

FREE

The **Appalachian VOICE**

October/November 2014

Into the WOODS

**Tree Revitalization
in an Ancient Forest**

**Sustaining the
Mighty Hemlock**

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A Note from Our Executive Director

Fourteen years ago, I picked up my first copy of *The Appalachian Voice* newspaper. I was a raft guide on southern West Virginia's New and Gauley rivers, taking a few days off for rock climbing at Seneca Rocks to the north. My climbing partner, Heather (now my wife), and I had just descended from the cliff's knife-edge summit. Neither of us had ever heard of Appalachian Voices, but I was drawn in by *The Voice* immediately.

From fishing to kayaking, homesteading to hunting, the content in the publication resonated deeply with me and my love for these mountains. Like many Voice readers, I quickly took the next step and became a member of Appalachian Voices, joining like-minded citizens helping to defend our region.

Today, we still deliver more than 60,000 copies of *The Voice* throughout seven states and, despite declining daily newspaper numbers, our readership is as strong as ever. But that doesn't mean we need to rest on our laurels, and reaching more people is a high priority. Reaching out to a growing online audience is ever in our sights.

With that in mind, this fall we launched our new and improved digital presence for *The Voice*, offering a much easier and rewarding reading experience for online readers. A visually appealing new look includes interactive sidebars that offer special access to our database of hiking stories and articles highlighting our region's natural wonders, a new subscription tool provides instant notification when each issue is live, and links to our Front Porch Blog offer instantaneous access to the latest news on issues most important to our readers. Even if you prefer to relax with the paper, rather than a laptop, on your lap, the new Voice online is well worth checking out by going to appvoices.org and clicking *The Appalachian Voice*.



Now, more than ever, connecting with passionate folks in the region and across the country is critical to working for a healthy, sustainable and prosperous Appalachia. The new online *Voice* is another great way to keep mountain lovers everywhere on the same page.

For the mountains,

Tom

Tom Cormons, Executive Director

CHECK OUT THE NEW *Voice Online* at appvoices.org/thevoice

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About the Cover

Scott Hotaling captured this image of a tree clinging to its greenery in early fall during a visit to the Cataloochee Valley of Great Smoky Mountains National Park in North Carolina. View more of Scott's work at LightOfTheWild.com

Across Appalachia

Environmental News From Around the Region

Compensation Remains Elusive After Elk River Chemical Spill

By Kimber Ray

Prospects of a full cleanup are uncertain at the site of a chemical leak that contaminated the drinking water of 300,000 West Virginia residents last January. Freedom Industries in August submitted a proposal to the state bankruptcy court outlining its intention to abandon the site that housed the culpable chemical storage tank if cleanup costs exceed \$850,000.

This proposal was rejected by Judge Ronald Pearson, who noted that

the company has spent almost \$2 million on lawyers and efforts to shield company documents from investigators. At a September hearing to address these concerns, Freedom stated that it would remove the reference on abandoning the site, and also that it may release budget documents regarding cleanup costs and estimates.

Pearson also closed a \$3 million settlement between Freedom Industries and residents affected by the spill. Rather than dividing the money into

negligible individual payments, the money will be used for water testing, health studies and other projects to benefit victims of the spill.

Fourteen businesses and individuals have also sued additional companies connected to the spill including West Virginia American Water and Eastman Chemical Company. The water utility distributed contaminated water the day of the spill, while the chemical producer omitted critical health information from its chemical safety warnings.

The Catawba River's "Pollution Solution"

By Barbara Musumarra

Keeping doggy waste off the lawn and using eco-friendly fertilizer are gaining ground as efficient approaches to healthy waterways. In North Carolina three ninth-grade students developed a curriculum to teach their peers these practices.

The Pollution Solution, a trio hailing from Gastonia, N.C., were among 60 other regional participants awarded the Presidential Environmental Youth Award.

This national award program encourages youth to become more involved with the environment by designing methods to improve air, water and land quality. The Pollution Solution's project "Save the Catawba River: One Yard at a Time," teaches other students how simple steps to maintain clean storm drains can keep rivers healthy.

Honorees Katie Danis, Mary Hunter Russell and Grace Wynkoop traveled to Washington, D.C., on Aug. 12 to receive their plaque of distinction.

Educating Youth Takes Flight with the Snowbird Youth Center

By Barbara Musumarra

Children beamed in Robbinsville, N.C., as the Cherokee chief cut the ribbon at the opening ceremony of the Snowbird Youth Center in July, which marked the first time since forming in 2002 that the Snowbird youth group will have a building to call their own. The new space is expected to boost efforts in preserving traditional heritage among the Eastern Band of Cherokee

Indians' Snowbird community.

The U.S. Forest Service collaborated with the tribe to create the center, which functions as an after-school and summer program for children and adolescents between the ages of 5 and 18.

Youth can connect with nature while enjoying the facility's hiking trails on 20 acres of the Nantahala National Forest. Classes and craft demonstrations are offered to enrich tribal history knowledge,

and further developments may include a Cherokee language immersion program.

The center encourages litter cleanup and volunteer work, and the energy-efficient construction of the building reflects the importance of the environment in the community.

With the new location, trails, classes and volunteer programs, the program aims to triple attendance. Visit: facebook.com/SnowbirdYouthCenter

GET INVOLVED environmental & cultural events

See more at appvoices.org/calendar

Fall Color Weekend

Oct. 17-19: Wildlife presentations, hiking, food and music at this outdoor retreat. Full weekend \$160+/adult; Sat. only \$55/adult, reduced rate for kids. Pine Mountain Settlement School, Pine Mountain, Ky. Visit: pinemountainsettlementschool.com

Appalachian Public Interest Environmental Law Conference

Oct. 17-19: Citizens, attorneys, students and scientists will gather for workshops on issues including fracking, mountaintop removal and economic justice. \$35/day, \$65/weekend, scholarships available. University of Tennessee College of Law, Knoxville, Tenn. Visit: apiel.org

Roanoke Go Outside Festival

Oct. 17-19: Gear demos, outdoor skill workshops and activities including biking, paddle boarding and rock climbing. Local beer, live music. Free, including limited camping. Rivers Edge Sports Complex, Roanoke, Va. Visit roanokegofest.com or call (540) 853-1198

New River Gorge Bridge Festival

Oct. 18, 9 a.m.-3 p.m.: More than 450 BASE

jumpers will leap from the 876-foot-tall bridge, hundreds of rappellers will descend on fixed ropes. Followed by music and cook-off downtown. Free. New River Gorge, Fayetteville, W. Va. Visit: officialbridgeday.com

Mountain Justice Fall Summit

Oct. 24-26: Join local residents, students and organizers for social justice workshops, storytelling and music. Topics include mountaintop removal, fracking, drug addiction, prison issues and more. Sliding scale of \$50-\$200, includes camping and meals. Stanley Heirs Park, Dorothy, W. Va. Visit: mountainjustice.org

Supporting Economic Alternatives in the Mountains Dinner

Oct. 26: SEAM will host a participatory grant dinner where three High Country entrepreneurs present their projects to dinner attendees, who will then vote on how to distribute funds raised by the dinner. \$30. Time and location TBD. Boone, N.C. Visit: seamnc.org

Utility Hearing in Richmond

Oct. 28, 10 a.m.: Public comments will be accepted on Appalachian Power Company's

15-year energy plan. State Corporation Commission's Courtroom, Richmond, Va. Contact hannah@appvoices.org for more information.

Wild & Scenic Film Festival

Oct. 30, 7 p.m.: Appalachian Voices will present 12 films from the largest environmental film festival in the country. Celebrate the natural and wild world, witness stories of the challenges facing our planet and get inspired by the communities who are taking action to protect Earth's beauty. Plus raffles and membership specials! \$10 tickets support Appalachian Voices. Bijou Theater Center, Knoxville, Tenn. Visit: appvoices.org/wild-and-scenic

Green Living and Energy Expo

Nov. 7-8: More than 90 exhibitors offering workshops and demos on renewable energy, green building and transportation, agriculture and environmental quality. Free. Roanoke Civic Center, Roanoke, Va. Visit: aepces.org

10th Annual Hemlock Fest

Nov. 7-9: An eco-friendly music festival to help prevent the spread of the destructive hemlock wooly adelgid. Primitive camping, outdoor skill

workshops, arts and crafts, hemlock presentations and more. \$20-55. Murrayville, Ga. Visit hemlockfest.org or call (706) 867-5157

Fee Free Days at National Parks

Nov. 11: Enjoy your national park, free of charge! Fee waiver applies to all national parks.

Ky. Beginning Farmer Conference

Nov. 14-15: Bus tours, breakout sessions, networking, and a full day of farmer-led panels focused on strengthening your farm business. \$80/full conference, \$35-\$45/single day. Lexington, Ky. Visit cfaky.org or call (502) 223-3655

Wildlife Rehabilitation Workshop

Nov. 15-16 & 22-23, 8 a.m.-5 p.m.: Learn how to care for injured or orphaned small mammals, birds, and reptiles. \$200/members, \$225/non-members. Asheville, N.C. Visit wildwnc.org or call 828-259-8092 for more information. Register at membership@wildwnc.org

Calvin Price State Forest Tour

Dec. 6, 10:30 a.m.: Park at the Green Gate close to Watoga's South Entrance. Wear hiking or sturdy walking boots. Free. Watoga State Park, W. Va. Contact: 304-799-4087

A First-Hand Look at Emerging Opportunities in Eastern Kentucky

By Kimber Ray

When eastern Kentucky residents shared their regional vision at Appalachia's Bright Future Conference this September, they could point to real examples. The main highlight of the conference, which attracted more than 100 people from across Appalachia, was a collection of 20 tours of local businesses, farms, music and art venues, tourist attractions, and community cooperatives.

This was the second Bright Future Conference presented by Kentuckians for the Commonwealth, a grassroots organization focused on economic and environmental justice. The three-day event showcased economic transition in Kentucky's Harlan and Letcher counties.

Several tours focused on how to re-envision coal mining as a historic heritage attraction, with destinations such as The Kentucky Coal Mine Museum and an underground tour of coal mine Portal 31. Also featured among the tours was the recently developed Benham

Energy Project to promote community-wide energy efficiency.

As Appalachian communities face the challenge of transitioning from a largely coal-dependent economy, such conversations are spreading.

On the state level, a similar conference hosted by Kentucky Gov. Steve Beshear and U.S. Rep. Hal Rogers (Ky.-D) is the Shaping Our Appalachian Region initiative, which aims to advance health, education and economic opportunity in eastern Kentucky.

Unique to the SOAR initiative are themed listening sessions conducted across the region to gather citizen feedback. Following the Dec. 2013 SOAR Summit kickoff, opinions on the initiative were mixed, with some residents and organizations expressing concern that elected officials failed to acknowledge citizen feedback, and others embracing it as a way to engage with a diverse set of ideas.

Visit soar-ky.org to learn about the November 2014 SOAR summit. To learn more about Appalachia's Bright Future, visit kftc.org

Serving Virginia Parks

By Kimber Ray

The Virginia Department of Conservation and Recreation is launching the inaugural year of its Virginia Service and Conservation Corps program. Participants will maintain trails and improve natural habitats at Pocahontas, Leesylvania or Hungry Mother State Park.

Grant funding was provided by AmeriCorps, a national service program with more than 80,000 paid positions. Applications for Virginia's newest state program will be accepted until Nov. 17 from high school graduates over 17 years old.

To apply to this position or search additional AmeriCorps positions visit americorps.gov

Heavy-Volume Water Pipe Proposed on Nolichucky River in Tennessee

By Kimber Ray

Rights to the Nolichucky River in Midway, Tenn., have remained contentious since 2011, when U.S. Nitrogen proposed an industrial chemical facility with a 10-mile pipeline connected to the river. The pipeline would withdraw nearly 2 million gallons of water per day, and 500,000 gallons would be returned, contaminated with small amounts of ammonium and nitrogen.

Local citizens have responded by forming a grassroots organization, Save the Nolichucky, and filing suit against U.S. Nitrogen and the Industrial Development Board of Greeneville and Greene County.

After initial rejection, U.S. Nitro-

gen obtained a permit to build the pipeline by partnering with the Industrial Development Board. The Board alleges that U.S. Nitrogen's 80 future positions will provide jobs to the community, which allows U.S. Nitrogen to cite compliance with a Tennessee state law mandating that any potentially damaging activity to the Nolichucky must benefit the public interest.

Citizens are concerned that heavy water withdrawals and pollution will damage the river's endangered aquatic life and restrict future use by the public. There is no established minimum flow level for the river's water levels and, if completed, at least two additional companies are planning to withdraw water from the pipeline.

Virginia Restoration Reroutes Troubled Water

By Kimber Ray

In Rockbridge County, Va., construction vehicles this August began carving out nearly half a mile of new streambed for the Maury River. Tree plantings to stabilize the soil are scheduled to begin this fall. This will be the largest stream restoration project completed by the Virginia Department of Game and Inland Fisheries, which received funding from a federal

grant program and a local family farm.

For more than three decades, the Maury River has shifted from its once and future location in reaction to a 1973 dam project. Along the way, the river has claimed more than 15 acres of Echols Farm, depositing massive amounts of sediment into the water and smothering riverbed life. The restored river is expected to improve fish habitat and reduce flooding for miles downstream.

Kentucky Sees Growth in Bald Eagle Population

By Barbara Musumarra

Bald eagles are navigating a continued recovery in Kentucky. Reports made this August by the Kentucky Department of Fish and Wildlife observed 131 nests, a promising increase from the 42 nests found in 2005 and the single nest found in 1986.

In eastern Kentucky, reservoir construction has added necessary food sources for the raptors, which have historically preferred western Kentucky. Two nests were found in Daniel Boone National Forest.

Only 30 percent of hatchlings

typically survive their first year because they must learn to independently fly and hunt. Climate change and the destruction of their natural habitat by man also threaten these birds across the country.

Despite these continuing challenges, in 2007 the eagle's successful rebound was celebrated with their removal from the federal endangered species list. The 1970s ban on DDT pesticides and subsequent eagle reintroduction programs have significantly improved the bird's population health. Tennessee has also seen successful nesting rates.

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Winter Weatherization: Stay snug and save

By Eliza Laubach

As falling leaves signal approaching winter winds, autumn is an ideal time to “bundle up” your home. Over time, building materials shift, which forces heating and cooling systems to work harder. And since many houses were built without complete insulation or sealing, that is the best place to start when weatherizing.

Making your home more energy efficient is a hands-on approach to reducing your carbon footprint. Installing significant upgrades could lower utility bills by 15 to 30 percent, according to the U.S. Department of Energy, and financial support is often available. Contact your utility, local community action agency or the U.S. Department of Energy and ask about rebates, grants or loan programs to retrofit your house.

Become a Leak Geek

Air-sealing your home involves plugging leaks that allow outside air into your home and conditioned air to escape.

A professional energy contractor can pinpoint small, subtle leaks using specialized technology while also ensuring that carbon monoxide can escape your house. But anyone can find and seal larger leaks by following these steps:

1. Tightly close all windows and doors to block airflow.
2. Use exhaust fans above the stove and in the bathroom to create lower pressure inside the house.
3. Locate areas most likely to leak air. Windows, doors and the meeting of different building materials—such as wood, metal and stone—are all suspect.
4. Hold a lit incense stick around the edges of suspected leaks. If the smoke begins to flutter, airflow is present and an air leakage is occurring.
5. Use weatherstripping tape and foam caulking to seal leaks. Always apply in dry weather and remove old caulk or strips first. Beware that some foam

caulking will triple in size and can split open stone!

Insulation Station

We all know heat rises, but may forget that attics are an easy escape for heat in winter. All your home’s conditioned air can leave through your attic twice an hour, according to Marcus Renner, founder of Conservation Pros, a home energy contractor in Asheville. In fact, houses built before 1978 did not require insulation. There are several ways you or a professional energy contractor can prevent your attic from becoming an energy drain, depending on how big a project you decide to tackle.

1. Air-sealing is a crucial first step. On average, insulation retains just 60 percent of its effectiveness without air-sealing.
2. Insulate the attic floor. Some hardware stores will lend customers the machine to install insulation bought from the store.
3. Seal air duct joints on your heating and cooling system, even if it is in the crawlspace. Renner does not recommend heat-resistant tape, which he says fails after a few years. Apply mastic paint to joints nearest the HVAC unit, where air pressure is highest, and cover gaps wider than one-quarter inch with sheet metal.
4. Seal the edges of the attic entrance with foam weatherstripping. Don’t forget to insulate the attic door!

Win a High Country Home Energy Makeover



Appalachian Voices is holding a contest to help three households in need reduce their energy costs by up to 40% through home energy upgrades! Only members of Blue Ridge Electric are eligible to apply.

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Hazel Adams poses with an energy-efficient CFL lightbulb. Photo by Sarah Kellogg

Thrifty Upgrades

These simple changes offer a quick turnaround to winterize your home on a tight budget.

- With just an afternoon and a hairdryer, you can insulate old windows with plastic as a temporary fix.
- Lower the thermostat while gone and wear warm sweaters indoors.
- Allow sunlight in during the day, and keep heat from escaping at night with closed heavy shades or curtains.
- Open your oven after baking your winter squash or pumpkin pie and relish in the extra heat!
- Reverse the direction of your ceiling fans to move warm air down when in room.
- Insulate metal water heater pipes with foam coverings.
- Cover bare floors with rugs to add heat retention, especially if there is little floor insulation in the house.
- Ensure that air vents are not covered by furniture or drapes, and rearrange if necessary.



Toby MacDermott replaces a drafty window with an insulated wall. Photo by Sarah Kellogg

N.C. Cooperative Extension offers detailed step-by-step guides for those who want to tackle insulation and air-leak projects on their own. Visit: energy.ces.ncsu.edu/diy-home-energy-management-series

SEEKING JUSTICE

Activists and agencies react to systemic violations of mining laws

By Brian Sewell

James C. Justice is larger than the outwardly humble life he leads. A West Virginia native and the Mountain State’s sole billionaire, he is the rare, modern-day coal baron who actually resides in Appalachia. He is beloved by many for rescuing the historic Greenbrier resort from bankruptcy and is well-known for his philanthropic pursuits. At Christmas, he dons a custom-made red suit, and at 6 feet 7 inches, Justice might have even Santa Claus outsized.

But for all his friends, Justice has no shortage of critics. Struggling with the same challenges facing the entire Appalachian coal industry, Justice-owned operations in five states possess dismal regulatory records, earning him a reputation among environmental advocates as one of Appalachia’s worst violators of mining laws. In all, coal mines owned by Justice in Alabama, Kentucky, Tennessee, Virginia and West Virginia have racked up more than 250 violations and cessation orders over the past four years — many resulting from failure to meet reclamation requirements at mountaintop removal coal mines left idle.

There are signs that Justice himself questions coal’s future in Appalachia. Last year, as his operations around Appalachia were cracking, he told reporters for the Associated Press “you may be witnessing the death of the coal industry.”

But not long ago, Justice’s coal interests were expanding. He moved into Kentucky in 2007, buying Sequoia Energy, LLC and Infinity Energy, Inc.

In 2008, he acquired Premium Coal Co. and S&H Mining in Tennessee. And he grew his presence in Virginia in 2009, launching Southern Coal Corp and purchasing A&G Coal Group. Today, violations by those companies have spurred citizen groups, the media and regulators to hold Justice accountable.

“After centuries of resource extraction, poverty, and illness, the debt to Appalachia must be paid in full,” stated an open letter to Justice from leaders of Southern Appalachian Mountain Stewards, a southwest Virginia-based group that began a regional campaign this year called “Justice to Justice.” Chris Holmes, a spokesperson for the federal Office of Surface Mining Reclamation and Enforcement, told the Roanoke Times “the civil penalties are piling up.” And a Lexington Herald-Leader editorial in July emphasized that the “crucial point here is not unpaid fines but what they represent: violations of the law that put thousands of people who live near Justice’s mines in harm’s way.”

The story may be far from over, but for now, here is a brief look at how states are responding.

Kentucky

Nearly half of the more than 250 violations Justice faces resulted from problems at mines in eight eastern Kentucky counties. After months of outspoken media coverage and considerable citizen pressure, Justice and state regulators reached a plan in August to settle the spate of violations and ensure

proper reclamation. As part of the plan, *The Courier-Journal* reports, Justice promised to post \$10.5 million in bonding, about half of which will go toward reclaiming surface-mined “highwalls.” The deal also allows Justice to resume mining at mountaintop removal sites that were shut down due to violations. Regulators say this will facilitate faster reclamation by reducing enough rock and soil to rubble for recontouring the land after mining.

Tennessee

In July, the federal Office of Surface Mining Reclamation and Enforcement ordered Justice’s Tennessee subsidiaries — National Coal, Premium Coal and S&H Mining — to cease operations for failing to report water monitoring data or meet mine reclamation requirements. The orders came a month after Sierra Club and Statewide Organizing for Community eMpowerment announced plans to sue Justice’s companies for violating the Clean Water Act.

Before the cessation orders were issued, the Office of Surface Mining held public hearings in Anderson County to address Premium Coal’s failure to meet reclamation requirements at two mine sites. Premium Coal requested the orders be dropped, saying reclamation



Members of the Justice to Justice campaign march outside of the West Virginia resort The Greenbrier, owned by billionaire businessman Jim Justice, to draw attention to the outstanding violations of coal companies he owns. Photo by Gabby Gillespie, courtesy Justice to Justice

was not completed because the crew they hired had planted trees upside down with the roots sticking up. Those requests were denied.

Virginia

Justice’s A&G Coal Group has had its fair share of slip-ups too. In June, the Department of Mines, Minerals and Energy moved to seize \$9.9 million from A&G Coal to reclaim an inactive mine at the company’s expense. Justice, who could appeal DMME’s action, claims market conditions left him no choice but to leave the mine in southwestern Virginia idle for more than a year.

West Virginia

Although Justice sold most of his active West Virginia coal operations in 2009, he is still running into trouble in his home state. On Sept. 1, the West Virginia Department of Environmental Protection issued an “imminent harm cessation” to the Justice-owned Kentucky Fuel Corporation after residents reported slurry leaking into Madison Creek in Logan County, W.Va.

Learn more about the Justice to Justice campaign at justicetojustice.org

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GETTING WILD

THE TENNESSEE WILDERNESS PROPOSAL



By Chris Samoray

My pulse thumps and I breathe harder. At a furious pace, I forge uphill quicker than the river beside me rolls down the mountainside. Grasses reclaiming the path swipe my ankles. Insects buzz near my open ears, which strain to hear the slightest sound — a crack in the trees or a rattle in the dirt. I'm alone and out of my element, but with each foot forward, concerns fade.

On this particular day, I'm tromping along the Brookshire Creek Trail, a 6.7-mile stretch in the Cherokee National Forest's Upper Bald River Wilderness Study Area. Although the Upper Bald site hasn't yet received wilderness designation, it certainly feels wild. My three stops to ask for directions and the

five miles of winding, up-and-down dirt road to an unmarked trailhead located in the "east corner of the parking area" can attest to that. Or maybe I'm just in need of a lesson in confident map-reading.

Either way, I'm drawn to the Upper Bald by nature's lure. And it's this attraction that has hooked the Upper Bald as a candidate for official wilderness designation in the Tennessee Wilderness Act.

A Guide to the Wild

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain."

- Wilderness Act of 1964

This year is the 50th anniversary of

The Bald River pours over an unnamed waterfall that shelters a shallow swimming hole in the Upper Bald Wilderness Study Area. The Upper Bald is one of six areas included in the Tennessee Wilderness Act, which would designate more wilderness in the Cherokee National Forest. Photo by Chris Samoray

the Wilderness Act of 1964, and to date, the nation's wilderness system includes 758 areas that cover nearly 110 million acres in all but six states. Wilderness areas are managed by the National Park Service, the U.S. Forest Service, the U.S. Fish and Wildlife Service and the Bureau of Land Management, and are designated within existing federal public land. While wilderness areas are similar to national parks and forests, in many ways, they're governed with more regulations.

Activities such as logging, mining and livestock grazing are allowed in national forests but are strictly prohibited in wilderness areas. And unlike national parks, once an area receives wilderness designation, new roads generally can't be built.

"Wilderness designation is the ultimate level of protection for an area," says Laura Hodge, who works for wilderness organizations Tennessee Wild and Wild South.

This doesn't mean that wilderness areas are less open to the public though. While the main goal of a designated wilderness area is to keep it wild, visitation is encouraged. Traditional forms of outdoor activity such as hiking,

camping, horseback riding, hunting and fishing as well as other non-mechanized recreation, such as rafting and skiing, are all welcomed in wilderness areas.

"There are no areas that keep people out," says Hodge. "This is public land. People are welcome everywhere."

What's forbidden in wilderness areas is machinery. Even using weed eaters and chainsaws to maintain trails is off-limits — crosscut saws and other hand tools are the preferred methods of trail maintenance.

Ultimately, wilderness areas aim to provide a safe haven free of alteration from human impact. Each chunk of land set aside helps preserve clean air and water and wildlife habitat and, in doing so, ensures that future generations will have the opportunity to explore pristine places like the Brookshire Creek Trail.

Although Brookshire is 6.7 miles one way, my hike stretches only five miles, both ways. I plan to turn around at a cascading unnamed waterfall along the Bald River, about 2.5 miles in.

Almost immediately after setting out on the trail, the path runs into a small stream that empties into the nearby Bald River. Opting not to sacrifice dry boots, I dance over a few stones to

Hiking the Highlands

Getting Wild

Continued from page 8

reach the other side just a few feet away.

From there, the narrow trail follows the tumbling Bald River up the mountainside, occasionally recruiting me for more small river crossings. The uphill trudge is slight, and a heavy canopy shades the path. But I'm following water, and water means insects. In August, bugs ruled supreme.

The Tennessee Wilderness Act

The Tennessee Wilderness Act, first introduced in 2010 by Sen. Lamar Alexander (R-Tenn.) and later co-sponsored by Sen. Bob Corker (R-Tenn.), would add nearly 20,000 acres of the Cherokee National Forest as official designated wilderness. With slightly more than 9,000 acres, the Upper Bald River Wilderness Study Area is the largest of the six tracts included in the proposal, and the only one that does not currently have any designated wilderness.

The Upper Bald is also adjacent to the Bald River Gorge Wilderness, and the two combined cover much of the Bald River Watershed. If passed, the Tennessee Wilderness Act would safeguard nearly the entire watershed, helping to protect four of the area's threatened or endangered aquatic species, including the Citico darter and smoky madtom fish, as well as native brook trout. In the eastern United States, Hodge says, this extent of watershed protection is rare because of population density and land availability.

The bill would designate Tennessee's first new wilderness in nearly 30 years, but the state's three-decade lull hasn't been for lack of trying.

In the past five years, the Tennessee Wilderness Act was introduced two other times, and despite a survey given by Tennessee Wild showing broad support, the bill was thwarted by an adjourning Congress on both occasions. Similar to previous introductions, the 2013 introduction awaits a floor vote.

In the meantime, people appear eager to satiate their outdoor appetite.

According to the Outdoor Industry Association, Americans currently spend \$646 billion on outdoor recreation annually, and the industry fuels 6.1 million American livelihoods. In Tennessee, outdoor recreation provides 83,000 jobs and generates \$8.2 billion in consumer spending. In neighboring North Carolina, the numbers are more than double at 192,000 and \$19.2 billion. Virginia, South Carolina and Georgia closely follow in North Carolina's footsteps.

"Wilderness does not prevent jobs, it creates jobs, particularly in southern Appalachia," Hodge says. "Think of the visitors who go to the Smokies. It shows the public has an interest. If we don't protect these areas, they'll be gone."

Communities bordering proposed wilderness areas of the Tennessee Wilderness Act seem to support outdoor recreation, too. Tellico Plains, which is near the Upper Bald area in Tennessee, recently rebranded itself "The Little Town with the Big Back Yard," and in August, the mountainside community earned "Trail Town" recognition from the Benton MacKaye Trail Association and the Southeastern Foot Trails Coalition.

A Wilder World

Back on the Brookshire Trail, the charm of falling water scatters insects and breaks my daydream. Down a steep embankment to the left is the unnamed waterfall.

I scramble down a small water runoff path and lose the boots and socks. Stepping carefully to the river's center, I aim to lounge on moss-covered rocks bathed in river mist and tree shadows for an afternoon picnic. A chilly plunge into the swimming hole at the base of the waterfall washes down my meal.

Just beyond the waterfall, the trail meets the lower waters of Brookshire Creek and then joins with the Benton MacKaye Trail, only deviating from MacKaye for a short distance when Brookshire goes up to its terminus at Beaverdam Bald, a small open area at 4,260 feet with mountainous views into North Carolina.

If the Tennessee Wilderness Act passes, the amount of wilderness in the Cherokee National Forest will increase

BROOKSHIRE CREEK TRAIL
TRAIL 180

Length: 6.7 miles each way
Difficulty: Moderate
Directions: From Tellico Plains, follow the Cherohala Skyway for six miles to Forest Service Road 210. Stay on 210 for 20 miles, continuing straight at the ranger station intersection. Turn right at FS Road 126. Drive on this dirt road for five miles until reaching Campsite #11. Trailhead is at the east end of the parking area.
Contact: Tellico Ranger Station, 423-253-8400 or visit fs.usda.gov/cherokee



A stream crosses the Brookshire Creek trailhead. Photo by Chris Samoray

from 66,000 acres to more than 80,000 acres, about 12 percent of the forest. But Hodge notes that this lingers below the national average of 14 percent. Still, the additional acreage would provide increased protection for wildlife in a region that's among the country's most biodiverse. And not only would nature reap the benefits, but so too would we.

Nature gives us a chance to revisit

our roots, and by the time I begin my return trek, I feel rooted in the forest. I walk slowly, allowing the running water and fresh air to recharge my being for just a little longer. Without the aid of modern tools though, I've lost the ability to survive here for long. I'm a visitor only, and must return to civilization. But for a brief moment, I'm welcomed in a prehistoric home: the wild.

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A Spring of Troubled Water

After mountaintop removal coal mining began near their eastern Kentucky home, the Halberts saw their water quality and quality of life plummet. Three years later, they continue to seek answers.

By Molly Moore

Ginger and Mark Halbert have a knack for fermentation, and their flavorful pickled corn is so popular among friends and family that the couple crafted a plan in 2011 to bring their recipe to local and regional stores. They certified the recipe, and started the process of transforming Mark's mechanical shop, which is attached to their home, into a commercial kitchen that could produce nourishing, locally grown goods prepared on-site with their mountain spring water.

The Halberts dreamed that their business might expand to nearby states and include items such as pickled green tomatoes and sauerkraut, and Mark started plans for a vineyard on the slope beside their home. In the fall of 2011 they arranged for a plumber to finish preparing for the commercial kitchen, but had to stop the project before it was complete. Everything was put on hold when the water and land that the Halberts' vision relied on began to fall apart.

A Life Disrupted

Perched on a flat bench along an otherwise steep slope, the west side of the house faces toward the forested ridge and the second-story entrance and deck are parallel to the steep mountainside. That fall, the ground around the home began to shift, sometimes in sudden, violent movements that shook and cracked the walls.

After one intense shake, Ginger ran downstairs to check on Mark in the shop below and found the door jammed shut. She frantically tried to open it, praying that no heavy equipment had fallen on her husband. Thankfully, he was unharmed.

Following heavy rains, the shop began to flood. Standing water filled the floor, which signaled the start of a mold problem that worsened when the pipes

corroded that spring and water seeped beneath the rugs.

Putting their plans on hold because of the property damage was "a bitter pill to swallow," Ginger says, but as time progressed the family faced more pressing concerns. In the spring of 2012, their water developed a strange taste. At first Ginger thought the change might be due to snowmelt and would pass along with the winter's built-up grime, but by May the taste worsened and the plants that she watered began to wither.

That spring, Mark and their children began experiencing a nagging pain in their legs, a sensation that Ginger felt in her arms and elbows. Over the next year, the pain escalated — her children said it felt as if their legs were pulling away from their bodies. Ginger started washing the dishes in the sink because the water had destroyed the dishwasher, but her arms broke out in rashes afterward.

Mark's leg began to hurt so intensely that the former Marine had trouble walking. At the V.A. Hospital, the doctors looked for a blood clot and other indications of trouble but couldn't find anything wrong, though one healthcare worker said it sounded like the cause could be metals in his muscles. Mark then went to a chiropractor who came to the same conclusion. The family already knew that their water quality was in decline when their health symptoms began



In her dining room, Ginger Halbert discusses the state reports on the investigation into her property damage and water contamination. Photo by Molly Moore

in 2012. At that time, they used their tap water for showering and cleaning but hauled bottled water to the upstairs residence for drinking. When the Halberts discovered the extent of the water contamination in the spring of 2014, they installed a 300-gallon rainwater cistern to supply water for washing dishes and bathing — and their symptoms disappeared.

"I took it for granted that water was going to be there forever, and I think by nature it should have been," she says.

The onset of their troubles coincided with the opening of a new mountaintop removal coal mine near their home, and Ginger believes the surface mining operation is responsible for the ruined water. But proving a connection between a new mining operation and contaminated water in a region riddled with decades of mining infrastructure is a task for only the most dogged and determined. Ginger Halbert is both.

Practicing Perseverance

The Halbert property has always been intimate with coal — two coal seams crop out of the mountainside be-

hind their home, and one runs beneath. Their spring discharges from one of the abandoned coal seams. The last underground mining on these seams ended in 1959, and in the 1990s the owners of the legacy mines met the legal requirements for reclamation and had their bonds returned, freeing them from legal or financial responsibility for any future troubles. In the '90s and the early 2000s, the Halberts called the federal Office of Surface Mining Reclamation and Enforcement asking for assistance with rockslides and gushing water, but until 2012, their drinking water always tasted good.

In 2011, When the Halberts received notice that FCDC Coal, Inc. was opening a surface mine on the adjacent hollow, they were offered a pre-blasting survey that measured existing water quality. The survey showed a pH level of 6.8, which is within the healthy drinking water parameters of 6.5 to 8.5. In November 2012 — after blasting began — staff from the Kentucky Department for Natural Resources and the Division of Mine Reclamation & Enforcement inspected the spring in response to a water quality complaint from the Halberts. Their test results showed a pH of 4.

While the Halberts waited for more information from the state agency, they spoke with an employee of FCDC Coal who said the company could assess the water and discuss possible solutions if it was indeed impaired. After the company also found dangerously low pH, Ginger called to ask whether the company would either connect them to city water or provide filters. This time her contact denied that FCDC Coal could be responsible. "You take what we give you or we'll make sure you have no water, that's the way he put it," Ginger recalls, bristling at the memory.

Mark picked up the phone next, this time dialing the state DMRE. The original inspector was unavailable, so Mark began describing the coal company's response to her supervisor, Eric Allen. He told Mark that the state inspector had concluded the new surface mine was too far away and could not have impacted the water, so DMRE had stopped the investigation.

"We never received a letter, never

continued on page 11

Troubled Water

continued from page 10

received nothing from them, and they stopped investigating," Ginger says in disbelief.

After Mark countered that the family wouldn't have been asked to participate in a pre-blast survey if their home was too far away to be impacted, Allen agreed to reopen the investigation.

Over the next year, DMRE hydrologists visited the property and surrounding area, sampling water at the home, on the mine permit, and at nearby drainages. When the agency issued its report in February 2014, some facts were clear: water quality at the Halbert home had declined substantially and was impacted by mining, and the change coincided with the start of the new FCDC Coal surface mine.

But when it came to assigning responsibility for the damage the report concluded that there wasn't enough evidence to assign blame to a particular mine. "The volume of water in the underground mine works that supply the Halbert's spring is far too large to be directly affected [by] the FCDC disturbance," the report stated. "It is far more likely that conditions within the underground mines changed in some way, causing more acidic water to be produced."

Ginger was dismayed with the state's inconclusive findings and pored over the report, putting together a list of questions: Could the blasting at the FCDC site have impacted the fragile underground mines, causing a cave-in or other problem that ruined their water? Why didn't a blasting inspector accompany the hydrologist or respond to their concerns in a timely manner? In March, she and Mark compiled more than a dozen such questions in a formal request for an administrative review of the February 2014 report.

"You would not believe what I went through just to find out what I could do," she says of the process. "I did so much research I felt like I took three years of college in a week."

Driven by her and her family's escalating pain, she also called the U.S. Environmental Protection Agency's Atlanta regional office. The representative she spoke with said he would ensure that someone from the state Division of Water assessed her water, and in March 2014 the inspector arrived. The test results

were sobering.

Before the Halberts learned that their water contained 14 ug/l of total beryllium compared to an EPA drinking water standard of 4 ug/l, they were unfamiliar with the metal. Now they know that it is a cancer-causing agent also linked to respiratory ailments, skin rashes and a chronic disease called berylliosis, which damages the heart and lungs. People are typically exposed to airborne beryllium through industrial work, not drinking water, but the agency theorized that the water's high acidity might be allowing the metal to leach from the coal-bearing rocks.

The agency report also showed a pH reading of 3.33, a level considered unsafe for human use, and a conductivity reading of 2200 that indicated a high presence of minerals. Among the minerals violating drinking water standards were iron, manganese, aluminum and sulfate.

"It's stopped all of our lives," Ginger says. "We can't enjoy the little things people always take for granted." The family no longer accepts overnight visitors. Their oldest son is serving with the Air Force in South Korea, and to Ginger's great delight he used to bring fellow servicemembers home for visits. But Ginger no longer welcomes these visitors to the house — she doesn't want to put him and his friends at risk.

Pausing to look out of her second-story hillside window at the small houses scattered throughout the hollow, Ginger's eyes well up with tears. She gestures to the homes, telling the stories of eight neighbors who have battled cancer in the past five years, and describing going to the small town grocery store and seeing multiple shoppers with cancer. Ginger jokes that she will go down fighting, but she is still concerned, and provides her family with detoxifying foods and supplements.

Worth Fighting For

In August 2014, Ginger received a report from a DMRE geologist who responded to the Halberts' list of questions by reviewing the other inspectors' work. The geologist reached the same conclu-

"I was raised that you have a duty to be an American, and it does take work when you are an American to keep your rights and your laws going. And if you stop, and everybody stops, then who gets control?"

sion as her colleagues, reporting that there was insufficient evidence to link the recent FCDC mining to the family's ruined spring and expressing the opinion that the Halbert troubles stemmed from the older mines nearby.

Ginger says she isn't satisfied with the answers, and still wonders whether the blasting im-

acted the abandoned mines nearby, setting off changes that contaminated their formerly reliable spring. Now represented by Jeffrey R. Morgan and Associates in Hazard, Ky., the Halberts are continuing to appeal the state's findings in the hopes that a court might decide a more thorough investigation into the Halbert's problems is warranted.

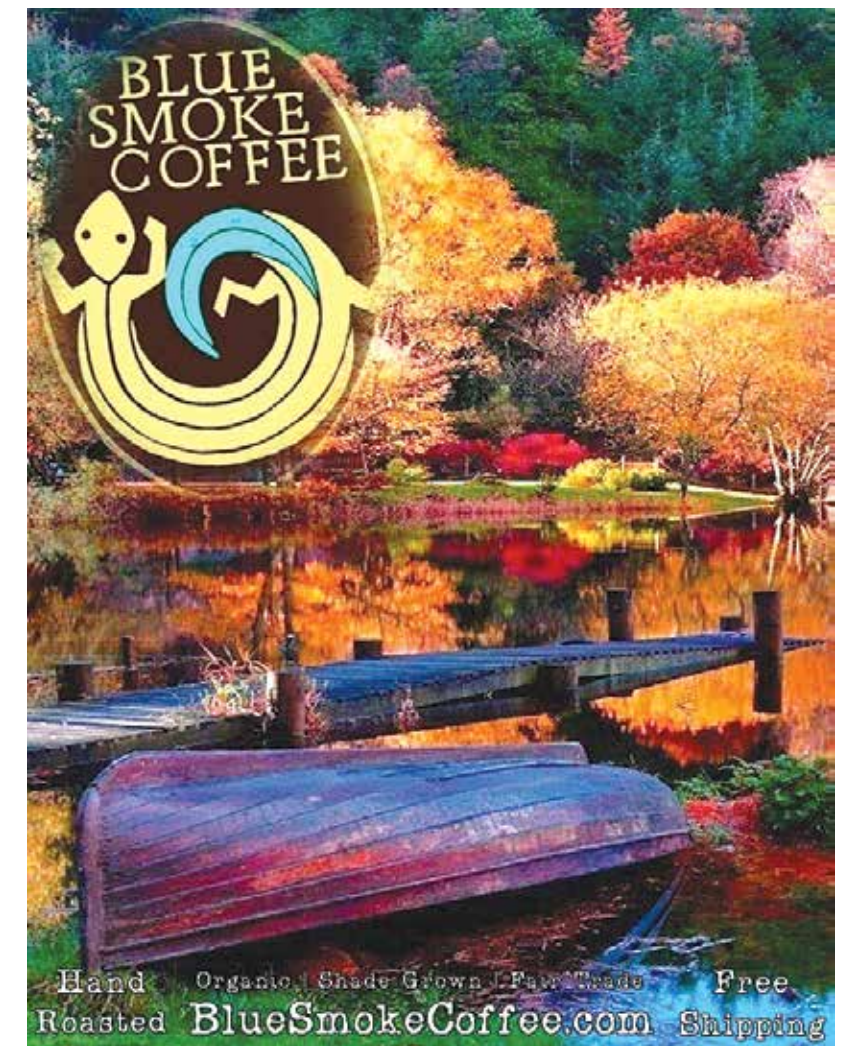
The Halberts are also in the discovery phase of a lawsuit against FCDC Coal to receive compensation for the damage done to their property — compensation that might allow the family to find a new home and return to their

dream of processing fresh, fermented vegetables with healthy mountain water.

For now, the weeds are tall in the Halbert backyard, where a triangular stretch of flat land is flanked by the family's spring, the home and a shifting, quickly eroding drop-off. There are no longer any deck chairs out here to take advantage of the rural valley views — ironweed and other plants grow unchecked to help catch any beryllium-laced water or dust that might blow towards the home.

It upsets Ginger that her eleven-year-old son must stay away from the yard his older siblings used to play in, and that a few miles downstream children might be playing in a creek fed by her toxic spring. She reflects that her oldest son, who is overseas in the military, might be safer than her two at home.

"We're never promised of getting any help if we sit back and do nothing," she says. "I was raised that you have a duty to be an American, and it does take work when you are an American to keep your rights and your laws going. And if you stop, and everybody stops, then who gets control?"



COLOSSAL CONIFERS

THE QUEST TO RESTORE THE MIGHTY HEMLOCK

By Travis Hall

The forests of central and southern Appalachia are recognized as some of the most biologically diverse ecosystems in the world. In the southern portion of this heavily forested mountain range exists a pristine temperate rainforest that feeds crystal-clear mountain streams and mighty whitewater tributaries, all of which host a dizzying array of aquatic life. Also present are rare ferns and mosses, copious wildflowers and more species of trees — poplars, hemlocks, and rhododendron among them — than can be found in all of Europe.

The central portion of the Appalachian Mountains is equally impressive, boasting contiguous stretches of forest that provide recreation and clean drinking water for people in Richmond, Baltimore, Washington, D.C., and other heavily populated urban centers. Forests here act as an interface, merging the colder conditions of the northern Appalachian mountains with the temperate rainforest of the South. Trees range from stands of towering conifers such as the Eastern hemlock and white pine to deciduous forests full of oak, hickory and maple.

Both central and southern Appalachia are teeming with life, but threats to their natural sanctity — coal mining, acid rain, climate

change and invasive pest outbreaks, to name a few — threaten irreparable harm to these ancient mountain landscapes. Silt runoff, caused by coal mining and excessive development, has sullied waterways, while air-pollution-induced acid rain damages plant life and makes aquatic environments less habitable. A lack of genetic diversity, brought about by climate change, increases the likelihood of extinction for certain Appalachian species, and invasive insects pose unparalleled threats to native flora and fauna.

According to David Walker, a research associate with the Virginia Tech Department of Forestry, the forests of Appalachia are resilient and remain generally healthy despite the litany of environmental issues brought about by human pollution and encroachment.

"It's important to remember that our forests are dynamic, not static," Walker says. "They face a variety of different threats coming from numerous angles — many of which are human causes — but, they have a remarkable ability to respond and adapt."

Walker says the most pressing challenges come from deforestation projects and urban expansion, but he has spent much of his career studying the effects of another threat, this one posed by a tiny invasive pest known as the hemlock woolly adelgid.

THE DISAPPEARANCE OF AN OLD-GROWTH LEGACY

Few organisms play a larger or more ecologically prominent role in central and southern Appalachia than the mighty hemlock tree. Whether it's the Eastern hemlock, known for a range that stretches from Canada and Minnesota to parts of Georgia and Alabama, or the less-prolific Carolina hemlock, found primarily in western North Carolina and Virginia, this colossal conifer is a foundational species in just about every ecosystem where it takes up roots.

As one of the longest-lived and tallest old-growth trees in the region, the Eastern hemlock is often referred to as the "Redwood of the East" and is known to boast life spans of some 500 years while reaching heights in excess of 150 feet.

More important than their profound beauty, however, is the essential and irreplaceable habitat that these majestic trees provide. They grow in clusters near mountain streams and rivers, supplying deep shade and stabilizing soil, keeping water clear and free of sediment.

In the heart of winter they harbor snow in their evergreen canopies, freeing up much of the forest floor below and facilitating foot travel for whitetail deer and other mammals.

All told, the hemlock has a positive impact on the lives of some 120 wildlife species throughout Eastern North America, making it a critical keystone species and a life-sustaining force. Without its presence, the forests of Appalachia would be permanently and irrevocably altered.

Tragically, the mighty hemlock is beginning to disappear from the ancient forests of southern and central Appalachia. The culprit? An exotic and near-microscopic insect known as the hemlock woolly adelgid.

The hemlock woolly adelgid is a tiny, sap-sucking aphid-like creature that takes up residence at the base of the hemlock's needles, ultimately robbing them of the nutrient-rich material the tree depends on for survival. Aside from eventual tree death, the pest's existence is evidenced only by the white, cottony ova sacs that develop on the underside of infected hemlock branches. The negative effects of the woolly adelgid are compounded by the fact that it's an invasive species with no native predators to help quell its devastating and rapid spread.

A FOREST FIXTURE FIGHTS FOR SURVIVAL

The plight of the modern hemlock is a heartbreaking tale that began sometime in the early 1920s.

"We know from DNA research that the adelgid originated in southern Japan, and was apparently brought over on ornamental weeping hemlocks in the early 1900's," says Dr. Patrick Horan.

Horan is a professor emeritus from the University of Georgia. After retiring he moved to the mountains of western North Carolina with his wife and shifted the full force of his focus to the hemlock-adelgid issue. He now operates a website, called SavingHemlocks.org, meant to raise awareness about the adelgid and aid private landowners seeking to restore their hemlock populations.

According to Horan, the hemlock woolly adelgid was distributed to horticultural sites across the eastern seaboard after its initial arrival in the U.S. One such site — a private arboretum just outside Richmond, Va. — was officially recognized as the first spot to harbor adelgids by the U.S. Department of Agriculture in 1951.

"The small adelgid colony discovered by USDA in 1951 was outside the native hemlock range," Horan says. "But it was allowed to spread northward and observed on wild hemlocks in Virginia as early as 1970. These early Virginia populations formed a huge infestation in the Shenandoah Valley by the 1980s,

and eventually formed the population base for an avalanche that cascaded down into the southern Appalachians."

It wasn't until the early '90s that government land agencies in the South began focusing on the inevitable arrival of adelgids in their neck of the woods. By then it was far too late, and the lack of action allowed the invasive bug to take up far-reaching roots throughout the hemlock's southern range. Southern hemlocks — completely defenseless against the adelgid's onslaught — began to die off in massive quantities. Groves that had once harbored massive stands of old growth — some as tall 170 feet — became little more than haunting, skeletal reflections of their former glory.

Forestry experts and botanists were forced to stand by helplessly and watch as these ancient behemoths were brought to their knees by an invasive pest no bigger than a pinprick. One person who witnessed the hemlock's early destruction first hand was a young botanist by the name of Will Blozan.

Today, Blozan is the president of the Eastern Native Tree Association as well as Appalachian Arborist, Inc. But in those days he worked as a forest technician in Great Smoky Mountains National Park, assigned to a small

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Rescuing the Red Spruce Ecosystem



Citizens work to restore West Virginia's historic forests, which were once dominated by the towering red spruce. Photo courtesy The Nature Conservancy

By Amber Ellis

After a hike up a mountain, Andrea Brandon gently places a red spruce sapling into the rich West Virginia soil. Though only twelve inches tall, this small tree and others like it are a promising start to the restoration of an entire ecosystem.

As the central Appalachians program coordinator for The Nature Conservancy, Brandon splits her time between field work, paper work and teamwork. For the past three years, she has headed the Central Appalachian Spruce Restoration Initiative, a collaborative group of stakeholders that formed in 2007 to protect and restore central Appalachia's high-elevation red spruce ecosystems.

Originally from Michigan, Brandon began working with The Nature Conservancy four years ago on invasive species management. Her decision to switch her focus to the red spruce ecosystem was driven by observing how "a lot of the history of the region ... is tied to [the] high elevation forests."

Before European settlers arrived, the forested hills of West Virginia were dominated by red spruce trees. Today, only five to ten percent of the area once covered by that high-elevation ecosystem remains in the Mountain State, and similar statistics are true for all of central and southern Appalachia.

Logging and uncontrolled wildfires associated with the incoming railroad during the late 1800s and early 1900s devastated the red spruce population and its seed source, and even stripped the soil down to the bedrock in many areas.

Brandon's main work is reestablishing and bolstering these red spruce communities, which are home to 240 rare plant and animal species. Since 2007, CASRI has restored 1,500 acres of central Appalachian land to its original red spruce ecosystem. According to Brandon, "It's about the tree, but it's much more than the tree. We are really trying to restore the functioning aspects of the ecosystem." This means planting spruce trees and other associated native plants such as serviceberry, yellow birch and wild raisin, as well as working with other organizations involved in red spruce restoration such as the U.S. Fish and Wildlife Service and CASRI's sister organization, the Southern Appalachian Spruce Restoration Initiative.

Brandon also makes spaces in the canopy for spruce trees to receive more light and grow to be more robust, a process known as spruce release. Being a shade-tolerant tree, the red spruce can grow for decades under the canopy of larger trees and only stand two feet tall. By removing trees, especially diseased ones such as beech trees infected with the invasive beech bark disease, restoration efforts can multitask, making room for the spruce and containing disease spread.

In the words of Andrea Brandon, "It feels good to put a tree in the ground," so check out one of CASRI's biannual tree planting days. Visit their website at restoredspruce.org.

"Forest Ghosts" photo by Daniel Bursleson; Winner of the Our Ecological Footprint Category at the 2014 Appalachian Mountain Photography Competition. A view of the Bynum Bluff trail in North Carolina's Linville Gorge shows how destructive a non-native insect can be to an entire tree species. Since its arrival in the U.S. in 1924, the hemlock woolly adelgid has infested nearly all Appalachian hemlock stands south of Virginia. View Bursleson's work at: imagecarolina.net

Colossal Conifers

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task force responsible for mapping large old growth trees while preparing the park's hemlocks for the inevitable arrival of adelgids from the north. Blozan knew that an infestation was fast approaching years before it actually happened, but the knowledge did little to soften the blow once the day finally arrived.

"In a wilderness area in South Carolina on Dec. 3, 2001, I was climbing a tree that I hoped would break the world height record for Eastern hemlock," Blo-



A red spruce seedling is carefully placed into the ground. Photo courtesy The Nature Conservancy

zan wrote in an article for American Forests magazine in 2011. "While descending a 167.7-foot hemlock called the East Fork Spire, I brushed up against a branch and noticed a woolly fluff on my jacket. I then realized that the hemlock woolly adelgid had officially arrived in my woods, and received word a few months later that adelgids had been discovered in the Smokies.

"By 2004, the East Fork Spire was dead. By 2005, virtually all of the groves I had mapped in the Old-Growth Project were infested. By 2007, they were essentially dead," Blozan wrote.

"Those lush, deep green cathedrals of ancient hemlocks — some with trees over 500 years old — were now sun-baked stands of gray skeletons. The results of centuries of undisturbed growth were erased in a mere four years, and my own forest legacy was rapidly disappearing."

STOPPING THE SPREAD

Because adelgids were allowed to thrive for more than 50 years completely unchecked, they have done an alarming amount of damage to hemlock forests throughout the Eastern United States, but there is still hope. Now that the issues presented by this invasive pest are

being addressed and scientific resources are being directed at the problem, certain control methods are beginning to contain populations at more manageable levels.

Chemical treatments with pesticides, such as Merit 75 WP, are common and usually implemented by way of ground drenching or root injections, and insecticidal soaps and horticultural oils are often sprayed in heavy applications throughout a tree's foliage. While these methods aid in short-term hemlock restoration, many biologists feel that the future of hemlock survival lies in a more organic method known as biological control.

Biological control methods seek to stop the adelgid's spread by introducing natural predators to its habitat. Dr. Richard McDonald is a North Carolina-based entomologist who has focused on controlling the spread of adelgids for more than a decade. According to him, the only way to fight adelgids on a long-term scale is by releasing predator beetles that kill the invasive pest at a high rate, thus causing their populations to dwindle and giving hemlocks a fighting chance.

Imported beetles from Asia have been in use since 1995, but it wasn't until recently that scientists discovered native populations of adelgid-killing beetles in the United States.

"In 2007 the DNA results came in,"

McDonald says. "It turned out the adelgids from the Pacific Northwest 'were their own native lineage.' Once we heard these words, we began looking inside our own borders for most of the answers concerning predatory beetles."

One of the native predators that McDonald champions is a small beetle known by the scientific name of *Laricobius nigrinus*.

L. nigrinus is significant because it arrives on the scene in mid-October and remains present throughout the month of May, targeting the notoriously unmanageable winter generations of adelgids that have been wreaking havoc on Southern Appalachian hemlocks for decades.

Researchers at Virginia Tech have studied this beetle since 1997, and McDonald has distributed it throughout southern Appalachia since 2003. Since then, *L. nigrinus* has spread much faster than anticipated.

McDonald also played a vital role in the discovery of another predatory beetle — *Scymnus coniferarum*. Unlike *L. nigrinus*, *S. coniferarum* feeds on adelgids throughout the summer months.

"Once you have both the winter and summer predators present on hemlocks, this mimics the system nature has put in place wherever hemlocks occur naturally," McDonald says.

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Colossal Conifers

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"The beetles go to work and knock adelgid numbers down to manageable levels."

While there has been a substantial amount of success using chemical controls to supplement biological ones, McDonald is uneasy about the use of pesticides and somewhat wary about introducing predator beetles that are not native to North America. He says that *L. nigrinus* and the aforementioned *S. coniferarum* pose far less risk of wreaking their own form of invasive havoc on the landscape.

Issues like those posed by the hemlock woolly adelgid are occurring all over the forests of central and southern Appalachia, and time is running out for species like the Eastern and Carolina hemlocks. Luckily, wherever these threats arise, there are usually hardworking folks like Dr. Richard McDonald, dedicated to preserving and restoring the land for the benefit of future generations.

"The program works," McDonald says. "And we need to get the word out in order to save as many of the region's hemlocks as possible. If we can organize quickly we can still save many hemlocks and all the other plants and animals that depend upon hemlocks for survival."



When flowers of the formerly abundant American chestnut tree adorned the Smoky Mountains, renowned 19th-century naturalist Henry David Thoreau described the scene as "covered in snow." Here, Dr. Fred Hebard holds a handful of potentially blight-resistant chestnut seeds. Photo courtesy of The American Chestnut Foundation

Dr. Fred Hebard: Resurrecting an American Giant

By Kimber Ray

More than one hundred years ago, benevolent giants flourished in North America's eastern forests from Maine to Mississippi, reaching up to ten stories tall and broader than the widest embrace. By the time Dr. Fred Hebard was born in 1948, this towering population of American chestnut trees was decimated. But as chief scientist of The American Chestnut Foundation, a nonprofit organization with 16 state chapters, Hebard's work may herald the revival of this deeply rooted legacy.

Between 1904 and 1955, an Asian fungal pathogen known as *Cryphonectria parasitica* wiped out nearly four billion mature chestnuts. Only fledgling trees remained, perpetually resprouting from the same root before being besieged by the blight upon reaching maturity. A chance encounter ignited Hebard's lifelong fascination with the genetics of blight resistance.

"I was working on a farm as an undergraduate at Columbia University when some heifer broke out of the pasture," recalls Hebard. "As the farmer and

I chased it down we came across a chestnut tree struggling to sprout. He told me the story about the blight, so I thought 'I should do something about that.'"

After obtaining a doctorate from Virginia Tech, in 1989 he took a position in Washington County, Va., at Meadowview Research Farms, The American Chestnut Foundation's new chestnut research and breeding station. In 2005, the foundation unveiled the potentially blight-resistant Restoration Chestnut 1.0 seedlings.

More than 100,000 of these American-Chinese hybrids have since been planted. Under the guidance of Hebard, and with the help of thousands of volunteers, each tree was hand-pollinated across six generations to possess the blight resistance of Chinese chestnuts and the statuesque appearance of American chestnuts.

"We weren't around when the chestnuts were here, so we don't always appreciate what's missing," says Dick Olson, who has volunteered with the foundation for five years.

Meanwhile, Hebard is already working on the next generation of seedlings. "It's not as clear cut at this time that we have a great tree," says Hebard, who cautions that judgment will require decades of observation. "But already it's a good tree, it's resistant. Taking part in that, and moving it along, is very satisfying."

To learn more, visit acf.org. For information on Meadowview Research Farms' 25th anniversary event on Oct. 11, call Dick Olson at 276-466-3130.

FOREST FUGITIVES

Invasives wanted for trespassing on American soil and robbing her natural resources

By Amber Ellis

Fight the Bandits: Human activity often speeds up the spread of forests pests, so remember to never transport firewood or transplant wild trees, shrubs, or flowers in new locations.

EMERALD ASH BORER

Agrilus planipennis



ORIGIN: Eastern Russia, northern China, Japan and Korea

VICTIMS: Any ash tree species

CRIME: Bores under bark, destroying the tree's water and nutrient transportation systems

PRESENCE IN APPALACHIA: North Carolina, Kentucky, Virginia, West Virginia and Tennessee

CONTROL METHODS: Insecticide is the only effective means of control thus far

DON'T BE FOOLED: Adult emerald ash borers are a deceptively beautiful deep, metallic green

Photo courtesy of U.S. Dept. of Agriculture Forest Service

GYPSY MOTH

Lymantria dispar



ORIGIN: Temperate Asia and Europe

VICTIMS: Prefers deciduous hardwoods, especially oaks, but can attack hundreds of tree species

CRIME: Defoliation due to feeding

PRESENCE IN APPALACHIA: western North Carolina, Virginia and West Virginia

CONTROL METHODS: Insecticide, Gypsy Moth traps and "tree banding" to trap and kill caterpillars

FUN FACT: The gypsy moth was brought to America in 1869 in the hopes of starting a domestic silkworm industry. It escaped, and things went horribly wrong.

Photo courtesy of Flickr user Gailhampshire

DOGWOOD ANTHRACNOSE



CAUSE: Fungus, *Discula destructiva*

ORIGIN: Unknown

VICTIMS: Dogwood, all eastern flowering varieties

CRIME: Infects young twigs, shoots and leaves. Cankers then grow out of infected areas and cut off nutrient and water supply.

PRESENCE IN APPALACHIA: Throughout central and southern Appalachia

CONTROL METHODS: No control methods are currently effective for forest areas, but fungicide and proper maintenance can help protect ornamentals.

SURVIVAL STORY: A wild anthracnose-resistant species was discovered in Maryland, dubbed the "Appalachian Spring Dogwood" and began being commercially cloned and sold in 2000.

Photo courtesy of U.S. Dept. of Agriculture Forest Service

BEECHBARK DISEASE

CAUSE: Beech Scale Insect, *Cryptococcus fagisuga*; Noninvasive fungi, *Neonectria faginata*, *Neonectria ditissima*

ORIGIN: Unknown, but insect first documented in Europe

VICTIMS: American beech, *Fagus grandifolia*

CRIME: The beech scale insect burrows under the bark to feed on the sap of the tree. The fungi can then enter the tree easily through the wounds made by the insects, causing cankers and eventually tree death.

PRESENCE IN APPALACHIA: eastern West Virginia, East Tennessee and western North Carolina

CONTROL METHODS: Salvage cutting and insecticides

SLOW AND STEADY: The scale insect was accidentally brought to Nova Scotia, Canada, in 1890, and by 1981 had reached roughly 70,000 acres in West Virginia.

Photo courtesy of U.S. Dept. of Agriculture Forest Service



LITTLELEAF DISEASE

CAUSE: Water mold, *Phytophthora cinnamomi*

ORIGIN: Unknown, but invasively present in more than 70 countries

VICTIMS: Shortleaf, slash, loblolly, pitch, Virginia, and longleaf pines

CRIME: Infects root hairs of trees in perpetually wet and/or poorly drained soil. The disease causes needles to turn yellowish brown and the production of excess cones

PRESENCE IN APPALACHIA: east Tennessee and southeastern Kentucky

CONTROL METHODS: Remove trees with the disease, and maintain well-drained soil

REPEAT OFFENDER: The same fungus that is responsible for littleleaf disease is responsible for root rot of avocado trees, a major problem in the avocado farming business.

Photo courtesy of U.S. Dept. of Agriculture Forest Service



BUTTERNUT CANKER DISEASE

CAUSE: Fungus, *Sirococcus clavignenti*

ORIGIN: Unknown

VICTIMS: Mainly attacks the butternut tree (white walnut) but has been found in other walnut tree species; isolated incidents of hickory tree infection

CRIME: Fungus usually spreads through water and animals, and causes cankers originating from leaf scars and buds

PRESENCE IN APPALACHIA: western North Carolina and Virginia, Tennessee, and eastern Kentucky and West Virginia

CONTROL METHODS: Some resistant genetics have been found, but research is still needed

SURVIVAL STORY: As of 2013 the butternut populations in North Carolina and Virginia have decreased by nearly 80% due to butternut canker disease.

Photo courtesy of U.S. Dept. of Agriculture Forest Service



From the Ashes

Ecotourism Rises Along with Hope for a Region's Future

By Dan Radmacher

After enduring generations of the booms and busts of an economy almost entirely dependent on the coal industry, the residents of far southwest Virginia are beginning to take their economic future into their own hands by capitalizing on the mountainous region's incredible natural beauty to promote ecotourism.

The movement may have begun, oddly enough, with an act of arson.

Built in the 1930s, the High Knob Tower provided spectacular, 360-degree views of five states from the top of a 4,000-foot ridge in Wise County. The High Knob Recreation Area in the Jefferson National Forest not only includes the tower, but also a four-acre lake, a 50-acre campground and plenty of hiking and biking trails.

The tower, rebuilt in the 1970s, was ingrained in the hearts and history of the region's residents, according to Steve Brooks, former executive director of the Clinch Coalition and a volunteer distributor for *The Appalachian Voice*.

"Men share stories about proposing to their wives there," Brooks says. "Families went there for Sunday picnics. It's just been a place people go."

After the tower was burned down seven years ago by arsonists, a coalition came together to rebuild the iconic structure. U.S. Rep. Rick Boucher — who would go on to lose his 2010 re-election bid — helped organize the group, which included environmentalists and conservationists as well as

coal and utility industry representatives.

Much of that coalition came together to form the High Knob Enhancement Corporation, which worked to raise the money to rebuild the tower and to promote the enhancement and use of High Knob and surrounding areas.

"It's the first time I've seen such a diverse group of people that worked so closely and so well together," says Rita McReynolds, a former town council member from St. Paul, Va. "What an effort. Everyone pitched in. School kids donated quarters."

A ribbon-cutting for the \$600,000 project was held on Aug. 22. McReynolds says the energy at the event was exhilarating.

"I was amazed at all the people who were asking, 'What's next?' And that's the question," McReynolds says. "What can we do to tie in the tower to other things near it and around it? It's going to be a catalyst for things to come."

And other things are coming. Norton is developing a series of trails in and around the city, including nearly 20 miles of mountain bike trails at the Flag Rock Recreational Area, a 1,000-acre parcel of land owned by the city.

"We're working with the U.S. Forest Service to build a trail from the Norton



During a ride along a new mountain bike trail, Shayne Fields pauses at an overlooks above Norton, Va. An avid mountain biker, he sees the creation of new trails as an investment in the city's future. Photo by Erin Savage

reservoir and Flag Rock area to the High Knob Tower," Mark Caruso, a Norton city council member, said in an email.

"From there, hikers, bikers and equestrians can travel from Dungannon to High Knob to Norton or Big Cherry Reservoir and the Devil's Bathtub Area," he says. "The Lost Creek Trail will link the city to the Jefferson National Forest."

Shayne Fields, a member of the Lonesome Pines Bike Club, has been working for the city to design the mountain bike trail system for the Flag Rock Recreation Area.

"I see this as an economic engine for my city," Fields says. "We're in the middle of coal country, and we've struggled over the years looking for

alternatives. We haven't had much luck with new industries."

Work on the trails has been boosted in the last year or so by volunteers from local nonprofit organizations Southern Appalachian Mountain Stewards and Mountain Justice, as well as Job Corps volunteers and even people working off community service sentences. The first trail segment, a 1.82-mile-long novice trail, was dedicated earlier this summer.

The Sugar Maple Trail is three-feet wide and not too steep for beginners. More experienced mountain bikers won't be left out, though. The system will include both intermediate and expert loops when it is completed.

continued on page 17

Ecotourism Rises

continued from page 16

Fields, a longtime mountain biker, also views the project with an artist's eye. "Designing a trail that will last is all about water management — getting the water down the hill in ways that won't erode the trail. This results in very organic shapes," he says.

"This is a giant step forward for this area," Fields says. "We're not known for activism or ecotourism. This is one of our first efforts to use the land for something that's sustainable."

Norton council member Mark Caruso agrees about the importance of ecotourism.

"Energy resources will no longer be the go-to industry to bail out communities in economic distress," he commented. "City council understands that with the proper public resources applied to our natural assets, we can become a destination that will provide tourists with a wide range of activities they will be willing to spend money on."

The region is spectacular. High Knob is home not just to astonishing views but an incredible array of plants and animals, including the exceptionally rare green salamander and Kirtland's warbler. The Nature Conservancy calls the region the most biodiverse in the continental United States.

Caruso and his wife Carol have so much faith in what the development of High Knob and other tourist resources can do for the local economy, they opened up Pathfinders Outfitters. The shop caters to people coming to enjoy High Knob, seven nearby mountain lakes, two rivers and the many other outdoor attractions.

Caruso said he and his wife want to promote the area's assets while working to preserve them for future generations.

"I'm looking forward to the day when we have developed an economic

balance in our mountains that is diverse, sustainable, smartly maintained, culturally compatible, and provides job opportunities for all who are willing to work," Caruso says.

The couple has been encouraged by the level of business so far. They are planning to buy more rental boats, expand their shooting sports programs, and introduce wilderness survival and orientation courses.

According to Rita McReynolds, even smaller St. Paul is witnessing an influx of visitors.

"We're seeing a lot of buzz with people coming into the area from Kentucky, Tennessee and Alabama," she says. "A small lodge, Mountain View Lodge, opened up right here in town, which is something I never thought I'd see."

McReynolds thinks news reports about the reopening of the High Knob Tower will help even more.

"We're going to see an explosion of more people coming in," she says. "That news of the tower was huge. We have wonderful mountains, and we're becoming a destination."

Steve Brooks, when director of the Clinch Coalition, helped launch the annual High Knob Naturalist Rally, a day-long event with guided hikes and other activities, now in its eighth year. According to Brooks, there is growing recognition from local politicians and the U.S. Forest Service that tourism has more potential than mining or timbering to improve the local economy.

"Politicians want to bring jobs," he says. "Tourism seems to be the way to do that now. There's a lot of public support for a more sustainable approach."

For a region that has seen more than its share of economic turbulence, hope for a better future seems to have risen from the ashes of High Knob Tower.

"Managed responsibly, we can literally have it all here in our mountains," Caruso added. "We need to be positive about that possibility."



Visitors gather on opening day at the newly rebuilt High Knob Tower. Restoring the southwest Virginia landmark was a collaborative community effort. Photo by Bill Harris. billharr@comcast.net



A rider balances her bike on a log feature during her first visit to the new Sugar Maple Trail. Photo by Shayne Fields

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THE TRUTH ABOUT COAL ASH

Coal ash — the byproduct of burning coal for electricity — is currently regulated under the same rules as regular household garbage. Filled with heavy metals such as arsenic, selenium and lead, coal ash is proven to contaminate groundwater and pollute communities with dust. This December, the U.S. Environmental Protection Agency has a deadline to set new regulations on this toxic substance. Will they do the right thing?

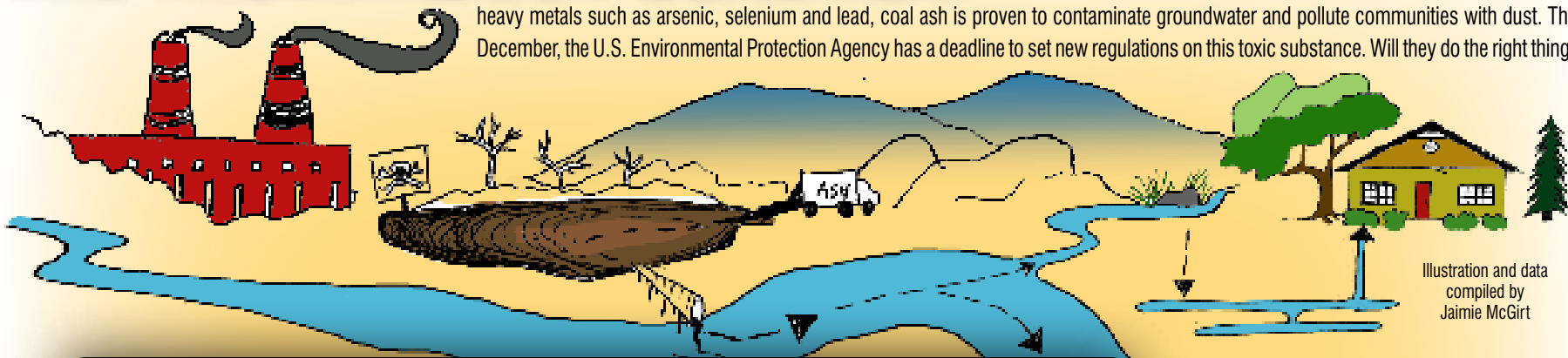


Illustration and data compiled by Jaimie McGirt

NATIONAL

U.S. coal-fired power plants generate **130 MILLION TONS** of coal ash waste per year.

Nearly **50%** of southeastern coal ash ponds are concentrated in low-income communities

Only **2** states in the U.S. — Louisiana and Pennsylvania — require groundwater monitoring in new or existing coal ash ponds.

HEALTH IMPACTS FROM COAL ASH

IN THE SOUTHEASTERN STATES...

Kentucky
Third-largest state in the nation for coal ash storage; 49% of dams exceed a 25-foot depth or store 500 acre-feet of coal ash; no requirement for frequent inspection; only 15 have been EPA-inspected to date.

West Virginia
83% of dams pose a high or significant hazard in the case of dam failure; one of only three states in the country that requires composite liners for new coal ash ponds; requires frequent inspection by dam operator.

Virginia
73% of dams pose a high or significant hazard in the case of dam failure; despite having an emergency action plan, pond liners and groundwater monitoring are not required; 4 of 11 sites show evidence of contaminated groundwater.

Tennessee
88% of dams pose a high or significant hazard in the case of dam failure; no requirement for professional engineers to design or supervise dams; no dams inspected in the last 5 years.

South Carolina
6 of 22 dams pose a significant hazard in the case of dam failure; 50% are large capacity or have heights over 25 feet; pond liners and groundwater monitoring are not required.

North Carolina
69% of dams pose a high or significant hazard in the case of dam failure; average height of dams is six stories; all 14 coal ash sites show evidence of contaminated groundwater.

Lead, arsenic, boron, mercury and excess selenium exposure may cause brain swelling and neurological damage, including developmental defects, impaired vision, paralysis and even death

Boron, arsenic, and frequent chromium inhalation may cause nose and throat irritation, asthma, wheezing and lung cancer

Lead exposure and arsenic ingestion may cause cardiovascular issues, especially in children

Arsenic ingestion may cause urinary tract cancers. Lead exposure and excess boron ingestion may have damaging effects on the kidneys.

Lead exposure and excess boron ingestion may cause damage to the male reproductive system

Chromium ingestion may cause stomach and intestinal ulcers, anemia, and stomach cancer. Excess boron ingestion may cause liver and intestinal damage

Arsenic absorption through the skin may cause skin cancer

INFOGRAPHIC SOURCES: SoutheastCoalAsh.org accessed Sept. 2014; EPA.gov accessed Sept. 2014; "State of Failure," Earth Justice and Appalachian Center for Mountain Advocates, 2011; "Coal Ash: The Toxic Threat to our Health and Environment," Physicians for Social Responsibility and EarthJustice, 2010; Federal Register/ Vol. 75, No. 118. MAP courtesy of <http://www.getitb.com/terrain-maps.htm> and Google Earth Library with data from NASA and Scripps Institution of Oceanography/University of California San Diego. ASTER GDEM is a product of METI and NASA. Released under the Creative Commons Attribution license.

Pursuing Federal Regulations -- a timeline

October 1976
EPA creates the Resource Conservation and Recovery Act (RCRA) to identify and regulate hazardous wastes.

August 1993
EPA determines that coal ash should be regulated as non-hazardous waste

May 2000
EPA declares that regulation is not warranted whenever coal ash is beneficially used for agriculture or construction

2004
The EPA hosts four public meetings to address concerns about coal ash disposal due to the lack of liners, water monitoring, and consistent state regulation.

Dec. 23, 2008
A coal ash pond at a TVA plant in Harriman, Tenn., fails, causing one of the largest environmental disasters in U.S. history with one billion gallons spilled.

June 21, 2010
EPA considers proposal to classify coal ash as hazardous waste

Feb. 2, 2013
A main ash pond at Duke Energy's Dan River Steam Station in Eden, N.C., fails, spilling more than 39,000 tons of coal ash waste into the Dan River

Dec. 19, 2014
EPA required to decide whether or not to regulate coal ash as hazardous waste, which would lead to stronger regulation and enforcement

Long-Awaited Coal Ash Bill Leaves Communities at Risk

By Sarah Kellogg

This September, North Carolina's first bill regulating the disposal of coal ash became law. Legislators praised the law as the strongest in the nation, but environmental groups and citizens living next to coal ash ponds say it is not strong enough.

North Carolina's toxic coal ash, the by-product of burning coal for electricity, is stored in wet impoundments at 14 Duke Energy facilities across the state, all of which are leaking toxic heavy metals. After a faulty pipe at a Duke Energy coal ash impoundment spilled 39,000 tons of the waste into the Dan River earlier this year, state

legislators responded to public concern by promising to draft the strongest coal ash regulations in the nation.

Citizen and environmental groups say the resulting legislation does not offer assurance of a timely, complete cleanup to 10 impacted communities. Instead, the law requires full cleanup of the four sites Duke Energy already agreed to remediate after public outcry earlier this year: Dan River, Sutton, Asheville, and Riverbend. The day the bill became law, Environment North Carolina and partner organizations delivered 40,000 petition signatures to N.C. Governor Pat McCrory's office demanding the full cleanup of all 14 sites.

The bill leaves the fates of the remaining 10 sites in the hands of a special coal ash commission comprised of six appointees from the general assembly and three from the governor. Governor McCrory, who worked for Duke Energy for 28 years, stated that the commission is unconstitutional because the governor should be responsible for appointing the majority of a commission that executes legislative orders. Although he opposed the legislation, he did not veto it and allowed the bill to become law without his signature.

According to the bill, the commission will designate a rating of high, intermediate or low risk for each of the remaining 10 sites, and will also set timetables for the completion of cleanup, which Duke may appeal. The commission is also required to hold public hearings regarding cleanup plans at each site.

For coal ash sites deemed low-risk, the law allows "cap-in-place," a storage

method where water is drained from the coal ash pond and a cover is placed on top. Cap-in-place does not prevent groundwater contamination or the risk of dam failure.

The law also allows Duke Energy to request permission from the state to charge ratepayers for cleanup costs, though polls show that most North Carolinians think Duke's shareholders should pay for all costs. Additionally, it weakens current laws protecting groundwater by allowing the state Department of Environment and Natural Resources to grant permits for illegal discharges of contaminated water from the coal ash ponds, rather than requiring Duke Energy to stop the source of the pollution.

Caroline Armijo helped deliver petitions opposing the bill to the governor's office. She told reporters, "If coal ash is making us sick, then our leaders need to do something about it—now. We have a right to lead healthy lives."

One Artist's Experience with Coal Ash

By Caroline Armijo

Editor's Note: Caroline Armijo began an environmental justice art project after seeing many friends and family die from cancer in her North Carolina community, near one of the state's largest coal ash impoundments. The Belevs Creek coal ash ponds near her community are not among those designated for full cleanup by the recent state coal ash bill. In this excerpt from Armijo's website, she describes the circumstances that shaped her paper sculpture creation, titled "Gray Matter." Read the full post at carolinearmijo.com



Rolls of collected grave rubbings bound by red stitching give structure to this hollowed-out book. The rubbings were created from the headstones of mixed-media artist Caroline Armijo's friends and family members, whom she suspects were poisoned by coal ash. Photo by Caroline Armijo

In my five years in Washington D.C., I have only known three people with cancer, and only one of those have died. In the last six months alone, I have known five people who have died from my hometown in Stokes County, North Carolina.

[In 2007 the EPA reported that] coal ash gives you a one in fifty chance of getting cancer. Unfortunately, the statistics seem to be much worse at home than estimated in the published reports. When I discussed this with a friend from home, she said that her prayer group included two people with cancer out of four.

Maybe I feel so strongly about this after watching my dad's twin sister, Cheryl, fight a courageous battle against non-Hodgkin's lymphoma. She passed away in April 2006, after I moved to

D.C. the previous year. I was six hours away from my family. It was one of the hardest things I have ever dealt with.

A couple of years later, her neighbor Jackie, from directly across the street, died of the exact same kind of cancer. They could see each other's houses from their front windows. Cancer is not contagious. What are the chances of that happening?

I did what I do when I don't know what else to do. I began working on an art project that ultimately became Gray Matter. I had partially excavated/destroyed the book, Your God Is Too Small, a couple of years ago; it was in two pieces and looked like a couple of capital D's. I went to the studio, picked up the book, gathered my scalpel (a real surgeon's knife) and blades, and headed home with all of these lost loved ones in my mind.

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Atlantic Coast Pipeline Proposal Advances

By Brian Sewell

Duke Energy, Dominion Resources and other partners are teaming up to build a 550-mile pipeline to better access natural gas produced in Pennsylvania, Ohio and West Virginia, where fracking has proliferated in the Marcellus and Utica shale formations.

The Atlantic Coast Pipeline, which the companies hope will be in service by 2019, would begin in north-central West Virginia, snake through 10 Virginia Piedmont counties and bisect North Carolina before terminating near the South Carolina border. A lateral extension near the Virginia-North Carolina border would stretch to the coast.

If the pipeline is built, Duke's gas-burning power plants would be the primary customers and capture nearly half of the projected 1.5 billion cubic feet of gas pumped through the pipeline each day.

Dominion Resources shares the majority ownership stake in the pipeline with Duke and will also serve as the lead builder. Dominion began preliminary survey work in May, which created a stir along the proposed route and spawned a movement of concerned landowners and communities months before the plan was officially announced.

In September, a coalition of 22 groups, including the Southern Environmental Law Center and West Virginia Highlands Conservancy, emerged as the Allegheny-Blue Ridge Alliance with the sole purpose of raising the alarm about the proposed pipeline. The groups say the planned route puts some of the most ecologically sensitive areas in the eastern U.S. at risk, such as portions of the George Washington and Monongahela national forests.

The companies claim building the

pipeline will create construction jobs and spur industrial development. Governors Pat McCrory of North Carolina, Terry McAuliffe of Virginia, and Earl Ray Tomblin of West Virginia have all heralded the pipeline's economic potential.

McAuliffe, who has been outspoken in his support for the pipeline while opposing fracking in Virginia, found himself in an awkward spot at the first meeting of the state's climate change commission on Sept. 10. Claiming the pipeline has "nothing to do with fracking," McAuliffe later added, "I do not support fracking as governor of the Commonwealth."

The Atlantic Coast Pipeline must gain approval from the Federal Energy Regulatory Commission and state utility commissions, and there are several opportunities for public input during the process.

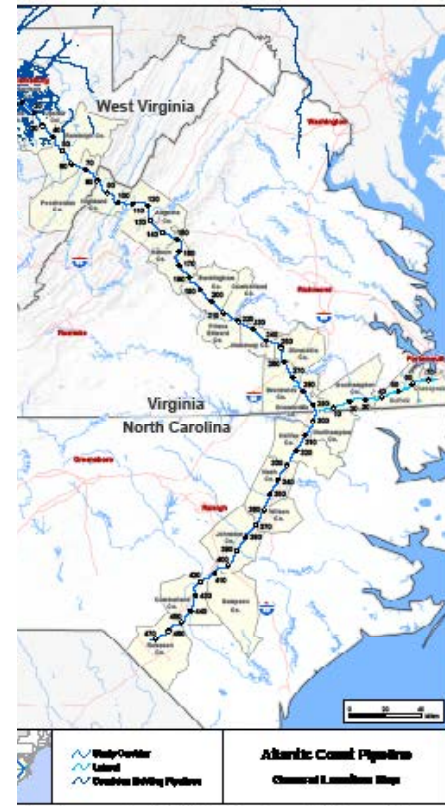


Image courtesy Dominion Resources

Health Research Disregarded in Mountaintop Removal Mine Permitting

By Brian Sewell

In both West Virginia and Kentucky this year, federal courts have ruled against groups that believe scientific research into the impacts of mountaintop removal coal mining on health should be considered by the agencies in charge of issuing permits.

In August, a federal judge for the Southern District of West Virginia sided with the U.S. Army Corps of Engineers and ruled that the agency did not act "arbitrarily" when it issued a permit for a 725-acre mountaintop removal mine in Boone County, W.Va., without considering

health impacts. A coalition of environmental groups, including Ohio Valley Environmental Coalition and Coal River Mountain Watch, asserted that research the Corps called "ambiguous" in fact showed a strong link between mountaintop removal and health impacts, such as higher instances of birth defects, cancer and other diseases.

The judge claimed that too many of the studies environmental groups presented as evidence focused on health effects associated with coal in general and made no stated connection to mining discharges in streams below mountaintop removal sites.

The decision echoes a ruling six months ago in Kentucky in a case between the Corps and a coalition led by Earthjustice, Kentuckians for the Commonwealth and Appalachian Mountain Advocates over the 756-acre Stacy Branch mine. In that case, the Corps argued it was only responsible for considering the effects of dumping mining debris in streams — not the environmental or health impacts of the entire mining operation. That responsibility,

the Corps contends, belongs to state agencies in charge of issuing mountaintop removal permits.

Currently, there is no clear agency tasked with studying or addressing the connection between mountaintop removal and health. Meanwhile, a bill that would place a moratorium on new permits until a federal study into the health impacts of mountaintop removal is completed sits stagnant in Congress.

Companies Could Ship Fracking Waste on Ohio River and Other Waterways

For nearly a year, the U.S. Coast Guard and the U.S. Army Corps of Engineers have considered the implications of allowing companies to barge fracking waste along the Ohio River and other major waterways.

But what the oil and gas industry sees as an efficient and affordable way to get rid of its waste, many of the three million people who rely on the Ohio for their drinking water see as a poison pill. The Coast Guard received more than 60,000 public comments to that effect last year, and concerns about the safety of drinking water supplies only grew after a chemical spill left more than

300,000 West Virginians without water in early 2014.

In June, Texas-based GreenHunter Energy, Inc. applied to the Army Corps to build a dock and pipeline facility in Meigs County, Ohio. The facility could accommodate more than 100 million gallons of refuse annually before the waste is trucked inland to be injected in underground wells.

The state already accepts nearly 700 million gallons each year, mostly from Pennsylvania and West Virginia. Opening the Ohio River could expand that invitation to states such as Texas and Louisiana.

As Companies Warn of More Layoffs, Lawmakers Look to Employment Training Programs

By Brian Sewell

Two Appalachian coal companies warned nearly 1,500 West Virginia employees that layoffs are likely this fall, underscoring the dire need for other job opportunities in central Appalachia.

On July 31, Alpha Natural Resources issued a 60-day notice to 1,100 employees at 11 surface mines and associated operations that could be idled by mid-October. In early September, Patriot Coal put 360 employees on notice at a surface mining complex in Boone County.

Several elected leaders responded to the news by promising to combat the U.S. Environmental Protection Agency,

while others are considering different options. E&E News reported on Sept. 12 that representatives David McKinley (R-W.Va.), one of the most pro-coal members of Congress, and Peter Welch (D-Vt.) were working together to craft legislation that would pay laid-off coal workers to participate in workforce training.

In the past two years, the U.S. Department of Labor has granted WorkForce West Virginia \$7.4 million in National Emergency Grant funds to train displaced miners. The program provides up to \$5,000 to individuals for occupational skills training aimed at fostering long-term reemployment.

North Carolinians React to Proposed Fracking Rules

By Brian Sewell

The N.C. Mining and Energy Commission held public hearings in August and September on the proposed rules it has put forth to regulate fracking in the state. At each of the four hearings held across the state, North Carolinians overwhelmingly expressed concerns with the rules' shortcomings and the state's rush to begin fracking.

In oral comments, hundreds of citizens requested improvements to the more than 120 rules proposed by the MEC related to everything from inspection protocols, chemical disclosure, monitoring and reporting requirements and

more. The MEC also accepted written comments from the public between July 15 and Sept. 30.

"We can live without shale gas but not without clean air and water," said Christine Carlson, who spoke at the Raleigh hearing.

Although the state's Department of Environment and Natural Resources recently postponed plans to explore the natural gas potential of seven western North Carolina counties, the turnout to the final hearing in Cullowhee was comparable to those held in the Piedmont, where fracking permits could be issued as soon as spring 2015. Nearly 600 people packed the hearing in the mountains and 102 people

Gainesville Commission Votes to End Mountaintop Removal Coal Purchases

By Brian Sewell

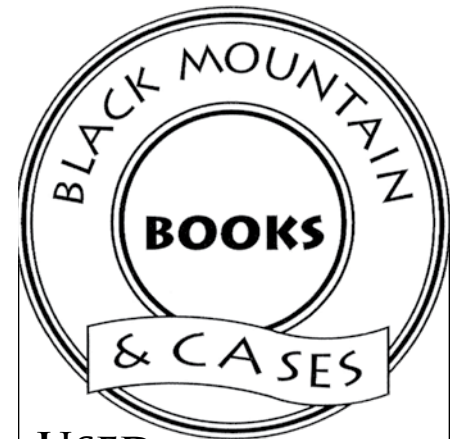
On Sept. 18, city commissioners in Gainesville, Fla., voted 5-2 for a policy that could end the local power plant's purchases of Appalachian coal mined by mountaintop removal, and they unanimously adopted a resolution opposing the destructive practice. The move makes Gainesville the first city with a municipal utility to adopt such a policy.

Under the policy, Gainesville Regional Utilities will pay up to 5 percent more to buy coal mined underground. If the cost difference becomes greater than 5 percent, the commission can vote to temporarily suspend the policy. The utility's general manager can also make

emergency purchases of coal mined through any method if the inventory drops to critically low levels.

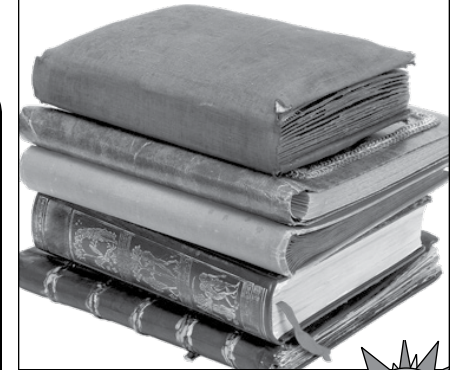
Representatives of the utility told commissioners that avoiding mountaintop removal coal could raise costs on customers. But since 2008, the amount of coal the utility purchases from mountaintop removal mines has decreased substantially, and the utility could not specify how they expect the change to impact rates.

The vote was the culmination of a campaign by Gainesville Loves Mountains, a group of local volunteers who began reaching out to the city commission on the issue in 2011.



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Black lung disease reaches near-record levels

New research by The National Institute for Occupational Safety and Health on the "entirely preventable" resurgence of black lung among working coal miners found the debilitating disease has risen to a level not seen since the 1970s. Researchers found that the rate of increase in Kentucky, Virginia, and West Virginia has been "especially pronounced."

Appalachian Power seeks solar "standby" charge

Virginia's second-largest electric utility wants permission to levy a charge on residential customers who produce their own power but remain connected to the grid. If regulators approve the proposed "standby" charge, ratepayers who own systems between 10 and 20 kilowatts would be targeted with a \$3.77 per kW monthly fee, potentially raising their annual energy costs by hundreds of dollars. A State Corporation Commission hearing on the matter was held Sept. 16.

Rallying for Appalachian Environmental Justice

Appalachian Voices has recently been on the road and joining up with many of our partners to stand strong on mountaintop removal coal mining and climate change.

In mid-September, we participated in the Alliance for Appalachia's two-day Our Water, Our Future rally in Washington, D.C. With dozens of residents from Appalachia and allies from across the country, we engaged in a sit-in and square dance on the front steps of the White House Council on Environmental Quality to pressure the Obama administration to protect Appalachia's water and future from coal pollution.

Ralliers left a report card on the Obama administration's work on the environment so far, giving the administration a grade of "incomplete."

The day before, we met with representatives from federal agencies charged with protecting our water to discuss this "incomplete" grade and urge the administration to fulfill its promises to Appalachian residents.

And on Sept. 20, Appalachian Voices joined 400,000 people in New York City for the largest climate march in history. Appalachian residents joined the front of the four-mile long march along with other communities on the front lines of the climate crisis.



"The People's Climate March demonstrated that communities are standing together and the immense power of those committed to fighting," says Kate Rooth, Appalachian Voices' campaign director. "Perhaps most importantly,



At left, our Virginia campaign coordinator Hannah Wiegard at the People's Climate March. Photo courtesy Virginia Sierra Club. Above, Appalachian residents rally in D.C. Photo courtesy ILoveMountains.org

it reminded each of us that we are in this together."

Gainesville Loves Mountains Energy Savings Advances in Tennessee and North Carolina



After more than three years of citizen activism, the city of Gainesville, Fla., is the first in the nation to enact a policy that will effectively eliminate its use of coal from mountaintop removal mines (more on p. 21). Jason Fults recognized that the roots of this fossil fuel ensnare even the lowest-lying communities while attending Berea College in eastern Kentucky. When he learned that the power plant in his Gainesville, Fla., hometown was fueled by the destruction of Appalachian mountains, he formed the grassroots organization Gainesville Loves Mountains. Stories of coal's devastating impact on Appalachia were made more poignant by our Tennessee Campaign Coordinator Ann League, who traveled to Gainesville with Program Director Matt Wasson to share her experience. Above, Fults and League talk to community members at a farmers market before the vote.

Our Energy Savings for Appalachia campaign has made great strides since our kickoff 18 months ago, but we're only just getting started!

This September in Tennessee, Appalachian Voices participated in an energy efficiency "retreat" that brought the Tennessee Electric Cooperative Association and six of its member cooperatives together with a number of state agencies and numerous experts in energy efficiency finance. The purpose was to begin designing a statewide on-bill energy efficiency finance program that will help low-income residents reduce their electricity bills. Appalachian Voices not only helped make the retreat happen, we are also playing a key role in determining how the program will be funded and implemented.

While we are energized by Tennessee's progress, North Carolina's electric co-ops have yet to commit to providing energy efficiency finance options. Because of this, on October 9 we launched a new campaign focused on Blue Ridge Electric Membership Corp.

in the High Country of western North Carolina. Our goal is to generate strong member support to encourage the electric co-op to develop an on-bill energy efficiency financing program, one that primarily helps low-income households.

The poverty rate among Blue Ridge Electric members is 23%, meaning that many households in the High Country struggle to pay their electricity bills each winter. As one of North Carolina's largest electric co-ops, however, Blue Ridge Electric should be offering financial support that helps reduce their members' electricity bills. Six other co-ops in North Carolina offer on-bill finance options, and it is time that Blue Ridge Electric step up and do the same. To support the campaign, we are also launching a High Country Home Energy Makeover contest. See page 6 for more information.

To learn more or get involved, call (828) 262-1500 or email Rory McIlmoil at rory@appvoices.org

Appalachian Voices Hosts Wild & Scenic Film Festival in Knoxville

Join us on Thursday, Oct. 30 at the Bijou Theater in Knoxville, Tenn., for a night of exciting short films from one of the nation's premiere environmental and adventure film festivals. This special selection of award-winning films about nature, community activism, adventure and conservation are guaranteed to inspire and ignite the audience to protect our wildlife and natural places.

Thanks to our sponsors, Three Rivers Market and Mast General Store, proceeds will go directly to support the work of Appalachian Voices. The show starts at 7 p.m. and tickets are \$10 in advance and at the door. The event also includes raffles, membership specials and giveaways. For ticket info and the film lineup, visit appvoices.org/wild-and-scenic

Member Spotlight: Davis Wax

A Spirit of Service in the Mountains

By Molly Moore

Davis Wax can be a hard man to find — if he isn't spending a week camped along the Appalachian Trail guiding volunteers through trail-repair projects, he's likely off on mountain adventures. A former editorial intern with The Appalachian Voice, Davis is as comfortable writing an article about electricity transmission as he is teaching diverse groups of new volunteers the ins and outs of trail building.

A native of Concord, N.C., Davis studied professional writing at Appalachian State University in Boone, where he explored the mountains and trails in his backyard. Midway through college, his connection to Appalachia deepened when he began to volunteer with regional organizations.

He joined fellow volunteers with the Appalachian Trail Conservancy for a week of camping and working along the trail, and witnessed how people from all walks of life share a need to contribute to causes they care about. "[People] need to get some volunteer work in, not expecting to have any kind of reward but just doing it because they feel like it's the right thing to do or they want a new experience," he says.

While in college Davis also joined an Appalachian State University fall break trip to Williamson, W.Va. He helped build community garden structures with the local initiative Sustainable Williamson, and learned about efforts to move past the problems associated with coal and build a more diverse economy. He wanted to stay engaged with these issues upon returning to campus, and contacted Appalachian Voices.

During his internship with us, Davis wrote about topics ranging from the population health of game species to distributed electricity generation, and helped our water quality teams with phone-banking events. He also wrote our inaugural Member Spotlight columns, and was touched by the inspiring personal stories of the members he interviewed.

According to Davis, writing for The Appalachian Voice and building trails taught him to appreciate the teamwork and behind-the-scenes effort involved in journalism and trail maintenance. "Whether you have one little story or one part of the trail you're working on, it's really nice to see it all come together at the end," he says.

Davis recalls staffing an Ap-



Davis Wax prepares to split stone during a trailbuilding workshop in Virginia. Photo by Chris Ingui, courtesy Jolly Rovers Trail Crew

palachian Voices table at a local event and talking with people who were unfamiliar with mountaintop removal coal mining, a destructive form of mining that involves blasting mountains to access coal and filling valleys with the leftovers. "It was kind of astounding to be at that moment, where ... you're putting that thought into their head," he says, adding that solving pressing problems begins with raising awareness. "I like to think that every member is doing a little bit to help, so I'm happy to be part of that process."

Davis is an assistant crew leader for the Rocky Top Trail Crew and a freelance writer, as well as an Appalachian Voices Mountain Protector monthly supporter. Read his account of trail repair in the Smokies at appvoices.org/thevoice/hiking-the-highlands

Don't Tax the (Virginia) Sun

Appalachian Voices and coalition partners recently helped hundreds of Virginians stand up to oppose an unfair tax on residential solar installation. Citizens attended meetings and sent letters to the state's utility commission to point out how Appalachian Power's proposed fee on small-scale solar will actually punish homeowners who want to invest in clean energy. A decision is expected by the commission by the middle of October. Visit appvoices.org/virginia

Petition Focuses on Va. Regulatory Failures

Appalachian Voices recently joined the Sierra Club, Southern Appalachian Mountain Stewards and Appalachian Mountain Advocates to file a formal petition with the U.S. Environmental Protection Agency alleging that a Virginia agency had failed to comply with requirements of the Clean Water Act since 2011. The petition focused on the failure of the state's Department of Mines, Minerals and Energy to properly regulate mountaintop removal coal mining under the law.

Citizens groups in West Virginia and Kentucky filed similar petitions with the EPA regarding lack of enforcement by their state agencies.

"Coal companies have been polluting the communities where they operate for decades," said Erin Savage, Central Appalachian Campaign Coordinator for Appalachian Voices. "Mining laws meant to protect citizens don't work unless they are enforced by the states. We need EPA to step in to ensure environmental laws are being enforced in southwest Virginia."

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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Lenny Kohm

1939-2014

On Sept. 25, 2014, Appalachia and the world lost a genuine hero. Known by many as The Chief, Lenny Kohm taught thousands of individuals and communities affected by environmental degradation how to use their own voice for justice. "That's what he was all about; helping people discover their power," says Matt Wasson, Appalachian Voices' director of programs. A facebook page and a webpage have been set up for everyone to add their tribute to this true environmental warrior. Visit [facebook.com/LennyKohmMemorial](https://www.facebook.com/LennyKohmMemorial) or lennykohm.org

