

# The Appalachian VOICE

June/July 2015

FREE



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to the Pressing Issues  
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### ALSO INSIDE:

- ▶ Communities at Risk from Mountaintop Removal
- ▶ Hiking Ohio's Zaleski State Forest
- ▶ Don't Drink the Water!  
NC Coal Ash Pond Woes Grow



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## A Note from Our Executive Director

Earlier this year, President Obama showed that Appalachian citizens are finally being heard. The White House announced a proposal for more than \$1 billion in federal funding to help build economic resilience for parts of the region long-dominated by the declining coal industry. While congressional approval would be needed to make this a reality, the announcement shines a spotlight on what should be a real national priority.

For years, people throughout the region have been calling for renewed investment in Appalachia, which powered America's industrial ascendancy for more than a century while suffering from widespread pollution and poverty.

But citizens are not simply waiting for help. Rather, they are taking bold steps to create a positive future for their families. There are many endeavors underway across the region, and Appalachian Voices is collaborating with citizens and other organizations to pursue opportunities to diversify the economy while honoring the region's natural and cultural heritage.

Beginning on page 8, read about how residents of Appalachia are conserving habitat for imperiled species, providing new opportunities for entrepreneurs, expanding rural access to healthcare and much more.

President Obama identified a suite of ideas in his budget proposal, including funding for job training, improved infrastructure, and the restoration of forests, waters and abandoned mines. These and other tools, if successfully implemented, would support the region's economy and communities. His proposal signals that the White House believes the country must stand behind Appalachian communities as we move toward a 21st-century economy that is no longer dominated by coal.



Let's work together to hold him to it.

*Tom*

Tom Cormons, Executive Director

# Across Appalachia

Environmental News From Around the Region

## La Crosse Virus on the Rise in Appalachia

By Laura Marion

A third species of mosquito capable of transmitting the La Crosse encephalitis virus has been discovered in the Appalachian region, according to a report published by the U.S. Centers for Disease Control and Prevention.

Up to 100 cases of the disease are reported each year in the United States. The disease mainly affects the elderly

and children younger than 16. Symptoms usually include nausea and headaches, although life-threatening conditions can also develop.

The number of reports of La Crosse have steadily increased in Appalachia since 2003. The report notes that climate change could result in a future rise in the amount of mosquitoes carrying the La Crosse virus in Appalachia.

## Newfound Native American Burial Ground Protected

By Julia Lindsay

A largely undisturbed burial mound recently discovered in Greenup County, Ky., could provide a window into early Native American culture. The 20 feet high by 80 feet long mass dates back to the Fort Ancient or Woodland periods, which occurred approximately 500 to 2,500 years ago.

The Archaeological Conservancy plans to conduct research on the mound in an effort to expand understanding of Native American culture. Promising to utilize non-invasive research methods, the regional as-

sociate director told The Lane Report "We do recognize this is a sacred, spiritual space."

Deanna Turner, who works at Ohio's famed Serpent Mound, says roughly 10,000 similar mounds existed in the early 20th century tucked away in river valleys, but many were built over, and the threat of development still looms over many sites. A federal law, enacted in 1990, requires the return of Native American cultural items and remains to their respective tribes, but many of these sites face destruction because the law does not apply to private land.

## Tennessee Rivers at Risk

By Cody Burchett

According to a report released this May by the nonprofit Tennessee Clean Water Network, surface water enforcement actions issued by Tennessee state regulators have dropped 75 percent since 2008.

Of the 53 enforcement orders issued last year by the Tennessee Department of Environment and Conservation, more than a quarter were related to paperwork rather than pollution events. The Clean Water Network concludes that this low number of enforcements is not due to a lack of violations, and that TDEC "needs to be

more aggressive in taking swift, effective enforcement action."

More than 30 percent of Tennessee's surface waterways are impaired by pollution, according to a 2012 assessment by the U.S. Environmental Protection Agency. Among these are portions of the Holston and Harpeth Rivers located in northeast and middle Tennessee, both of which were listed in this year's annual America's Most Endangered Rivers report by the nonprofit American Rivers. The report highlights major waterways facing an upcoming decision this year that could significantly impact the river's health.

## BY THE NUMBERS

By Julia Lindsay

- \$60,572,100** Amount of revenue brought into nearby communities by three state parks in southern West Virginia, according to the National Park Service
- \$15,000** Fine that a Henderson County, N.C., dairy owner must pay for dumping 11,000 gallons of cow waste into the French Broad River
- 1 in 6** Predicted number of species that could die out due to global climate change, including brook trout endemic to Appalachian streams
- 2,250** Number of animals helped at the Southwest Virginia Wildlife Center last year, inspiring the organization to expand its facilities
- 1** Species of lichen officially identified and named after a country music legend – Japewiella dollypartoniana
- 1,000** Number of places the new Virginia Treasures campaign hopes to conserve by the end of the governor's term

## Public Comment Period on Key Ingredient of RoundUp

By Laura Marion

This May, the U.S. Environmental Protection Agency told Reuters news agency that it has finished a review of the health and environmental impacts of glyphosate — a chemical used in popular herbicides such as RoundUp — and will release a preliminary human health risk assessment this July. After this release, the EPA will take public comments before finalizing the updated regulatory status of the herbicide for the next 15 years.

On March 20, the cancer research arm of the World Health Organization reclassified glyphosate as "probably carcinogenic,"

changing their 1996 stance that glyphosate was "unlikely to present an acute hazard." The EPA has classified glyphosate as non-carcinogenic since 1991.

The EPA is also scheduled to update the human health risk assessment for chlorpyrifos, a common insecticide used for agricultural and residential pest control. The public comment period closed this March. Using a model created by Dow Chemical Company, the producer of chlorpyrifos, the EPA identified cause for health concern. Their upcoming decision could change label requirements for the insecticide and require increased safety precautions for agricultural field workers.

## White House Unveils New Plans to Protect Honeybees

By Laura Marion

The White House unveiled its federal honeybee protection plan less than a week after the U.S. Department of Agriculture reported that honeybee populations further declined by 40 percent between April 2014 and April 2015.

The agency's National Strategy to Promote the Health of Honey Bees and Other Pollinators plan will provide funding for research and improvements to seven million acres of habitat. The EPA has proposed a rule that will establish temporary pesticide bans in some areas when bees are being used for commercial agriculture and certain crops are in bloom. The bans

would apply to more than 1,000 pesticides.

Tammy Horn, the Kentucky Department of Agriculture's state apiarist, notes that Appalachia could be a particularly important location for bee research due to the region's biodiversity and historically lower use of agricultural pesticides compared to other parts of the country.

The environmental organization Friends of the Earth has criticized the White House plan for failing to restrict neonicotinoid use. Research has linked these widely used insecticides to the decline of certain pollinator populations such as honeybees and monarchs. The plan requires the EPA to expedite their re-evaluation of neonicotinoids.

## About the Cover

Gray's lily — only found in the Appalachian region of Virginia, North Carolina and Tennessee — blooms in the early days of summer. This particular flower was discovered on Tennessee's Roan Mountain by Johnson City-based photographer James "Russ" Hayman of Yazooman Photography. View his work at flickr.com/photos/yazooman



## GET INVOLVED environmental & cultural events

See more at [appvoices.org/calendar](http://appvoices.org/calendar)

### Appalachian Voices Webinar Series

Share your questions and learn more about issues featured in The Appalachian Voice during two July webinars. One will examine fracking concerns, and the other, based on this issue of the newspaper, will discuss community solutions. Learn more and register at [appvoices.org/webinars](http://appvoices.org/webinars) or call Kimber at (828) 262-1500

### Keepers of the Tradition Exhibit

June 20, 2 p.m.: Artists' reception; exhibit on display June 9-30. Portraits and stories featuring herbalists, farmers, coal miners, moonshiners and others. Appalachian Arts Center, Richlands, Va. Call (276) 596-9188 or visit [appalachianartscenter.org](http://appalachianartscenter.org)

### Rhododendron Festival

June 20-21, 10 a.m.-5 p.m.: Gardens in bloom, crafts, music, food and folkway demonstrators. Free. Roan Mountain State Park, Tenn. Call (423) 772-0190 or visit [roanmountain.com](http://roanmountain.com)

### Firefly Gathering

June 25-28: Workshops on homesteading, permaculture and nature. Evening entertainment and on-site camping. Prices vary, sliding scale. Barnardsville, N.C. Call (828) 777-8777 or visit [fireflygathering.org](http://fireflygathering.org)

### Marcellus Academy 2015

June 27-28: Sessions about Marcellus shale gas fracking, such as infrastructure, laws and regulations, and using public databases. Free, dorm lodging and dinner included; sponsored by the West Virginia Sierra Club. West Virginia Wesleyan College, Buckhannon, W. Va. Call (304) 698-9628 or visit [bit.ly/100n5Mz](http://bit.ly/100n5Mz)

### High Country Farm Tour

June 27: Ashe County, N.C. | July 18: Watauga County, N.C.: Guided and open house tours and activities; local products to purchase. \$15/carload, \$25/both days; work exchange available. Sponsored by Blue Ridge Women in Agriculture. Visit [farmtour.brwia.org](http://farmtour.brwia.org) or call (828) 386-1537

### Fourth of July Solar-Powered Music Festival

July 3-5: Join Keepers of the Mountains for local music, artisans, vendors and food. Tent camping. Free. Stanley Heirs Park, Dorothy, W. Va. Call (304) 205-0920 or visit [ohvec.org/calendar](http://ohvec.org/calendar)

### Whippoorwill Festival

July 9-12: Workshops on permaculture, community organizing and more. Evening music. \$35-120, camping, breakfast and dinner included; work exchange available. Berea, Ky. Visit [whippoorwillfest.com](http://whippoorwillfest.com) or call (859) 447-6534

### Dan River Paddle

July 11, 8:45 a.m. - 2 p.m.: Join Piedmont Land Conservancy on this scenic river. Bring lunch. Boat rentals \$40/kayak, \$60/canoe. Shuttle to put-in at 1110 Flinchum Rd, Danbury, N.C. RSVP at [info@piedmontland.org](mailto:info@piedmontland.org) or (336) 691-0088

### Evening Storytelling with Bil Lepp

July 16, 7:30 p.m.: Award-winning storyteller. \$15. International Center for Storytelling, Jonesborough, Tenn. Visit [storytellingcenter.net](http://storytellingcenter.net) or call (800) 952-8392

### Appalachian South Folklife Center Folk Festival

July 17-19: 50th anniversary celebration featuring several genres of roots music, dance, workshops and crafts. \$10/day, \$25/weekend | \$5-7 camping. Pipestem, W. Va. Call (304) 887-3342 or visit [folkfest.com](http://folkfest.com)

### Folkoot USA

July 17-26: International folk festival in Waynesville, N.C. and surrounding communities, featuring 200 groups of artists and musicians from over 100 countries. Often \$10-30/event. Call (828) 452-2997 or visit [folkootusa.org](http://folkootusa.org)

### Supermoon Music and Arts Festival

July 18-20: Appalachian roots music and art on Pine Mountain. \$30-60. Wiley's Last Resort,

Eolia, Ky. Visit [facebook.com/supermoonfest](http://facebook.com/supermoonfest)

### Floyd Fest

July 22-26: A diverse mix of music and art in the Blue Ridge Mountains. Musicians include Emmylou Harris, Grace Potter, and the Drive-By Truckers. Workshops, hiking, healing arts, food and artisan vendors. Stop by the Appalachian Voices table and say hi! Price varies, generally \$200-300; work exchange available. Floyd, Va. Call 888-VA-FESTS or visit [floydfest.com](http://floydfest.com)

### Virginia Highlands Festival

July 31-Aug. 9: Arts-and-crafts show, music, workshops, guided hikes, historic re-enactments, art competitions. Admission varies. Abingdon, Va. Call (276) 623-5266 or visit [vahighlandsfestival.org](http://vahighlandsfestival.org)

### Clean the Green

Aug. 8: Canoe the Green River and pick up trash with The Nature Conservancy and Kentucky Waterways Alliance. Free, lunch provided. Canoes limited, RSVP. Greensburg, Ky. Call (502) 589-8008 or visit [kwalliance.org/august-8-clean-green](http://kwalliance.org/august-8-clean-green)

### 35th Annual Heritage Day Festival

Aug. 8, 11 a.m.-5 p.m.: Mountain culture celebration with music and crafters. Free. Frozen Head State Park, Tenn. Call (423) 346-3318 or visit [tnstateparks.com/parks/events/frozen-head](http://tnstateparks.com/parks/events/frozen-head)



# Hiking the Highlands

## Solitude and Discovery at Zaleski State Forest

By Dana Kuhnline

### ZALESKI STATE FOREST

It may not have been my wisest decision to insist that the 10-mile loop at Zaleski State Forest was a perfect choice for a first mountain hike with our new baby. It didn't help that it was 90 degrees the first weekend in May. About five miles in, Baby Josie had me wondering if we had brought enough diapers. But, as they say, God looks out for fools and children, and luckily we had one of each! The diapers held out, we made it back before dark, and the baby didn't cry until we put her in the carseat for the trip home.

When my husband and I moved from West Virginia to Columbus, Ohio, the first thing we did was look up hikes in the nearby Appalachian foothills. About an hour and a half away in Vinton County, the least populated and most forested county in Ohio, we found Zaleski State Forest, and it immediately became a favorite.

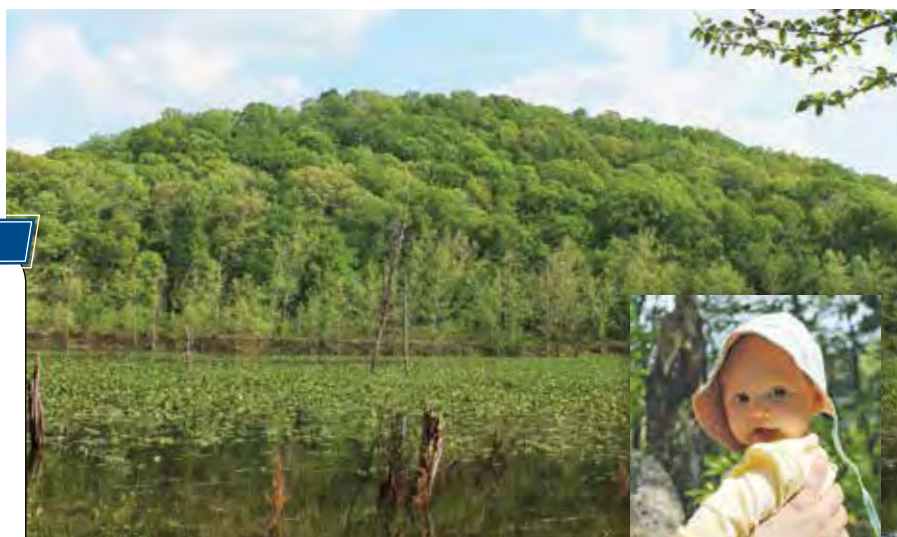
**Difficulty:** Moderate-Difficult depending on distances

**Directions:** Set your preferred mapping device to Hope Lake State Park. The Zaleski trailhead is about a mile north of Hope Lake on Highway 278. Two hours from Huntington, W.Va., 1.5 hours from Columbus, Ohio

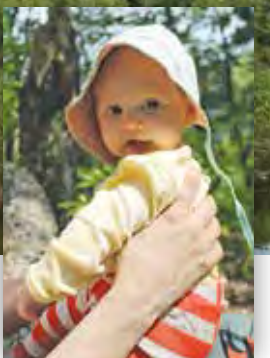
**Note:** Picking flowers is prohibited, but gathering other wild edibles such as berries, nuts and mushrooms is not

**Contact:** Call Zaleski State Forest at (877) 247-8733 or visit [forestry.ohiodnr.gov/zaleski](http://forestry.ohiodnr.gov/zaleski)

This gem hosts the 23-mile Zaleski State Forest Backpack Trail resplendent with wildflowers and local history. Several shorter options, including the 10-mile day loop, are available thanks to side trails. An interpretive pamphlet shares information on natural features as well as charming historical notes — including the story of the Moonville tunnel ghost, an ill-fated (and purportedly intoxicated)



During Baby Josie's first mountain hike, her parents took her on a 10-mile loop that wandered by a pond of lily pads, along ridgelines and through pine groves. Photos by Dana Kuhnline



brakeman who once worked the rails in the long-abandoned former mining town.

Unfortunately, we didn't see the ghostly lanterns mentioned in the hiking guide, though we did hear the laughing cry of woodpeckers, as well as a number of songbirds, turkeys and owls. The forest has recovered beautifully from the time just after the Civil War when the area was strip-logged to feed iron smelting furnaces in the area. Shortly after, the iron industry moved west and poor soil fertility in the hilly area led to a 1930s federal buy-out of unproductive small farms and the beginning of the restoration of the forest.

Depression-era projects also developed nearby Hocking Hills State Park, the most popular state park in Ohio with attractions such as Old Man's Cave and Ash Cave. Enormous caves and waterfalls are made magical with stone bridges, cut passageways and stairwells built by the Civilian Conservation Corps, which the years have blended into the sandstone landscape to create a view out of The Hobbit.

But if you want to get your boots dirty, walk quiet forested ridges, and enjoy backpacking dinners of fresh picked chanterelle mushrooms under the stars, drive the extra 30 minutes to Zaleski State Forest.

Parking for the trail is across from the Hope Furnace, a massive stone remnant of the iron ore industry. To access the trailhead, you'll need to walk south along Highway 278, past the information kiosk and sign-in area.

Once on the trail, frequent orange

blazes mark the route clearly in both directions. Point A starts in a scented pine grove before meandering through swampy bottomland to the first steep climb. Most of the trail wanders along ridgelines through beautiful mixed oak forest, with occasional drops to the sunny, flower-filled bottoms, some of which are swampy due to an active beaver population.

At my favorite such point, about a mile before the second of three back-country campsites, the trail opens up to a pond full of lily pads which quietly reflects the surrounding hills. It's a great place to spot the pointed stumps left by enterprising beavers.

Our four month old is a bit young to fully appreciate the effort involved in chewing down a tree, but if you have slightly older critters along with you, it's a great learning point. Though it has some challenging ups and downs, Zaleski is a good option for beginning backpackers or for kids. The few miles between campsites and multiple trail options — including the short 1.5 mile hike to the first campsite — take the pressure off mileage goals, and the potable water stations available at each campsite mean that distance runners and lazy hikers don't have to carry as much water.

The first and second campgrounds can fill up on peak summer weekends, though there is plenty of space for overflow camping. But even then, the trail itself shows little sign of human traffic, leaving your mind free to identify songbirds, keep an eye out for pawpaw trees and other wild edibles, or meditate on just how many clean diapers are left in your pack.

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# On the Front Lines

When mountaintop removal threatened to surround the tiny town of Inman, Va., residents pushed back

By Molly Moore

At the top of Black Mountain, the highest point in Kentucky, Highway 160 crosses into Virginia and winds between Looney Ridge and Ison Rock Ridge. When it reaches a narrow valley, the road follows Looney Creek through the quiet mountain community of Inman, Va.

Inman consists of a tidy park, a well-kept Baptist chapel, several brick public housing apartments, and a collection of about 50 modest homes. A forested slope rises steeply on each side of the narrow valley.

Yet behind this “beauty strip” sprawls a 3,000-acre mountaintop removal coal mine that runs the length of Inman and beyond, carving the top off of Black Mountain.

“Strip mining was controversial in the ‘70s here, but it was in no way as destructive as taking the entire top off of mountains,” says Ben Hooper, president of the community organization Southern Appalachian Mountain Stewards. He was born in an Inman coal camp house — the community was owned by a coal company until 1976. When he was a child, Looney Creek was still full of fish. Kids would gather



The 3,000-acre mountaintop removal coal mine on Looney Ridge stops just 300 feet from the yards of Inman residents. Photo by Erin Savage

minnows to sell as bait to the coal miners traveling to and from the mines. But there are no fish now, and the creek is on the federal list of impaired waterways.

The onset of mountaintop removal mining on Looney Ridge in the early 2000s changed life in Inman. Blasting damaged homes and shook pictures off the walls, and toxic dust from the mining operations coated cars and buildings. And then, on an August night in 2004, mine operators widening an access road without a permit dislodged a half-ton boulder that crashed 649 feet down the mountainside and into the home of three-year-old Jeremy Davidson, killing him in his sleep before stopping at the base of his brother’s bed.

The tragedy rallied opponents of mountaintop removal, and spurred the formation of Southern Appalachian Mountain Stewards, based in the nearby town of Appalachia, Va.

In 2007, A&G Coal Corp., which owns the Looney Ridge operation, applied for a permit to mine 1,230 acres on Ison Rock Ridge, located on the other side of Inman. The mine would come as close as 100 yards from the backyards of many Inman residents, and perilously

close to four other communities.

Southern Appalachian Mountain Stewards led opposition to the permit, and for eight years community members spoke out against the proposal.

SAMS member Judy Needham lives on the other side of Ison Rock Ridge from Inman, in Andover, a place she describes as

“a community where families congregate together.” She and her husband have cousins, siblings, grandchildren and great-grandchildren in the surrounding towns. Her great-grandchildren live in the town of Appalachia, at the foot of Ison Rock Ridge. “If [mountaintop removal] continues, they will never know of the mountains,” she says.

For years, Needham participated in community meetings and events opposing the permit. She recalls driving around the area to notify residents of an upcoming rally at the Virginia Department of Environmental Quality office, and the successful effort to bring the area’s congressman, Rep. Morgan Griffith, R-Va., to Wise County to show him the proximity of the proposed mine to surrounding communities.

Local activists, with the support of allies from around the region, also visited congressional representatives and federal agencies in Washington, D.C., to talk about their experience with mountaintop removal — the blasting, the dust, the lost

landscapes — and voice their opposition to the Ison Rock permit.

“You have to do what’s right, and I feel that the mountains are sacred,” says Needham. “If you look how many times mountains are in the Bible, they’re sacred. They’re refuge, they’re habitat.”

She notes that while some area residents are unwilling to speak out against mountaintop removal publicly because they have relatives whose livelihoods are linked to coal, she has received many private words of thanks for her activism. Nobody has ever disturbed the “Save Ison Rock Ridge” sign that has hung on her fence for years, she says with community pride evident in her voice.

The state initially approved the Ison Rock permit in 2010, but A&G Coal ran into trouble for water quality violations and bond issues at some of their existing mine operations, including Looney Ridge, that needed to be resolved before the state would let the Ison Rock Ridge permit move forward.

According to Matt Hepler, an Inman resident who works with SAMS, water quality concerns and poor reclamation

continued on next page



Inman Park was built by local residents and “never cost the town a penny,” says Ben Hooper of Southern Appalachian Mountain Stewards. Photos by Erin Savage

## Communities at Risk from mountaintop removal

Even as Appalachian coal production declines, mountaintop removal coal mining is encroaching on many communities in the region, according to an analysis and interactive mapping tool developed by Appalachian Voices, the publisher of The Appalachian Voice.

Appalachian Voices staff identified 50 regional communities that they deemed most at-risk based on proximity to mountaintop removal mining and the rate at which mining activity has been increasing. Krypton, Ky., Bishop, W.Va., and Roaring Fork, Va. were identified as the top three communities at risk, while the three counties that contain the highest number of at-risk communities are Pike County, Ky., Wise County, Va., and Boone County, W.Va.

Among the findings:

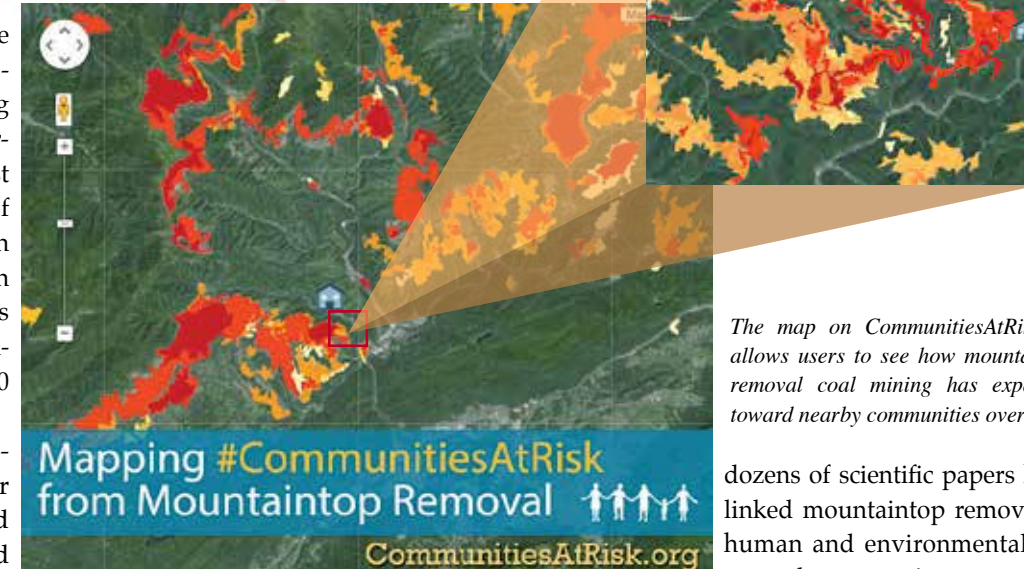
- Communities where mountaintop removal mine encroachment is increasing suffer higher rates of poverty and are losing population more than twice as fast as nearby rural communities with no mining in the immediate vicinity;
- Southwest Virginia had a disproportionate concentration of at-risk communities on the list (20 percent), but accounted for only eight percent of Central Appalachia’s surface mine coal production in 2014; and
- Communities that face the greatest

threat are in areas where high-quality metallurgical coal is mined using mountaintop removal, particularly far southern West Virginia. Sixty percent of all central Appalachian surface mining occurred in 11 West Virginia counties in 2014, and the state contained nearly half of the 50 at-risk communities.

Much of the expanding surface mining is for metallurgical coal used to make steel, as opposed to thermal coal used in power plants. Metallurgical coal is usually exported overseas, says Appalachian Voices Program Director Matt Wasson, who developed the methodology for the web tool.

“The human suffering and environmental destruction from mountaintop removal mining won’t just disappear as America’s aging power plants retire,” he says. “It’s incumbent on the Obama administration to help revive this region that has powered the nation’s economic ascendancy for generations, starting with ending mountaintop removal mining.”

Major national news about the Appalachian coal mining region has focused



The map on CommunitiesAtRisk.org allows users to see how mountaintop removal coal mining has expanded toward nearby communities over time.

on coal company bankruptcies, mine layoffs and steep declines in coal production since 2012 — the year that production from the Marcellus Shale made natural gas a more economically viable source of energy than Appalachian coal.

Prior to 2012, however, the dominant news story out of the region was the environmental and human impact of mountaintop removal coal mining and the Obama administration’s efforts to reduce the impact of the practice.

Mountaintop removal is a controversial form of large-scale surface coal mining that involves using explosives to blast the tops off of mountains to access thin seams of coal. Over the past six years,

dozens of scientific papers have linked mountaintop removal to human and environmental impacts that range from increased rates of cancer and birth defects among people living near these mines, to high levels of pollutants in downstream water supplies and the disappearance of entire orders of aquatic organisms from mine-impacted streams.

Appalachian Voices developed the map and identified the 50 communities most at risk using Google Earth Engine, U.S. Geological Survey data, publicly available satellite imagery, mining permit databases and mapping data and consultation from Skytruth. The mapping tool was developed for iLoveMountains.org on behalf of The Alliance for Appalachia. Explore the map at CommunitiesAtRisk.org

### Front Lines

continued from previous page

of mined lands are commonplace at operations owned by Jim Justice, the West Virginia Democratic gubernatorial candidate who owns Southern Coal, the parent company of A&G Coal.

“In the past two years [Justice] has amassed countless violations in every single state ... West Virginia, Kentucky, Tennessee and Virginia,” Hepler says. In 2014, three Justice-owned companies in Tennessee received 39 federal cessation orders for various environmental and road maintenance violations, and a 2014 investigation by NPR and Mine and Safety Health News found that Justice owed more than \$2 million in

unpaid safety fines.

In Inman and nearby communities, Justice’s poor track record has contributed to the pollution in Looney Creek, and has residents such as Hepler questioning whether the company will properly reclaim Looney Ridge. But that same poor record also helped halt the threat of mining on Ison Rock Ridge.

In 2013, the state of Virginia denied the permit for Ison Rock after A&G Coal failed to address their outstanding issues. Due in part to pressure from local citizens and from the U.S. Environmental Protection Agency, the state made a final decision to deny the permit in March 2015. A&G Coal exhausted its appeal options in April 2015.

“It is such a relief, to know that, for

right now, that we’re not going to have to fight this battle,” Needham says. “I don’t think A&G will ever apply [for a permit here] again because of the way the conditions are for coal right now.”

Yet if demand for coal rises, coal companies could apply for new mining permits on Ison Rock Ridge.

“A huge percentage of the land in Wise County is not held by private citizens but actually large landholding companies, and many of them will lease this land out to the coal companies,” says Hepler. “The fight’s never going to be completely over as long as [the outside companies are] owning this land.”

Ben Hooper says the group will stay vigilant. “We’re just not going to let another ridge — and one of the few that

we have left — be destroyed like Looney Ridge was,” he says. “The community now would like to look at helping with the recovery on Looney Ridge.”

“Most people here grew up without [a] voice,” Hooper says of the effort to empower local residents “If you spoke against anything that the coal mine wanted to do you could be sat out in the street, you know, in the old coal camps. But even after that they had so much control that you didn’t speak against the coal mines. And it was just letting people know that you really do have a voice.”

He gestures around Inman Park, a welcoming space built by local residents, as an example of the area’s can-do attitude. “We can do good things,” he says, “but we need the opportunity.”





# Mountain Ingenuity

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## New Website Maps Culinary Delights in Appalachia

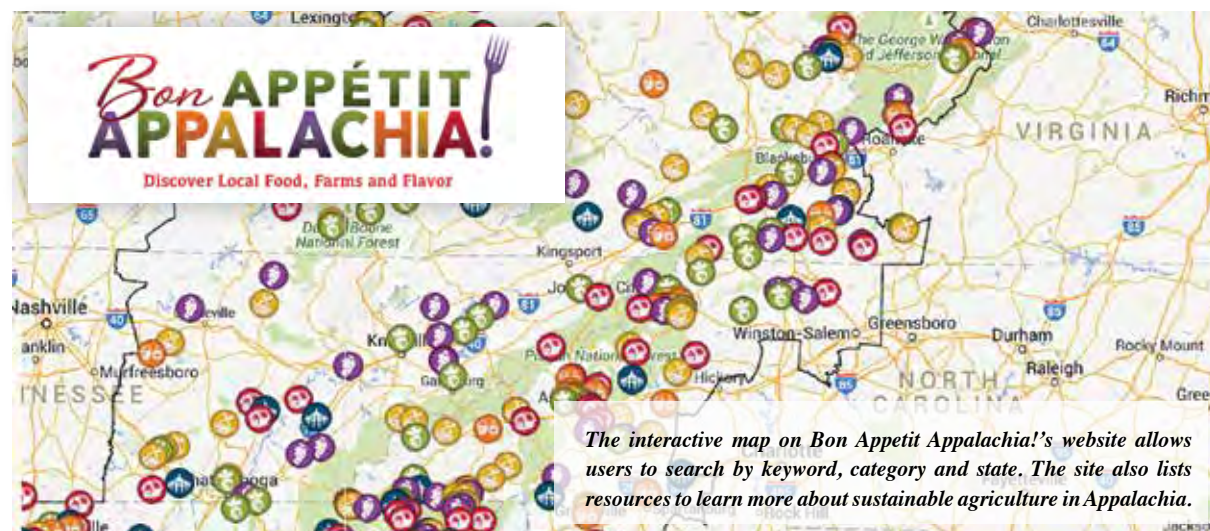
By Julia Lindsay

The Appalachian Regional Commission aims to nourish the nation's growing grassroots movement with an initiative to market food culture. Last year, the ARC published a map in Food Traveler magazine, titled Bon Appétit Appalachia!, to allow tourists to eat their way through the Appalachian region's 13 states, spotlighting culinary experiences from farmers markets to breweries. Focusing on sustainability as well as economic development, the ARC picked 283 out of 900 nominees based on the establishments' dedication to serving local, seasonal food and beverages.

As interest in unique cuisine grows, the ARC hopes to encourage exposure to Appalachian food, which boasts a rich heritage in what a Wall Street Journal article describes as "one of the most agriculturally abundant areas in the U.S."

"[Our regional food] is not commercially available," says Susan Owen, a farm owner in Boone, N.C. "You can't go to the grocery store and buy a ramp."

However, it's not all turnip greens and biscuits.



The interactive map on Bon Appétit Appalachia!'s website allows users to search by keyword, category and state. The site also lists resources to learn more about sustainable agriculture in Appalachia.

Appalachia has its scars along with its beauty, its struggles along with its triumphs. But mountain people are resourceful, and across the region citizens are making strides toward a better tomorrow – one that builds on the strength of our past while sustaining healthy environments and communities today.

In this issue, read about the individuals, organizations and communities that are working together to address the pressing issues of our time.

## Certification for Ethically-Produced Ginseng Launches

By Eliza Laubach

A coveted medicinal plant of the Appalachian mountains, wild American ginseng populations are at risk. Two states have listed the plant as endangered, while eight others also place legal limits to protect the plant.



American ginseng, *Panax quinquefolium*, is native to the eastern and midwestern United States. Photo by Eric Burkhart

Sometimes called Grandfather Ginseng, most of the herbs' roots harvested in Appalachia are shipped to China, according to the U.S. Fish and Wildlife Service. In Asia, the native ginseng is famed, farmed and over-harvested as well, for its reputed benefit to the immune and nervous systems and improved mental and physical strength.

To discourage ginseng poachers and maintain a healthy wild population of American ginseng, Pennsylvania Certified Organic, a national organic certifying company, has teamed up with United Plant Savers, a nonprofit dedicated to protecting at-risk and endangered medicinal plants. Together they have created a set of guidelines for sustainable cultivation and harvest of forest-grown native plants. They started with American ginseng and established a fund to help the first eight farmers through the application process.

Participants will bear a Forest-grown seal on their ginseng products, giving consumers the option of purchasing sustainably farmed ginseng. Adam Seitz, certification specialist at PCO, said the program intends to involve farmers and those who process ginseng into medicine. Six producers and processors have applied this spring.

PCO is developing sustainable cultivation guidelines for other at-risk plants native to Appalachia, such as black cohosh, goldenseal and ramps. Seitz intends to expand the forest-grown certification program to include these and other medicinal plants from across the country.

To learn more, visit paorganic.org



Mountain Ingenuity // AGRICULTURE

## In Defense of Food Security

VETERANS IN AGRICULTURE

By Eliza Laubach

Mike Lewis, a U.S. Army veteran from Kentucky, came across this statistic while working on food security issues: more than 1 million veterans and active duty military personnel receive aid from the Supplemental Nutritional Assistance Program, or food stamps.

Knowing this, and also that more than 70 percent of the nation's military come from rural America, inspired Lewis to create Growing Warriors, an incubator for connecting veterans to agriculture. Most Growing Warriors projects employ a community garden model, where staff, who have all served themselves, invite veterans to cultivate vegetables, community and self-reliance as they transition to civilian life. Lewis oversees seven projects across Kentucky and West Virginia, and his brother, a combat veteran, operates a training farm in Rockcastle County, Ky in collaboration with Growing Warriors.

"It's a different type of defense of the land, caring and nurturing [it]," says Lewis. "We're teaching [the veterans] how to

grow food, but they're [also] becoming community leaders."

Lewis believes that to change the economic landscape of Appalachia, more focus on agriculture is needed. That ideal is epitomized in Williamson, W.Va., where a reclaimed surface mine site is the future location of a new Growing Warriors chapter.

Jason Linkenholder began organizing this new chapter with fellow veterans in the Williamson Community Gardens, where six veterans are growing food and selling excess produce to local restaurants and at the farmers market. Linkenholder intends to grow hemp, vegetables, fruit and poultry on the three-acre plot at the reclaimed mine site, following a few years of soil remediation. A high school also sits atop the barren land, and Linkenholder's vision includes engaging high school students alongside local veterans in farming.

A lot of the veterans Linkenholder encounters have minor to severe post-traumatic stress disorder from their time in the service. "Working with the PTSD, working with soil, it's very therapeutic," says Linkenholder.

Last year, the West Virginia Department of Agriculture launched the



Veteran Logan Nance, director of operations at Growing Warriors, plants in a raised bed with a community member. Photo courtesy of Growing Warriors

new West Virginia Veterans to Agriculture program, which created an educational farm in Lakin, W.Va., to offer agricultural training. The same initiative provided beekeeping equipment and supplies for 48 veterans to start their own hives. Backyard Victory Gardens, a program funded by Grow Appalachia — which addresses food security out of Berea College — provides support and training for 10 veteran families growing home gardens.

In Kentucky, produce or value-added goods grown by farming veterans are recognized under the Homegrown by Heroes label. Kentucky Proud, out of the Kentucky Department of Agriculture, manages the label as well as the Jobs for Vets program, which places veterans in agricultural jobs.

The Veterans Healing Farm in Hendersonville, N.C., founded by U.S. Air Force veteran John Mahshie and his wife Nicole, offers a community farm member-

ship to veterans, who receive a discount, and civilians. Members collectively grow and harvest on a quarter-acre garden plot, which John maintains full-time. This year, 13 veterans and 16 civilians and their families are participating. "It's important to have the mix because part of the purpose is to transition veterans back into civilian community," says Nicole.

A \$35,000 grant from the Entrepreneurship Boot-Camp for Veterans, which the founders attended last year, has allowed the Mahshies to expand their scope. They bought two shipping containers, one outfitted to be a bunkhouse and the other to be a kitchen and pantry, so that they may hold extended workshop retreats on sustainable, healthy living skills for veterans from across the country.

The grant also allows the Mahshies to take a salary from their farm, actualizing these entrepreneurs' dream project into a career.



## Online Shopping: A Farmer's Market

The Monroe Farm Market, an online farmers market in southeastern West Virginia, works with 51 local farms to post their products in an online store, allowing customers to buy all of these products from one location. Through their website, Monroe Farm Market sells produce, live plants, locally made crafts, meats, honey, dairy and baked goods.

What started in 2006 as a spreadsheet emailed between a group of locals, farms and a market manager has evolved into an online shopping center that allows customers to more easily pick which products they would

like, the quantity of those products, and even to choose which farm they would prefer the products come from. After purchasing, customers can pick up their goods at one of four pickup locations in Monroe County, W. Va.

The Monroe Farm Market uses the technology of the Local Food Marketplace, a national network of farmers and markets with several organizers in the Appalachian region, including West Virginia, Virginia, and North Carolina.

For more information, visit: localfoodmarketplace.com/monroe  
— By Laura Marion



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# Healing the Red River's Tributaries

By Dac Collins

The Red River in eastern Kentucky forms one of the most spectacular gorges in the country. Its sandstone arches, cliffs and unique rock formations lure climbers and fascinate geologists, and many of its rock shelters and caves are classified as significant archeological sites. A dam proposal in the late 1960s would have swallowed up the gorge, but Kentuckians, with help from the Sierra Club and writer-activist Wendell Berry, grappled with the U.S. Army Corps of Engineers until the Red was granted federal protection in 1993 under the Wild and Scenic Rivers Act.

The Wild and Scenic designation applies to the stretch of river that passes through the gorge, but it does not protect the entire Red River watershed from human impacts. That is why members of the Kentucky Waterways Alliance, an environmental nonprofit, collaborated with the state's Division of Water and

the U.S. Forest Service to create the Red River Gorge Restoration and Watershed Plan, which addresses potential threats to the water quality of four creeks that flow into the iconic river. These threats include high levels of sediment resulting from road construction, and contaminated runoff from residential areas.

Because portions of these tributaries are located on private property, the watershed plan recommends "best management practices" that property owners can implement in order to reduce the amount of polluted runoff. Maintaining a riparian buffer of streamside vegetation, which prevents bank erosion, is just one solution that private landowners can choose to implement.

Tessa Eedlen, watershed program director at the Kentucky Waterways Alliance, says, "We're also going to be focusing on septic systems, [including] repair, pump outs and, if necessary, replacement." According to Eedlen,



this is a major issue along Swift Camp Creek, where many homeowners are using old or defective pipes that leak sewage into the stream.

The nonprofit organization has secured an implementation grant from the Kentucky Division of Water, which Eedlen hopes to use to create financial incentive programs for homeowners. The grant money will fund other stream restoration projects as well,

The Red River's Wild & Scenic designation offers special protections to places like Creation Falls. Photo by Karen Roussel

such as the removal of two culverts on Indian Creek that are currently impeding the passage of fish.

The Kentucky Waterways Alliance will be hosting creek cleanups and streamside tree plantings this fall. Visit their website to get involved: [kwaliance.org/red-river-watershed](http://kwaliance.org/red-river-watershed)

# Landowners Support Songbird Conservation

By Kimber Ray

The prevailing chorus of Appalachia's spring, once dominated by the trills of tiny warblers migrating from Central and South America, has grown increasingly muted over the past century. Efforts to rejuvenate this song are receiving support from two separate, federally funded projects to restore wildlife habitat on private lands, which host nearly two-thirds of all threatened and endangered species in the country.

Since 2012, the U.S. Department of Agriculture and the U.S. Fish and Wildlife Service have partnered with farmers, ranchers and forest landowners on the Working Lands for Wildlife initiative, a five-year project targeting seven at-risk species.

One selected species, the golden-winged warbler, once thrived in the Appalachian mountains from Georgia to New York. The choice nesting ground for this songbird

— areas of young trees and shrubland along the edge of dense forests — has declined due to activities such as development and fire suppression. With the assistance of federal funding, landowners commission foresters and wildlife experts from either the state or other local groups to help implement habitat protection strategies, which include limited timber harvesting and selective burning to thin canopy covers, removal of invasive shrubs, and the planting

of native species, many of which also benefit pollinators.

The creation of forest-edge habitat in the 7,000 acres currently enrolled in the golden-winged warbler program is already supporting greater populations of the warbler and other shrub-dependent

A golden-winged warbler eats a caterpillar. Photo by Ed Burress

Cerulean warbler. Photo courtesy of Mdf, Wikimedia Creative Commons

birds, according to a federally funded 2014 assessment. For three years, a team of academic, nonprofit and government researchers tracked more than 800 warblers on 95 properties managed through the program.

It used to be more difficult to evaluate the success of federal wildlife conservation efforts, according to Todd Fearer, coordinator of a regional bird conservation partnership known as Appalachian Mountain Joint Ventures. Now, however, "These practices are specific enough that we can look at how the land was before and after the habitat was implemented, and how the birds respond," says Fearer.

The partnership has since launched a similar effort in Appalachia, the Cerulean Warbler Appalachian Forestland Enhancement project, which was among 115 conservation programs selected to receive federal funding this past January. The tiny blue-and-white songbirds nest in valuable hardwoods such as oak and hickory, which landowners could be prohibited from harvesting if the cerulean warbler is listed as endangered.



The five-year goal of the project is to enroll 12,500 acres of private forestland in Kentucky, Pennsylvania, Maryland, Ohio and West Virginia. Landowners receive a subsidy to remove lower-quality trees, such as red maple, which in turn creates the open canopy preferred by the cerulean warbler and provides growth space for the more valuable hardwood saplings. This type of habitat also benefits populations of game species such as ruffed grouse, rabbit, deer and turkey.

Additional habitat will be supported by reforesting reclaimed mineland property. More than 1,000 acres of this currently unsuitable habitat will be planted with blight-resistant American chestnut saplings, which may ultimately provide a significant source of habitat and food.



# Scientists Go to Bat for the Bats

By Dac Collins

Since the first documented case of white-nose syndrome in New York state in 2006, the disease has killed more than 5.7 million bats in the eastern United States. The root of the disease, a fungus known as *Pseudogymnoascus destructans*, has spread south and west over the past decade and can now be found in caves throughout Appalachia. In a few of these caves, 90 to 100 percent of the bats have died.

The disease drains bats of the energy reserves needed to keep their vital organs functioning during hibernation. A study released by the U.S. Geological Survey in January found that hibernating bats with white-nose syndrome used up essential fats twice as quickly as uninfected bats over the same period of time.

Scientists and researchers are desperately seeking ways to remediate the spread of the fungus and its effects on the twelve species of bats currently at risk.

The U.S. Fish and Wildlife Service dedicated \$14 million to white-nose syndrome research between 2008 and 2013, and the agency announced on April 23 that it will grant an additional \$1.5 million to fund more extensive research.

A portion of these funds went toward developing an innovative method for screening bats: when placed under long-wave ultraviolet light, the wing-membranes of infected bats glow a fluorescent orange-yellow.

Until recently, a cure for this devastating disease seemed out of reach, but in 2012, researchers at Georgia State University made a promising discovery in the form of *Rhodococcus rhodochrous*, a bacterium that inhibits the growth of *Pseudogymnoascus destructans*. Controlled experiments conducted over the past few years indicate that the bacterium, when placed



## DO YOUR PART

People exploring caves should avoid disturbing the bats. To prevent spreading the fungus to other locations, cavers can clean their gear with Woolite or Formula 409 before going from one cave to another, and stay out of caves that are closed or gated off.

A little brown bat suffers from white-nose syndrome. Photo courtesy Ryan von Linden/New York Department of Environmental Conservation

with *Rhodococcus rhodochrous* were released back into the wild.

A colony of bats maintains an important ecological balance by consuming tons of insects every night. Mosquito populations would skyrocket without them, and so would the amount of harmful insects that plague the agricultural industry.

Visit [whitenosesyndrome.org](http://whitenosesyndrome.org) to learn more.

in close proximity to the fungus, can prevent the disease from taking hold in bats, and can also slow its progression in bats that are already infected.

On May 19, a group of scientists and conservationists gathered outside a cave in Missouri to watch as the first 150 bats successfully treated

# Integrating a Plant Medicine Economy

By Eliza Laubach

In a basement lab on the grounds of The North Carolina Arboretum in Asheville, Amanda Vickers looks at medicinal plants on a microscopic level. She is testing the plants — valued as a source of income by many in the biodiverse Blue Ridge Mountains — to determine their potency for use in herbal products.

As director of the U.S. Botanical Safety Laboratory, Vickers uses botanical labs at universities and community colleges across western North Carolina to conduct her tests. The results inform wild harvesters and farmers about when to harvest and how to process the herbs. Vickers also adds plant samples to the arboretum's Germplasm Repository, North America's only gene and seed bank for medicinal plants.

"We're sort of an engine for getting farmers' crops qualified and getting them in the hands of other local people," says Vickers.

The Bent Creek Institute, a nonprofit business incubator, manages the lab and seeks to serve as a catalyst for economic development in a region abundant with herbalists. As part of this goal, Vickers is currently working with a local salon to develop an herbal dry shampoo, first by connecting a wild harvester and a farmer with the hairstylists, and then testing the product as it undergoes



Vickers works in the Blue Ridge Bionetwork lab, which hosts training, education and outreach in addition to lab services. Photo courtesy of Bent Creek Institute.

development. This work is done out of the Blue Ridge Bionetwork, a lab on the campus of Asheville-Buncombe Technical College that serves as public testing and teaching grounds. Ultimately, the dry shampoo will bear the Blue Ridge Naturally label, designating the local sourcing of the ingredients.

Blue Ridge Food Ventures is a commercial kitchen that also collaborates with the Bionetwork lab, initiated by the economic development group AdvantageWest. At the kitchen, entrepreneurs craft food and cosmetic products and can use the lab, or employ Vickers, to test the integrity of their ingredients. "We try to stay really embedded in the local economy," says Vickers.

For more information, visit [botanical-safety.com](http://botanical-safety.com)

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## A BURNING PROBLEM

### Illegal trash fires spark health concerns

By Dave Cooper

When students from Park University in Kansas City, Mo. came to Harlan County, Ky. on an alternative fall break, they wanted to learn more about health problems in the region and find ways to help Appalachians live happier, healthier lives.

On a trip to fill water bottles with some pure mountain spring water, they photographed a trailer with a huge pile of smoldering truck tires in the front yard. Later they noticed the remnants of tires in the campfire rings around Cranks Creek Lake, a popular camping and fishing spot.

Returning to Harlan, the students began researching the issue of illegal burning. They learned that burning tires and plastics can release toxic chemicals including dioxin into the air, contaminating the soil and water and contributing to childhood asthma attacks.

The students quickly created an informational flier about the health

dangers of burning tires, posting them on community bulletin boards. Later, they returned to Cranks Creek Lake and posted large signs alerting campers to the dangers of burning tires.

Many homes in rural Kentucky have a burn pile or burn barrel in the back yard, and tires are just one part of the problem. Decades ago, trash was mostly paper products, but today it is primarily plastics.

While weatherizing a home in the Closplint area of Harlan County, the students saw a backyard burn pile that contained a half-burned roll of carpeting, a television and a plastic kiddie car, plus many bags of trash and soda bottles. In the hollows, the black smoke from a smoldering backyard trash fire can linger over the community, contaminating the air for days.

In Kentucky, it is illegal to burn plastics, construction debris, plywood, treated wood, painted wood, animal



Park University students post signs at Cranks Creek Lake in Kentucky, warning about the hazards of burning tires. Photo by Dave Cooper

bedding and tires, and to do so can result in fines of up to \$25,000. Yet during their week in Harlan County, Park students counted dozens of backyard fires releasing thick, toxic smoke.

Talking to people in Harlan, Park students learned that tires are considered an easy way to light a fire: they burn all night long, providing light and heat for campers and night fishermen. One old timer claimed that burning tires kept the mosquitos away. But many Kentuckians that they talked with seemed completely unaware of the health dangers.

The Kentucky Division of Air Quality

has provided posters and pamphlets for future volunteers to distribute. The posters show a resident cooking hotdogs and marshmallows over a campfire that contains plastic bags and soda bottles, with a tagline that reads, "If you burn trash in your campfire, you could be eating poison. Burning trash emits toxic gases and heavy metals like lead and mercury."

For more information, contact the Kentucky Division of Air Quality at 1-888-BURN-LAW or visit [air.ky.gov/Pages/OpenBurning.aspx](http://air.ky.gov/Pages/OpenBurning.aspx)

## Kids in Parks Reconnects Families with the Outdoors

By Chris Robey

Basic ecological literacy is waning among children. A 2008 study by BBC Wildlife Magazine indicates that most children cannot identify common plants and animals, and an earlier study concluded that children know more about Pokemon than they do about wildlife.

Even the language used to describe nature is falling out of favor. The latest edition of the Oxford Junior Dictionary has cut words like pasture, otter and willow in favor of more "modern" terms such as broadband and MP3 player.

In Appalachia, trail-based education initiatives like Kids in Parks' TRACK Trails program are re-introducing children to the natural world through self-guided hiking adventures.

Between 2007 and 2008, the Blue Ridge Parkway Foundation found that less than 11 percent of visitors brought young children to the parkway, according to Kids in Parks Director Jason Urroz. Around this time, Richard Louv's "Last

Child in the Woods" was widely circulating. The book connects lack of outdoor play to numerous health and behavioral problems in children. Among its readers was Dr. Olson Huff, a renowned pediatrician who, through a collaboration between the Blue Cross Blue Shield Foundation of North Carolina and the National Park Service, helped create the TRACK Trails program. Eight states now host TRACK Trails, including Virginia, West Virginia and North Carolina.

TRACK brochures can be downloaded online and include a variety of on-trail activities such as Nature's Hide and Seek, which lists local flora and fauna for children to look for on a hike. The self-guided activities allow kids to go at their own pace, while their parents can step in as educators, sharing meaningful moments while teaching their children the differences between red and white oaks or pointing out the

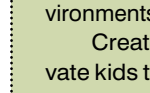
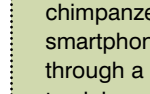
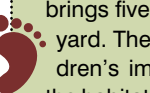
cardinal or bluebird that would otherwise go unnoticed.

According to Urroz, it is critical that children be given the opportunity to find inspiration in the outdoors. "If we don't get kids and families today outdoors," he says, "then who's going to be our future stewards?"

Learn more at [KidsInParks.com](http://KidsInParks.com)



Young hikers examine a trail brochure in Virginia. Photo courtesy of Kids in Parks



## Get Kids Outside with Disney App

DisneyNature Explore virtually brings five diverse animals to your backyard. The free iTunes app engages children's imaginations by superimposing the habitats of bears, monarch butterflies, chimpanzees, lions and seaturtles onto a smartphone's live camera. Kids can see through a butterfly's eyes or help a bear track her cub, learning about foreign environments while playing outside.

Creators of the app hope to motivate kids to win virtual pins and expand

their photo journal while educating them with real video clips about the animals. Unexpected complications within the game, such as the sudden appearance of plastic bags in a sea turtle's home, foster environmentalism at a young age. Additionally, the parents' page provides suggestions for interacting with kids outside.

For more information on the app or DisneyNature, visit [nature.disney.com](http://nature.disney.com) — Julia Lindsay



## ACCESS TO CARE: Connecting Rural Residents to Medical Services

By Molly Moore

The 16-county area in western North Carolina served by the Mountain Area Health Education Center is short 140 doctors.

Created in 1974 as part of a statewide effort to increase the supply of rural physicians, MAHEC offers nine competitive residencies for medical students. On average, 62 percent of those residents go on to practice in the MAHEC service area, compared to just 2 percent of those who are not associated with the program.

"MAHEC was created because data show that where you train doctors is where they tend to stay," says the organization's Tina Owen.

States with higher ratios of primary care physicians to citizens have better health outcomes, fewer premature deaths and lower healthcare costs. Yet the supply of primary-care physicians is dwindling nationally, and the shortage

is acute in rural areas. Twenty percent of the United States population is rural, but just 9 percent of the nation's physicians work in rural areas, according to Owen.

Other efforts to train and retain rural practitioners are ongoing across the region. The Appalachian Regional Commission helps to fund 200 osteopathic internship and residency slots and has developed a masters-level physician assistant program with Marietta College in southeastern Ohio. And the Healthy Appalachia Institute connects students at the University of Virginia in Charlottesville to their counterparts in Wise County to develop interest in rural public health.

Dr. Teresa Gardner, a nurse practitioner, runs the Health Wagon, a non-profit that provides mobile healthcare to medically underserved communities in southwest Virginia. She would like to see a higher concentration of nurse-practitioners in the area as well as changes to state health laws to allow them to perform more services without a supervising physician.

In the Bluegrass State, residents serving as community health workers are helping their neighbors access healthcare through Kentucky Homeplace, a program of the University of Kentucky Center for Excellence in Rural Health. The services they provide include educating clients about how to manage diabetes, follow medical instructions, and access home heating assistance or free medical care.

Sometimes, however, a medical situation calls for an expert — even if that expert is hundreds of miles away. To bring specialized care to remote areas, local providers are increasingly relying on technology and a practice known as telemedicine or telehealth.

"Telemedicine, regardless of whether for psychiatrists or other specialists, is pretty important," says Dr. Amy Russell, a physician with MAHEC. "For some of our communities, depending on the time of year, it is actually very difficult to get anywhere."

Telehealth is also a fa-

miliar concept in southwest Virginia — the Center for Telehealth at UVA has provided long-distance medicine since 1994, and their connections in the area are expanding. Instead of driving 600 miles round-trip for a cervical cancer screening, women in southwest Virginia can meet with a trusted nurse practitioner at one of the Health Wagon's biweekly colposcopy clinics while a specialist from UVA joins via secure video for a virtual examination.

Margaret Tomann, program manager at the Healthy Appalachia Institute, sees telehealth as a key tool, and not just for patients. By connecting local doctors and nurses to the telehealth network and providing workforce training for careers in the medical industry, the institute aims to both bring skilled jobs to southwest Virginia — the types of jobs that support a healthier community — and to improve patient health by ensuring that quality medical care is within reach.

## Advancing Quality of Life for Patients with Black Lung

By Molly Moore

The most severe form of black lung disease, known as progressive massive fibrosis, is at its highest levels since the early 1970s, despite being nearly eliminated 15 years ago, according to a 2014 analysis by the National Institute for Occupational Safety and Health, part of the U.S. Centers for Disease Control and Prevention.

This debilitating lung disease is caused by exposure to coal mine dust. Across the country, clinics funded by the federal Black Lung/Coal Miner Clinics Program provide early diagnosis and assist with the process of filing claims for federal black lung benefits, along with helping patients learn to cope with the incurable disease.

In southern West Virginia, Valley Health Black Lung Program Coordinator Deborah Willis is on the front lines, helping current and former coal miners file for federal benefits and trying to connect miners in need of legal representation with the few lawyers available. Witnessing the increase in severe black lung is discouraging, Willis says, but she points to a bright spot — three rural pulmonary rehabilitation centers opened in the area in September 2014, and another is slated to open in Lincoln County in September 2015.

Rehabilitation for pulmonary patients includes exercises that help patients of all abilities regain their strength. One participant told a local television station that he was able

to mow the lawn again after doing the exercises, and wheelchair-bound participants have experienced improvements such as being able to get in and out of bed more easily.

The program provides information about the disease, how to use medications, and, Willis says, "understanding what's normal and what's an emergency."

Often, she says, patients will panic when they can't catch their breath, which can worsen the situation and send them to the emergency room. The program teaches participants when to use breathing exercises or a rescue inhaler to quell these episodes. "[Rehab] often prevents ER visits because miners can handle what's going on with their breathing themselves," Willis says.

Dr. Cecile Rose, an associate professor at the Colorado School of Public Health, says that there are ways people diagnosed with black lung can improve their well-being. "For people that have a chronic lung disease, we know that maintaining activity levels, having a regular program of exercise for muscle strengthening and for weight control improve ... quality of life," she says. According to Rose, medical care such as regular flu vaccinations, quitting smoking and treating other conditions that can be exacerbated by black lung, such as sleep apnea, can also help.

But, she adds, "medical care by its very nature focuses on the patient and not on the workplace, and the real focus for

prevention of pneumoconiosis, of occupational dust disease, has to be on the workplace."

In August 2014, the Mine Safety and Health Administration published a new coal dust rule that lowers miners' allowable exposure to coal dust at underground and surface mines. And in April of this year the Labor Department proposed the Black Lung Benefits Act Rule. The draft regulation would require that doctors and lawyers representing both the miner and the coal company disclose all medical records associated with a claim, and make it more difficult for coal companies to avoid



Patients exercise at a new rehabilitation clinic in Dawes, W.Va. Photo courtesy The Breathing Center at Cabin Creek Clinic

paying benefits after a claim is awarded.

The Workers Compensation Programs Office is accepting public comments on the Black Lung Benefits Act until June 29. Visit: [1.usa.gov/1eKpKMo](http://1.usa.gov/1eKpKMo)

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# An Enterprising Idea

## Investing in Appalachia starts with jumpstarting local businesses

By Tom Sexton

From former coal boomtowns and tobacco-dependent counties to areas that haven't seen a dominant industry in decades, communities throughout Appalachia are finding inventive ways to support new business and add a crucial boost to their local economies.

The Mountain Association for Community Economic Development was one of the earliest supporters of Appalachian entrepreneurship. Since its inception in 1976 in Berea, Ky., MACED has reinvested hundreds of thousands of dollars received from grant funders, investors and individual donors into burgeoning central Appalachian enterprises.

In the past few years alone, MACED has given financial backing to ventures as diverse as up-and-coming country music artist Tyler Stephens, the Beaver Creek Veterinary Hospital which serves the pets of low-income families, and Good Shepherd Farms, which started making sheep cheese on a repurposed tobacco farm in Bath County, Ky.

Most recently, MACED ventured outside the Bluegrass State by collaborating with Natural Capital Investment Fund of West Virginia to make a \$300,000 loan to River Expeditions, the brainchild of Rick and Heather Johnson of Lansing, W.Va. The couple used the funds to start an outdoor adventure business that employs 11 full-time staff with 200 seasonal employees.

While groups like MACED specialize in

directly supporting Appalachian businesses, other projects, such as Appalachian Ventures, an initiative of the Appalachian Prosperity Project, specialize in educating entrepreneurs to give them the tools to ensure their long-term success in business.

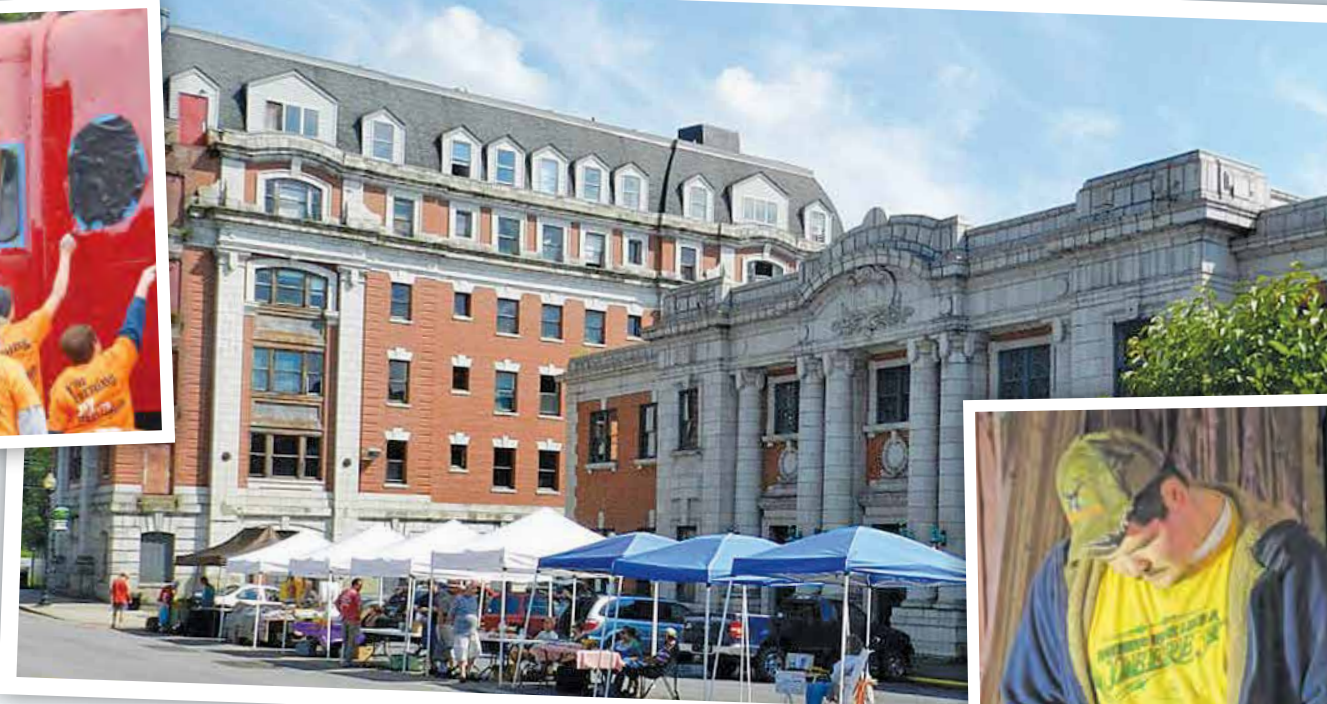
Appalachian Ventures gives entrepreneurs access to abbreviated versions of the highly-ranked management program at the University of Virginia's Darden Business School. Appalachian Ventures is currently trying to encourage start-up opportunities in southwest Virginia by utilizing the area's natural resources, most notably the Clinch River, which is already a destination for adventure tourism in the area, and is noted by the initiative as one of the world's most biologically diverse rivers.

At the municipal level, Appalachian cities are starting to provide incentives to create entrepreneur-friendly environments. In Whitesburg, Ky., a regional hub for the arts and media, the city helps entrepreneurs find and negotiate competitive rents with the owners of empty retail spaces, and even goes so far as to waive the annual occupational licensing fees for new businesses inside the city limits. In the last year alone, Whitesburg has introduced a record store, a bakery, a moonshine distillery, a hydroponics shop and an extremely successful farmer's market, which will include more than 70 vendors

*Continued on page 20*



Community members participating in the Grafton, W. Va., Turn This Town Around initiative completed projects such as repainting a downtown caboose and expanding the local farmers market. Photos courtesy of Amanda Yager, WV Community Development Hub



# Turn This Town Around: Energizing small communities in West Virginia

By Kimber Ray

Amid the low brick buildings forming the modest downtown of Whitesville, W.Va., a storefront window displays a jubilant sign of welcome: "Excited to learn / Ready to turn!"

Such optimism is certainly welcomed in this small Boone County community that, like many others in the area, has steadily receded from the better days of the Mountain State's southern coalfields. Just this past year, the disquieting closure of the town's only grocery store left residents with a 30 minute drive to the nearest supermarket.

"In the last 20 years we've seen a slow decline. Not just in population but in businesses," local resident Hollie Smarr told West Virginia Focus Magazine. "In the last few years it seems like everybody has just lost hope."

Many locals have experienced growing enthusiasm, however, since the announcement last December that their town was chosen to participate in the second year of the West Virginia community revitalization project Turn This Town Around. Along with Ripley in Jackson County, Whitesville is among this year's two West Virginia communities selected by a vote of more than 23,000 people across the country.

A collaborative effort initiated by West Virginia Focus Magazine, Turn This Town Around seeks to inspire public leadership and engagement in struggling communities. Together with West Virginia Public Broadcasting, the magazine shares the story of what happens when residents are offered assistance from professional

community development experts — provided by the nonprofit West Virginia Community Development Hub — and asked to come up with and pursue practical neighborhood revitalization projects to change the course of their town.

If last year's winners are any indication, the answer is good. Even the smaller of the community-initiated projects, such as freshly painted buildings, cleaner streets and decorative planters, have already infused the West Virginia towns of Matewan and Grafton with a transformative air. Progress on larger-scale projects is gradually unfolding too.

In Matewan, the long-anticipated opening of the new West Virginia Mine Wars Museum was made possible this May with the replacement of damaged flooring. Additional proposals from local residents include adding bike racks and improving road safety to qualify as a nationally certified Bicycle Friendly Community, restoring a historic jail, developing the Geocache Matewan project, and branding and marketing the town as a destination for historic and outdoor recreation tourism.

Both Matewan and Grafton have ample funds to work with, thanks to a \$150,000 Claude Worthington Benedum Foundation grant, which called for small teams in the two communities to submit mini-project proposals. The two new communities, Whitesville and Ripley, will not know whether they will receive the same grant until this July.

Either way, Kent Spellman, executive di-

rector of the Hub, *A Coalfield Development Corporation Quality Jobs Initiative participant works at a construction site. Photo by Patty Brewer* advises that the most important step for communities in Turn This Town Around is developing plans and a sense of motivation. "Funders will only invest in communities that will invest in themselves," explains Spellman.

Whitesville residents have taken this credence to heart and, before the first community meeting was held in March, they had independently raised \$14,000 — including a \$10,000 state grant for building repair — to apply to town projects.

That commitment to community engagement has endured in Matewan and Grafton where, even after their conclusion of Turn This Town Around, residents continue to host weekly meetings. "We understand these projects take time and there will be challenges and bumps in the road, says Spellman. "But the really critical thing is that progress is continuing."

"We did a debrief at the end of the first year and what we heard [from residents] was 'We had never worked together before,'" says Spellman. "but Turn This Town Around brought us together, and taught us how we can work together."

For more information, visit: [wvhub.org/what-were-doing/turn-this-town-around](http://wvhub.org/what-were-doing/turn-this-town-around)

# Reworking the Region

By Dan Radmacher

As Appalachia suffers through the effects of yet another downturn in the coal industry, a number of organizations are stepping up efforts to create jobs, retain young adults in the region and better educate the workforce.

"It's a challenging environment, for sure," says Brandon Dennison, executive director of Coalfield Development Corp., an organization devoted to revitalizing the local economy in Wayne, Mingo and Lincoln counties in West Virginia. "Almost all of our crew members have been economically affected by the coal downturn. There aren't a lot of job opportunities."

The organization's Quality Jobs Initiative gives recently unemployed young adults a 30-month contract and puts them on a weekly 33/6/3 schedule: 33 hours of construction work, six hours of community college and three hours of life skills training.

Crew members who graduate from the program gain an associate's degree, multiple professional certifications, hands-on experience, and training in life skills areas such as money, time management and emotional health. Similar programs for agricultural and service workers are also being planned.

"We want to give them the tools to reverse the cycle of poverty," Dennison says.

For Jeff James, chairman of the new nonprofit Create West Virginia, giving tools to individuals, while important, is insufficient. Create West Virginia wants to change the culture in Appalachia so that it's more conducive to innovation and entrepreneurship. The organization

is hosting a three-day conference in Fayetteville in September, "Building Bridges to a New Economy," the latest in a series of conferences aimed at finding ways to shift the region's focus.

West Virginia has several creative magnets — areas that attract people who want to come to an area not just for jobs but for a sense of place. These range from geographic locations like the New River Gorge to technology centers like the Fairmont/Clarksburg/Morgantown corridor.

"West Virginia needs to grow creative muscle and the ability to diversify," James says. "Small towns and the people that come from them need to know they can build an innovation economy."

## Financing Rejuvenation

One thing that could certainly help in a number of revitalization efforts is an infusion of cash in the region. This could come in the form of President Obama's POWER+ Plan, which will devote significant new money to the coalfields if the plan can pass Congress.

The plan would add \$25 million in funding to the Appalachian Regional Commission, \$20 million a year for re-employment services and job training for laid-off miners, money for grants to help economically distressed communities foster "an environment conducive to job creation and economic growth," and a \$200 million annual boost in spending on reclaiming abandoned mine lands.

"The POWER+ Plan would utilize resources on a scale that a single federal initiative hasn't done in our region in a very long time," says Eric Dixon, an Appalachian Transition Fellow at Appalachian Citizens' Law Center.

*Continued on page 16*

# Three Corners of the Cumberland Trail Gap Project

By Kimber Ray

As the gateway to the West, Cumberland Gap once marked the main passageway through the Appalachian Mountains for both wildlife and people. More than 200 years have since passed, but the area retains a wealth of historic and natural resources, such as a restored mountain settlement, sandstone caves, and waterfalls. By linking up these destinations with nearby towns, the Tri-State Regional Trail Committee, led by Bell County Adventure Tourism Director Jon Grace, plans to work across state lines to cultivate a new branch of economic diversity for the region.

The Cumberland Gap National Historic Park, situated on 26 miles of forested landscape in Ken-

tucky, Virginia and Tennessee, hosts a network of trails, including a portion of the Great Eastern Trail, which runs from Georgia to New York. Combined with the appeal of other growing projects, such as the nearby Wilderness Trail Off-Road Park, tourism is growing in the region.

The committee of tourism officials, trail groups and community members plans to help communities share their tourism appeal and connect to the growing trail network by building multi-use trails for activities such as hiking, horseback riding and mountain biking. With a survey and map already complete, the group is putting their finishing touches on an Aug. 1 grant application to the National Park Service. "We're looking at how we can get people to stay for more than a day," says Grace.



Photo courtesy WV Mine Wars Museum

# A Tribute to WV Mine Wars

By Laura Marion

The West Virginia Mine Wars museum, which opened in Matewan, W. Va. on May 16, commemorates the conflicts between miners and mine ownership that took place in the early 20th century.

The museum was funded through grants, crowdfunding and private donations. The building was originally the Chambers Hardware Store, and served as a meeting place for miners involved in the strikes.

Volunteers helped gather the items on display at the museum — such as bullet shells, rifles, and

media propaganda — from resident donations and local antique stores. The Paint Creek-Cabin Creek strike exhibit shows an example of the tents where miners and their families lived during the strikes.

In the coalfields of the early 1900s, miners were confronted with low wages, high work-related death rates, and other challenges. In 1912, miners in West Virginia walked off of their jobs to demand that their employers recognize their union. Over the next decade there were many confrontations between the miners and the company mine guards, which culminated with the 1921 Battle of Blair Mountain, the largest civil uprising since the Civil War.

The West Virginia Mine Wars museum is open Saturday and Sunday from 10 a.m. to 4 p.m. More information is available at [wvminewars.com](http://wvminewars.com)





## Reworking the Region *continued from p. 15*

"The way the [Abandoned Mine Lands] plan is structured, the money has to be used for projects that pose an economic development potential," Dixon says. "These sites have potential for beekeeping, agriculture, recreational tourism and other economic engines, but those solutions won't pop up unless we have a very big public dialogue about this money and this program to spark people's imaginations across the region."

The boost to the Abandoned Mine Lands program could be especially important for the region, Dixon says. Employing laid-off miners and others with the necessary skills to reclaim old mine sites will give communities an immediate economic boost. But the long-term impact could be far greater.

Adam Wells, economic diversification campaign coordinator for Appalachian Voices, the publisher of this newspaper, is fully behind the plan.

"For so long, Appalachia has given of our natural resources, and our cultural and social resources," says Wells. "It's really good to see a federal program that gives back to us in a meaningful way, and one that focuses so specifically on moving us forward to a diverse new economy in Appalachia."

An influx of federal money could be helpful, but many looking to better Appalachia's economy are wary of waiting for any kind of external savior.

### Building on the Past

"Our philosophy is that we already have everything we need to thrive in Appalachia," says Coalfield Development Corp.'s Dennison. "We

have a proud history to build from; enterprising, strong, smart, creative people; vibrant communities that work with the land and close to the land instead of exploiting it."

The desire to build upon history and use resources that already exist guides much of the work Coalfield Development Corp. does, such as the recent renovation of the Urlings General Store in Wayne, W.Va.

"We like to work in historic, abandoned buildings," Dennison says. "We like to maintain the character, the sense of stories and history embedded in those buildings."

And bringing new life to a vacant building is healing. "Empty buildings can be a real scar on a community," says Dennison. "It's great to return vitality and purpose to a place like that."

The former general store is now home to five affordable housing units, built with energy efficiency in mind, including solar water heaters. Such efficiency is good for the environment and helps low-income tenants by lowering their bills.

The building will also house commercial space, including a coffee shop operated by the tenants, who — like the crew members who renovated the building — will be on Coalfield Development Corp.'s 33/6/3 schedule.

"We're trying to create truly empowering opportunities and replicate our model in a new industry," says Dennison.

### Crafting Worker Ownership

Revitalization efforts are underway outside of Appalachia's coalfields as



A worker-owner arranges fabric at the Opportunity Threads plant in Morganton, N.C. Photo by Willa Johnson

well. In rural North Carolina, hit hard over the last few decades by the collapse of the tobacco market and the textile and furniture industries, the focus is on re-envisioning what labor looks like through worker ownership.

Opportunity Threads is a worker-owned garment plant in Morganton, N.C., with a focus on sustainable production and building local resources.

"Traditionally, labor in the South involved wealth being taken out of the community," says Molly Hernstreet, founder and general manager of Opportunity Threads. "Our challenge was to build models in these heritage industries where the wealth can be more deeply rooted in our community."

Like Dennison, Hernstreet believes understanding Appalachian character is the key to future prosperity. "We're makers," she says. "We can hope for change, or know that's what we're good at. Let's find the models that are financially the most viable and create the most wealth."

For Hernstreet, the worker-owner model makes the most sense, especially in a low-margin industry like textiles.

"We can drive those narrow margins into good hourly wages and benefits," she says. "Worker ownership lends itself to meeting all the challenges in this industry: Quick turnaround, high quality and a competitive price structure. When a worker is also an owner, they understand the value of their own productivity."

Opportunity Threads is part of the Carolina Textile District, a cooperative that helps small textile shops work together and aggregate demand.

Sara Chester, part of Carolina Textile District's management team, says that the idea is to recruit work — rather than companies — to the region. But one challenge has been convincing a new generation of workers to trust in textiles.

"We lost so many jobs in such a short amount of time," Chester says. "Kids grew up with their parents and grandparents telling them not to work in these jobs. It's been a real battle to change that image."

As with much of this work, patience is key. "We're not going to turn it around in just a year or two," Chester says. "This is a message we'll have to reinforce for years to come."

## Blazing Trails in Mars Hill

By Kimber Ray

With the scheduled opening of Bailey Mountain Bike Park in Mars Hill, N.C., this June, mountain bikers skilled at high-speed maneuvering down steep, rough terrain may soon travel to rural Madison County from across the country.

Unlike traditional downhill trail operations, which often convert to ski slopes in the winter, Bailey will be the first in the U.S. to remain open year-round and cater exclusively to mountain bikers. The first stage of the park will include five trails, but the long-term plan is to build as many as 30 trails.

The nonprofit Natural Capital Invest-

ment Fund, a business loan fund that supports sustainable economic development, helped finance the park.

"We're looking to make ourselves a mini-destination," says Bailey co-owner Jennifer Miller. "It's highly likely that the people who come to us will go and explore other things in the area too, whether it be the hot springs or downtown Marshall or Mars Hill."

Miller is optimistic that, combined with continued development of nearby cross-country bike trails, Bailey's opening could help "put Madison County on the map for some major mountain biking action."

Visit: [baileymountainwnc.com](http://baileymountainwnc.com)



## Increasing Homeowner Access to Energy Savings

By Eliza Laubach

Burning fossil fuels to create electricity comprises the largest share of the nation's carbon dioxide emissions, according to the Department of Energy.

From changing incandescent bulbs out for LEDs to adding insulation, energy efficiency measures not only reduce a home's carbon footprint but also are the cheapest form of reducing reliance on fossil fuels. A whole-home retrofit can lower a utility bill by 20 to 40 percent. While those energy savings will pay for the efficiency upgrades over time, the upfront investment can be substantial.

For many low-income homeowners across the country, the DOE offers a weatherization assistance program that distributes funds through a local community action agency. Demand often exceeds capacity, however, and many homeowners are put on a waiting list for years.

Other homeowners may not qualify for this program but do not have funds or credit for home energy improvements, even if the upgrades are badly needed. In rural areas, such as much of Appalachia, these situations are especially true.

In eastern Kentucky, "often people have higher energy bills than their mortgage," says Chris Woolery, residential energy specialist at Mountain Association for Community Economic Development. "They didn't have an incentive to be efficient because fuel was cheap."

Woolery works on MACED's How\$mart program, a model for electric cooperatives to finance energy efficiency upgrades for their members. On-bill financing allows a homeowner to secure a low-interest loan from their utility to pay for efficiency upgrades and then pay that loan back through their utility bill. Credit does not determine loan availability, and the program is structured so the bill is usually lower than before.

As of summer 2015, How\$mart has funded 189 retrofits across four cooperatives in eastern Kentucky. Jeff Gulley of Flemingsburg, Ky., was one of the first program participants. His attic and crawlspace were sealed and

insulated with spray foam, and he also received a new thermostat and heat pump.

Gulley discussed his retrofit in a promotional video about How\$mart. "From November to February, it took everything we had to pay our heating bills," he said of the winters before he received the retrofit. "This program is one of the best things — as a homeowner — that has happened to me." The total savings of the energy upgrades on Gulley's bills are estimated at \$102 per bill, and after the loan payment, he still pockets \$16 a month.

In February, Roanoke Electric Membership Corp. launched its own on-bill financing program in eastern North Carolina. The cooperative is one of the first to use the Department of Agriculture's Energy Efficiency & Conservation Loan Program funding to back the loans, but must assume the financial risk if a homeowner defaults on their loan payments.

Risk is a serious consideration for rural electric cooperatives that rarely have the funds to cover defaulted loans without passing that cost along to their members. In order to avoid disconnecting electricity when a homeowner defaults, some cooperatives are looking elsewhere for financial security.

The Home Energy Loan Program in Arkansas uses DOE funding to cover defaulted loans. Tammy Agard, who formed HELP, is working to implement it on a large scale. She is building a directory of reliable contractors and teamed up with Rob Moody, a software designer, to create an interactive smartphone application that shows day-to-day energy savings and alerts homeowners when their energy usage is above average.

Moody and Agard are currently fundraising for this developing project. "We think real results is what's going to make this industry take off," says Agard. Moody says the software could also monitor cooperatives' carbon offsets from the retrofits, which will help them meet new U.S. Environmental



Smith Insulation contractors install spray foam in Woolery's basement. "Last year, two new [regional contracting] businesses entered the spray foam industry," says Woolery. "There's a lot of demand for this type of work." Photo by Chris Woolery.

Protection Agency regulations.

In a region that hosts a waning coal industry, energy efficiency spurs economic development. How\$mart has provided 11 jobs for Kentuckians, and Woolery was recently told that the program allowed a contractor to make three new hires. In Arkansas, HELP spurred 27 new jobs in just two years. "[Right] now that's just a drop in the bucket, but can you imagine this at scale?" says Agard.

*Appalachian Voices is promoting energy efficiency and on-bill financing in the region. Learn more at [appvoices.org/energysavings](http://appvoices.org/energysavings)*

### Giving Credit to Energy Efficiency

The Warehouse for Energy Efficiency Loans is a self-sustaining lending platform for home energy financing. WHEEL helps states leverage funds from public and private investors to increase the number of low-interest loans available to homeowners through the ReHome Loan Program for energy efficiency upgrades.

The low interest rates offered by the program create an incentive for homeowners to make the most energy-efficient choices, says Colin Bishopp, who oversees WHEEL, and the customer's monthly payments more closely resemble amount of money saved on their utility bill. WHEEL is currently operating in Pennsylvania and Kentucky, and will soon launch in Virginia, Florida and Indiana. Visit: [renewfinancial.com/financing-solutions/rehome](http://renewfinancial.com/financing-solutions/rehome)

### Solarize Success in WV

A grassroots effort to make solar panels more affordable for homeowners has taken off in the Southeast. Through the Solarize model, homeowners interested in installing rooftop solar can join together to apply for discounts, free energy audits and solar panel assessments.

Using this model, a solar cooperative in West Virginia installed seven new systems last fall, adding about 36 kilowatts of solar power to Fayetteville, W.Va. Now, two solar cooperatives in Wheeling and Morgantown are accepting applications, while cooperatives in Fayette and Monroe County filled their membership, with 30 and more than 80 members signed up, respectively. Sixteen Solarize programs in North Carolina and eight in Virginia have run or are currently running, while three programs in South Carolina are receiving applications.

### Another Community Solar Farm Sprouts

Leasing solar panels provides rural electric cooperatives with a way to incorporate solar into their energy portfolio, and for homeowners to invest in solar, with lessened costs to both. The cooperative builds a solar farm and offers a lease on a panel or half-panel to members. Those members receive credit on their utility bill for the energy generated by their leased panel.

Duck River Electric Membership Cooperative in southern Tennessee funded a 26-kilowatt solar farm in 2012 and members have already become partial owners of 87 of its 108 panels. Once the rest are sold, the cooperative plans to double the solar farm's capacity, says Steve Odell of Duck River EMC. In April, the Appalachian Regional Commission granted BARC Electric Cooperative in rural Virginia \$500,000 to build a 250 to 350-kilowatt solar farm and a community learning center that will offer leasing options. Electric cooperatives in Kentucky, Virginia, Tennessee and North Carolina are using this model as well.

### Energy Savings Launch in Harlan County, Ky.

The town of Benham launched an on-bill energy efficiency financing program in April. Benham\$aves, modeled after Mountain Association for Economic Development's How\$mart program, will pay for energy efficiency upgrades upfront, and members will repay the loan on their utility bill with their energy savings. A resolution passed by the Benham Power Board formally recognizes community partners including Kentuckians For The Commonwealth, Appalshop and MACED.

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# Schools Do the Math and Go Green

By Lorelei Goff

A growing number of schools across Appalachia are going green with renewable energy and energy efficiency programs. Though the common denominator in budget-challenged Appalachian schools is cutting energy costs, students benefit from applied learning opportunities and communities feel the positive impact of sustainable practices.

In Tennessee, Greene County Schools cut their energy costs by \$1 million over the last two years with a combination of 50-kilowatt solar arrays, an energy efficiency plan, and updating aging equipment.

According to Greene County Schools' Energy Specialist Steve Tipton, the solar arrays were installed at no cost to the school system through a partnership with private investors brokered by the Tennessee-based company Terra Shares. The Tennessee Valley Authority utility doesn't allow the schools to directly use the solar energy they produce, however, so the solar arrays feed directly into the grid and the school system receives corresponding credits on their electric bills.

"We have two different programs here at the schools, and solar is actually a small part," says Tipton. "We have an energy conservation program, where we try ... to reduce consumption through behavior modification. That's where most of our savings comes from."

The behavior modification program includes turning off lights as soon as students leave the building for the day and controlling the temperature

in classrooms. The school has also upgraded aging equipment, such as water heaters and air conditioning, to more efficient models.

Dr. Cindy Bowman, principal of South Greene High School, says that having the solar arrays on campus provides a good tool for teaching about green energy and sustainability.

"My teacher that teaches pre-engineering will use it some, and sometimes our science people will use it," says Bowman, adding, "We talk here a lot about green energy."

To the west, Campbell County, Tenn., installed 13 solar arrays in its school system by using a similar business model with funding from private investors, brokered by Efficient Energy of Tennessee.

"They're thrilled," says Janet Holcomb, accounts manager with the company, noting that energy production has exceeded their initial projections.

But according to Holcomb, gradual changes in the TVA solar incentive program have placed limits on the amount of electricity that schools are allowed to produce and lowered the amount the utility pays for that electricity per kilowatt hour. Due to this, Efficient Energy can no longer attract solar investors to Tennessee to fund the school installations, and the program is at a standstill.

John Atkins of Terra Shares, the company that brokered Greene County's program, says it's unlikely that future solar projects of this type will be initiated in Tennessee schools under TVA's current solar policies.

"I still have another dozen schools

under contract [in] Greene County, but I cannot interest any investors to come to Tennessee," says Atkins. "They can go to many, many other states, and invest the same money in exactly the same equipment and make a much higher return."

## Funding Solar Schools

In other parts of the region, state grants have helped Virginia schools to go green. Students in Albemarle County raised \$40,000 toward solar panels in 2011, which helped the school district procure a number of state grants totalling over \$212,000. Since the panels were installed, the school district has saved \$25,000 on energy costs, using a combination of solar and wind power, lighting



Students at Henley Middle School in Crozet, Va. helped design an art installation powered by a solar panel. Photo courtesy Albemarle County Public Schools

and equipment upgrades and improved building automation controls. Four of the schools in Albemarle also compost food waste from their cafeterias.

"Some of the teachers are using the systems in their lesson plans," says *continued on p. 23*

## Students Use Sustainable Methods to Build New Homes, Teach Others

By Cody Burchett

In southwest Virginia, high school students are designing and building several houses in cooperation with Habitat for Humanity of the New River Valley. The endeavor was initiated in the spring of 2014 by the Giles County Technology Center, which serves both Giles and Narrows high schools by assisting high school students with career and technical education.

Meanwhile, a sustainable biomaterials class at Virginia Tech University has developed teaching materials on green building practices for the highschoolers. Dr. Hindman, an associate professor at Virginia Tech, saw the technology center's class as an opportunity for his students to apply their biomaterial construction knowledge in a hands-on setting, and to teach the younger students "how the concepts of sustainability and making efficient decisions are the future of the building construction industry."

The principal of Giles County Technology Center, Forest Fowler, says that working with Habitat for Humanity gave them an educational "structure to build on." According to Fowler, the technology center hopes to "begin a modular home

involving the biomaterial aspects that the students learned from the Virginia Tech demonstrations" in their next project.

The duplex that was designed and constructed by these students and volunteers is expected to be finished and sold at cost to a family in Narrows, Va., by July 2015. The home is one of three that the service organization is currently constructing in the area.



Virginia Tech students explain sustainable building practices to high school students. Photo courtesy of Virginia Tech



# Caught red-handed! Or more accurately, red-beaked

By Kimber Ray

With a bright berry neatly clasped in its beak, the wood thrush is frequently among the usual suspects of long-distance wild ginseng seed dispersal.

For three years, biology professor Jim McGraw and his West Virginia University research team trained motion-activated cameras on this threatened medicinal plant in an attempt to figure out which creature might be responsible for expanding the migration of ginseng's

otherwise gravity-driven seeds.

"Working with a plant like this makes you appreciate how vast our lack of knowledge is," says McGraw. "Everytime we ask a new question we realize how little we know about this."

After investigating hundreds of photos and conducting a feeding test with captive wood thrushes, a paper published last year identified this small brown-and-white mottled songbird as the seed dispenser. Unlike other ginseng diners,

the thrush regurgitates the seeds intact.

This could offer an important means of transportation for ginseng as the climate continues to warm and disrupts the plant's habitats. The most venturesome travels are undertaken by juvenile wood thrushes, which may comprise up to a quarter of the population and have been recorded as far as two miles from their nest sites.

"They get picked out of their home territory and go search for new food sources," says McGraw. "That's what we think may account for their importance in terms of climate change."

But it's unclear whether the wood thrush could beat the pace of climate change which, according to a second paper recently published by McGraw's lab, will depress rates of



A motion-activated camera catches this wood thrush snacking on a ginseng berry. Photo courtesy of James McGraw

growth and reproduction in the plant.

Combined with illegal gathering and overpopulation of deer, McGraw says there are a lot of environmental factors working against ginseng. Still, he adds, "Once we understand the whole ecosystem and how one piece out of balance affects the rest, we're going to start doing things better."

## Resilient Landscapes for a Shifting Environment

By Kimber Ray

Since 2008, Mark Anderson, a field ecologist with The Nature Conservancy, has been probing the ecosystems of the eastern United States for a better strategy to protect species seeking refuge from the impacts of climate change.

When he described the conclusions of his team's groundbreaking research — a sophisticated map analysis of landscape and species diversity — to The Nature Conservancy Magazine in 2014, he compared it to a baseball field.

"As much as we like the players, we know they won't stay the same forever," he says. "They are going to move on."

Protecting land based on its importance to endangered or uncommon species is a popular strategy — one that Anderson helped develop during his early work with The Nature Conservancy in the 1990s. Yet according to his ongoing mapping project, this strategy often amounts to blind guesswork when it comes to identifying potential future hotspots for biodiversity.

Anderson and his team's first study, published in 2012, revealed that geology is the strongest predictor of which undeveloped environments can support the greatest diversity of plants and wildlife. Variations in features such as slope, elevation and soil profiles create a wide range of distinct habitats known as microclimates. These pockets of different temperatures and moisture levels offer options for migrating creatures to cope with climate change.

Dubbed a "resilient landscape," Appalachia is noted as a particularly remarkable example of these microclimates. In the

Blue Ridge Mountains of South Carolina, for example, Anderson's report cites a case where the 104 degree heat of a sunny slope was in stark contrast to a nearby ravine, which was 25 degrees cooler.

The Doris Duke Charitable Foundation, which supported Anderson's mapping projects, has since created a \$12 million fund to promote conservation of the resilient landscapes identified using Anderson's research.

Known as the Resilient Landscape Initiative and managed by the nonprofit Open Space Institute, the project invites public agencies and land trusts to apply for matching grant funds to help protect targeted areas. For land trusts, this involves creating conservation easements with private landowners; the property is protected from development and the owner retains possession of the land.

The Northeast-focused portion of the project has so far protected more than 3,000 acres of climate-resilient land in northern Appalachia. The coverage region, which includes four eligible focus areas, extends from Maine to as far south as the Potomac Headwaters of Virginia and West Virginia — an important home of the increasingly threatened native eastern brook trout.

Meanwhile the Southeast-focused part of the project, which began at the end of 2014 with the Southern Cumberlands area in Georgia, Alabama and Tennessee, recently expanded to include the southern Blue Ridge and the Greater Pee Dee River regions. The project is accepting applications for grant funds; deadline is July 21 and awards will be announced in September.

## Designing Endurance on the Appalachian Trail

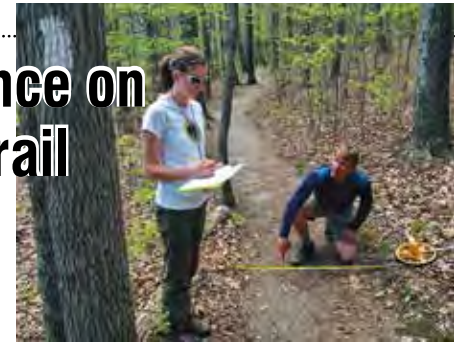
By Kimber Ray

Though some may dream of a solitary retreat, the wayfarers and romantics along the Appalachian Trail are far from alone.

With between 2 and 3 million visitors each year, the steady trudge of hikers along this protected corridor of land, spanning from Georgia to Maine, wears down the trail and strains natural resources. At the same time, the persistent advance of climate change is driving more intense storms and droughts along the footpath.

Jeff Marion, a recreation ecologist with the U.S. Geological Survey and adjunct professor at Virginia Tech, launched a three-year study this May to help reduce the impact of this annual flood of hikers and unpredictable weather.

Equipped with a \$300,000 grant from the National Park Service, Marion's team of researchers from Virginia Tech and North



Adjunct professor Dr. Jeff Marion measures up Appalachian Trail conditions with doctoral student Holly Eagleston. Photo courtesy of Jeff Marion

Carolina State University are collecting data about how the trail is used, whether this use is sustainable and how this impacts nearby natural resources. This includes information such as soil compaction and erosion, water drainage, waste disposal and the unauthorized creation of campsites and side trails. With this knowledge in hand, Marion's crew will create low-impact guidelines for sustainable trail maintenance, which will be shared in workshops with trail staff and volunteers.

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# AN APPALACHIAN BOOKSHELF

## Phenomenal

By Leigh Ann Henion



To merely call it travel writing would be overly simplistic. Leigh Ann Henion takes readers on a spiritual sabbatical in her premiere novel, "Phenomenal." Wishing to reconcile the obligations and love of motherhood with her desire for adventure, Henion reawakens her sense of wonder by taking part in natural phenomena across the globe. She vibrantly captures nature's truly awesome performances from passionate lightning storms in Venezuela and volcanic eruptions in Hawai'i to the seductive dance of aurora borealis in Sweden. Her poetic, colorful descriptions rekindle a childlike admiration of the world.

As the book progresses, Henion unpacks the modern humans' need for control and our tendencies to distance ourselves from the immediate. In an effort to close that gap, she investigates the shared human experience,

connecting the reader intimately with the locals she encounters throughout her travels. An eclectic Puerto Rican beach denzien and a generous Tanzanian whittle are only a few of the heartwarming characters.

Intermittently taking on a tone of wisdom, Henion weaves aphorisms, missteps and moments of self-realization into her book. She includes eyebrow-furrowing, thought-provoking quotes like, "But maybe transcendence isn't about leaving. It's about being present."

Henion also provides intellectual fodder, referencing scientific and philosophical greats and bravely taking on debates with an astrophysicist. Throughout her memoir, Henion includes little reminders about the importance of protecting the environment, as global climate change threatens the existence of some of these life-altering phenomena. A truly delightful read, "Phenomenal" lets you ride shotgun on a quest for understanding and beauty. — Reviewed by Julia Lindsay

## Beautiful Land of the Sky

By Loren M. Wood



Yosemite National Park's well-known advocate, John Muir, had an obscure counterpart in the east, posits author Loren M. Wood. This conservation pioneer helped establish our country's most visited national park in the Great Smoky Mountains and brought native plant horticulture to the

beds of turn-of-the-century gardens. Like a detective, Wood follows the life of Harlan P. Kelsey (1872-1958) through letters, newspaper clippings, government documents and other historical anecdotes. Uncover Kelsey's childhood influences that led him to found a native plant nursery in North Carolina at age 12, and pursue the growth of an entrepreneur who transmits his love of nature to local and national governments as an environmental advocate.

— Reviewed by Eliza Laubach

## Real Goods Solar Living Sourcebook

By John Schaeffer



John Schaeffer illuminates the way to live off the grid in this 14th edition of the 1982 classic. Released this year, the new edition contains more than 450 pages of charts, definitions and personal anecdotes to help the common person live

sustainably. Schaeffer brightens the pages with comedic titles like "A Mercifully Brief Glossary of PV System Terminology" and "Small Wind Turbines, Cuisinart for Birds or Red Herring?". This extensive resource is not only a guide to renewable energy, building and transportation, but to lifestyle and worldview changes that help us act as better stewards to the environment.

— Reviewed by Julia Lindsay

## Mountain Ingenuity // ECONOMIC DIVERSIFICATION



### Enterprising Idea

continued from p. 14

taking it one step further and investing in infrastructure to encourage new business.

from in and around the area selling their products this summer — nearly ten times the number from the previous year.

One vendor, Chris Caudill, who specializes in corn and pumpkins, estimates that he'll generate \$30,000 in sales this year at the market, which he hopes to put toward opening a grist mill.

"My vision is to have an old-timey operation with the big wheel that rotates in the river," says Caudill. "I want to do tours and show people how cornmeal was made many years ago, and sell them cornmeal made in that way, right there at the mill."

Urban centers in Appalachia are

Chattanooga, Tenn., of all the urban centers in the region, has best positioned itself as an attractive destination for entrepreneurs. The city invested in a fiber optic grid and offered reasonably priced access to lure modern entrepreneurs with some of the fastest internet speeds in the country. So successful is Chattanooga's big bet on fast internet, that it prompted Google to copy the city's model with their Fiber program, which offers Gigabit internet and television access in select U.S. cities.

Given the progress that the forward-thinking people, municipalities and organizations in the region are making — and the examples they are setting — it seems that they may just be on to something.

## Hemp Makes A Comeback

By Laura Marion

In early May, the commissioner of the Kentucky Department of Agriculture announced that 121 industrial hemp projects will be participating in this second year of the state's five-year pilot program. Licensed growers and processors, as well as seven universities, will cultivate more than 1,700 acres — up from just 33 acres last year.

"Hemp equals jobs and economic development," the commissioner said in a press release.

Plans to cultivate this profitable crop — used for natural body care, clothing, construction materials, biofuels, food and more — are also in the works for several additional states in Appalachia.

At press time, the 53 farmers approved to participate in Tennessee's new pilot program are awaiting hemp seed shipments, which need to be planted by June. West Virginia,

which legalized production for research purposes more than a year ago, may soon approve commercial growers too. Close behind is Virginia, with an industrial hemp research farming bill that will go into effect this July. The industry is not legal in North Carolina, but a company is building a plant to process kenaf, a fibrous cousin to hemp.

A variety of Cannabis, hemp was outlawed in 1970 because lawmakers feared a correlation between hemp and marijuana since hemp contains some THC, marijuana's psychoactive ingredient. However, the amount of THC in hemp is minimal.

Prior to February 2014, when the farm bill removed long-standing federal restrictions on hemp cultivation, hemp fiber and oil were mainly imported from China, Canada and Europe. Before hemp production was criminalized, it was widely cultivated in the United States. Even the Declaration of Independence was drafted on paper made from hemp.

# Appalachia's Political Landscape



## Clean Power Plan Comes with Options and Opportunities

By Brian Sewell

The U.S. Environmental Protection Agency found a familiar foe in Sen. Mitch McConnell when it announced plans to regulate carbon emissions from the nation's power plants last summer.

The Kentucky Republican and Senate majority leader has pledged to "pursue all avenues," whether through Congress or the courts, to cripple the EPA's Clean Power Plan, the centerpiece of the Obama administration's efforts to combat climate change.

McConnell even attempted to enlist officials at the state level, asking governors to rebuke the president by simply refusing to create a plan to implement the regulations.

That plot has so far failed. Ahead of the final rule's release in August, at least 41 states are moving to meet their emissions goals, taking advantage of the flexibility offered under the plan to craft their own path to compliance.

"We have the legal — not just right and authority but responsibility — to [finalize the Clean Power Plan]," EPA Administrator Gina McCarthy said in



Citizens calling on lawmakers to support the EPA's Clean Power Plan have amplified their message ahead of the final rule's release in August. Photo courtesy of Virginia Chapter of the Sierra Club

April. "People expect us to do it. I don't see any utility thinking we're not going to do it. So the politics are one thing and reality is another."

In reality, policy groups are acting as guides and convening state utility commissioners and environmental regulators to build a common understanding of the rule.

A range of recent analyses have found that, not only can states cost-effectively comply with the Clean Power Plan, they can create savings for consumers while reducing pollution. In May, the Center for Climate and Energy Solutions compared the findings of six such analyses, all of which conclude that energy efficiency is the most cost-effective way to reduce emissions and lower demand for fossil fuels.

The models also found that adopting efficiency programs minimizes impacts of the rising price of natural gas, the fuel that will cover much of coal's lost capacity. In models where the role of energy efficiency was limited, on the other hand, costs to consumers ballooned with climbing gas prices.

But the concept that improving energy efficiency — doing more with less — can actually save money for consumers is lost on some of the plan's opponents.

In April, the EPA's Janet McCabe, testified to the U.S. House Committee on Energy and Commerce that, "If we use less energy, our bills can go down. And our carbon emissions can go down." West Virginia Rep. David McKinley was shocked. "Unbelievable," the congressman replied. "It just seems delusional."

As for renewable energy, the anticipated growth of wind and solar mean that they will contribute to reducing carbon with or without the Clean Power Plan. States with policies that incentivize renewable energy will see the greatest benefit.

While they don't give the public the

full story about opportunities presented by the Clean Power Plan, politicians like McConnell and McKinley are rightly concerned about the rule's impact on the coal industry. Already against the ropes, the Appalachian coal industry is expected to take a huge hit from the plan.

According to a May analysis by the U.S. Energy Information Administration, the EPA's proposal is expected to more than double the number of coal plant retirements through 2040, which would also impact coal production. In areas already suffering the economic impacts of coal's decline, arguments against the plan relate to coal job losses as much as energy costs.

A new study by economists at the University of Maryland and the consulting firm Industrial Economics, however, concludes that the impact of lost jobs in the coal sector would be offset by investments in cleaner energy sources and productivity gains across the U.S. economy.

Despite the flexibility given to states under the plan, those seeking to defeat it are resolute. Legislation recently introduced by Sen. Shelley Moore Capito, R-W.Va., aims to erase the Clean Power Plan, according to language of the bill, "as though the rules had never been issued."

114 <sup>TH</sup> CONGRESS:	Kentucky		Tennessee		North Carolina		Virginia		West Virginia							
	T. Massie (R) KY-04	H. Rogers (R) KY-05	A. Barr (R) KY-06	P. Roe (R) TN-01	J. Duncan (R) TN-02	Fleischman (R) TN-03	S. Desjardais (R) TN-04	V. Foxx (R) NC-05	P. McHenry (R) NC-10	M. Meadows (R) NC-11	R. Hurt (R) VA-05	B. Goodlatte (R) VA-06	M. Griffith (R) VA-09	D. McKinley (R) WV-01	A. Mooney (R) WV-02	E. Jenkins (D) WV-03
<b>HOUSE</b>																
<b>H.R. 1732</b> , the Regulatory Integrity Protection Act, repeals a recent EPA and Army Corps of Engineers rule that defines the "waters of the United States" that fall under jurisdiction of the Clean Water Act. <b>261 AYES, 155 NOES, 16 NV PASSED</b>	X	X	X	X	X	○	○	X	X	X	X	X	X	X	X	X
<b>H.R. 2028</b> , the Energy and Water Development and Related Agencies Appropriations Act, authorized funding for the Department of Energy and other initiatives, lowering spending on renewable energy and energy efficiency and increasing spending on fossil fuel research. <b>240 AYES, 177 NOES, NV 14 PASSED</b>	●	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>H.Amdt. 171 to H.R. 2028</b> cuts all funding to the Department of Energy's Office of Energy Efficiency and Renewable Energy. <b>139 AYES, 282 NOES, 10 NV FAILED</b>	X	X	X	○	X	●	X	X	X	X	X	●	●	X	X	●
<b>SENATE</b>	M. McConnell (R)	R. Paul (R)	L. Alexander (R)	B. Corker (R)	R. Burr (R)	T. Tillis (R)	T. Kaine (D)	M. Warner (D)	J. Manchin (D)	S. M. Capito (R)						
<b>S.Con.Res. 11</b> establishes a budget for fiscal year 2016 that favors increased fossil fuel development. <b>52 AYES, 46 NAYS, 2 NV PASSED</b>	X	●	X	X	X	X	●	●	●	●	●	●	●	●	●	X
<b>S.Amdt. 659 to S.Con.Res. 11</b> requires the U.S. Fish & Wildlife Service to enhance reviews of the economic impacts of critical wildlife habitat designation. <b>52 AYES, 42 NAYS, 6 NV PASSED</b>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>S.Amdt. 777 to S.Con.Res. 11</b> declares that climate change is real, caused by human activity, and that Congress should cut carbon pollution. <b>49 AYES, 50 NOES, 1 NV FAILED</b>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>S.Amdt. 836 to S.Con.Res. 11</b> prohibits the EPA from withholding highway funds from states that refuse to comply with the agency's Clean Power Plan. <b>57 AYES, 43 NOES PASSED</b>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>S.Amdt. 838 to S.Con.Res. 11</b> would allow Congress to sell, transfer or exchange federal public land that is not part of a national park, national monument or national preserve to state or private entities. <b>51 AYES, 49 NOES PASSED</b>	X	X	●	X	X	X	X	X	X	X	X	X	X	X	X	X

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# Sparking a Controversy

Air pollution permit renewal raises questions for Radford arsenal

By Andrea Brunais

Perhaps in a parallel universe, these four things don't sit within walking distance: a toxin-emitting munitions plant, a mountain river, an elementary school playground and Kentland Farm, where Virginia Tech students tend plots of fruits and vegetables.

The New River, famous for its snaky wildness, is a favorite of kayakers and tourism-boosters who tout its unusual south-to-north flow and its ancient origins. Biodiversity flourishes near the river, whose features include breathtaking rock cliffs and rim-top ledges. Its three-state span — North Carolina, Virginia and West Virginia — hosts vastly different environmental issues along its length.

In Virginia's Pulaski and Montgomery counties near the town of Blacksburg, a 4,600-acre U.S. Army munitions plant dating to 1941 straddles the New River. Bill Hayden of the Virginia Department of Environmental Quality

confirms that the Radford Army Ammunition Plant, operated by a private contractor to manufacture munitions for the U.S. Army, is "one of the top emitters of toxic chemicals in the state."

According to the DEQ, some nine million pounds of toxins are released from the plant annually, most being nitrate compounds stemming from the process that neutralizes acids used to make explosives. In the agency's Toxic Release Inventory report for 2013, issued this spring, the arsenal once again topped Virginia's list of polluters; the annual report has frequently listed the plant.

By law, operators are permitted to discharge toxic substances, mostly nitrates, into the river. According to the U.S. Environmental Protection Agency, the plant's toxic emissions include nitroglycerin, lead, ammonia and nitric acid. Other hazardous wastes identified at the plant include remnants of TNT,



The Radford Army Ammunition Plant in Virginia manufactures munitions for the U.S. Army. Photo courtesy U.S. EPA

chromium, cadmium and perchlorates.

The operators are also issued permits to burn some of the hazardous waste left over from the manufacturing process. Burns take place out in the open, in sight of the river and close to an elementary school. The DEQ issued a warning letter to the facility in April 2015 when an open burn produced 4 percent more lead than the permit allows.

By law, operators are permitted to discharge toxic substances, mostly nitrates, into the river. According to the U.S. Environmental Protection Agency, the plant's toxic emissions include nitroglycerin, lead, ammonia and nitric acid. Other hazardous wastes identified at the plant include remnants of TNT,

The latest all-clear regarding water quality comes from the Centers for Disease Control and Prevention. A study released in January concluded that the plant's discharges "cannot harm people's health" via groundwater used for local residential drinking water.

According to Rick Roth, president of the local Friends of the New River and professor of geospatial science at Radford University, the CDC's conclusion does not surprise him. "Are they the kind of toxins that bioaccumulate?" asks Roth of the plant's nitrogen discharges into the New River, and immediately answers, "No."

But according to a former Virginia DEQ employee who quit his job citing lax enforcement, concerns over the plant's history of handling hazardous materials on the premises are legitimate.

The former regulator, who spoke on condition of anonymity, says nitrates

may not measurably contaminate the river even when permitted discharge limits are exceeded because the river is huge enough to easily swallow up the compounds. But he points to what he calls a fundamental flaw in the agency's methodology: "The DEQ's entire approach is that dilution is the solution," he says.

Which is better, he asks: Halting the discharge of millions of pounds of contaminants into a water body, or continuing the polluting practices because of the theory that the New River is so large and flows so fast that the toxins quickly seem to leave no trace?

## A Hazardous Breeze

Some environmental advocates believe the battleground should be air quality rather than water quality. The plant's DEQ permit, which allows 8,000 pounds of propellant to be burned in the open air each day, is up for renewal at the end of June.

According to Peter deFur, an environmental scientist and instructor at Virginia Commonwealth University, air quality measurements in nearby neighborhoods have never been collected and are needed.

Dr. Jill Dyken — the co-author of the CDC report that examined groundwater near the plant — agrees, stating that the agency "recognizes the lack of air sampling results as a data gap." She further writes in an email that the agency's next step is to "evaluate the community's exposures to contaminants in air."

Blacksburg resident Devawn Oberlender, spokesperson for Environmental Patriots of the New River Valley, campaigns to end the arsenal's open burns.

*continued on next page*

## Radford Arsenal

*continued from previous page*

During the burns, contaminated material is doused with diesel fuel. Plant employees go behind a wall as the burn begins.

"All of this takes place 150 feet from the New River — just a mile and a half upwind from Belview Elementary School," Oberlender says.

On the plant's website, the Army states that safety procedures "include red flashing lights and a warning speaker system to notify people on the river that a burn is going to occur."

Also adding to the air pollution is an aging 1941 coal-fired power plant that generates most of the arsenal facility's electricity. According to Rob Davie, the Army's chief of operations at the plant, getting a new, cleaner plant within two years is one of the "priorities" of the Army.

## Cleanup Questions

Greg Nelson, a Virginia Tech student whose doctoral dissertation focuses on public participation in the hazardous-waste cleanup at the arsenal, seeks to address the risks from burning thousands of pounds of what are called "munitions constituents." He says, "The health effects have never been documented because there's never been a health study."

According to Nelson and deFur,

the half-century track record as a major emitter of contaminants provides ample reason to investigate the Radford plant for Superfund status. But the EPA-supervised cleanup plan for the facility stops short of classifying the plant as a Superfund site, and Justine Barati, director of Public and Congressional Affairs Joint Munitions Command for the Army, supports the status quo, responding in an email that Superfund status does not apply.

For Nelson and deFur, Superfund classification could be a big part of a long-term solution. According to deFur, if agency regulators were to declare the arsenal a Superfund site, a full-scale cleanup could take place with federal agency involvement "in a day-to-day way," he says. Public scrutiny would be increased as well, Nelson adds.

What's more, deFur says, Superfund oversight would bring more attention to groundwater cleanup. "The data on what chemicals are going where are not sufficient to confirm that the existing problem is not larger and not reaching the New River," he says.

At a recent public meeting on May 28 mandated by the cleanup plan, Oberlender and others came armed with a December 2014 report from the EPA's National Enforcement Investigations Center that was publicly released the day before. The report, which the Environmental

Patriots of the New River Valley obtained via a Freedom of Information Act request, outlines violations of four federal statutes including the Clear Air and Clean Water Acts. When asked about the findings at the meeting, Army officials said they were not yet ready to comment.

## Alternative Disposal

BAE Systems, the plant's private-sector operator since 2011, also operates Holston Army Ammunition Plant in Kingsport, Tenn., where the Tennessee Clean Water Network has filed suit against the company and the U.S. military. The lawsuit claims that the Kingsport plant is polluting the Holston River, a drinking water source, with RDX, an explosive chemical that may also be a human carcinogen.

But the Radford plant's contamination problems predate BAE Systems by decades. Over the years, explosions and major fires have repeatedly occurred. Relatives of people working at the arsenal, who asked to remain anonymous, say the community accepted such incidents because they were thankful for jobs — even though the price paid included spills and releases of toxic chemicals into the soil, water and air.

As the June 29 deadline to begin the renewal process for the plant's open-burn permit approaches, DEQ spokesperson Hayden says the agency is "evaluating possible alternatives." The Army's Davie says the arsenal "will be going to bid" on a project to design an incinerator to replace open burns, but he declines to answer questions about timeline and cost.

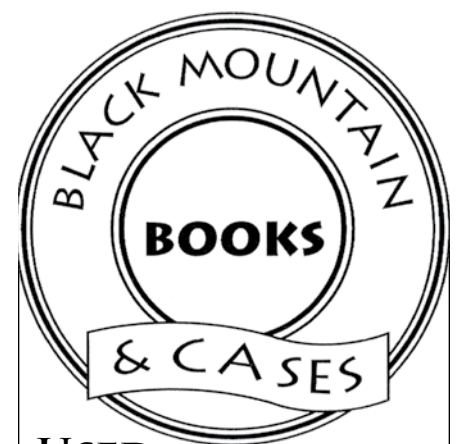
Different disposal methods were considered at Camp Minden in Louisiana, where a 2014 proposal to eliminate more than 15 million pounds of an explosive propellant called M6 through open burns spurred public outcry. In May

2015, the EPA approved the Louisiana Military Department's proposal to hire a contractor to conduct a contained burn.

Oberlender has followed the events at Camp Minden and strives to see the open burns in Radford replaced with safer disposal methods.

"I think there's more widespread challenge to [the permit renewal] coming than the Army has let on," deFur says. "The question is, how long is anybody going to put up with the open burning and [with] Radford being one of the largest contributors of nitrogen going into the river?"

As the Army readies for the DEQ's decision, greater public questioning has upped the ante. "They've never had as many people asking about the plant as there are right now," Nelson says. "There's more public questioning than the arsenal has ever experienced in its history."

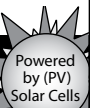


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# Residents Near Duke Ash Ponds Told To Not Drink Their Water

## Utility pleads guilty to separate water pollution charges

By Sarah Kellogg

Jeff Keiser and his wife, Kim, have lived in a small neighborhood in Belmont, N.C., near Duke Energy's G.G. Allen power plant, for 15 years. Although their community is surrounded on three sides by coal ash, the toxic by-product of burning coal, the Keisers have used their tap water just like anyone else. But that changed in late April when they and their neighbors started receiving letters from the state health department advising them not to drink or cook with their water.

"It was pretty frightening for us to hear all of our neighbors getting do not drink letters from the state," recalls Keiser. "We had been drinking the water with no worry at all, now we're scared for our health."

The do-not-drink orders were a result of mandatory water tests conducted by Duke Energy and required by North Carolina's Coal Ash Management Act. As of late May, wells had been tested near eleven of Duke's fourteen coal ash pond locations. Of the 207 wells

tested by May—all located within 1,000 feet of the ponds—191 were deemed unsafe to drink. Most of the wells tested high for vanadium or hexavalent chromium, both known carcinogens. The Belmont community received 83 do-not-drink orders, the most of any location.

Duke Energy claims that the elements found in the wells are naturally occurring and not a result of groundwater contamination from coal ash ponds, although the utility agreed to supply affected residents with bottled water until the source of the contamination is determined.

Keiser and other residents feel certain that Duke is to blame for their bad water. "I do feel like it's their ash ponds that have created this whole mess," he says. His neighbor, Barbara Morales, who also received a do-not-drink notice, told the L.A. Times, "Duke just won't admit their coal ash is poisoning my water, but they need to take responsibility."

Two weeks after the first round of water tests was released, Duke Energy pleaded guilty in federal court



Residents impacted by coal ash join together with concerned citizens to rally outside the annual Duke Energy shareholder's meeting in Charlotte on May 7. Photo courtesy of NC WARN

to nine violations of the Clean Water Act at five of its North Carolina coal ash sites and agreed to pay a \$102 million fine. The lawsuit was unrelated to the well water results, but rather was the result of a federal investigation that began after Duke spilled 39,000 tons of coal ash into the Dan River in February 2014.

Separate lawsuits against Duke, filed by the state in 2013 for violations of the Clean Water Act at all 14 of the utility's North Carolina coal ash sites, are still pending.

Duke's guilty verdict and the do-not-drink orders come on the heels of a controversial wastewater discharge permit renewal for three of Duke Energy's N.C. plants, including G.G. Allen. The state's Clean Water Act lawsuits against Duke charge that the utility is violating the discharge permits at all of their plants due to toxic seeps from their coal ash ponds leaking into surface

Residents impacted by coal ash join together with concerned citizens to rally outside the annual Duke Energy shareholder's meeting in Charlotte on May 7. Photo courtesy of NC WARN

water and drinking water. Although the state is suing Duke Energy for the violations, it issued new draft permits that would make all current and future seeps from the coal ash ponds legal. As of publication, the permits have not been finalized, but hundreds of citizens submitted comments in April urging the state to limit the amount of coal ash pollution Duke Energy can discharge.

In Belmont and other communities, residents continue to process the news that their well water is undrinkable. "If we wanted to move, we'd feel obligated to let the purchasers of the house know about the issue with Duke and the drinking water in our neighborhood," Keiser reflects. "That is very scary because this is our most valuable asset."

## North Carolina's Complicated Road to Renewables

As coal ash continues to plague communities across North Carolina, the state's legislature is debating whether to invest in or put a freeze on renewable energy. The Energy Freedom Act, introduced by House Republicans, would allow third party solar sales in the state and has the potential to increase investments in solar energy. The bill has bipartisan support, as well as the backing of environmental groups and the military.

Another bill currently under consideration would extend North Carolina's renewable energy tax credit, which has spurred residential and com-

mercial investments in solar since its adoption in 1999. Despite the proven success of the tax credits, many N.C. legislators oppose renewing them.

Another bill, which was controversially moved through House committee, would roll back the 2007 requirement that North Carolina generate 12.5% of its power from renewable sources and energy efficiency to just 6%, the amount already achieved. Tech giants Google, Apple, and Facebook, all of which have North Carolina facilities, wrote a letter opposing the freeze as well as a provision in the bill that they say could also halt renewable energy investments. — Sarah Kellogg

# Another Challenge Facing Coal: Cleaning Up

By Brian Sewell

Yet another aspect of the financial perils facing U.S. coal companies has recently come to the foreground.

Regulators are questioning the ability of coal companies to pay for post-mine land reclamation, so they are moving to protect taxpayers' interests by targeting a tool coal companies use to limit the upfront costs of their operations.

On May 29, regulators in Wyoming withdrew Alpha Natural Resources' ability

to insure its mines in the state through "self-bonding," a feature that had allowed the company to cover the future cost of restoring the land without putting down collateral, provided the company met certain financial criteria.

The decision came after officials of Wyoming's Department of Environmental Quality reviewed Alpha's finances and determined it is no longer eligible to self-bond under state standards. The company now has less than 90 days to put up \$411 million in anticipated mine cleanup costs.

As even some of the largest U.S. coal producers run the risk of caving under their debts, officials that oversee the federal bonding program under the 1977 Surface Mine Control and Reclamation Act are voicing urgent concerns to state officials.

In April, the U.S. Office of Surface Mining Reclamation and Enforcement sent a letter to West Virginia Department of Environmental Protection Secretary Randy Huffman requesting that the state conduct a fuller analysis of future risks—not just historic data—to ensure the long-term viability

of the state's Special Reclamation Fund. "Given the precarious financial situation" of companies operating in West Virginia, the letter states, regulators should closely examine the risk of failure for sites with markedly more expensive liabilities, such as pollution treatment facilities.

As the problem grows, advocates for reform of the bonding program face a predicament. Stricter self-bonding standards could push cash-strapped companies like Alpha and Arch Coal closer to bankruptcy. But inaction could leave taxpayers to pick up the bill if companies cannot meet reclamation requirements.

## Labor Dept. Audits MSHA

Following a scathing report by two media organizations into unpaid mine safety fines, the U.S. Department of Labor has announced plans to audit the Mine Safety and Health Administration's handling of delinquent penalties.

The 2014 report by NPR and Mine Safety and Health News motivated members of Congress and mine safety experts to urge the Labor Department to investigate what U.S. Rep. Bobby Scott of Virginia called "a festering problem" of failed enforcement. More than 2,700 mine operators have skirted paying over \$70 million in long overdue fines—some going back decades—while continuing to put miners at risk of injury or death, the news organizations' report found. Workers at delinquent mines were also found to be 50 percent more likely to be injured on the job.

The audit will target MSHA's process for assessing and collecting civil penalties, but Labor Department officials say the scope and ultimate objectives are still being determined.

## Duke to Close Asheville Coal Plant

Under pressure to address rampant coal ash pollution, Duke Energy announced it will close its aging coal plant located near Asheville, N.C., and replace it with a 650-megawatt natural gas-fired facility, nearly doubling the current plant's electricity-generating capacity. Of the four facilities deemed "high priority" by North Carolina's Coal Ash Management Act, the Asheville plant is the only one that still burns coal. The facility is also one of the state's few still-operating plants involved in the federal lawsuit over coal ash pollution that led Duke to plead guilty to nine misdemeanors under the Clean Water Act. In May, the North Carolina Senate approved a three-year extension to Duke's 2019 deadline for cleaning up the plant's coal ash ponds.

## DEP Orders Coal Prep Plants to Disclose Chemicals

An April order by the West Virginia Department of Environmental Protection requires the state's approximately 90 coal preparation plants to disclose the chemicals

## Fracking Concerns Fuel Research, Government Opposition

By Eliza Laubach

The sharp increase in earthquakes in the central and eastern United States since 2009 is linked to injecting wastewater underground, the U.S. Geological Survey stated in a recent report. This waste is backwash from fracking, a form of drilling used to free natural gas and oil from shale rock formations. It involves injecting water, chemicals and sand at high pressure deep into the ground. After the wastewater resurfaces, oil and gas companies will inject it back into the ground for storage, which can create seismic disturbances, the USGS confirmed.

used to process coal. The DEP order follows a series of coal-related spills in early 2014 and the discovery that many potentially hazardous products used to process coal were previously not required to be disclosed. DEP spokeswoman Kelley Gillenwater claims any cost imposed on companies by the new reporting requirements are insignificant compared to the potential liabilities a company could face for polluting West Virginia's waters.

## Dominion Eyes Alternate Route for Atlantic Coast Pipeline

Immense public opposition in Virginia led developers to propose alternate routes for the Atlantic Coast Pipeline, avoiding the two counties where residents have been most unwavering. Dominion Transmission Inc., which plans to build the 550-mile natural gas pipeline through West Virginia, Virginia and North Carolina to serve southeastern utilities, announced in May that it mapped a more-eastern route through Augusta and Nelson counties, slightly shortening the proposed route through the state and crossing fewer bodies of water. According to Dominion, the changes "potentially have less impact to environmental, historical and cultural resources than the initial route." But landowners' qualms persist since the alternate route does not take advantage of existing right-of-ways, among other concerns.

Expressing concern that fracking may threaten local water supplies, the town of Berea, Ky. passed a resolution that advises against the unconventional drilling practice. The resolution calls for a review of land use and zoning regulations in regards to fracking, according to the Richmond Register. Just weeks after the measure passed unanimously in April, Kentucky's first fracking permit was approved in Johnson County, east of Berea.

In Virginia, State Attorney General Mark Herring reversed a standing precedent preventing local governments from passing laws banning fracking. Municipalities that choose to allow fracking may now regulate fracking

through their zoning rules, wrote Herring. In early June, the state of Maryland passed a temporary moratorium, following suit with New York's and New Jersey's bans.

A federal judge has halted drilling permit approvals in North Carolina until a decision is made on a lawsuit filed by the state's Gov. Pat McCrory against the state legislature. The lawsuit filed this spring questions the constitutionality of several energy and environment boards, and casts doubt on the legality of fracking in the state. Largely ignored by the industry due to unconfirmed gas reserves, the state has received no permit applications since legislators opened it to fracking in March.

## Mountaintop Removal Reduces Nearby Songbird Populations

Forest-dependent songbird species appear in significantly smaller numbers in areas adjacent to reclaimed mountaintop removal mines, according to a study published this year in the journal Landscape Ecology. Evaluating bird populations in forested land next to reclaimed mine sites in Kentucky and West Virginia, researchers found declines in nearly two dozen types of songbirds, including the cerulean warbler. A smaller amount of species, mostly shrubland birds, responded positively to increases in grassland. "If [forest] managers want to take actions that may benefit sensitive, forest-dependent species, they need to minimize the amount of forest lost in a landscape," commented Doug Becker, the study's senior author.

## Lawsuit Defends Blackside Dace

A federal lawsuit filed in Knoxville, Tenn., alleges regulators failed to meet legal obligations to protect a threatened fish endemic to Appalachian streams. Four citizens groups, including the Sierra Club and Statewide Organizing for Community Empowerment, claim the U.S. Office of Surface Mining Reclamation and Enforcement failed to consult with the U.S. Fish and Wildlife Service about

adverse impacts to the federally protected blackside dace before issuing a permit for a 1,088-acre mountaintop removal mine in Claiborne County. Under the Endangered Species Act, agencies must ensure their actions are not likely to jeopardize the continued existence of a listed species.

## McAuliffe Fast-tracks Efficiency

Citing the clean energy sector as a "key strategic growth area" for Virginia's economy, Governor Terry McAuliffe moved up the state's goal to reduce retail electricity use by 10 percent from 2022 to 2020. The governor appointed 12 individuals from the public and private sector to his Executive Committee on Energy Efficiency, which is tasked with developing a strategy to meet the accelerated goal. Currently, Virginia ranks thirty-fifth in the nation for overall efficiency policies according to the American Council for an Energy-Efficient Economy.

## TVA Milestone at Nuclear Plant

The U.S. Nuclear Regulatory Commission voted in May to issue an operating license to Watts Bar Unit 2, a nuclear power reactor owned by the Tennessee Valley Authority, pending additional regulatory requirements. If approved, Watts Bar 2 would be the first commercial nuclear reactor licensed in the United States since the first unit at the Watts Bar plant in 1996.

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### Solidarity in the Tar Heel State

Story by Julia Simcoe and staff

Appalachian Voices joined representatives of the National Society for the Advancement of Colored People in Stokes County, N.C., last May to stand in solidarity against disproportionate polluting in low-income communities of color. Representatives from local and national levels of the NAACP spoke at the event,



were found to be polluting ground and surface water, and recently, close to 200 households near some of the ponds were issued notices from the state health department advising them to not drink or cook with water from their wells (see full story on page 24).

The state's recent decision to drill an exploratory core sample to assess natural gas reserves in Walnut Tree has led to concerns that hydraulic fracturing might come to the area. Tracey Edwards grew up next to the Belews Creek Steam Station and remembers when coal ash used to fill the air, landing on their homes and gardens. She recalls eating from the garden and worries that the ash may have affected her health. Edwards feels she has already dealt with too much pollution, and does not want fracking to come to the community.

All 14 of Duke's N.C. coal ash ponds



### Spreading the Word at FloydFest

It's not too late to get tickets to this year's FloydFest: Fire on the Mountain, but don't delay, as they won't last long. Appalachian Voices staff is gearing up for an unforgettable event. We're collaborating with festival staff to create a special Tattoo Parlor in the middle of the festival, where we will spread the word about mountaintop removal coal mining, encourage stewardship of the mountains we all love, and hope to (temporarily!) tattoo 10,000+ festivalgoers with the words iLoveMountains. Special thanks to Erika Johnson, Kris Hodges, Sam Calhoun and everyone at Across-the-Way Productions — we'll see you July 22-26! Learn more at [appvoices.org/floydfest](http://appvoices.org/floydfest)



Photos courtesy of FloydFest



Rev. Hairston, president of the Stokes County, N.C., NAACP, speaks at an event to bring attention to disproportionate environmental threats in low-income communities of color. At left, a concerned resident holds a sign asking for the state to designate Belews Creek as a high-priority coal ash cleanup site.

Jacqueline Patterson from the NAACP urged the crowd to see connections between racism, healthcare and pollution. "Sixty-eight percent of African-Americans live within 30 miles of a coal-fired power

plant," she said. "African-American children are five times more likely to enter into the hospital from asthma attacks and three times likely to die from asthma attacks, so this is definitely a moral issue."

### Breaking Clean Tour

The Mullins family is hitting the road once more to share their story about life in the Appalachian coalfields. The Breaking Clean Tour, which visited more than 20 cities in the Southeast and Midwest in 2014, will be heading to the Pacific Northwest this summer. Nick, a former fourth-generation underground coal miner, his wife Rusti, and their children Daniel and Alex will meet with and talk to community groups and individual citizens about Appalachian residents and their struggle against mountaintop removal mining and share Nick and Rusti's mission to create a better future for their children. "I hope people will take away a new knowledge and interest in how coal is extracted and used," Nick says. Appalachian Voices is excited to be help sponsor the tour. Learn more about the Mullins family and follow their progress at [breakingcleantour.org](http://breakingcleantour.org)



### William Dixon: The Eternal Optimist

By Dac Collins

William Dixon takes a short break during our conversation to ring up a customer in his international grocery store located in Beckley, W.Va. "If she's Ethiopian, she'll like this one...tell her it's Egyptian style," he tells a patron who is shopping for his girlfriend.

Taya and Abraham's International Grocery is unique in a town with just over 17,000 people. And so is William, who opened the store in 2009 with his wife Dipinti, and has distributed The Appalachian Voice there for the past three years. The native West Virginian has lived his whole life in a nearby holler that has been home to his family for generations.

The holler, known by locals as Bishop Ranch, is located in the heart of coal country—halfway between Beckley and Charleston. William was an adolescent when mountaintop removal coal mining became the primary means of extracting coal in the area. Now 31 years old, he has a front row seat in the theater of destruction that surrounds his home.

"You grow attached to the landscape when you're growing up, it becomes a part of who you are," William says, "And when you see this type of change, it does something to you."

William admits that he didn't become an activist until his early twenties, when he suddenly realized



This reclaimed mine site across the street from William's Bishop Ranch holler home is no longer the forested mountain he explored in his youth. Photos by William Dixon

that the mountain he climbed as a teenager was altered permanently, its peak blown up and flattened. "This is something that took millions of years to form, and now it's gone forever," he comments.

Although the destruction William has witnessed over the past two decades is nothing short of tragic, he still has hope for the future and refuses to leave the holler where he was raised. The eternal optimist, he suggests that the flattened, treeless mountaintops would make perfect sites for wind farms.

"I ask myself how bad are things going to get before they get better," William says. "[But] I gotta keep that hope inside of me that things will get better. We gotta keep that little



bit of hope, although things seem to get worse and worse."

William believes that the only real solution to the problems created by mountaintop removal would be to move away from coal as an energy source, and he suggests that before we can complete that transition, we have to quit referring to coal as "cheap energy."

"If you looked at the long-term cost—between the environmental damage and the health effects on people living nearby—it would be the most expensive form of electricity you could ever imagine," says William.

### The Newest Member of Our Team

Please join us in welcoming Tarence Ray, expanding our Appalachian Water Watch project in Central Appalachia and working on federal policy to end mountaintop removal coal mining. Tarence was raised in the rural oilfields of southeastern New Mexico and received a bachelor's degree in history from the University of Texas at Austin. He served two terms as an AmeriCorps VISTA in Letcher County, Ky., focusing on the connections between water quality, systemic poverty, mine safety, the black lung benefits system and the environmental impacts of coal mining. Tarence is an occasional contributor to The Daily Yonder blog and Appalshop's WMMT-FM in Whitesburg, Ky.



### Communities at Risk from mountaintop removal



Learn about our campaign on page 7

VISIT: [CommunitiesAtRisk.org](http://CommunitiesAtRisk.org)



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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*The flame azalea is native to the East and is usually found at higher elevations. It attracts native pollinators, such as bumblebees and hummingbirds, but isn't a friend of beekeepers, because the honey made from azaleas is poisonous. Commercial beekeepers saw a 40 percent honeybee population decline in the past year, grim news for one of our most important pollinators (see p.3). This image was captured in Nashville, Tenn., by Mike Hill.*

## Mountaintop removal coal mining has occurred less than 500 feet from the small community of Krypton, Kentucky.



Krypton is just one of hundreds — and possibly thousands — of communities living in the shadow of mountaintop removal coal mining in Appalachia.

For far too long, coal companies have tried to hide the extent of mountaintop removal and its encroachment on Appalachian communities.

Help us continue to use science and technology to expose the destruction happening in Appalachia and keep these communities from disappearing altogether. Invest in our work today to defend Appalachian communities at risk.



Dalton Branch mine in Tazewell County, Va

Name of Member \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_  
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