as "playing," is simply one of the only opportunities to participate in an activity that promotes lifelong physical and, as families are beginning to learn, mental health.

The parents of today's youth know something about growing up green, since many of them did. They remember fondly the family road trip to a national park, or perhaps closer to home, picnics at the neighborhood playground, where they would hang upside-down from the monkey bars and swing higher than once thought possible. For an appreciation for time spent outdoors to be



A Prescription for Holistic Health: A child may not realize it at the time, but time spent playing and discovering the outdoors provides a framework for future health, psychological well-being and the social skills useful in everyday life. Photo by Jamie Goodman.

passed down, parents need to remember their own childhood.

Thinking, Naturally

Developing a relationship with the outdoors at an early age provides children with more than a formula for lifelong physical health, it offers a framework for psychological well-being and the social skills useful in everyday life. As the library of research on middle childhood grows, a clearer understanding of how outdoor play contributes to the way a child learns and interacts with others is piling up. Less clear and more troubling, however, are the factors, including a child's stress level, media consumption and diet, contributing to the rapid increase in diagnoses of attention deficit-hyperactivity disorder.

Researchers at the University of Illinois have explored treatment of attention deficit disorders through attention restoration theory — an idea developed in the 1980s asserting that adults can concentrate better after spending time in nature. They found that, similar to older subjects, children who are able to climb trees, dig in the dirt and play with bugs outside are better able to sit still and behave at home and in the classroom. On the other hand, the study also found that children who exhibit attention problems in the classroom are more likely to be kept from outdoor play during school because of poor grades or misbehavior.

Nearly 16 percent of children in North Carolina have been diagnosed

with ADHD, the highest in the nation. Overall, according to the Center for Disease Control, more than four and a half million kids have been diagnosed with the learning disorder. And more than three million of those children are prescribed stimulants like Ritalin and Adderall to treat its symptoms. But as researchers such as University of Minnesota Institute of Child Development's L. Alan Sroufe have noted, these pills do not constitute a cure, are unlikely to improve long-term social and academic outcomes, and can lead to dependency.

One study that has lasted for more than a decade found that after three years, positive behavioural modification effects from medication had faded, and by eight years there was no evidence that the drugs produced any academic or behavioral benefits.

"Clearly, these children need a broader base of support than was offered in this medication study, support that begins earlier and lasts longer," Sroufe recently wrote in a *New York Times* op-ed titled "Ritalin Gone Wrong."

Healthy children beget healthy adults, healthy families and a healthy society. And just as the threats to children's overall health last into the future, so do the benefits of ample time for outdoor play. In fact, getting back to playing may be the key to holistic health for America's children, getting them away from battling monsters on screens and back to battling monsters in trees.

Climate in the Classroom

Hot Air, Stringent Standards and Tangible Teaching Techniques Complicate a Crucial Science

By Molly Moore

Last spring, leaked documents from a conservative think-tank revealed plans to develop and market a K-12 global warming curriculum.

Science educators might have welcomed a new attempt to educate America's youth about climate change if the organization that plans to develop the curriculum, The Heartland Institute, wasn't known for denial of accepted climate science. Several months after the documents were exposed, Heartland unveiled a series of billboards equating anyone who accepts climate change science with "Unabomber" Ted Kaczynski and other unsavory figures.

According to one leaked document, the institute plans to create a curriculum promoting the idea that human activity contributes to climate change is "a major scientific controversy," in direct conflict with nearly 97 percent of active climate scientists who agree that the climate is changing and that human activity is a significant cause.

Direct classroom pressure from groups such as Heartland is just one of many attempts by supporters of the energy industry to stymie climate change education. In another case, environmental organization Greenpeace used a Freedom of Information Act request to discover that ExxonMobil was funding climate change skeptics

as recently as 2010, despite a slew of ads promoting increased math and science education and a 2008 pledge to stop funding deniers of global warming.

Some state governments have also cast a shadow over established science curriculum. This year, Tennessee became the second state to pass a law that brings critiques of topics such as evolution, climate change and the chemical origin of life into the classroom.

With powerful interests acting against climate change education, it's no wonder a National Science Teachers Association poll found that 82 percent of educators have faced skepticism about the subject from students and 54 percent have faced skepticism from parents. Still, the scientific and science education communities overwhelmingly accept that climate change is real and that part of science education is informing students about that reality.

In fact, Dr. Melinda Wilder, an Eastern Kentucky University professor who specializes in science education, has been bringing climate change science into her work since the mid-nineties, she says, by letting her students "find evidence and then talk about what that evidence means."



Confronting Bias

For teachers, finding reliable classroom materials can be a barrier to effective climate education, especially since tight school budgets and time-strapped schedules encourage teachers to look to outside sources for lesson materials. Filling that need, the American Coal Foundation paid Scholastic, Inc. — a well-known provider of educational materials and textbooks — to develop and distribute a set of lessons dubbed the "United States of Energy." With the aid of Scholastic, the lesson plan reached at least 66,000 fourth-

To learn about how schoolyard trees respond to the changing seasons, students also have to identify tree species in this after-school activity. Photo courtesy of Pi Beta Phi Elementary

grade classrooms in 2009, according to a blog post by the coal foundation. But once the biased source of the curriculum gained attention in the national press, Scholastic withdrew the lessons.

In an article in the activist educational magazine *Rethinking Schools*,

Continued on next page

Coal 101

A quick survey of major fossil fuel foundations reveals that most also dabble in crafting energy-related teaching materials. In Appalachia, one of the most prominent is a nonprofit called Coal Education Development and Resource, Inc., a group with the mission to "facilitate the increase of knowledge and understanding of the many benefits the Coal Industry provides in our daily lives." The organization provides cash awards to teachers who develop superior lessons about coal; award-winning curriculum includes lessons on subjects such as geology

and mine safety, but also includes materials created by industry groups such as Friends of Coal.

A coloring book distributed by Friends of Coal shows smiling kids on the back page with a speech bubble that exclaims, "Coal is necessary in our energy future!" The workbook addresses "Coal and our Environment" with a cartoon of a cheerful dog washing coal, smiling scrubbers in action, and kids planting fir trees atop a former surface mine. Topics such as acid mine drainage, slurry impoundments leaching toxic metals into groundwater, and poorly reclaimed mine sites are not included in the coloring book.



Teaching Climate

Continued from previous page

editor Bill Bigelow noted that the coal foundation's materials claim to meet national education standards for fourth grade, and specifically purport to teach about the advantages and disadvantages of different types of energy. But Bigelow writes that the curriculum fails to mention the health or environmental problems tied to coal, or the fact that burning coal is the greatest contributor to greenhouse gases. "True, a full exploration of these 'disadvantages' of coal might overwhelm 4th graders—or anyone else, for that matter," Bigelow's article says. "But the alternative is not to leave them out entirely and, thus, turn coal into an energy superhero."

According to Eastern Kentucky University's Dr. Wilder, some material from the American Coal Foundation can be useful if presented in context. For example, she says, students in Appalachia often assume that their region produces most of the country's coal, a misconception that is countered by a "United States of Energy" activity that asks students to use a map to identify the top 15 coal-producing states. Wilder notes that just because one activity has merit doesn't mean that it provides thought-provoking follow-up questions or that other lessons are accurate.

"Teachers have to look at curriculum materials critically," she says.



Learning about the climate gives students opportunities to observe and measure their surroundings. Above, Sevier County, Tenn., sixth graders use meteorological tools to study weather atop Look Rock. Photo courtesy of Pi Beta Phi Elementary

Standard Science

Presently, there are no uniform standards for teaching climate and energy in the Southeast. Still, proponents of teaching about climate have reason to be optimistic. A first draft of new voluntary national standards, called Next Generation Science Standards, was released last spring, and a second draft will be available for public comment this fall. The first draft contained upgrades such as a high school section about managing human impacts on the planet, including the effects of greenhouse gases.

Simply including climate science in the state education standards does not necessarily lead to quality instruction. "Most of the time the earth and environmental science courses are not the high-stakes testing courses ... It might be on the books but that doesn't mean it's being taught," says Karen McNeal, a principal investigator at Climate Literacy Project of the South-

east.

To help teachers find effective climate lessons, the Climate Literacy Project has gone through 100 lessons and matched them with science standards in southeastern states to create a publicly searchable database. All the lessons have been peer-reviewed by edu-

exploration of how colors at the earth's surface affect the amount of warming.

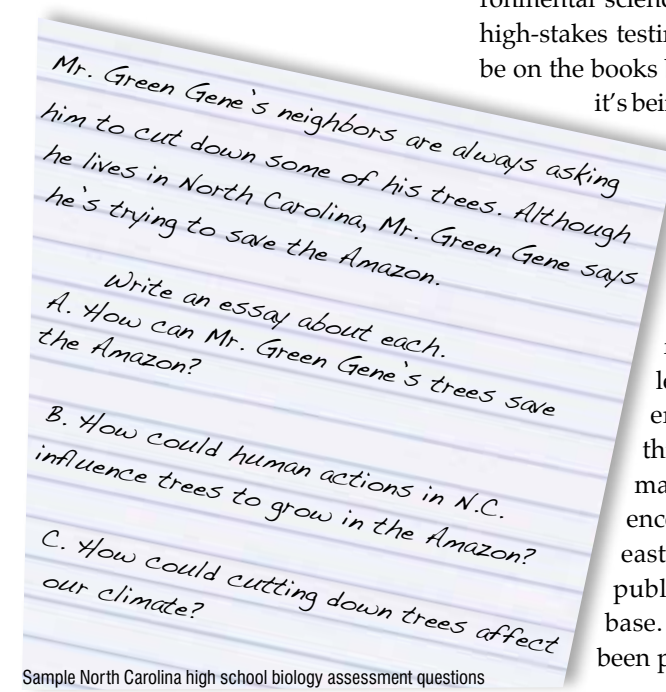
Communicating Climate

Quality learning begins with a teacher who is comfortable and enthusiastic about the subject at hand. John DiDiego, education director for the Great Smoky Mountain Institute at Tremont in Townsend, Tenn., organizes climate change workshops for educators. Depending on state and grade level, teachers might not be required to teach about climate change, but DiDiego says those lessons can be tied into other subjects.

"[Climate change] certainly fits in with a lot of what they're trying to teach, but the teacher has to make that connection," DiDiego says. "It could be a math problem related to 'how much carbon does a certain tree species of a certain size sequester?' So the kids can go out and make measurements. It's all about math, but the end result is learning about carbon sequestration."

DiDiego says that teachers who attend the institute's workshops con-

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Sample North Carolina high school biology assessment questions

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Appalachian Educators Build Creative Curriculum

By Paige Campbell

The school day has officially ended at Castlewood High School. But at the Wetlands Estonsa Outdoor Learning Center four miles away in St. Paul, Va., it's hard to tell. Seventeen Castlewood students are still engrossed in their water testing tools and trail maintenance equipment.

"Wrap it up, guys," teacher Terry Vencil calls out across the water. "We've got to get the athletes back to school."

This is school for Vencil's environmental science students, who leave campus for each day's final period to carpool to Estonsa, maintain the site, test the water, and correspond with GLOBE, a national program that supports student-collected data and research worldwide. There is no lecture, but Vencil is constantly teaching. She points out turtle egg shells, troubleshoots equipment problems, and brainstorms reasons for variations in water temperature. She and the students are fully engaged with the site and with each other.

According to Vencil, the site was once a wet cornfield, dammed-up a century ago. "By 1999, you couldn't even walk around here," she says. "So a group of my students got permission to clean it up." The project quickly evolved into a student-led environmental education center for studying and protecting the site's distinctive wetlands ecosystem. Students oversaw all restoration, fundraising, and even the interior design for the new building.

Back then, Vencil taught at St. Paul

High School, a short walk across the parking lot. When that school closed two years ago, most Estonsa students enrolled at Castlewood. So Vencil transferred there too, determined to keep the project alive despite of the new commute.

The drive cuts into class time, but even those four snaking miles through dense patches of forest and long-nurtured pastureland remind students of what Vencil emphasizes every day: Appalachia is a precious and resource-rich place worth studying.

The Estonsa project is remarkable, in every sense of the word. Nationwide, teachers bound by high-stakes tests and prescriptive state benchmarks must often plow through curricula too packed to build in much time for in-depth science instruction, let alone hands-on learning in the natural world. A 2011 survey by the National Science Teachers Association found that 44 percent of elementary school teachers devoted fewer instructional minutes to science than they had the previous year, with 26 percent reporting less than 20 minutes each day. Many cited the huge demands of regimented state assessment policies.

In Appalachia, that sacrifice seems a particular shame. Millions of acres of national forestland, unparalleled biodiversity, and the geological intricacies of some of the planet's oldest mountains just might provide the ideal backdrop for comprehensive environmental education. Making the most of



Andrew Jessee tests the water for nitrates with fellow students from Castlewood High School at Wetlands Estonsa. Learning to manage the site is part of the school day for these environmental science students. Photo by Paige Campbell

that backdrop with little time and few resources takes innovation and community buy-in. But Estonsa is one small place that does it.

Over the years, team members have reintroduced native flora, created a vegetative green roof on the building, constructed a three-quarter mile trail, hosted visiting groups, spoken at international conferences, and won dozens of academic awards.

To senior Andrew Jessee, what Estonsa really means is a chance to authentically experience — and deeply grasp — the subject matter. "I don't learn well in a classroom," he says. "I learn with my hands."

Creating An Eco-Classroom

Just outside Chattanooga, students at Ivy Academy are learning with their hands, too. This four-year-old charter school holds nearly all classes outdoors, nearly every day. "We'll be in [indoor] class maybe ten minutes to talk about what we're going to do," senior Corey Purvis says. "Then we go outside and do it."

Senior Kayla Carter offers an example. "Today we got a topographic map of the lot our school is on, and the ridge behind us and the creek," she says. "Then we went out to the creek and figured out what our point of elevation

was, how far we'd have to walk to get up the ridge, and what our point of elevation would be once we got there."

"You really couldn't do that in a traditional classroom," she adds.

That's the idea, says school director Angie Markum: to give opportunities for hands-on learning and to focus that learning on the natural world.

Students run a school garden, monitor tree growth and water quality for the GLOBE student-collected data project, line abandoned coal mines with limestone to slow hazardous runoff, and analyze non-native species compromising the Tennessee River system.

Markum is committed to the idea that intensive environmental education benefits the community. "We've got to educate people about our environment," she says. "They don't respect and value what they don't understand."

It also benefits students themselves. "Before I taught here, I was at a school where students came to school in the dark, spent the day in rooms with frosted windows, and sometimes in the winter went home after dusk," Markum says. "These kids basically never saw the light of day."

Such conditions are disgraceful, Ivy Academy founders believed. Students needed an alternative.

Continued on next page

Creative Curriculum *Continued from previous page*

Inspiring Educators

Of course, not every community can support an outdoor school, and not every student gets an alternative. So how can students experience vibrant environmental education in more traditional settings? Jim Rye and Rick Landenberger, education faculty at West Virginia University, offer some unique possibilities at a summer watershed dynamics institute for secondary science teachers.

Participants meet for one week at WVU during the summer, and continue to correspond through the fall. They practice different water quality assessments and learn to use GLOBE as well as Geographic Information Systems, a network of technically precise maps often used to analyze natural features like waterways.

When she enrolled in the institute in 2011, Wildwood Middle School teacher Carolyn Thomas had already developed a lesson involving brook trout, which thrived long ago in nearby Jefferson County streams. Centuries of agriculture and diminishing shade have gradually robbed the trout of the cool, clean conditions it requires, so when Thomas' students raise brook trout eggs in the classroom, they ultimately must release the hatchlings across the state line in a part of Virginia where the species fares better.

The project has always been a hit. But Rye and Landenberger's course gave Thomas the resources to expand the scope of her lesson by framing it around a critical question: could brook trout ever be reintroduced to Jefferson County waters?

"We visit streams, assess water quality, and consider human needs in the community," Thomas explains. "And we use my favorite analogy: a stream without a riparian buffer is like

a face without eyebrows." Students discuss why a riparian buffer, or vegetative boundary zone, protects streams the way an eyebrow protects an eye, and what humans might do to recreate them.

"My goal is to engage them with their surroundings," Thomas says. "And make them realize that science is not just in textbooks."

Building FENCES for Vibrant Instruction

In the western hills of North and South Carolina, the Foothills Equestrian and Nature Center offers another strategy to bring science education from the textbook to the senses. FENCE's education team provides instruction through field trips and in-class settings for eight schools across the region; hands-on lessons range from exploring weather patterns to dissecting owl pellets, and each corresponds with state standards.

Time constraints and expensive materials can rule out such activities for many classroom teachers, the program's AmeriCorps Nature Education Assistant Kristy Burja says. "So we bring our own supplies, and it's free to the school. We're able to help teachers meet some 'Essential Standards' in a way that's fun and different for the kids."

"FENCE educational programming has become an essential part of our science curriculum," says Denise Corcoran, who teaches at Tryon Elementary in Polk County. Especially popular are field trips to FENCE's nature center. "[Fifth-graders] are able to hike, investigate and explore the outdoors in all the seasons," says Corcoran. "And



Fourth-graders at Polk Central Elementary in North Carolina use modeling clay, shells, and plastic bones to learn about fossils during a FENCE activity. Photo by Kristy Burja

another middle school, students are constructing raised beds for a salad garden.

Learning Landscapes also contributes to a new Abingdon High School program that allows special-needs students to stay enrolled until age 22 and focus on vocational skills. The program's culinary courses will soon feature harvests from an on-site Learning Landscapes vegetable garden.

Meanwhile, environmental science students have designed a nature trail connecting Abingdon High School grounds to the town's central sidewalk system. "[Students] will

very often, [they] see things in nature that most people never see."

Cultivating a Living Schoolyard

Learning Landscapes, the environmental-education arm of Appalachian Sustainable Development in Washington County, Va., doesn't have a facility for students to visit. What it does have is Denise Peterson, who spends her time helping schools create outdoor classrooms of their own.

Peterson leads many projects across Washington County and the city of Bristol. At one elementary school, students are restoring long-neglected gardens, studying pollinators and planting an "ABC" garden with crops representing every letter of the alphabet. One group of middle school students recently got their hands dirty harvesting their gardens of red, white and blue potatoes; at

flag the trail to mark the route, take GPS points, make an official map with those points, and then build it," Peterson says. The trail will eventually include learning stations for identifying ecological habitats, tracking soil conditions and temperature, and testing water from a new footbridge.

For this type of project, Peterson says, continuity is the challenge. "A teacher or a principal or a parent can have a great idea and establish something, but if they move, it often fails," she says. "An outside source [such as Learning Landscapes] can bring the energy to keep it going."

Like all creators of innovative curricula, Peterson has learned just how crucial that energy is. When it falls into place, the results are unmatched: students fully immersed in their picturesque and profound Appalachian landscape — and fully engaged in understanding it.

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Eco-Champions



*Chloe and
Elijah Rose
Clay, W.Va.*

Chloe Rose, age eight, wants recycling bins on the streets of her town, and she wants the trash pick-up at the newspaper her mother works at to include paper recycling.

Those are big changes for a third-grader to tackle, but Chloe, a soon-to-be published author, plans to donate proceeds from the children's book

she co-wrote with her mother toward recycling in her town of Clay, W. Va. The book, "The Snake That Eats Cake," tells of a serpent with a sweet tooth, a story she hopes will tell kids that, "being different is not a bad thing to be."

Chloe feels like all kids can contribute to protecting

the environment by recycling and conserving water and electricity. "I think recycling's important because it helps clean the environment," Chloe says. "And my birthday is on Earth Day!" She credits her parents with shaping her environmental outlook, but her big brother probably has something to do with it too.

Elijah Rose is a junior at Clay County High School, where he's been part of the Future Farmers of America chapter for three years. Last year he won the West Virginia's FFA State Fair Competition with a project demonstrating a farm powered by clean energy. For this year's competition, he was inspired by his mother's journalism job and constructed a model frog out of 75 newspapers to call attention to the ways newspapers can be recycled. Farmers can use recycled newspapers to enhance gardens and enrich compost piles, he writes.

Eventually, Elijah hopes to own a farm of his own and raise fruit and nut trees. His involvement with Future Farmers of America is one step toward a future of sustainable forestry and stewardship. "I want to continue the fight my parents have been fighting since before I was born and ensure that West Virginia is a healthy place to one day raise my own children," he says. — *By Molly Moore*



*Bailey Wells, Tristan Ginter
and the West Carter Middle School
Science Club
Olive Hill, Ky.*

From a distance, the 10 by 14-foot structure behind West Carter Middle School in Carter County, Ky., looks like a futuristic laboratory. But closer examination reveals a deceptively simple greenhouse.

Inspired by the internet, funded by a grant from nonprofit youth organization Earth Force, and initiated by a student-led soda bottle collection, the greenhouse incorporates about 1,100 two-liter recycled plastic bottles, which are stacked in wood frames and held in place by wire. The base of the greenhouse is insulated with old tires that the school's Science Club members filled with dirt.

Using their math skills, the students built a tilted roof

to funnel rain into two black rainbarrels that provide water for the garden and a natural source of warmth through heat transfer.

Bailey Wells and Tristan Ginter, highly involved members of the Science Club, say that the student-grown lettuce and onions from the greenhouse result in tastier salads. Last year, the greenhouse provided salads for the school of 425 on five occasions. Wells points out that by growing food on school grounds, less energy is used in transportation. While the county high school's greenhouse relies on conventional energy sources for electricity and water, the West Carter Middle School's student-built greenhouse is self-sufficient and saves the school about \$850 annually. "Other schools should learn [from this example] so we can save more money for the state," says sixth-grader



Tristan Ginter.

As she and other greenhouse builders head to the high school next year, the high school greenhouse's electric generator is probably shaking in its boots. — *By Molly Moore*

**More Eco-Champions
Next Page →**

*Ben Stockdale
Columbus, N.C.*

When Ben Stockdale, an 18-year-old high school senior from Polk County, N.C., saw the low-flush toilet handles at Appalachian State University, he knew he had an opportunity that he couldn't waste.

In August 2011, Ben and Polk County High School's student-led "Green Team" wanted to install the same low-flush toilet handles at their school. To look for funding, they turned to the Polk County Community Foundation. At first, the foundation was hesitant to give a grant to the high schoolers, but they were soon convinced otherwise by the Green Team's hard work.

Though the new toilet handles will decrease flushed water usage by 30 percent, Ben said the most important part of this project was how the community came together: Polk County High teachers and the principal



advised the Green Team, community members stepped in to assist, and the students rallied around the grant writing process.

The project's success depended upon everyone, says Ben: "It was Polk County that was trying to move forward." With the low-flush toilet handle as a precedent for community cooperation, one can only wonder what the future projects Ben and his hometown will embrace. — *By Matt Grimley*

*Olivia Stegall
Butler, Tenn.*

Since she was four years old, Olivia Stegall has been working to end mountaintop removal coal mining. Her first foray into advocacy was in 2006, when she traveled with her mother to Washington, D.C., to lobby members of Congress to end the practice.

Now almost 10, Olivia has talked personally with dozens of Senators and House representatives about the issue (pictured at left with Tennessee Senators Lamar Alexander and Bob Corker in 2010), and one time even accompanied Rep. Phil Roe ((R-TN)) to watch the House vote on a bill. "When I was really little, I didn't think about where I was, I just asked (them to support the Clean Water Protection Act). But when I got older, I was realizing what I was doing, and just how important it was."

Besides being the youngest volunteer at Appalachian Voices, Olivia is also a regular volunteer at her local humane society and a Cadet in the Girl Scouts.

"When I turned six, I really just wanted to make a change in the world," Olivia says, "because not everyone has a good environment and it would be nice if everyone had that." — *By Jamie Goodman*



*Birke Baehr
Knoxville, Tenn.*

When 13-year-old Birke Baehr says he wants to be a farmer, he is only telling half of the truth — he also wants to change the way the world farms.

A homeschooler from Knoxville, Tenn., Birke is devoted to teaching kids and adults about the problems in America's industrialized food system and the benefits of local, fresh and organic.

At eight, Birke first drew a connection between what was in America's food and the companies that produce it when



he became shocked by an article about mercury levels in high fructose corn syrup. He promptly gave up drinking soda, and encouraged his family to do the same.

Soon after, he dove into learning about

genetically modified foods, pesticides and chemical fertilizers. "I got so frustrated that we allowed these companies to almost sneak behind our backs to do these things," he says. "It's why I started speaking about it." His first appearance was at the 2010 TedX Next Generation Conference in Asheville, N.C.; although he was nervous, his straightforward and genuine manner in advocating for sustainable food was a huge hit.

He has since given dozens of talks across the region to kids and adults alike, and was interviewed for the upcoming documentary, "Bite Size," about childhood obesity. He has visited farms all across the country — and one in Italy — to learn as

much as he can about sustainable farming, and this year published "Birke on the Farm," a children's book advocating for healthy foods and farming.

Birke practices sustainable gardening by growing okra, collard greens and other vegetables in a small 10 by 10-foot garden. He hopes to make a career out of public speaking on the subject, but his biggest goal is to own a small farm and actually provide people with fresh, organic food.

"If you have something close and dear to your heart and you feel strongly about it, don't be afraid to step outside of your comfort zone," says Birke.

"If I can do it, why can't you?" — *By Jamie Goodman*

Ashley Phykitt
Charlotte, N.C.

Two years ago, an article in *Charlotte Magazine* detailed a day in the life of former Catawba Riverkeeper David Merryman and his battles to keep the river clean from coal ash. When Ashley Phykitt, then a 10-year-old, read the article, she was so inspired that she just had to get involved.

Ashley met up with David, and the two sampled water from Mountain Island Lake, the source of Charlotte's drinking water, which lies adjacent to the Riverbend Steam Station's coal ash ponds. What they found in their water samples was toxicity in the coal ash discharge areas of Mountain Island Lake, suggesting that the toxic coal ash was seeping into the larger body of water.

Ashley, now 12 years old, presented her findings and won a "Special North Carolina American Waterworks Prize" from the North Carolina Science Engineering Fair in 2011. This past April, she traveled with Earthjustice and Physicians for Social Responsibility to Washington D.C., to present her findings to policymakers. She says that her time there was "pretty fun," and that the policymakers were also "pretty serious."

She suggests, from the findings in her project, that people should reduce the amount of electricity they use and find alternative means of energy besides coal. She is considering testing Lake Norman and Lake Wileys for water toxicity as well. Needless to say, for a seventh-grader, Ashley is well on her way to being a serious keeper of the waters. — *By Matt Grimley*



"Before It's Too Late," a short film produced this past summer, investigates water quality in Letcher County, Ky. The five youth involved in the project spoke with locals and other experts, uncovering critical information about water pollution.

Every year, media nonprofit Applashop brings Appalachian high schoolers to Whitesburg, Ky., to gain media skills and explore regional issues for the Summer Documentary Institute.

Creating "Before It's Too Late" had its difficulties — the young filmmakers say that water quality can be a touchy subject in the area, with some residents involved in lawsuits over pollution and others afraid of alienating employers or landlords. But Cory Coots, 17, of Viper, Ky., says the topic is critically important. "Water quality directly influences us because we drink that water, we bathe in that water," he says. "If there's something wrong with it, it's obviously going to affect us somehow."

Ellie Hogg, 17, of Berea, Ky., says she has a new understanding of the impacts of water pollution, and believes that youth who speak out about these problems have the ability to bring awareness to other young people.

"[The experience] made me feel more connected to people who are involved in solving problems," she says. — *By Molly Moore*

Equal Access

Struggling to Bring Broadband to the Backroads

By Paige Campbell



Eighth-grader Jarrod Knight is having trouble with his homework.

At his school in mountainous southeast Ohio, many class projects involve using the school's broadband internet connection. But if Knight can't finish during class, those assignments — like a weather-tracking science project — go home with him.

That's the trouble. Getting online is tricky in Knight's rural community. Dial-up service is increasingly obsolete for many modern websites. Satellite internet is often unreliable. And his family lives outside the service zone of every land-based high-speed internet provider in the area.

The expectations Knight faces aren't unusual. The National School Boards Association reported in 2007 that 96 percent of school districts permitted teachers to assign internet-based homework. Yet in Knight's home state, a non-profit called Connect Ohio recently found lower graduation rates among students lacking home high-speed internet.

That disparity is one reason Connect Ohio's mission is to bring high-speed, or broadband, internet to every Ohio household. In the state's Appalachian region, that's a tall order. Barely half currently use broadband. In a 2011 survey, mountain residents cited many reasons shared by non-users statewide. Tight budgets. Security concerns. Lack of interest.

But one reason looked very different in the mountains. Asked why they didn't use broadband at home, Appalachian Ohioans were nearly three times as likely to answer, "Because it's not available."

The problem is simple, says Connect Ohio's executive director, Stu Johnson: broadband is like pizza. And the pizza guy won't come that far from town.

"Imagine you want to sell thirty pizzas," Johnson says. "What's your

best bet? [To sell pizzas to] thirty people in one apartment complex, or thirty houses spread along a five-mile stretch of road with a mean dog?"

"The carrier has to get so many dollars per mile of copper or cable or fiber in order to make a reasonable return on investment," he explains. A far-flung population is discouraging enough. Rough topography also means that a mile between houses might actually demand three miles of cable.

Building a New Framework

A decade ago in the mountains of southwest Virginia, Jim Baldwin and the Cumberland Plateau Planning District Commission faced a similar problem. An economic development strategy team had determined that attracting high-paying jobs to Appalachian Virginia would require a modern telecommunications framework.

Waiting for companies to build that framework wasn't going to cut it, so Baldwin's group applied for a grant from the federal Economic Development Administration. That grant, matched by funds drawn from a legal settlement with the tobacco industry, allowed the Commission to partner with the city of Bristol and begin subsidizing broadband connections for regional businesses.

Since 2003, the project — with help from federal stimulus funds — has brought high-speed internet to nearly 500 businesses in the region, including small family shops, schools, hospitals, and large businesses like information-technology company CGI.

Baldwin credits supportive lawmakers, particularly then-Congressman Rick Boucher, with getting the ball rolling. "With very high unemployment because of the mechanization of the coal industry, he saw this as a 21st century strategy to create new opportunities," Baldwin says.



In the southwest Virginia town of Lebanon, aerospace and defense company Northrop Grumman offers one such opportunity; it opened an IT center there largely because of an existing telecommunications infrastructure Baldwin calls "comparable to anything you'd find in northern Virginia or Silicon Valley."

Connect Ohio wants a similar broadband network to eventually blanket their state. Through training programs, hardware upgrades, incentives for providers, and legislation, the organization is making Ohio more attractive to businesses and helping individuals access the many advantages Stu Johnson says broadband offers. From searching for a job to providing home-based health care, day-to-day tasks are increasingly internet-dependent.

For Jarrod Knight, the task at hand is

schoolwork. Without a dependable connection at home, he often stays with his grandmother 40 minutes away, where broadband is available, just to get his homework done.

"I love to have Jarrod stay with me," his grandmother says. "But it's very difficult for him when [he can't] be at home and sleep in his own bed."

Stu Johnson worries that technological advancements will only widen the gap for students like Knight. Companies find it more profitable to upgrade service for existing customers than extend service to new ones, meaning bandwidth for some will increase while students without broadband will be left in the dust.

Still, business is business. Johnson's goal: to tweak the economics just enough to get rural folks their pizza, for everyone's benefit.

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Growing Up Green

Continued from page 8

in a perk like brewing pine needle tea, and it's hard to imagine that a multiple-choice worksheet would make a similar impression.

The energy conservation and transfer topic is a new addition to North Carolina's fifth grade education standards. In fact, Muddy Sneakers has incorporated four subjects into its program that are new to the 2012-2013 curriculum. Staying on top of changes to state education standards and bringing in trained outdoor education instructors provides a service to teachers and students, Olson says. Classroom teachers often aren't exposed to experience-based education

methods or encouraged to take students outside, and because science can be an intimidating subject, teaching it in an unusual setting can make some traditional teachers uncomfortable.

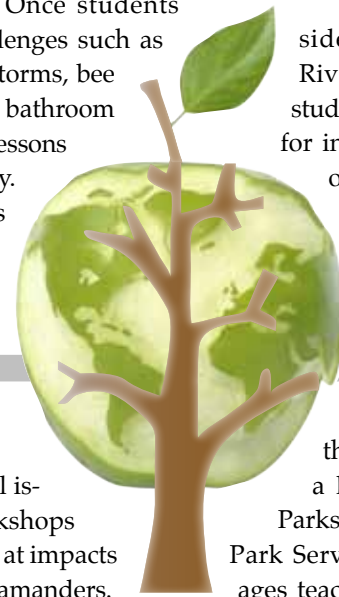
If administrators are concerned that spending time away from the desk will lead to slipping scores on standardized tests, Olson has an answer for that, too. He offers a report that shows year-end scores in science, math and reading are significantly higher among classes participating in Muddy Sneakers. Gains in science are particularly high — about 25 percent more students in participating classes meet or exceed state science standards.

Those numbers tell part of the story, but the mission of environmental education is also to increase kids' familiarity with the natural world and encourage their explorative instincts. Olson says today's students are often afraid of being hurt or lost in the forest, so the programs begin with a day designed to put them at ease. Once students feel prepared for challenges such as approaching thunderstorms, bee stings and going to the bathroom outside, the following lessons proceed more smoothly.

Perhaps ten years ago fifth graders didn't need to be taught how to use the outdoor

bathroom. But, as a growing body of research affirms, many of today's kids are increasingly removed from their own backyards. Despite that distance, these schoolchildren will need to understand their relationship to the natural world in order to make tough decisions about the future.

A coal train screeches beside the curving North Toe River as the Waterbug Safari students splash about, searching for insects and squealing when one net incidentally catches a fish. One day they will be responsible for the river's health; today they are saying hello.



Teaching Climate

Continued from page 11

sistently say they need access to current, reliable information about climate change and its regional and local impacts. He notes that the consequences

in the Southern Appalachians are not predicted to be as dramatic as in other parts of the country, and that communicating those subtleties to a classroom

can be difficult.

To make the global issue tangible, the workshops advise teachers to look at impacts on creatures such as salamanders. Appalachia is a diversity hotspot for these lungless amphibians, which depend on narrow ranges of precipitation and temperature and are at risk from habitat loss.

Making chemistry concepts visual is another challenge, says Erika Schneider, a former classroom teacher and current outreach coordinator for Sundance Power Systems, Inc., a North Carolina renewable energy company. When she talks to high schoolers about carbon dioxide, she initiates a chemical reaction so they can actually see the normally invisible gas and compare the amount of carbon dioxide in ambient air to the amount in a human exhalation or the amount released from a car tailpipe.

Taking It Outdoors

Just outside the home or classroom, climate lessons are constantly unfolding. Over time, studying seasonal changes such as when trees bud or lose their leaves and when migrating birds arrive can reveal the "fingerprint of climate change," says DiDiego.

Students at Pi Beta Phi, a public elementary school in Sevier County, Tenn., are monitoring how the changing seasons affect 22 trees near

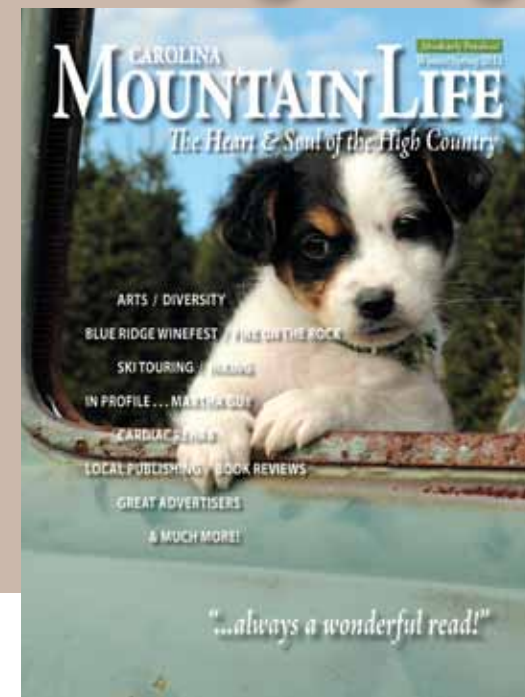
their school. Pi Beta Phi has a lengthy partnership with Parks as Classrooms, a National Park Service initiative that encourages teachers to use national parks as places to facilitate learning about cultural and natural resources. At the school, students begin talking about the idea of climate as early as second grade.

By the time students reach sixth grade, they have a good understanding of the underlying science, says Melissa Crisp, the school's Parks as Classrooms coordinator. In addition, students here "have grown up in this environment of looking at things open-mindedly and broadly," she says. Sixth-graders debate topics such as the effects of coal plants on climate change and the merits of various types of energy. They head out to a nearby overlook and take weather samples; when they return to the classroom, it's time for statistical analysis.

What students do with the knowledge they uncover is up to them. Karen McNeal of the Climate Literacy Project of the Southeast simply wants students to be informed.

"It's our job to do our best to inform people of the science," she says. "As long as we're doing that and not cherry-picking the science, [as long as we're] informing them of the whole science, the whole story, and giving them the skill-set to make their own decisions, it's up to the students and the parents to make those decisions."

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A Finite Frontier: Facing the Future of Central Appalachian Coal

By Brian Sewell

On Sept. 18, Appalachian coal mining giant Alpha Natural Resources announced it would idle eight mines and lay off 400 employees in the first phase of a “strategic repositioning” plan designed to meet the evolving demands of a changing global coal market.

According to Alpha, the plan aims to enhance the company’s position as the nation’s leading producer of high-quality metallurgical coal used to make steel, while reducing production of lower-quality thermal coal sold primarily to electric utilities in the United States.

A statement from Alpha on the day of its big announcement said that “approximately 40 percent of the reduction will come from higher-cost thermal coal operations in the East that are unlikely to be competitive for the foreseeable future.”

Although Alpha did not comment on why some thermal coal mines are no longer competitive, political figures in Appalachia were quick to blame regulations designed to reduce pollution from mines and power plants that burn coal.

West Virginia Rep. Shelley Moore Capito wrote in a response to Alpha’s announcement that, “Because of the President’s War on Coal, thousands of West Virginia families have to worry about where their next paycheck is going to come from.”

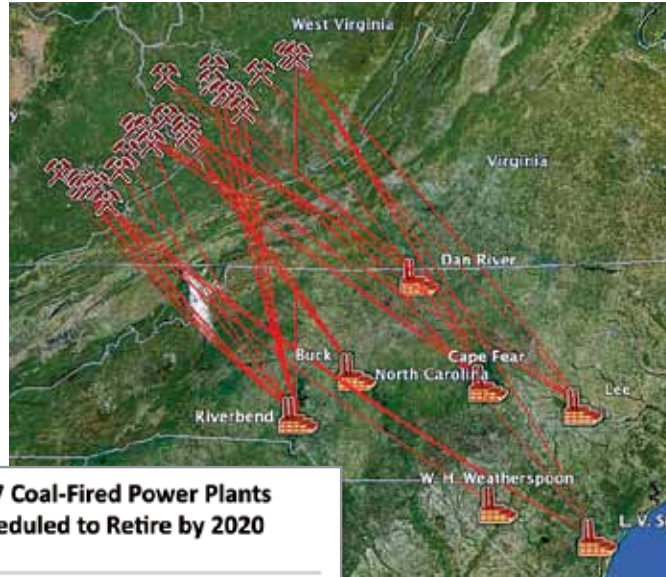
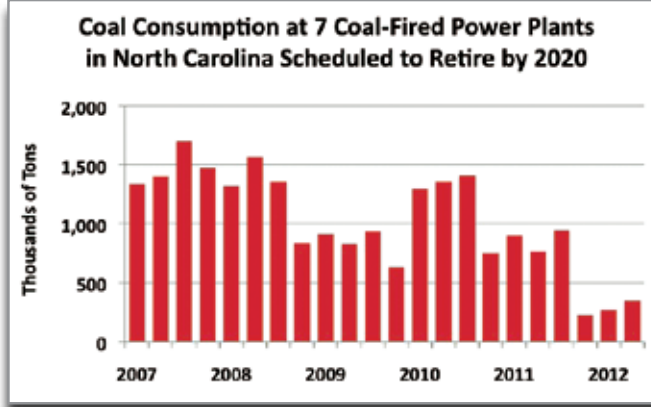
Reports from the Energy Information Administration and private consult-

ing firms, however, suggest that environmental regulations play only a minor role in the planned retirements of 10 to 20 percent of the nation’s coal-fired power plants. Instead, analysts say, a surge in the production of low-cost natural gas is forcing coal out of the market.

In 2011, North Carolina purchased 95 percent of its coal from West Virginia, Kentucky and Virginia coal mines. Yet, even utilities in the Tarheel State, the largest buyer of Central Appalachian coal, have laid out plans to retire more than a quarter of their coal-fired generating capacity, replacing much of it with natural gas-fired units.

Just days before Alpha announced its repositioning, North Carolina-based Progress Energy shuttered its H.F. Lee Plant, a 385-megawatt facility near Goldsboro almost a year earlier than it had initially intended to begin construction on a natural gas facility at the site. The second in a string of closures Progress calls its “fleet-modernization” initiative, the Lee plant has relied on Central Appalachian coal since it was built in 1951. Next year, Progress will retire the L.V. Sutton Station in Wilmington, which has been in operation since 1954, and replace it with a 625-megawatt gas-fired power plant.

The decline in demand for coal influenced a decision by Alpha Natural Resources to restructure operations, and reduce production of coal sold to electric utilities in the U.S. In North Carolina, the largest consumer of Central Appalachian coal, consumption at seven plants scheduled to retire before 2020 has fallen by 80 percent in the past five years. Data compiled by Appalachian Voices



Center on Budget and Policy suggests that as productivity of mines decreases due to less accessible coal seams, it may mean a boost in employment in the long-term.

The center also noted that the type of coal being mined is changing. One of the key components of Alpha’s restructuring is shifting the focus to metallurgical coal for steelmaking in nations such as China where demand continues to grow. That may translate to more jobs in underground mines where high-quality and high-cost metallurgical coal is found. Despite plummeting productivity, one estimate suggests there may be 10,000 more coal jobs in Central Appalachia in 2035 than in 2010.

“We’re closing one chapter, but opening another,” Jeff Lyash, vice president of energy supply for Duke Energy, which recently merged with Progress, told the investment analysis website, SeekingAlpha.com. In June, Duke CEO Jim Rogers said the utility now relies on its coal fleet only when hydroelectricity, nuclear and natural gas do not meet demand.

Exacerbating the competition from natural gas in domestic markets, mining conditions have deteriorated dramatically in recent years due to the depletion of the highest quality and most accessible seams of coal. In 2008, the EIA reported that West Virginia produced 157.8 million tons of coal. It predicts that number could drop to 90.1 million tons per year by 2020, a decrease of more than 42 percent.

Until recently, however, coal mining employment has remained stable or grown in some parts of Appalachia. Counterintuitive to the logic of the “war on coal,” EIA data compiled by the West Virginia

“We really don’t know how it will all shake out,” said Sean O’Leary, a policy analyst at the budget and policy center. “The mix of falling production and falling productivity may eventually increase jobs, but even in that case it takes years for the initial losses to come back.”

In the meantime, the center advocates for the formation of a coal mining transition taskforce that will “help communities look for viable ways to ease the possible impact and search for viable economic alternatives,” and is calling on West Virginia and all of the coal mining states in Appalachia to invest in what the future holds for coal miners — not just the coal mined.

In Bankruptcy, Patriot Coal Creates Its Legacy

By Brian Sewell

Concerns over how Patriot Coal will meet its commitments to generations of retirees have rippled throughout Appalachia. The St. Louis-based spin-off of Peabody Coal filed for bankruptcy in July after reporting considerable losses since 2010. Patriot cited “substantial and unsustainable legacy costs” owed to retirees and beneficiaries as factors. Now, with their benefits on the line, many former employees worry that Patriot might have been created to fail.

Retirees and union representatives have said they believe that parent company Peabody planned to saddle Patriot with less-valuable Appalachian coal

assets and the “unsustainable legacy costs” in question. United Mine Workers of America President Cecil Roberts called Patriot a “house of cards” created by Peabody to “get out of its obligation to pay for the pensions and health care of thousands of people who spent their lives working for Peabody.”

At the time of its formation, nearly two-thirds of Patriot’s workers were represented by the United Mine Workers of America and many of its mines were union operations. Provisions in the Federal Mine Health and Safety Act include funding of health benefits for UMWA retirees. Under bankruptcy law, commitments to shareholders are paid

first; legacy costs to employees come from any remaining assets and often are not paid in full.

While Patriot has attempted to assure that its obligations will be met, the debt-addled company made clear in official bankruptcy documents that a return to long-term viability depends on its “ability to achieve savings with respect to these liabilities.” The UMWA, along with the U.S. Trustee, is asking U.S. Bankruptcy Judge Shelley C. Chapman to move the case from New York to West Virginia, where the majority of Patriot’s mines are located.

In July, during an act of civil disobedience led by the group Radical Action

for Mountain People’s Survival, dozens of protesters trespassed onto Patriot’s Hobet Mine Complex in Raleigh County, W.Va. The group focused their efforts on exposing Patriot’s obligations, pointing out that UMWA pensions are funded through a per-ton tax on coal, and “in the middle of a projected six-year, 50 percent decline in production, this funding stream is increasingly unsustainable.”

Lou Martin, a professor at Chatham University, wrote an op-ed for the *Charleston Gazette* reflecting on the protest and its goals. “The real struggle is not between the tree huggers and the miners. It is between the people and the outside corporations that will exploit the land and the people and leave nothing behind, not even pensions.”

House Sides with Coal, Passes a Non-starter

On Sept. 21, in its last act before the election, the Republican-led House of Representatives passed H.R. 3409, a package of five bills it calls the “Stop the War on Coal Act,” claiming that environmental regulations are the real enemy of economic prosperity. Each of the bills would, in one way or another, decrease or undo protections under the Clean Air Act and Clean Water Act, allowing coal companies and electric utilities more room to pollute air and water. H.R. 3409 is unlikely to pass the Senate and the Obama administration has said it would veto the act without consideration. West Virginia Democratic Senator John Rockefeller expressed the futility of the legislation, saying, “This is yet another effort by House Republicans to score political points by pushing bills they know won’t become law instead of working to find actual solutions.”

Embattled Clean Air Rule May Get a Second Chance

The U.S. Environmental Protection Agency has appealed a federal court decision that struck down its 2011 Cross-state Air Pollution Rule, calling for a full review of the court’s statement that the agency had overstepped its authority and that the standards were too strict. The Cross-state Rule focuses on the reduction of sulfur dioxide and nitrogen oxide emissions — the majority of which are emitted from coal-fired power plants — and according to the EPA would benefit the health of more than 240 million Americans in 28 states. Judge Judith Rogers, the dissenting judge in the 2-1 vote, stated that the majority opinion resulted in “the endorsement of a ‘maximum delay’ strategy” against regulations aimed at

reducing emissions. The court ordered the agency to continue pollution enforcement under the less stringent 2005 Clean Air Interstate Rule until a viable replacement can be issued.

EPA Appeals Mountaintop Removal Permitting Rule

The U.S. Environmental Protection Agency said it will appeal a July 31 ruling by a federal court dismissing its “guidance” rule on surface mine permitting in Appalachia. Finalized in 2011, the guidance rule sought increased scrutiny on surface mine permit applications, recommended limits on water conductivity, and including requirements for more detailed studies of how mining impacts could be reduced or avoided. The court’s ruling does not prevent the EPA from denying mountaintop removal permits that violate the Clean Water Act. A statement from the agency said that it will continue efforts “to protect public health and water quality for Appalachian communities under the law.”

Introducing ... The Toxic 20

A report by the National Resources Defense Council ranked states according to air pollution from the electric power sector and coal-fired power plants in particular. The Toxic 20 included all of the Central Appalachian states, with Kentucky, Ohio, West Virginia and North Carolina in the top ten. The report notes that pollution levels are declining due to new pollution standards, citing some power companies’ decision to invest in pollution controls before new standards come into effect and predicts that reduction in mercury and sulfur dioxide emissions will continue due to the U.S. Environmental Protection Agency’s Mercury and Air Toxics standard that was finalized in 2011.

Well-Deserved Wings for a Veteran Volunteer

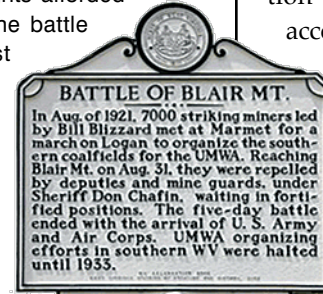
Recently, one pilot’s contributions in providing a bird’s-eye view of mountaintop removal mining operations in Central Appalachia were recognized by the National Aeronautic Association and the Air Care

Alliance. Susan Lapis, a volunteer pilot with Southwings since 1999, was awarded the NAA’s “Distinguished Volunteer Pilot” award “for her enormous contributions using her aviation skills to protect the natural heritage, communities and ecosystems of the Southeast.”

Sacrificing a Historic Landmark to Coal

In 1921, a bloody rebellion led by thousands of miners attempting to unionize played out over a week on Blair Mountain in southern West Virginia. The Spruce Fork Ridge battlefield is one of the most significant historic landmarks in Appalachia, but on Oct. 2, a federal judge dismissed an appeal by a coalition of groups seeking to restore the site’s listing on The National Register of Historic Places to protect it from mountaintop removal. Judge Reggie B. Walton explained his decision to dismiss the case by saying that, even if Blair Mountain’s listing been restored, it would not prevent mining from occurring “should the coal mining companies who own existing permits choose


to exercise their rights afforded by the permits.” The battle remains the largest armed American rebellion since the Civil War, and Blair Mountain is treated as an archeological site by researchers and historians. The site became listed as a historic landmark in 2009 before it was removed from the list due to pressure from coal companies eager to conduct surface mining operations on the mountain.



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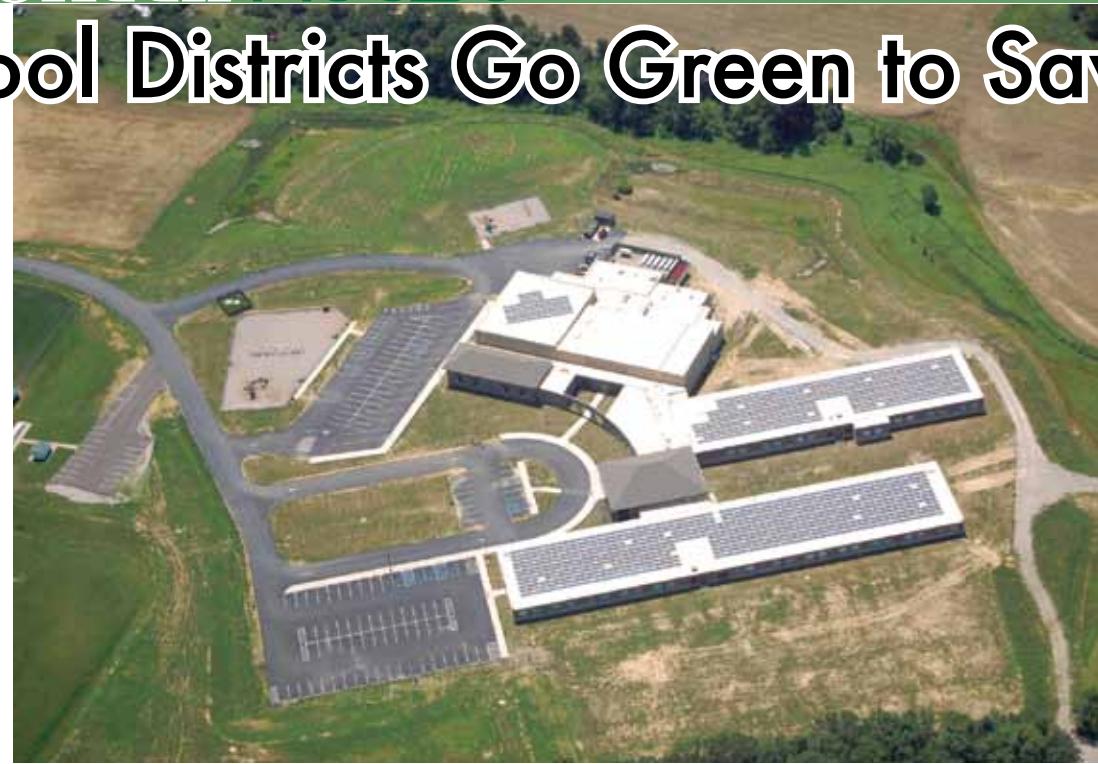
Two School Districts Go Green to Save Green

By Toby MacDermott

North Adams Elementary is one of the greenest schools in southeast Ohio. With solar panels on the roof, wild turkeys roaming the grounds, and a design based on LEED, or Leadership in Energy and Environmental Design, standards, this school exemplifies sustainability in action. But this building is not alone. The entire Adams County/Ohio Valley school district has gone green. With solar panels on several school buildings, and the school board's pursuit of energy efficiency helping the their bottom line, the students get a real world education in the benefits of going green.

All this has taken place in the past five years, without a large out-of-pocket expense. Located in the Ohio Valley, this rural, somewhat impoverished area has one of the highest unemployment rates in the state. Despite these hurdles, the school district has transformed itself into "one of the greener districts around here," according to Facilities Manager Steve Wolfe.

Through a partnership with the Ohio School Facilities Commission, Adams County schools were able to fund several new schools for seven cents on the dollar. Geothermal heating and cooling systems at several new schools were installed as part of the district's



By improving efficiency and switching to renewable power sources such as solar panels and geothermal heating and cooling, the Adams County/Ohio Valley school district saved over \$100,000 in utility costs at three older high schools. Photo courtesy of Kastle Solar LLC

energy conservation strategy. Similarly, solar panels were installed on the roof through a partnership with Kastle Solar LLC. They own and installed the panels at no cost to the district, allowing the school to buy electricity at a greatly reduced rate when the sun is out.

Similarly, by going through older schools with a fine-toothed comb to improve efficiency, the school district was able to save quite a bit of money. Through another partnership, they were able to replace old inefficient bulbs with modern low-energy bulbs.

"Twelve months later we had shaved over \$100,000 off the utilities [at

three older high schools]," says Wolfe.

With all these solar panels and savings from efficiency, the schools have been able to share the learning experience with their students. A website shows the energy production from the solar panels in real time, so that the students can see when the lights and computers in their classrooms are running off the sun.

With the children learning these valuable lessons at school, the entire community sees the benefits. Jim McClanahan, energy manager for Scott County Schools in Kentucky, took a different approach to keeping the lights off. Rather than spending money on occupancy sensing switches to turn off the lights when the room is empty, he empowered the students. Now they have Student Energy Teams that turn off unused lights and remind others to do the same, helping to change the culture of the schools. The students take this education home, spreading the benefits from school into the community.

In Adams County, Ohio, Wolfe's search for energy inefficiencies in their old schools led them to the biggest energy user in the building, the HVAC

system. Rather than buying new, Wolfe's team went through the existing system and made sure that everything was running smoothly, then took a close look at how they used it. Instead of heating or cooling the building in case someone needs to use it, now there is a reservation system. If someone needs to use the building after hours, a quick reservation is all they need to do, otherwise the system turns off when the school day ends. Similarly, the classroom temperature is now limited to a couple of degrees up or down. No longer could "people get their rooms like a freezer, or like a sauna," says Wolfe. Changing the way that the HVAC system runs was

one of their most effective energy saving measures.

In order to upgrade the lighting systems, the school district looked at rebates and incentives offered by their local electric utility. With very little cash outlay, they replaced the metal halide bulbs in the schools' gyms with much more efficient fluorescent bulbs.

Once educators began to see the benefits of having more efficient systems, they also began to envision new ways to teach their students. Efficiency and energy savings tie right into teaching children about basic science and economics. Continuing their environmental stewardship work, the school board has recently begun a robust recycling program for the district: A new solar-powered recycling compactor lets students see the power of the sun in action, and saves transportation costs by reducing the amount of recycling truck traffic.

With all the economic, educational and environmental benefits of green building and energy efficiency, Wolfe says, "It's win, win, win all the way around."

Naturalist's Notebook

A Short Hiss-tory of Timber Rattlesnakes

By Matt Grimley

Imagine yourself in the mountains, climbing near large rocks. Suddenly, from an outcropping near your feet, you hear something. It rattles like a maraca, you think, but not as festively.

Congratulations: you found a timber rattlesnake! Historically, it has not been hard to happen upon *Crotalus horridus*. This snake can be found in the eastern United States, coiling themselves throughout the dense coastal wetlands, low pine flatwoods and rocky mountainsides of Appalachia.

Despite their importance in the larger ecosystems and their beneficial ability to control rodent populations, timber rattlesnake numbers are currently slithering downwards. Scientists and field observers, despite scarce data to show trends, have a general consensus that populations will decline at a rate of more than 10 percent over the next 20 to 30 years. Populations in Maine and Rhode Island are already presumed to be gone, and several Appalachian states, in hopes of preventing a similar catastrophe, recognize this snake as a threatened or endangered species.

Because the timber rattlesnake gives birth once every three years, they do not typically respond well to human impacts. Snake poaching and hunting continue to haunt the species, as individuals often illegally collect them for the skin, meat, or even just the sport (If you want to be disillusioned, search "rattlesnake round-up" online). Habitat fragmentation and population isolation due to human infringements have also bitten the rattler hard.

One of the bigger factors in their decline in Appalachia is the destruction of hibernacula, the shelters where these serpents while away their winters. These dens can be found below the frostline in rock outcroppings, hard stump holes, or solid piles of brush. They are the centerpieces of a rattler's territory, and when

they are interfered with by development or human round-ups, the population of that den will survive as long as it takes you to say, "Maracas."

The fact is that most people don't much like snakes; however, for all the hubbub over snake bites, they are not at all prevalent. The odds of getting bitten by a venomous snake are very improbable: less than one in 37,500 people nationwide will be envenomated, and only one in 50 million will die from that bite (about five or six fatalities every year). By comparison, Americans are more likely to die from a dog attack, a lightning strike or a car accident than a snake bite.

The timber rattlesnake, by most accounts, is a reticent creature whose rattling serves only to warn people away. From what Blue Ridge Parkway biologist Bob Cherry has heard, many snake bites involve "the hands of young males who have been drinking." In other words, the people who get bit the most might be 1) the least cautious and 2) the most provocative.

Fortunately, it's easy to snake your way out of an encounter. Know that the grand majority of snakebites occur during the summer months. Stay on clearly marked trails and out of tall grass. Be careful when putting your feet or hands out of sight, and be sure to wear boots and thick socks while hiking. If you run across a snake, just stay away: they can only effectively strike within a distance of one-half the length of their bodies.

But how are you to know if your scaled surprise is a timber rattlesnake? Of course, the rattle is an obvious marker, but there are other ways to identify it. This venomous pit viper, like all pit



FUN FACTS

- Timber rattlesnake venom varies geographically and from snake to snake, and can be divided into four basic types
- West Virginia named the timber rattlesnake its state reptile in 2008
- In North Carolina, every year 19 snake bites occur per 100,000 people — about five times the national average, making it the highest in the nation
- Rattlers like these generally migrate 1.3 to 2.5 miles from their den every summer
- Every time the snake sheds its skin, a new segment on the rattle is added

Rolling snake eyes: Americans are more likely to die from a dog attack, a lightning strike or a car accident than a venomous snake bite. The timber rattlesnake, in particular, won't strike unless provoked. Photo by Tim Vickers

with brown or black crossbands. The black phase rattlers are almost completely black, with a dark base and darker crossbands (contrary to some myths, the sex of the timber rattlesnake cannot be determined by its color).

If you should run across one of these rattlers on your own property, Bob Cherry says, grab a rake or broom — something softer than a pole, which can easily harm the snake — and safely scoop the snake into a hard-sided plastic container such as a trash bin.

Because the timber rattlesnake and other snakes are very territorial, once they are moved beyond their home territory, they suffer from high mortality rates. For this reason, move the snake no more than a couple hundred yards away. The snake, negatively associating your yard with a forced emigration, shouldn't come back.

And even if the timber rattlesnake does return, you can recognize its lively maraca as a simple reminder — you stay on your side, and I'll stay on mine.



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EAT IN THE ROUGH

Seeking A Return to Truth

When did America's leaders stop trusting in science? This fair country, with its wealth of knowledge and opportunity, used to be one of the global frontrunners in scientific reasoning, influence and education. We stood by the principles of proof rather than blind emotion or myth. In the 19th century, those principles brought us anaesthesia and refrigeration, and in the 20th century they launched us to the moon and made us a leader in medicine, computer technology. In fact, since 1950, Americans have won approximately half of the Nobel Prizes awarded in the sciences.

So tell me, when did we abandon reason for madness? In some circles in modern America, to admit that climate change exists is to admit that what many of our corporate interests have done in pursuit of profit is not only selfish, but immoral, unjust and in some cases amounts to negligent homicide.

We have never been more equipped, technologically or cognitively, to address the greatest challenges of our time. And climate change is unequivocally one of them. Yet, instead of taking sound science into account, much less accept and act on it, many continue to choose denial.

The twisting of scientific facts — and climate science in particular — is a smokescreen that hides the guilt and fattened purses of those who are desecrating our planet, poisoning people and polluting the future of our children in exchange for quarterly earnings.

According to a yearly study by Yale University, following the severe drought and bizarre weather of the past two years, a whopping 66 percent of Americans believe in climate change, while a report by the George Mason University Center for Climate Change Communication revealed that 72 percent believe that developing clean energies should be a national priority. Even following the cold winters of 2009 and 2010, more than half of Americans still believed climate change was a real threat — despite studies that show colder winters skew the results even if summers are warmer.

But thanks to a powerful propaganda machine, unscrupulous media outlets that act as little more than echo chambers, and embedded industry lobbyists on Capitol Hill, the nation's politicians are falling in line not with honest and verifiable scientific facts, and not with the American people they purport to represent, but with the corporations that line their pockets.

Our most admired Founding Fathers — including John Adams, Thomas Jefferson and Benjamin Franklin — adhered to the tenets of scientific study. It's time that the American people demand that our politicians embrace a mindset where sensibility and reason prevail and scientific fact is accepted as just that — fact.

So tell me, when will we return from madness to reason?



Viewpoint

How the Rest of the World Needs to Help Educate the U.S.

By the Rev. Pat Watkins

Several years ago, volunteers from a United Methodist Church traveled to a small village in Kenya where they observed that the women of the village were walking, twice a day with buckets on their heads, to a river a mile away to get water for their families. Deciding this village could really use their help, the next year the team returned to dig a well. But upon returning the third year, the team discovered that the women were still making the two mile round trip to the river for water. It turned out these treks were the only times the women of the village could socialize with each other, and that was more valuable than the convenience of a well in the village — which coincidentally was also connected to increased mosquitoes and higher incidences of malaria.

Sometimes we think we know what is best for other people without asking them what they think they need. The church has been guilty of displaying that arrogance. Coal companies in Appalachia have been guilty of displaying such arrogance. They pat themselves

on the back for having been such a good source of economic prosperity in the region for so many years, even though the riches tend to leave while coal-bearing regions remain poor. They believe they are “helping” the people of Appalachia but they never bothered to ask the people if they wanted their mountains to disappear and their water to be so contaminated they could no longer drink it. They never asked the people if they wanted lower life expectancies due to the human health risks associated with coal. Thinking that we know what is best for others without engaging them in the conversation is the height of arrogance.

I recently attended an international conference of the United Methodist Church to listen to delegates from other countries talk about environmental issues. I was astonished to discover that United Methodists from all over the world are quite aware of what is happening to the planet; in fact, people in third world countries seemed more cognizant because they often live their lives far more connected to the earth than people in America

do. People in third world countries don't have the luxury of being able to isolate themselves from the earth's suffering; when the planet suffers, they suffer.

It's not fair! It's time for America to shed our arrogance and listen to the voices from all over the world. Rather than seeing ourselves as the “great white hope” with a “calling” to educate and “take care of” the rest of the world, we so desperately need to be educated by those sisters and brothers of other nations! Our problems are global; the solutions have to be global as well. As soon as we see ourselves as part of the same global community and really listen to one another rather than insisting that we have all the answers, we might just surprise ourselves with some true, appropriate solutions to the world's problems.

Rev. Pat Watkins currently serves as executive director of Caretakers of God's Creation, a United Methodist creation care ministry. His passion is to raise the awareness of people of faith that there is a connection between faith and a responsibility to care for and heal God's creation.

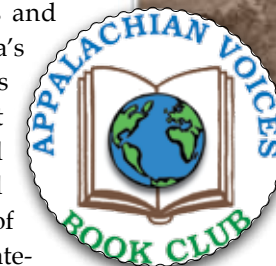
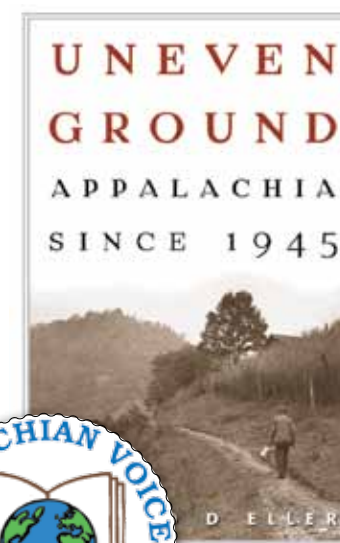
Uneven Ground: Examining Appalachian History Since 1945

By Matt Grimley

Imagine two Appalachias: one of banjos, moonshine, and dilapidated log cabins; the other of people, their families, their rich history and unfulfilled futures. That dichotomy and how it is exploited is what University of Kentucky professor Ronald D. Eller writes about in *Uneven Ground: Appalachia Since 1945*.

Eller writes with lucidity and directness as he provides a play-by-play of the many politicians, intellectuals and others who try to right Appalachia's wrongs. The largest of their efforts was the War on Poverty, brought forth by presidents Kennedy and Johnson in the 1960s. It aimed to bring the backward culture of Appalachia, with its lack of material goods and its poverty that was “simply out of step with the rest of America,” into the mainstream.

Despite the government's best efforts, the uneven



ground in the mountains — the unequal access to good jobs, education, and healthcare, among other resources — continued without balance.

It's true, Eller reports, that the averages of poverty rates and per capita income have improved for Appalachia over the past 40 years. But the numbers fail to tell the whole truth, that the income gap between rural and urban communities has widened significantly, that dependence on outside markets and absentee capital continues to be embraced, and that “progress” and “growth” still benefit local leaders and businessmen rather than improving the lives of the people.

There aren't many conclusions in the book, and perhaps rightfully so. As Eller said in an interview with UK's *Odyssey* publication, the approach to helping this region has always been to “take national

assumptions about how we define progress and superimpose those ideas on local communities ... a top-down approach that has created inequalities [in Appalachia].” In enumerating the ways in which the “help” for the region has failed, he challenges the reader's assumptions. And through this challenge, he gives the reader the freedom to be informed about the lives of real people.

Through the mist of many failures, Eller does find the successes. The rediscovery of Appalachian culture locally and abroad continues to give many a sense of pride and place. People like the reform-minded Appalachian Volunteers of the '60s and the Larry Gibsons who fight tirelessly against mountaintop removal are endlessly valuable for social justice. And the emergence of ecotourism and the possibilities of alternative, localized economies seem promising for a region seeking to secure its future.

For anyone looking to read a people's history of Appalachia, *Uneven Ground* was a joy to read and is highly recommended.

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Letters to the Editor

Chicken Farms Fowl Water Quality in N.C.

Dear Editor,

I appreciate your special on water pollution in our region (*Changing Currents*, August/September 2012). There is a more serious problem, however. Just down the mountain and around the corner from your office in Boone, N.C., there is an ongoing crime being committed against man and nature. We are suffering from a boom in chicken factories which are beyond the law because they call themselves farms.

These so-called “farms” are being constructed at a rapid pace especially in Burke, Catawba, and Cleveland Counties [in North Carolina]. They are being built here to grab and use up our common heritage, our water table that has been created by the earth over millions of years.

The numbers are amazing. Each “house” uses as much as 10 gallons a minute to keep their fine feathered friends from dying of heat stroke. Most farms are hooked up to city water but use it only if (or when) their wells run dry, which is happening with increas-

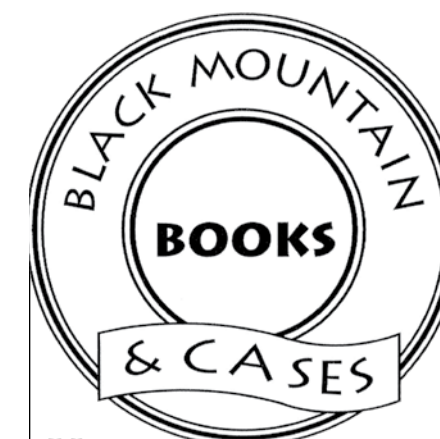
ing frequency. To do the math: one house using 10 gal. per minute will use 600 gallons an hour or 14,400 gallons per day. With the cooling season here stretching to 200 days per annum, that one house may use two million, eight hundred and eight thousand gallons in a year. One “farm” now under development is slated to have 30 of these houses. That is 56 plus million gallons per year. The notion that this can be sustained for any length of time is risible.

Thirty-five years ago when I bought a small piece of our family farm, I hauled my domestic water from a spring behind my house. The spring is now dry. The creek it fed is now dry. Five years ago my drinking water well ran dry. This year a second, deeper well also went dry. The Western N.C. Council of Governments got a grant to run city water down the road I live on, but because our property is about 50 feet short of the road I was not eligible for a subsidized hook up. Many others in this rural area of southern Burke are in similar straits.

The North Carolina Dept of Natural Resources' hands are tied as they are

not allowed to regulate “agriculture.” It seems inevitable that we will look back 20 or maybe five years from now and realize we have destroyed our environment to keep a bunch of chickens cool. Who will help? Will you?

Thanks
P. Loch Hoffman
Burke County, N.C.



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Bringing Polluters to Justice — One Court Case at a Time

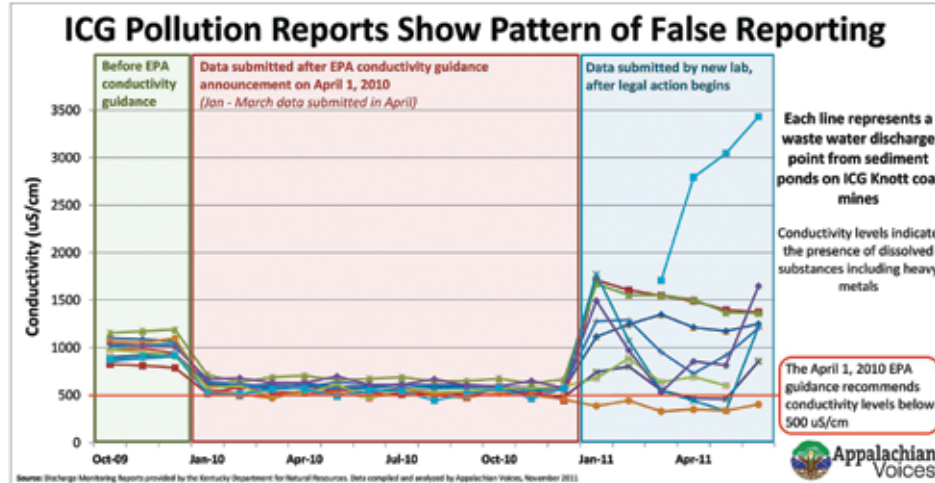
By Eric Chance and Erin Savage

On Oct 1., Appalachian Voices and a coalition of citizens' groups reached a historic settlement in a Kentucky case involving some of the most far-reaching and astonishing violations of the Clean Water Act in its 40-year history.

The agreement between the citizens' groups, International Coal Group, Inc., and the Kentucky Energy and Environment Cabinet settled a lawsuit filed by the coalition over years of false reporting and water pollution violations, caused by a failure of the state of Kentucky to enforce the Clean Water Act.

The settlement, approved by the Franklin Circuit Court on Oct. 10, includes a stipulation for ongoing third-party auditing of ICG's water pollution monitoring and reporting to ensure the company submits accurate data to the state in the future, and also establishes stipulated fines for potential future violations.

The settlement also includes \$575,000 in penalties. Although that represents a fraction of the maximum penalties allowed by the Clean Water Act, it is the highest fine ever levied by the state of Kentucky against coal companies and the first time a state court has allowed affected citizens' groups to intervene in a Clean Water Act enforcement case. The fees are to be allocated to directly fund water quality improvements and water monitoring programs in the eastern part of the state.



This chart shows some of the changes in reporting by International Coal Group before and after legal action by Appalachian Voices and our allies in October of 2010.

In 2010, Appalachian Voices uncovered thousands of falsified pollution monitoring reports submitted by two of Kentucky's largest coal companies, ICG and Frasure Creek Mining. In all, the analysis uncovered more than 20,000 violations of the Clean Water Act at dozens of coal mines in eastern Kentucky, from obvious duplications of data in one report to the next to contradictory reports for the same discharge points.

"The false-reporting epidemic we uncovered

in Kentucky can be considered the most far-reaching and egregious noncompliance with the Clean Water Act in the law's entire 40-year history. It's astonishing that the cabinet could have been so oblivious," says Waterkeeper Alliance attorney Peter Harrison.

We are proud to work with a great coalition of citizens' groups including Kentuckians For The Commonwealth, Kentucky Riverkeeper and Waterkeeper Alliance, represented by Mary

Cromer of Appalachian Citizens' Law Center, Lauren Waterworth, and the Pace Law School Environmental Litigation Clinic.

In October 2010, the environmental coalition and several individual citizens filed notices of their intent to sue ICG and Frasure Creek. In response to the coalition's notice, the Kentucky Energy and Environment Cabinet reacted by attempting to shelter the coal companies by reaching a low settlement that contained no meaningful measures to ensure the companies would submit accurate reports in the future.

Following an objection by the citizens' groups, the judge in the case withheld approval of the settlements, and instead allowed the coalition to intervene. The intervention was later upheld by the Supreme Court of Kentucky.

A settlement with Frasure Creek Mining has not been reached, therefore that case will move forward in state and federal court.

Appalachian Voices is also involved in a similar lawsuit against another Kentucky coal company, Nally & Hamilton, as well as two separate lawsuits against Virginia coal companies Penn Virginia and A&G Coal Corporation, all for pollution discharge violations under the Clean Water Act.

Visit appvoices.org/waterwatch/ for updates on all our legal actions to protect the waterways of Appalachia.

Organizational Roundup

A "Degree" in Eco-Literacy

LoveMountains.org, the Alliance for Appalachia website administered by Appalachian Voices, was recently highlighted as a "recommended teaching tool" in a new book published by the Center for Ecoliteracy. Co-authored with bestselling author Daniel Goleman, *Ecoliterate* tells the stories of activists, educators and young people from across the nation who are creatively addressing issues related to coal, oil, food and water. The book provides instruction on how we can advance academic achievement while protecting the natural world on which we depend. iLoveMountains.org's My Connection tool was highlighted in the book as a useful application to help students understand their personal stake in the seemingly remote issue

of mountaintop removal coal mining. For more information visit: ecoliteracy.org.

Rooting for Clean Energy

Appalachian Voices joined forces with nearly thirty organizations to urge Congress to continue tax incentives for onshore and offshore wind development on the East Coast. Set to expire at the end of this year, the Renewable Energy Production Tax Credit and the Investment Tax Credit both offer financial incentives to companies seeking to develop wind in resource-rich areas. A letter to congressional leadership from the groups — including National Audubon, Oceana, Sierra Club and Physicians for Social Responsibility — noted that the incentives provide an economic boost through job creation and also provide a clean

energy alternative to fossil fuels. Congress is scheduled to review the measure when legislators return for their final session in December.

An Efficient Proposition

Appalachian Voices recently joined with other regional and national organizations to support a proposed U.S. Department of Agriculture rule

that would open the door to low-interest loans for energy efficiency upgrades for residential and commercial customers of rural electric cooperatives. Our technical comments in support of the rule encouraged a focus on tools like on-bill financing, flexibility for borrowers and an increase in the amount of money put towards the program.

Accolades for an Amazing Advocate

Appalachian Voices has had more than our share of passionate and dedicated volunteers over the years, and one person's energetic devotion shines like a solar-powered LED light bulb. .

Sheila Ostroff, a student at Appalachian State University focusing on Sustainable Development, Appropriate

Technology, Communications and Non-Profit Organization Management, has championed Appalachian Voices as a volunteer, intern, unofficial university liaison, cheerleader, and most recently as a paid administrative assistant. She has tabled at events, given guest presentations, and spoken with strangers in coffee shops with a fervent passion to educate people about our mission and encourage them to take action.

Her enthusiasm and commitment to



achieving social and environmental justice never ceases to amaze us. Besides her work with Appalachian Voices, she was one of 300 selected from 127 different countries to attend the Oxfam International Youth Project in 2010.

During her time with Appalachian Voices, Sheila took the lead on planning an event for more than 50 children during the 2011 Summer Adventure Camp, and this summer engaged local businesses to display Appalachian Voices brochures and sell the very popular I Heart Mountains bumperstickers.

Our deepest gratitude for everything this amazing young woman has accomplished for us so far. If all the world were filled with environmental advocates like Sheila, there would be no need for environmental advocacy.

Victory in Virginia ODEC Coal Plant Fight!

Members of the Wise Energy for Virginia Coalition rejoiced recently over news that plans for the state's largest proposed coal-fired power plant were put on hold.

Old Dominion Electric Cooperative, the third largest power utility in the Commonwealth, announced earlier this fall that it was suspending the permitting process for its proposed coal plant in the Hampton Roads area of Surry County. The 1500-megawatt, \$6 billion plant would have been the state's largest polluting power plant.

Appalachian Voices and the other four

members of the coalition aided residents in a fierce, years-long battle to stop the proposed plant. The coalition credits mounting citizen objection, including pressure from ODEC's own customers and shareholders — as well as declines in the coal market — for this long-awaited common sense decision. More than 8,000 people signed a petition to the Army Corps of Engineers opposing the plant.

"The suspension of plans for this plant, which would belch as much carbon dioxide as about 2 million cars, is a great sign for the fight against climate change.

We look forward to seeing ODEC move away from fossil fuels and toward a future powered by wind and solar energy," said Beth Kemler, Virginia state director with the Chesapeake Climate Action Network, a coalition group.

Coalition member groups hope to work with ODEC on projects that provide more affordable and climate-friendly sources of energy for its customers, and pledge to keep a close eye on the utility to ensure it does not revive the coal plant proposal in the future.

Participating In the Democratic Process

At the beginning of September, Appalachian Voices headed to the front lines of our democracy at the Democratic National Convention in Charlotte, N.C.

During the week, we handed out hundreds of "I Heart Mountains" buttons and engaged countless people on the need to end mountaintop removal coal mining, protect our waterways under the Clean Water Act, and transition Appalachia to a cleaner energy future. Joined by Tennessee resident Ann League, we walked the long halls of the convention arena and talked with dozens of lawmakers and leaders, including Environmental Protection Agency Administrator Lisa Jackson, Senator Dick Durbin (D-IL), and Virginia gubernatorial candidate Terry McAuliffe.

Dr. Matt Wasson, our director of programs, joined Ann League and Catawba Riverkeeper Rick Gaskins to participate in a televised panel discussion on the tragedies of the coal cycle, from mountaintop removal mining to the disposal of coal waste. We attended another special panel on the "Future of Energy" to support Sen. Ben Cardin, a champion of the movement to end mountaintop removal and transition away from coal.

Appalachian Voices also teamed up with Greenpeace to host a special "Bourbon, Bluegrass and a Better Future for Appalachia" reception at the New Gallery of Modern Art in downtown Charlotte. The event was a smashing success, with impassioned calls to end mountaintop removal and rousing endorsements of our work from special guests including Sen. Cardin, green jobs guru and AV's Board Advisory Council member Van Jones, and North Carolina Representative Pricey Harrison.

This marked the first time that AV brought our message



Clockwise from top: Van Jones inspires the crowd at a joint reception with Greenpeace; D.C. Director Kate Rooth and Legislative Associate Thom Kay discuss mountains with Senator Chuck Schumer from New York; Tennessee Director JW Randolph (right) meets former presidential candidate and retired General Wesley Clark.

to a national political convention. We also applied to attend the Republican National Convention in Tampa but were not awarded passes to that event.

For pictures and full updates, visit appvoices.org/dnc.

Showing Some Clean Water Love

On October 18, shortly after we go to press, the Clean Water Act will turn 40 years old.

In conjunction with that anniversary, our Red, White & Water team is putting together a report on the successes of the long-standing program, complete with personal stories of residents and communities who have benefited from the protections it affords.

Also included will be an outline of the recent political threats to the legislation's very existence. Watch the virtual birthday party video and find out how you can join the movement to protect America's waterways at appvoices.org/clean-water-love/.



Appalachian Voices is committed to protecting the land, air and water of the Central and Southern Appalachian region. Our mission is to empower people to defend our region's rich natural and cultural heritage by providing them with tools and strategies for successful grassroots campaigns.

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From the depths of the Linville Gorge, the fall colors make their way down to the river as Hawksbill stands proud in the distance. The image, by Lynn Willis of Valle Crucis, N.C. is a detail of his finalist image in the 2012 Appalachian Mountain Photography Competition Adventure category. Submissions are now being accepted for the 2013 competition, see page 5 in this issue for details on how to enter. To see more of Lynn's images, visit LynnWillis.com.

GET INVOLVED environmental & cultural events in the region

Mountain Justice Fall Summit

Oct. 19-21: A weekend of workshops and training sessions to learn about Appalachian culture and the long resistance to mountaintop removal. Participants will also witness mountaintop removal firsthand from Kayford Mountain, home of the late Larry Gibson. Rock Creek, W.Va. To register visit: mjfallsummit2012.eventbrite.com.

Lake Conestee Nature Park Cleanup

Oct. 20, 8 a.m. - 12 p.m.: Join Friends of the Reedy River at Lake Conestee Nature Park, and help clean up the Reedy River and the surrounding areas within Lake Conestee Nature Park. Greenville, S.C. More info: eventbrite.com/event/4319547884.

APIEL Conference

Oct. 26-28: The Appalachian Public Interest Environmental Law Conference consists of workshops and dialogues to bring together the grassroots, law and policy aspects of our most important ecological issues, and provide networking for lawyers, students, activists and scientists. University of Tennessee, Knoxville. For more info call: (865) 974-8601.

An Artfully Wild Wilderness Exploration

Oct. 27: Hike along the banks of the Hiwassee River on the John Muir Trail and talk about art and the environment. After the exploration, hikers will return to the Hunter Museum of American Art and discuss art and conservation with museum Curator Adera Causey. \$9.95. Hunter

members are free. Cherokee National Forest, Tenn. Contact Jeff Hunter at 423-322-7866 or Visit: tnwild.org/get_involved/outings.

Oktoberfest at FENCE

Oct. 27th, 3 p.m. - 9 p.m.: Come for live music from Special Edition and Project X, German food, antiques, art and all the beer and wine your heart desires. \$35 admission includes beer and wine, \$25 for all others, \$15 for ages 12-20. Located at 3381 Hunting Country Road, Tryon, N.C. Call 828-859-9021 or visit: fence.org.

Walk For Justice on Cumberland Mountain

Oct. 27, 10 a.m. (Central Time): An annual event to bring together people who care about improving the quality of life for everyone, building a green-collar economy, creating racist-free communities, protecting the environment, preserving rich heritage and defending rights as local residents and citizens. Come to Cumberland Mountain State Park, Shelter #2, in Crossville, Tenn. Contact: Kathy Nix at kathy@socm.org.

Appalachian Community Economic Series

Nov. 3, 1 p.m. - 8 p.m.: ACES is a series of workshops to share information about sustainable economic opportunities and cultivate ongoing discussions about economic issues facing Wise County and southwest Virginia. Workshops include food preservation, small-scale solar projects, and sustainable development in southwest Virginia. Located at South-

ern Appalachian Mountain Stewards Office and the Appalachia Senior Center in Appalachia, Va. Call 276-565-6167 or visit: samsva.org/aces.

Election Day

Nov. 6: Remember to vote!

57th Watauga County Farm-City Banquet

Nov. 8, 6 p.m.: Celebrate Watauga County-produced farm products and farmers, food entrepreneurs, and supporters of local farms. Banquet is held at the Boone United Methodist Church, in Boone, N.C. Tickets may be purchased at Watauga Extension Office until Nov. 7; adults are \$10, children 6-12 are \$5, and children 5 and under are free. Contact: Kathy Lee at kathy_lee@ncsu.edu or 828-264-3061.

Wolf Howl

Nov. 8, 6 p.m. - 8 p.m.: The Western North Carolina Nature Center is hosting an evening to learn all about wolves. The event will consist of a lecture and an outdoor experience with snacks provided. Asheville, N.C. Contact Western NC Nature Center: 828-259-8080.

18th Annual Artisan's Studio Tour

Nov. 10-11, 10 a.m. - 5 p.m.: Over 30 artisans in 20 studios will be opening their doors during this weekend-long event to demonstrate their work. See pottery, jewelry, textiles, furniture, and other finished craft pieces, and get a detailed look at the lives of these local artisans. Charlottesville, Albemarle, and surrounding counties in Va. Visit: artisanstudiotour.com.

Email voice@appvoices.org to be included in our Get Involved listing. Deadline for the next issue will be Friday, Nov. 16, at 5 p.m. for events taking place between Dec. 5 and Feb. 5.

Shalefield Justice Action Camp

Nov. 10 - Nov. 12: Join the Shadbush Collective for a weekend of trainings and workshops as they build the movement against fossil fuel extraction. The weekend will include trainings on non-violent action as well as discussions on the impacts of fracking and coal production in the region, research and media work, community organizing and movement building. Southwest Pennsylvania, exact location TBD. For more information or to volunteer, email: info@shadbushcollective.org.

Appalachian Community Economic Series

Nov. 17, 1 p.m. - 8 p.m.: A day of workshops on forestry grants, sustainable forestry, business basics, opportunity in the coal regions, and making medicine from local mountain plants. Located at Southern Appalachian Mountain Stewards Office and the Appalachia Senior Center in Appalachia, Va. Call 276-565-6167 visit: samsva.org/aces.

Holiday Craft Show

Dec. 1, 1 p.m. - 8 p.m.: A holiday flea market and local artisans' craft show sponsored by the Appalachian Community Economic Series. Appalachia High School Gym in Appalachia, VA. Call 276-565-6167 or visit: samsva.org/aces.