

FREE

The Appalachian VOICE

June/July 2014

Exploring the Clinch River Valley

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Destination Farmers Markets

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Confronting Carbon Pollution



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A Note from Our Executive Director

As we go to press, the U.S. Environmental Protection Agency is preparing to unveil the nation's first-ever proposal to limit planet-warming carbon pollution from existing power plants — the single largest contributor to America's carbon footprint.

This is a critical opportunity to move the needle away from dirty fossil fuels and the destruction they wreak — including mountaintop removal and poisoned water and air — and toward cleaner, more sustainable ways to power our lives. A strong regulatory framework to cut carbon pollution can help level the playing field for energy efficiency and renewables like solar and wind.

These cleaner sources of energy are poised to make profound, positive changes in the nation's energy portfolio that can dramatically reduce the human and environmental harm from extracting and burning fossil fuels — if we can overcome the disproportionate political influence of the fossil fuel and utility industries.

Countless studies show that switching to efficiency and renewables will also boost economic prosperity, creating jobs and opportunities. This is especially important in many parts of Appalachia, where good jobs are scarce and lower household incomes preclude too many from the savings and comfort of an energy-efficient home.



The EPA's announcement will be just the beginning of the process, as we discuss on page 10. The public's involvement — your involvement — will be crucial.

We will need to keep the pressure on our federal and state elected officials, and on the corporate players, to do the right thing. Appalachian Voices will be advocating for action that leads swiftly to averting the worst impacts of climate change and building a robust clean energy economy. Read more about our efforts on page 22.

For our future,

Tom

Tom Cormons, Executive Director

Across Appalachia

Environmental News From Around the Region

Doubts Follow Elk River Contamination

By Kimber Ray

Four months after a Freedom Industries chemical tank contaminated the water of approximately 300,000 West Virginia residents this past January, only 36 percent of those residents were drinking their tap water, according to a survey released in May by the Kanawha-Charleston Health Department.

The affected private utility, West Virginia American Water Company, is under investigation by the West Virginia Public Service Commission regarding its response to the spill. A hearing is scheduled for October.

The chemical spill revealed that West Virginia American Water has no backup water intake supply for its principle distribution center. State environmental officials have proposed that the Kanawha River — of which the Elk River is a tributary — be designated as a potential drinking water source. Approval of the proposal during the 2015 legislative session would create tougher pollution controls on the Kanawha. In the long term, this would make it possible for West Vir-

ginia American Water to establish a second intake at the location.

Water quality and other environmental regulations have long been contentious issues in West Virginia. According to a 2012 study in Environmental Science and Technology, approximately 25 percent of the state's surface water is contaminated by mountaintop removal coal mining. The chemical that contaminated the Elk River in January, MCHM, is used in coal processing. Following the spill, a state review uncovered three coal companies' facilities discharging trace amounts of MCHM into nearby waterways. Two of those companies have since discontinued their use of the chemical.

This April, both Ohio and North Carolina began accepting wastewater contaminated with MCHM by the Elk River spill. Between the two states, more than 225,000 gallons of contaminated stormwater runoff will be treated, and an additional 50,000 gallons of wastewater from Freedom Industries' storage tanks and the Elk River has been injected into hazardous waste wells in Ohio.

Progress for Tennessee Wilderness

By Molly Moore

Efforts to preserve wild lands in East Tennessee took a step forward this spring when a bill to designate nearly 20,000 acres in the Cherokee National Forest as wilderness passed the Senate Agriculture Committee.

First introduced by Tennessee Republican Senators Lamar Alexander and Bob Corker in 2010, the Tennessee Wilderness Act would grant wilderness designation — the highest form of protection for public lands — to one new section of Cherokee National Forest and expand the boundaries of five existing wilderness areas.

"Creating and expanding these wilderness areas would have no effect



A waterfall flows through Upper Bald Wilderness Study Area, which would be protected as wilderness under the proposed bill. Photo by Bill Hodge

on privately-owned land and will not increase costs for taxpayers," Alexander said in a press statement.

Now that the bill has passed committee it is eligible to be heard on the Senate floor. A companion bill has not been introduced in the House of Representatives.

Virginia Land Trust Drilling Controversy Resolved

By Carvan Craft

This spring, nonprofit land trust Virginia Outdoors Foundation removed a provision allowing drilling for oil and gas on their conservation easements. Land trusts are organizations which, through contracts with landowners, aim to protect natural lands from development by placing that land into permanent conservation. Yet since 2012, the foundation has

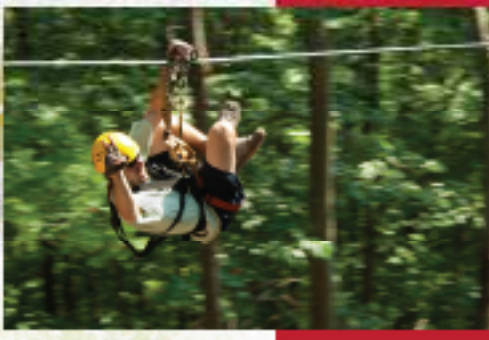
allowed landowners to maintain drilling rights on their easements.

Environmental groups including Virginia's Piedmont Environmental Council were critical of the land trust's drilling provision, which the group denounced as "contrary to the purpose of most easements." The council has also noted growing concerns amongst local communities regarding the potential for hydraulic fracturing to impact water quality.

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Seedtime on the Cumberland

June 6-7: Appalshop's annual summer festival celebrates Appalachian people and culture through music, films, storytelling, theater, crafts and food. Appalshop is a nonprofit media, arts and education center. Free. Whitesburg, Ky. Visit: seedtimefestival.org

Virginia Creeper Trail Bike Trip

June 10, 8:30 a.m.-3:30 p.m.: Join park interpreters for a mostly downhill, 15-mile bike ride from Whitetop to Damascus. All ages and skill levels. Pre-registration required. \$25/person. Families of 4 or more \$20/person. Hungry Mother State Park, Marion, Va. Visit: dcr.virginia.gov/state-parks/hungry-mother.shtml

Firefly Gathering

June 12-15: Workshops include primitive skills, homesteading and permaculture. Evening entertainment and camping. Registration \$50-\$400, includes most classes; does not include meals. Bell's Cove in Barnardsville, N.C. Visit: fireflygathering.org

Coal Ash Film Tour

June 12-19: View four short films related to coal ash. Co-hosted by Appalachian Voices. Tour will

visit Winston-Salem, Durham, Pine Hall, Charlotte, Wilmington, Raleigh, Asheville and Greensboro, N.C. Visit: workingfilms.org/blog/coalash

Mountain Justice Summer Camp

June 14-22: Nine days of workshops and trainings on resisting mountaintop removal coal mining and celebrating Appalachian history and culture. Music, films, bonfires and dancing in the evenings. Sliding scale up to \$150. Camping and food included. Wiley's Last Resort, Pine Mountain, Ky. Register: mountainjustice.org

Virginia Mountain Music Festival

June 20-21: Performers include nationally recognized talent such as Dr. Ralph Stanley and regional and local favorites. \$5/day. King Community Center Auditorium, Southwest Virginia Community College. Cedar Bluff, Va. Visit: sw.edu/vmmf

Journaling Journey

June 28, 10 a.m. - 12 p.m.: Join The Nature Foundation at Wintergreen and author Kelly Johnson for a one-of-a-kind children's workshop on nature journaling. Ages 5-12. Bring water and dress outdoor appropriate. Youth: \$10/Member, \$15/Non-member. Adult guardian, free. Wintergreen, Va. Visit: tnwf.org

Whippoorwill Festival

July 10-13: Earth-friendly living workshops, music, food and entertainment. Breakfast and dinner provided. Prices listed July 1. HomeGrown Hide-Aways, Berea, Ky. Visit: whippoorwillfest.com

Climate Knoxville

July 12, 5-8 p.m.: Learn about local effects of climate change and rally for climate change protection. Live music and comedy. Event partners include Appalachian Voices, SOCM and Sierra Club. Market Square, Knoxville, Tenn. Visit: tennpl.org

Appalachian Bird Talk

July 13, 2-3:30 p.m. Come learn about bird habitat and meet several non-releasable birds from the Avian Conservation Center of Appalachia. Free. Meet in lower parking area. West Virginia Botanic Garden, Morgantown, W.Va. Visit: wvbg.org

Xtreme Roan Adventures Youth Rally

July 26, begins 8 a.m.: This annual youth naturalist rally is geared to children ages 4 and older. Sponsored by the Friends of Roan Mountain, participants will enjoy nature talks, hikes, live animal exhibits and lunch. Roan Mountain, Tenn. Visit: tnstateparks.com/parks/about/sycamore-shoals

Energy Savings Gatherings

Learn how to reduce home energy use, save money, and better protect the environment at an Energy Savings presentation with Appalachian Voices. Find a community meeting near you at apvoices.org/energysavings/events

About the Cover



A boy leads a canoe through a stretch of shallow water on the Clinch River during an August 2011 trip. Discover the promise and enchantment of the Clinch River Valley beginning on page 12. Photo courtesy Clinch River Valley Initiative, clinchriverva.com

“Hollow” Documentary Wins Award Communities Pursue Revitalization Plans

By Kelsey Boyajian

Throughout “Hollow,” an interactive online documentary, the lush hills of Appalachia are juxtaposed beside stripped mountaintops. Through the stories of 30 individuals living in rural McDowell County, W.Va., director and producer Elaine McMillion uses a combination of web and film to spotlight the history and aspirations of the county’s 21,000 residents, and explores the uncertain future of rural America. McMillion, a West Virginia native, recently received the esteemed Peabody Award for the project.

Home to more than 100,000 residents in the 1950s, McDowell County is now among the one in three United States counties where more people leave than stay, according to the documentary trailer. As viewers scroll through a timeline of the county’s history through interviews, photographs, video and text, they witness the region’s struggles as well as the determined efforts of residents to revive their community.

Many towns in McDowell County, and Appalachia in general, have historically relied on coal as their sole industry. But as coal became less competitive in the marketplace and mountaintop removal mining increased, many jobs were cut. Since the 1970s, poverty, unemployment and drug addiction rates have skyrocketed. “Hollow” addresses the way these issues have affected the

overall view of West Virginia, and attempts to dissolve these notions of Appalachia. “For many years we have been defined by an outsider perspective, which often oversimplifies and stereotypes us,” McMillion says.

Ellis Ray Williams, one resident featured in the film, offers a reason for the economic troubles in McDowell County. “We have a brain drain here,” Williams says, “The kids we send off to college, they don’t come back here, they have to go other places [for employment].” Community members have begun a movement to promote tourism in McDowell County to provide more job opportunities. By emphasizing the area’s tradition of bluegrass music as well as the recent restoration of the McDowell County Historical Society, they also hope to revitalize the arts and culture of the area.

“Just because it’s called one of the poorest counties in the U.S., heartwise, it’s not,” says Robert Diaz, a founding member of the Community Crossing Mission, one of many nonprofits hoping to restore prosperity in McDowell County.

In “Hollow,” Elaine McMillion pays homage to these individuals and landscapes, drawing from her own family’s history in rural West Virginia and shows how much heart this county — and Appalachia as a whole — still possesses.

Visit hollowdocumentary.com

By Carvan Craft

Convenient access to local food can be a rare commodity in rural communities. Thanks to the Appalachian Livable Communities grant program, founded in 2012, five Appalachian communities will receive a shared total of \$375,000 to help make local food projects a reality.

The grant will fund a new agricultural education facility for local farmers in Berea, Ky. In North Wilkesboro, N.C., the farmers market will be moved to a new downtown location so local produce will be at the focal point of the town. The grant will fund local food networks that focus on education, sustainability, and healthy eating in Huntington, W. Va. The town of Albany, Mississippi will build a riverfront farmers market.

In Forest City, N.C., there are plans to build a Regional Agriculture Innovations Center where farmers can exchange new farming methods. Danielle Withrow, Forest City town planner, says

this facility will be “the most comprehensive resource for agriculture in the foothills region.”

There are also plans to relocate the Rutherford County Farmers Market to downtown Forest City. Having a farmers market downtown provides greater access to locally grown food, explains Withrow. She says the city is promoting the farmers market to “give people a local alternative for buying local products.”

Withrow says other environmentally conscious industries will come to Forest City because the community is becoming more sustainability-minded. “In today’s world, people are looking for the places that are doing the right thing,” she adds.

The Appalachian Livable Communities grants are funded by the Appalachian Regional Commission, the U.S. Environmental Protection Agency and the U.S. Department of Agriculture.

For more information, visit arc.gov

Poll Finds Increase in Support for Environment

By Kelsey Boyajian

A recent Gallup-Healthways poll reports that more Americans favor prioritizing environmental protection over economic growth. When the poll began in the 1980s, most Americans gave priority to the environment, but this trend reversed following the 2009 recession, with more Americans endorsing eco-

nomics growth even if it compromised the environment. In this year’s survey, 50 percent of Americans prefer environmental protection and 41 percent prefer economic growth. Support for environmental protection has increased among both major political parties, and is endorsed by two-thirds of Democrats and one-third of Republicans.

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Acrobats of the Forest: The Eastern Gray Treefrog

By Meredith Warfield

It's mating season in Appalachia, and the region's deciduous forests are humming with life. Birdsongs may be heard by day, but by night the Eastern gray treefrogs have hopped out of the branches and flocked to nearby ponds, where they can be heard singing their melodic love songs in hopes of attracting a partner.

Once the mating is over, the females will search for a shallow, calm place to lay their jelly-encased eggs, which will hatch in four to five days, then develop from tadpoles to froglets in about two months. Female gray treefrogs will lay up to 2,000 eggs at a time in clusters of 20. After a night of mating in late spring, the landscape is littered with frog egg clusters in tire ruts and even swimming ponds.

This species of treefrog, the *Hyla*

versicolor, commonly known as the gray treefrog, has a far-reaching range along the East Coast, stretching from Manitoba in the northwest to Florida in the south. Although some amphibian populations in Appalachia are struggling, such as the Northern pygmy salamander, the gray treefrog is currently thriving. There may be a few of these creatures nestled in the damp shade of your backyard, but often the gray treefrog goes unnoticed by humans. This is because the gray treefrog is nocturnal and can camouflage with its surroundings in seconds.

Gray treefrogs are typically about two inches long and can be identified by their slightly warty skin, their large, sticky toe pads for tree climbing, and most distinctively, the bright yellow-to-orange patch under their thighs that is believed to scare off predators. A



Photo by Robert A. Coggeshall (Kiowa)

close sibling to the gray treefrog is the *Hyla chrysoscelis*, or Cope's gray treefrog, which is almost completely identical to the Eastern gray treefrog. The species are thought to interbreed in some areas, but the only way to tell the two apart is by their mating calls. The gray treefrog's call tends to be more songlike than that of the Cope's treefrog, which has a stronger tinge of croaking to it.

The sounds of the season occur from April to August, and in the winter these creatures are able to partially freeze for hibernation. Their heartbeat and breathing stop completely as they rest under dead leaves or a rock on the forest floor. Gray treefrogs are able to do this because their bodies contain large amounts of a chemical called glycerol, which is transformed into glucose and acts as an antifreeze to prevent ice crystals from forming in the cells and keep body fluids from freezing solid. When the temperature warms up, the frogs thaw out and leap back into the trees.

Once in the trees, these amphibians are the acrobats of the forest,

springing and vaulting from tree to tree in search of a nice meal. Usually a juicy beetle, moth or cricket will do the trick. These creatures spend more than 90 percent of the year in tree branches, with the exception of mating season. The best way to catch a glimpse may be to sit outside on a nice, warm evening and listen closely to the teeming nightlife of the trees.



Photo by Patrick Coim

The Eastern gray tree frog above and the Cope's tree frog, at left, are physically similar and both have yellow patches on the underside of their hind legs. They can only be differentiated by their mating calls. Listen online at appvoices.org/thevoice

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More Than a Market

By Megan Northcote

Shopping for fresh, locally grown foods at farmers markets is always a refreshing way to find healthy foods while supporting the community. But in recent years, some farmers markets have transformed from grocery store alternatives to tourist destinations, featuring cooking and artisan demonstrations, hands-on healthy living activities for children, and food and farm festivals for all ages. While similarly innovative markets are popping up across the Appalachian region, these eight family-friendly markets offer a small taste of the kinds of educational entertainment that's enticing both visitors and locals to spend a fun-filled day at the market.

Morgantown Farmers Market - W.Va.

Housed in a new pavilion, this innovative market is celebrating the opening of a grant-funded culinary station that will host healthy cooking classes and demonstrations. Youngsters can enjoy a new 10-week kids' club called "POP" (Power of Produce), which provides each child with \$2 in weekly market tokens and culminates in a healthy eating activity. Different fitness activities, including a yoga flash mob, belly dancing, and hula hooping sessions keep the grown-ups in shape too. Local musicians and nonprofit booths create a lively, atmosphere. *Morgantown Market Place, 415 Spruce St. Open: May 3 - early Nov., Saturdays, 8:30 a.m. - noon. Visit: morgantownfarmers.org or call (304) 993-2410*

Lexington Farmers Market - Ky.

Open since 1975, Lexington's Saturday market in the heart of downtown features more than 60 vendors and draws more than 5,000 visitors during peak season. Each week, the Homegrown Authors series features talks and book signings by local writers. Monthly favorites include chef demonstrations led by local culinary students and an area master gardener information booth.



Families with young children particularly enjoy special event days at the Chattanooga Market, which offer sample tastings of seasonal produce, such as strawberries. Photo courtesy Chattanooga Farmers Market

Each week, different organizations host children's activities, including arts and crafts and pony rides, along with live local music. *Cheapside Park. Open: Saturdays, Spring-Fall, 7 a.m.-2p.m., Winter 8 a.m.-1 p.m. Visit: lexingtonfarmersmarket.com or call (859) 608-2655*

Downtown Hickory Farmers Market - N.C.

This year, a new Thursday evening summer market, 'Tastin', Tunes & Tomatoes, along with the city's widely popular Saturday market, offers chef demonstrations as well as clogging, music and healthy food scavenger hunts for children. Wind down after the Saturday market with yoga at Union Square or grab a bite at a downtown restaurant. On June 12, Thursday's market will host Smoozapalooza, featuring 50 additional vendors as well as beer, wine and food sampling. *Union Square, downtown Hickory. Open: April 16-Nov. 1, Saturdays, 8 a.m. - 1 p.m., Wednesdays, 10 a.m. - 3 p.m.; and June 5-Aug. 28, Thursdays, 5-8 p.m. Visit: hickoryfarmersmarket.com or call (828) 306-6508*

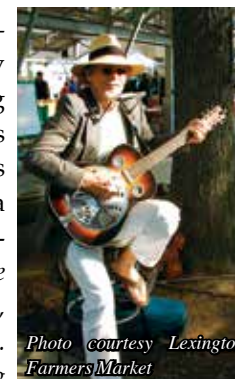


Photo courtesy Lexington FarmersMarket

Chattanooga Farmers Market - Tenn.

Now in its 13th season, Chattanooga's bustling market has exploded into one of the biggest in the region with more than 800 vendors drawing as many

Mobile Market Transforms Tennessee Town With Fresh Food

By Megan Northcote

Ten years ago, abandoned grocery carts left near entrances to public housing complexes dotted the rural landscape in Greeneville, Tenn. Lacking public transportation and deterred by hilly terrain, residents were too often discouraged to return their carts to the nearest grocery store after their weekly shopping trip.

In 2005, that all changed with Greeneville's first Mobile Farmers Market. Funded by a U.S. Department of Agriculture grant, the project is an initiative of Rural Resources, a nonprofit focused on connecting farms, food and families with sustainable practices throughout Greene County.

Now in its 10th year, this market on wheels delivers 1,700 pounds of locally grown, fresh food to more than 200 individuals each week — including those living in public or elderly housing — who otherwise would not have access.

"We live in a food desert here where there are not a lot of choices for eating fresh food," says Rhonda Hensley, market manager and an Appalachia CARES/Americorps member. "I love educating people about the goodness of eating local, fresh food that comes from the earth."

Each week, customers place their food order online. Volunteers then fill boxes with produce from Rural Resources' own on-site community farm, as well as meat, eggs and honey provided by local farmers, and baked goods and casseroles prepared by the nonprofit's Farm & Food Teen Training program. On Thursdays, the mobile market makes deliveries to designated drop-off locations, primarily serving low-income housing areas; the program has seen purchases with



Each week, Mobile Market Manager Rhonda Hensley, left, delivers food to this loyal customer, right, and her four children who lack proper transportation to travel to the nearest grocery store. Photo courtesy Rural Resources

electronic food stamps quadruple since the first year.

For Hensley, introducing children to healthier foods and watching their eating habits change makes her job immeasurably rewarding.

"I love filling kids' hands with blueberries or giving them a piece of kale to taste for the first time," Hensley says. "This food is so delicious. There's no comparison to processed foods."

The mobile market has even empowered clients to grow their own food by providing 60 garden containers and helping one neighborhood start a community garden.

As the program grows, Hensley is planning for local restaurants, hospitals and hotels to turn to the mobile market for fresh, healthy food supplements for their menus.

For more information, visit ruralresources.locallygrown.net or call Hensley at 423-470-4047.

as 1,300 people each Sunday. Each market is themed and includes two free music concerts, 20 food trucks and numerous chef demonstrations. During June and July, foodie festivals abound, honoring the blueberry, tomato and peach as well as the Chattanooga Street Food Festival on June 22. Beat the heat at the July 13 Ice Cream Social where \$5 buys five scoops from local creameries with proceeds benefiting a community childcare center. 1829 Carter St., Open: April 27- Nov. 23. Sundays, 11 a.m. - 4 p.m. Visit: chattanooga-market.com or call 423-648-2496

Independence Farmers Market - Va.

Almost every Friday in the summer, this southwestern Virginia market hosts family-friendly special event days. At

Dairy Day on June 13, youngsters can learn how to milk a cow. In July, build a vegetable vehicle to enter in the zucchini car races, or challenge the family to a pie-eating contest at Berry Fest on July 18. Enjoy monthly fiber and bee-keeping demonstrations as well as chef presentations during the first market of the month and free kids activities at every market. *McKnight Park, Hwy. 21 and 58 intersection. Open: May-Oct., Friday, 9 a.m.-2p.m. Visit: independencefarmersmarket.org or call (276) 655-4045*

The Wild Ramp - W.Va.

This 125-vendor indoor farmers market in Huntington, W.Va., will more than double in size when it moves into the Old Central City Market building this

Continued on page 17

Facing the Frontier: Practical Considerations for Genetic Modification in Appalachian Food

By Valerie Bruchon

It sounds perfect: enter a laboratory, change one quality of a food crop through genetic technology, and walk away having created a “miracle” food source to help feed the world. This new crop might eradicate the need for destructive or unsustainable farming practices, or it could make farmland more productive by packing crops together more tightly, ultimately alleviating global hunger. You’ve probably heard the name of this technology before: genetic modification.

So what exactly is genetic modification? The meanings of “genetic modification,” “genetic manipulation” and “genetic engineering” may seem unclear, but most official sources consider all three to refer to the same thing: manipulating genetic material in a laboratory setting. Traditional breeding, such as hand-pollinating between two different types of tomatoes, does not fall under the definition of genetic modification. Genetic modification refers to modern biotechnology, and can even transfer genetic material between two unrelated species, such as bacteria and corn. But these modifications can involve so many different methods, and

so many different organisms, that there is no “one-size-fits-all” answer to the questions about their potential risks.

In 1996, when genetically modified foods entered the U.S. market, well under 10 percent of domestically grown corn and soy — the country’s two biggest crops by far — was genetically modified. Now, roughly 90 percent of these crops are genetically engineered. Much of this 90 percent is fed to livestock, which often ends up on our plates as meat. Most processed foods in the United States also contain some sort of corn or soy product.

Most of the engineering performed on corn and soybeans is intended either to make crops “immune” to the herbicides that are sprayed to kill weeds, or to make crops inedible to insect pests. This, advocates say, may decrease the need for chemicals that could potentially infiltrate water supplies or food. Yet over time, some of these undesirable weeds and insects have evolved a resistance to the substances — either in herbicides or pro-



It’s impossible to tell whether food such as these local blueberry plants, above, is GMO-free just by looking at it. Stands of frasier fir Christmas trees, right, a major crop of western North Carolina, can be devastated by root rot fungus. Genetic modification may hold promise for breeding resistance in the trees. Photos by Valerie Bruchon



duced by engineered crops — meant to kill them.

The effectiveness and safety of genetically modified organisms are still debated. The U.S. Department of Agriculture and the Food and Drug Administration oversee GMO foods in the United States, so in theory, the ones that reach the market are safe. But often the research that informs GMO laws is funded by biotechnology companies themselves, especially at universities, where corporations dominate the funding of GMO research. “Big corporations are paying the land-grant colleges to do research,” says Tennessee State Senator Frank Niceley. “And unfortunately, they’ll prove what you pay them to prove.”

Since 1990, any food sold in America and labeled “organic” may not contain any genetically engineered ingredients. But so far, U.S. organic-labeling laws can be applied only to domestically-produced foods, which make up roughly 80 percent of the American diet. The remaining 20 percent is imported, from any combination of about 150 countries, which may have virtually untraceable

supply chains and few labeling laws.

Genetic Technology on the Appalachian Table

Appalachia may be affected by genetically modified organisms in unique ways. The region has a distinct agricultural heritage and also faces a slew of health issues, including poor nutrition and obesity in children. “The best way to keep health-care costs down is teaching kids to eat healthy,” says Niceley. “But with current labeling laws, it’s hard to know what you’re really feeding your kids. And if things don’t kill people immediately, new [GMO] products can out-advertise healthier, more traditional ones.”

According to Jim Hamilton, director of Watauga County Cooperative Extension in North Carolina, “The loss of genetic diversity in crops [nationally] is a bigger deal than genetic modification itself.” He explains, “we’ve narrowed our varieties — with corn or soy, or even tomatoes — because the big companies are dictating prices, based on the types they can produce most cost-effectively.”

Niceley shares similar concerns. As

Continued on page 9

Genetic Modification

Continued from page 8

he puts it, “In agriculture, you can’t put all your eggs in one basket. Just like you don’t want one outfit furnishing all the seed and all the herbicide, you don’t want just one crop, or only one breed. To keep people healthy every day, and also if a disaster occurred, you get resilience and strength through diversity.”

Compared to areas of the United States that are dominated by one or two crops, Appalachia’s agricultural heritage is diverse. Appalachia has a wide variety of local climates and terrains, which make growing large areas of just one crop economically infeasible. Also, early interactions with Native Americans endowed Appalachian settlers with a rich variety of heirloom foods, strains of which have been locally preserved. These factors result in Appalachia’s patchwork of specialty crops, from blueberries to winter squash. The region has also seen an unmistakable rise in the production of non-GMO foods: now, roughly 33 percent more Appalachian farms are growing at least one non-GMO product than twelve years ago.

Since 2013, lawmakers in Tennessee, Kentucky and West Virginia have introduced GMO legislation, currently under review, that aims to require the labeling of GMO foods sold in those states. And in May, Vermont passed the nation’s first GMO-labeling law. Niceley, a Republican who is known for his outspoken persona, has been spearheading similar attempts in Tennessee. This bill would mandate that “genetically engineered food products sold in Tennessee must contain a label plainly visible on the display panel that conspicuously contains the words ‘genetically engineered.’”

Niceley explains that he was raised on his great-grandfather’s farm and continues to cultivate his family’s relationship to the land. “I have three daughters who are [very serious about their food], and we raise pastured beef, free-range chickens, heirloom cornmeal and grits, and more,” he says. With an education in soil science, and family members who worked in nursing and medicine, Niceley looks at GMO issues from both agricultural and nutritional standpoints. “Healthy soil leads to

By Carvan Craft

The maze of labels in the grocery store can make it hard to know what’s good for your family, animals and the environment. And when it comes to what should and shouldn’t be in food, the jury is out. Although many foods have labels to help customers make more informed decisions, the labels themselves can be misleading. “Natural” and “all-natural,” for example, only require that meat and eggs contain no added artificial ingredients. The terms don’t guarantee any-

What’s In Your Food?

Certified labels can be prohibitively expensive. The proliferation of labels reflects growing public concerns, such as whether genetically modified organisms are contributing to the 50 percent rise in allergies among children during the past decade, or whether the “dead zones” — large swaths of ocean where all life leaves or dies — caused by herbicide runoff will have lasting environmental and economic consequences. It’s ultimately up to the consumer to weed out misleading labels, and you can learn more with resources such as greenerchoices.org. But the best way to know what’s in your food? Ask your farmer!

GMO Genetically Modified Organisms: Lab-created combinations of DNA from plants and animals	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
Synthetic Hormones Manufactured hormones approved by the U.S. Food and Drug Administration	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	n/a	n/a	n/a
Artificial Colors & Flavors Often derived from petroleum	Prohibited	Allowed	Prohibited	Prohibited	Limited	n/a	n/a	n/a
Artificial Preservatives Inhibit microbial growth on food.	Prohibited	Allowed	Prohibited	Prohibited	Limited	n/a	n/a	n/a
Synthetic Fertilizers Often derived from petroleum	Prohibited	Allowed	Prohibited	Limited	Limited	Limited	Limited	Limited
Synthetic Pesticides Repel and kill pests; require fewer applications than organic pesticides	Prohibited	Allowed	Prohibited	Limited	Allowed	Limited	Limited	Limited
Synthetic Herbicides Either a selective or general plant-killing chemical	Prohibited	Allowed	Prohibited	Limited	Allowed	Limited	Limited	Limited
Non-Therapeutic Antibiotics Antibiotics administered for any reason other than illness	Prohibited*	Allowed	Prohibited	Prohibited	Allowed	Prohibited	Prohibited	Prohibited
Wage Standards The worker must be paid no less than the legal minimum wage	n/a	n/a	n/a	n/a	n/a	Required	Required	Required
Farm Scale Small farms are more likely to be family-owned	Mixed	Mixed	Small	Mixed	Mixed	Small	Mixed	Mixed

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healthy plants, and then eating those plants keeps us healthy,” he states. But, he says, referring to the fact that many GMOs are designed with only one goal in mind — usually crop yield — “with GMOs, the nutrition just isn’t there. It looks like a bushel of corn, but doesn’t have the protein or the minerals. For ethanol or high-fructose corn syrup, [GMOs are] just as good, but for food-grade uses, no.”

But Brian Chatham, conservation technician at the Watauga County Soil and Water Conservation Office, has different reservations. “I don’t have a problem with right-to-know labeling, but if it elevates other costs like marketing, there could be problems further on down,” says Chatham. “We deserve to know what we’re eating, but at the same time, everything is not as bad as the media makes it sound.”

GMOs: Possibilities and Pitfalls

To speak plainly, this is not a straightforward issue. Some well-respected associations — for example, the American Medical Association and the U.S. National Academy of Sciences — state that they believe GMOs to be safe. Perhaps conservative use of genetic engineering, coupled with innovative uses of traditional farming practices, can reduce the concentration of agricultural chemicals in our water supply. And GMOs could help sustain agriculture in communities with harsh growing climates, where the next meal is never guaranteed.

On the other hand, GMOs have not been a significant presence in human diets for very long. Fifteen years, give or take, is just a blip on the radar when

determining longer-term effects on human health. And increasingly, weeds, pathogens, and insect pests are displaying resistance against the very technology that was designed to render them harmless. These emerging patterns may hint that no technology can permanently outsmart evolution in nature.

A sweeping ban on GMOs may be extreme. Yet, as with any technology at the frontier of science — and especially one that is being applied to billions of people — it will likely prove wise to think about the possible outcomes. Referring to a common gene in GMO crops, Niceley says, “The [Bacillus thuringiensis] gene is in everything now, and it’s just too early to tell what it’s gonna do to us [...] Science is so much smarter now — there is so much information out there, but nobody is sitting down and looking at the big picture.”

CONFRONTING CARBON POLLUTION

By Molly Moore

Six months after declaring “climate change is a fact,” in his State of the Union address, President Obama prepared to unveil what *The New Yorker* calls “the policy centerpiece of his second term.” The U.S. Environmental Protection Agency guidelines that he was poised to announce at press time will put in motion state and federal policies that could determine whether the nation moves toward climate security and cleaner sources of power or sits on the sidelines as the seas rise.

“When our children’s children look us in the eye and ask if we did all we could to leave them a safer, more stable world, with new sources of energy,” Obama told Congress and the nation, “I want us to be able to say yes, we did.”

The Case Against Carbon

The EPA currently limits emissions of air pollutants such as mercury and other pollutants associated with producing electricity, but as the agency moves to regulate the amount of carbon dioxide that existing coal-fired power plants can release into the atmosphere, it is grappling with arguably its most significant challenge yet.

Carbon dioxide is a fundamental building block of life on Earth, but it’s also king among the gases that have an overall warming effect on the planet. These greenhouse gases act somewhat like

the plastic shield on a greenhouse, holding the heat from the sun’s rays close to Earth instead of letting it bounce freely back into space. Of the greenhouse gas emissions caused by human activities in the U.S., carbon dioxide comprises 82 percent. The concentration of carbon dioxide in the atmosphere today is about 40 percent greater than it was in the mid-1700s before the industrial era began. Essentially, the greenhouse barrier is getting thicker and the Earth is getting warmer.

Global scientific consensus links the sharp rise in carbon to a host of climate projections. According to the National Climate Assessment, a report released in May by a consortium of experts assembled by the U.S. Global Change Research Program, prominent impacts in the Southeast will include sea level rise, more extreme heat events and decreased water availability.

The federal government began to seriously connect carbon dioxide emissions to climate change in the late 1970s, but there has been scant political action. In 2009, President Obama pledged that the United States would reduce greenhouse gas emissions by 17 percent below 2005 levels by 2020 if other economically powerful countries made similar commit-



ments. When the Senate failed to ratify the “cap and trade” carbon bill in 2010, the president was prompted to pursue a method of addressing climate change that relies on executive powers instead of Congress.

The EPA wasn’t always in favor of regulating carbon dioxide. In 2007, under President George W. Bush, the EPA attempted to deny its authority to address greenhouse gases. But the Supreme Court disagreed and ruled that the agency would be obligated to regulate greenhouse gases if it determined that the pollutants endangered public health and welfare. When the Obama administration began in 2009, then-EPA Administrator Lisa Jackson declared that greenhouse gases did pose risks to the public.

“The science on whether or not these gases are pollutants is clear,” Jackson said during a 2009 interview with *Time* magazine. “As the endangerment finding says, in both magnitude and probability climate change is an enormous problem.”

Those risks, according to the National Climate Assessment, include “increasingly frequent, intense, and longer-lasting extreme heat, which worsens drought, wildfire, and air pollution risks; increasingly frequent extreme precipitation, intense storms, and changes in precipitation patterns that lead to drought and ecosystem changes; and rising sea levels that intensify coastal flooding and storm surge.” Summertime levels of harmful ground-level ozone could rise by as much as 70 percent by 2050 if emissions are left unchecked, reports a study published this May in *Journal of Geophysical Research: Atmospheres*. Analysts project that humans will contend with troubles such as escalating asthma and allergy rates, more heat-related illness and death, a rise in

Climate change is expected to decrease water availability in the Southeast. Above, drought conditions transform Fontana Lake, N.C., in summer 2007. Photo by Ryan Rasmussen, courtesy of the U.S. Geological Survey

insect-borne illnesses such as Lyme Disease, and challenges to the food system due to drought.

With a clear link established between public health and safety and climate change, the EPA began limiting greenhouse gas emissions in 2011 by finalizing fuel efficiency standards for heavy-duty trucks and buses. The agency also said it would focus on regulating the largest industrial polluters — those responsible for roughly 70 percent of national greenhouse gas emissions — and avoid limiting small businesses. With fossil-fuel power plants responsible for 40 percent of nationwide carbon dioxide emissions, it was clear that the electricity sector would be affected.

In September 2013 the EPA announced its intention to limit the amount of carbon dioxide that can be released by new and current power plants.

Policy Prescriptions

The EPA’s authority to regulate both new and existing power plants leans on a section of the Clean Air Act, but the act prescribes different ways for handling future versus current facilities.

The agency is given more top-down authority when it comes to new facilities and is able to set federal carbon emissions standards for all new power plants. Last January the EPA released its proposed standards for new power plants — the public was able to comment on the draft standards until early May, and the rules are scheduled to be finalized this coming winter.

By capping the amount of carbon

Continued on page 11

Confronting Carbon

Continued from page 10

dioxide a coal-fired power plant can emit at 1,100 pounds per megawatt-hour, the rules are pushing utilities to instead use zero-emission renewables, energy efficiency improvements or natural gas. Utilities could also deploy carbon capture and storage technology to capture carbon emissions and contain them underground. The new technology, however, has not been used on a commercial scale; coal industry supporters say it’s too expensive and environmental advocates counter that utilities just haven’t had any incentives to make the switch.

Unsurprisingly, coal and utility groups are decrying the carbon standards for new power plants as an attack on the electricity industry, while environmental and public health organizations are applauding the move. “The whole point of these regulations is to discourage carbon, to make it unprofitable to create electricity with a lot of carbon,” David Doniger of the Natural Resources Defense Council said on *The Diane Rehm Show*, “And so we’ll see technologies that allow companies, electric utilities to squeeze more energy out, more electricity out with less carbon [polluting the air].”

As the standards for new power plants move forward, the process for existing ones is just beginning. Because it can be more expensive to change the way existing facilities work, the EPA has a different, more flexible method for devising new air pollution standards for already-established power plants. In this scenario, regulators first issue general guidelines that outline what the end carbon-reduction goals should be. Once those goals are established, the states devise their own plans for meeting the targets and submit their plans to the EPA for approval.

Obama himself is expected to announce the EPA’s proposed guidelines for carbon emissions from existing power plants at the beginning of June. The public will have until September to comment on the proposal, and by June 2015 the EPA will finalize its guidelines. States will have until June 30, 2016, to submit their plans for achieving the needed reductions, and the EPA will have until the end of 2016 to review each state’s plan. If all goes according to the administration’s agenda, by the time Obama’s term ends in Janu-

ary 2017 the nation will be on its way to lower carbon emissions — provided the rules withstand the lawsuits that industry groups and coal-friendly states are likely to file.

Carbon Standards and the Southeast

Regional supporters of energy efficiency and renewable energy, along with public health and environmental advocates, are watching closely to see how the EPA guidelines influence the Southeast’s overall energy mix.

Mary Shaffer Gill, president of the Tennessee Solar Energy Industries Association and vice president of Aries Energy, LLC, says the EPA guidelines are coming at an opportune time, as solar industry groups are talking with the Tennessee Valley Authority about how the federal utility can integrate more solar power into its energy portfolio. “The next two years are going to be very critical in developing long-term solar policy and bigger-picture lofty goals, making sure we’re seeing positive policy for our industry,” she says.

At the Southeast Energy Efficiency Alliance, Policy Associate Abby Schwimmer says that investing in energy efficiency puts states in a position of strength and preparedness, regardless of how the carbon rule and other federal regulations pan out.

Public health officials are also watching. Among other ills, carbon emissions can be directly and indirectly tied to North Carolina’s high rate of pediatric asthma, says Gayatri Ankem of Medical Advocates for Healthy Air, a branch of the advocacy organization Clean Air Carolina. Citing the host of health consequences associated with higher ozone and pollen levels, changing weather patterns, and more severe storms, Ankem says that addressing carbon emissions will strike at the core of these problems.

Despite the known health concerns, those most at risk from poor air quality and the impacts of climate change have been underrepresented in the policy-making process, says Jacqui Patterson, director of the NAACP Climate Justice Initiative.

Nearly 78 percent of African-Americans live within 30 miles of a coal-fired power plant, she says, and African-Americans are hospitalized for asthma at a rate three times as often. She notes that

low-income communities and communities of color near power plants pay a cost for “cheap” energy in terms of attention problems linked to lead exposure, asthma attacks, and lost work and school days due to poor air quality.

When it comes to the damages caused by flooding and severe storms, Patterson explains, pre-existing socio-political factors such as housing quality and homeownership affect how poor, elderly and minority residents are impacted by disasters. Displaced residents might be eligible for hotel reimbursements, for example, but such assistance doesn’t help those who can’t afford the upfront cost of lengthy hotel stays. “The marginalized get even further marginalized in disasters,” she says.

For Patterson, the policy details the EPA and states will grapple with during the coming years will have a tangible effect, both by reducing the amount of pollution that harms communities near power plants and by shifting the environmental and public health costs of carbon to fossil fuel companies.

“By putting in carbon pollution standards, it levels who’s paying the costs by [making it] the responsibility of energy companies instead of letting them live high off the hog while others are choking on pollution,” she says.



Duke Energy’s Riverbend Steam Plant in Gaston County, N.C., was retired in April 2013; the utility said the plant, which began operating in 1929, was rarely used. Political analysts suggest that outlining a strong plan for reducing its own carbon emissions could give the United States added leverage at the 2015 international climate change conference in Paris. Photo by Sandra Diaz

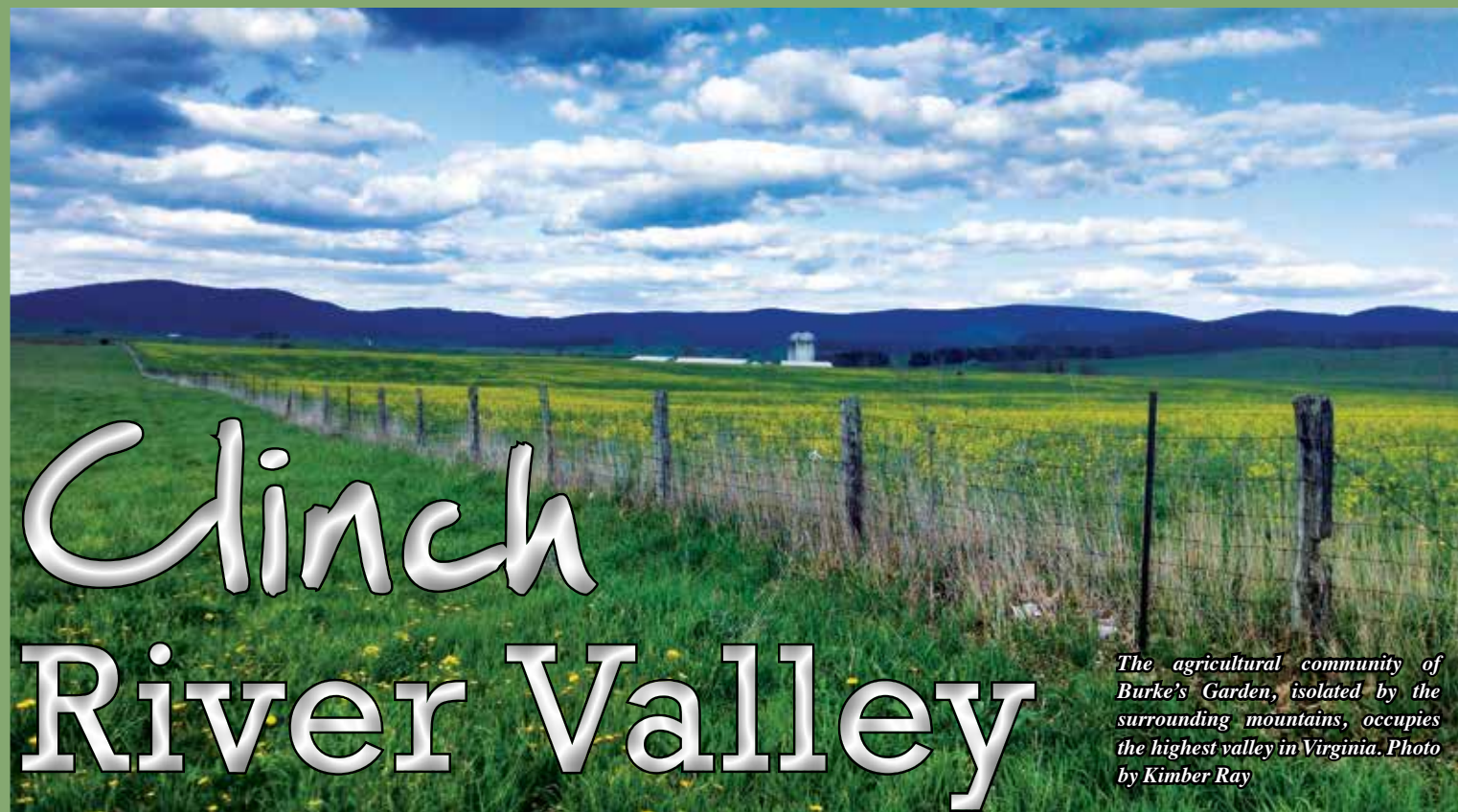
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Clinch River Valley

The agricultural community of Burke's Garden, isolated by the surrounding mountains, occupies the highest valley in Virginia. Photo by Kimber Ray

As the creeks and streams of the Clinch River Basin tumble down the furthest reaches of southwest Virginia, they form a home for the 63 rare species of fish and mussels that inhabit this terrain, commonly known as the Clinch River Valley. Not until the Clinch River enters East Tennessee, where it joins with the mighty Tennessee River, will its waters be stymied by large dams.

Until then, the free-flowing river passes through a rural, mountainous landscape, where communities in Lee, Scott, Wise, Russell and Tazewell counties are cultivating the river as a pinnacle of ecotourism. And as a region that holds the increasingly celebrated distinction of hosting the most biodiverse river system in the country, the Clinch River Valley is all the more magnificent to explore.

Preserving the "Heart of Appalachia"

By Kimber Ray

When a developer from New York told Charlie McConnell, the founder of a music venue in Coeburn, Va., that the best asset of southwest Virginia was "nothing," McConnell was perplexed. With long, forested ridges fanning out beyond a river teeming with more varieties of aquatic life than anywhere else in the country, and a rich culture of music and crafts deeply rooted in the mountains, "nothing" certainly wasn't the first word that came to mind for McConnell. The Nature Conservancy has even named the Clinch Valley as one of the last 20 "Great Places" in the world.

"People are really starved to find a place where they can just relax and watch the grass grow, listen to music, or sit outside and watch the sun come up or go down," the New York developer explained. "It's the pace of life and the friendly communities. People can come here, and do nothing, and enjoy it."

That way of life is inseparably connected to the natural environment, according to Aaron Davis, the assistant manager of Southwest Virginia Museum Historical State Park. For more

than a decade, many voices from southwest Virginia have advocated for the creation of a Clinch River State Park to help preserve this connection. That idea finally picked up momentum in 2010 with the creation of the Clinch River Valley Initiative, a coalition of stakeholders including citizens, government officials, and environmental and business groups.

Members of the initiative met with state legislators to promote the idea, earning the enthusiastic support of state delegates Terry Kilgore and Ben Chafin who, by April 2014, had convinced the House to include \$2.5 million to support the park's initial funding in the upcoming budget proposal. The final budget is scheduled to be announced at the end of June.

Virginia's 38th state park would cover nearly 700 acres and include two anchor properties along the Clinch River in Scott and Russell counties, as well as smaller stretches of land in Wise and Tazewell counties. In addition to creating much-needed campsites within an hour's drive of the river, the completed park will include hiking trails, picnic areas, visitor centers and, of course, access points to the river.

Boaters will be able to camp along the river shore's quiet, remote areas, inaccessible by car.

According to Steve Linderman, land protection program manager with The Nature Conservancy and chair of the Clinch River Valley Initiative's action group to create the state park, virtually all the land along the river is privately owned. But already, the effort to secure land donations and sale offers along the river has begun (see page 14).

In fact, much of the land across southwest Virginia is privately owned. Because of this, many species in the area remain undiscovered, according to Walter Smith, a biology professor at the University of Virginia's College at Wise. Yet with the recent development of regional hiking guides on EveryTrails' phone application — see page 15 — that connect to iNaturalist, an online community for reporting plant and animal observations, knowledge of the area has been growing. Some citizen contributions have even resulted in new insight into the region's ecology.

The marbled salamander is one such example. A secretive critter, it spends most of its life underground, but emerges to breed in

seasonally flooded areas. Its bold silver bands caught the attention of a UVa-Wise student, who submitted its picture online. Naturalists and biologists in the iNaturalist community were surprised — although the species was documented in the surrounding radius of the Clinch River Valley, the area itself had always remained a mysterious hole in the salamander's territory.

The Clinch River Valley is "ridiculously biodiverse," Smith says, but also understudied. And, he adds, "no one knows exactly why there's so much diversity in the region." One theory is that because the area had no glaciers in the last ice age, its species have had a longer period to evolve. As new hiking trails open — including the Spearhead Trails (page 13) and the Bluebell Island Trail (page 15) — and the state park comes closer to reality, visitors will have an abundance of opportunities to help uncover the secrets of the region's ecology.

"For a long time we've been an undiscovered natural place, [because] the general public didn't grasp the value of our ecosystem here," says local resident Lou Ann Wallace. Before tourism began to pick up, she says, some locals



The Heart of Appalachia Bike Route and Scenic Drive begins in Burke's Garden, left, and journeys more than 100 miles to Wise County, Va. Photo by Kimber Ray

Tracking the Trails of a Reinspired History

By Kimber Ray

Hundreds of miles of driving and recreation trails criss-cross southwest Virginia's rolling green acres of mountains, stitching together a quilt of gushing streams, hidden and remarkable wildlife, raw coal mines, spirited music and welcoming, resilient towns. The unique history of southwest Virginia is a seasoned patchwork of distinct communities with a shared Appalachian heritage. To experience the dynamic development of this region, here are just a few of southwest Virginia's many trails.

Heart of Appalachia Bike Route and Scenic Drive

From Burke's Garden, a valley community aptly named "God's Thumbprint," to the rugged, 400-foot plunge of Guest River Gorge, about 100 miles of back-country and unpaved roads weave through southwest Virginia, ending with a 20-mile bicycle-only trail. Branching off the Heart of Appalachia Route are an additional 40 miles of side

trails leading to popular attractions such as the 3-mile loop hiking trail at Pinnacle Natural Area Preserve, which hosts several waterfalls and a 400-foot rock outcrop with a scenic overlook.

Spearhead Trails Mountain View Trailhead

The wildly popular 60-mile, multi-use all-terrain vehicle and horseback riding trail in Saint Paul, Va., is the first of many planned trails to be developed on the private lands of coal, timber and gas companies. Jack McClanahan, who has been a member of the Spearhead initiative since it began in 2009, is proud of the effort to show compatibility between industry and recreation. "I am not anti-mining," he says. "The mining industry has put bread on my table for many years [...] we're taking the natural resources we're so proud of and nurturing them so others can come here and enjoy this place." As the first designated ATV trail in the region, the project takes environmental pressure off public and private lands, where illegal riding was widespread, and allows those who are physically unable to hike to enjoy the sights and sounds of these dense woods.

The Crooked Road: Virginia's Heritage Music Trail

Venture on the Crooked Road's 333 miles for lively bluegrass jams, the tapping rhythms of foot-stomping crowds, and old-time string bands. Fans travel from across the globe to experience first-hand the homeland of famous voices such as Ralph Stanley and the Carter Family. In addition to more than 60 affiliated venues and festivals throughout southwest Virginia, the road itself also hosts approximately two dozen "wayside exhibits" where travelers can park along the road and tune their radio to that exhibit's special station. But this isn't a tour for the seated audience — the best part is the live performances and the chance to meet wonderfully talented musicians.



A local couple sells root vegetables at the Clinch River Farmers Market in Saint Paul, Va. The market opened in 2009 and also hosts live music, clogging and cooking demonstrations. Photo by Erin Savage

Lays Hardware Center for the Arts

As the music shifts from a wavering amble to an exuberant pulse, a mix of voices, banjos and fiddles join in with the song of the land, from the quick strides of the cricket orchestra to the deep and ancient hum of the mountains. In Coeburn, Va., the long-time home of the legendary musician Ralph Stanley, jam sessions and performances at Lays Hardware Center regularly attract more than 100 visitors, every one of whom seems eager to step onto the dance floor. For those who are still working on their flat-footing, the two-step is a fun dance that's so simple it can be learned in just the first three steps of a song. Charlie McConnell, a founder of the music center, says even more people have been coming to the town since the development of nearby trails. "And with music, environmentally it's friendly, music doesn't pollute the atmosphere," says McConnell. He pauses, then adds, "Unless you're off key a little bit."

distinct historical, cultural and environmental attractions. Below are two of the eight sites on Tazewell County's Mountain Loop Trail, which is one of the state's birding and wildlife trails.

Burke's Garden

This hidden valley, tucked into a closed embrace by the surrounding mountains, is undoubtedly the "other side" that folks are referring to when they tell you where the grass is greener. A historic farming district, this incomparable location hosts rolling fields of crops and pastures glowing in brilliant streams of sunlight. Locals tell of how, in the 19th century, George Vanderbilt was struck by the valley's beauty and tried to buy the land for his estate. When residents refused to sell their titles, Vanderbilt moved his sights to Asheville, where the current estate remains. Only one paved road goes through the town, offering an enchanting 10-mile route for bicyclists or the casual stroller. For a breathtaking view, follow the road up to the Appalachian Trail, which ambles along the valley's rim.

Mountain Loop Trail

Scattered across southwest Virginia are no less than ten of the state's 65 innovative birding and wildlife driving trails. Since the project began in 2003, hundreds of thousand of visitors have flocked to the region, eager to catch a bird's-eye-view of the landscape from the mountains' scenic vistas and glimpse a rare avian species or three. But many features of the route don't require binoculars to fully appreciate — each trail is a medley of

Historic Crab Orchard Museum

The stories of southwest Virginia's cultural roots sprout into a tangible wilderness at this exhibit and living history museum. The more than 500-year-old Native American artifacts on display were discovered on-site, and the pioneer village of log and stone buildings is the result of transporting and re-assembling actual 19th-century structures. Visitors can become part of this historic community by trying their hands at different pioneer skills such as spinning yarn, open-hearth cooking, blacksmithing and, of course, traditional Appalachian music and dancing.

The marbled salamander was discovered in southwest Virginia thanks to the increasing use of phone applications to share hiking trail information and wildlife photos. Photo by Walter Smith



A boy scout handles a Clinch River mussel under the supervision of a state biologist. Until the 1930s, most American buttons were made from mussel shells, but today mussels are the most endangered species family in the country. Photo courtesy The Clinch Coalition



Clinch Water Revival: Ecotourism on the River

By Kimber Ray

No one could fail to notice Clinch River Adventures. Just off the banks of the Clinch River, this tubing, canoeing and kayaking outfitter is housed in a bright red caboose with the town's name, St. Paul, painted on the side. But the colorful building is far from the most prominent attribute people have been noticing about local resident Terri Anne Funk's business. Instead, the main conversation has revolved around her operation's remarkable success.

Funk grew up in the area and always loved to go out on the river — just not the Clinch River. Instead, she would leave town and go somewhere else — somewhere more seasoned to tourism. But about two years ago as she was returning to Saint Paul with her husband, she saw a van stacked with tubes. "Hey," she said, with her hometown in mind, "not a bad idea."

Business flourished once Clinch River Adventures opened last summer. Although only operating for about 30 days that season, Funk's fledgling enterprise filled an opening much larger than anyone in the community had expected. Despite the region's acclaimed biodiversity, Funk is the only outfitter in her area who operates from a business building and offers tubing. By the season's close, even with days after days of rain, Funk had hosted more than 800 people from 14 states and three countries.

Funk's business isn't the only thing flourishing in Saint Paul — the whole town has been cultivating itself as a hub for regional ecotourism. The riverside Matthews Park, where Funk's caboose is located, is being redesigned

to include native plant gardens, walking trails, a river pier and interpretative murals. Just outside of Clinch River Adventures, a food vendor will be selling barbeque from his local farm. Already the park boasts new playground equipment and a skatepark, and is directly connected to the picturesque Bluebell Island Trail (see page 15).

In addition to her work on the featured Bluebell Island Trail and improving regional water quality, local wonderwoman Lou Ann Wallace was also a founder of the town's open-air farmers market, which began in 2009. "But because this side of the river is coal country," Wallace says, "there aren't a lot of farms here. I had to convince farmers from outside coal country to come in, that they would be successful here."

Five years later, the farmers market is thriving. Vendors only sell products sourced from southwest Virginia, and there's live music, workshops on topics such as clogging, gardening and cooking, and free coffee and baked goods from the community. Just down the street is Saint Paul's first hotel, Saint Paul Suites and Cottages, a collection of newly opened rentals that locals have justly boasted ought to be featured in *Southern Living* magazine.

Expanding Business

This summer, Funk plans to extend Clinch River Adventures' season by opening a month earlier, on May 30, and also offering Thursday hours. Last year, 90 percent of her patrons were tubers. But considering that she started off with 50 tubes, four kayaks and two canoes, the percentage isn't a surprise. Funk is expanding her inventory, and

that additional stock will be help because last summer tubes sold out nearly every weekend.

With a long, calm stretch to gently float down the Clinch, and just a few small rapids to stir things up, it's not surprising that tubing is such a popular activity. Walter Smith, a biology professor at the University of Virginia's College at Wise, says the river's attractive features are likely related to the lack of major dams on the Clinch until after it reaches Tennessee. "People don't need to portage around dams so it's good for paddling," he says. "And there are fewer disturbances taking away habitats so it's good for wildlife diversity."

Funk expects that many new visitors will take advantage of those special features this summer after she unveils her latest experiment: waterproof iPads, clipped onto kayaks, that provide a virtual audio tour of the river. The content will be narrated by a professional storyteller, and music from Empty String Bottle Band — a local bluegrass group — will play during the interlude.

The iPad links to a custom-made GoogleEarth map and, since most of the river is Wi-Fi accessible, the map will use GPS technology to highlight nearby points of interest. Tour topics include flora and fauna, natural features and ecology, and the impact and history of coal mining in the region. There will also be logistical information such as loca-



A summer day spent floating down the Clinch River carries visitors past historic mountain towns, rare aquatic wildlife and an abundance of natural beauty. Photo by Patsy Ingles

tions for public river access points, hiking trails convenient to the river, nearby communities and where to eat or stay.

As far as Funk is aware, the map, designed by a student-led citizen science initiative at UVA-Wise, may mark the Clinch as the first river apart from the Amazon to attempt a virtual tour guide project. While the tour will ultimately be offered publicly and to small business owners across the region, a trial run is being conducted with Clinch River Adventures.

"At first, people were coming for the state parks and federal park, then checking out the rest of the area," says Funk. "Now, people are coming to this area for what we're doing."

River Access: A Community Effort

Marsha and Robert Banner were a little wary when they were first approached two years ago about providing access to the Clinch River from their land, but mostly they felt excitement. With more than a mile of river frontage along their farm, the river had long been a major part of their own family's activities, including cookouts and swimming, and they were glad to be able to help out their community.

After carefully working through the details — a gated fence surrounding the parking lot, hours prohibiting overnight parking, and an agreement that local police would monitor the property — the deal was set. Local resident Lou Ann Wallace, who has been an influential force in advancing regional ecotourism, even brought the mayor along for good measure.

The Banners donated a tenth of an acre for the creation of the parking lot and expanded river access point. The community development nonprofit Mountain Heritage, Inc., headed by Wallace, oversaw

the property before transferring it to the town of Saint Paul. Infrastructure development is not expected to be completed until this summer, but folks have already begun taking advantage of the new opportunity to enjoy the Clinch. Local river outfitter Terri Anne Funk navigates her customers to an old set of iron steps that leads up to the Banner's donated property. In thanks, Funk offered the Banners free tubing trips, and Marsha Banner was so thankful for that relaxing experience along the river that she purchased her own tubes.

As the Banners watch the Clinch River flow by their property they notice that, even in May, the river is alive with more visitors than they've ever seen in the past. The influx of tourists has brought needed jobs to the community, and Robert Banner is optimistic that the river will continue to be a tremendous help to the region. For him, there's no doubt that opening up access to the river was simply "the right thing to do."

Hiking the Highlands

Streamside Technology in the Clinch River Valley

By Kimber Ray

Although visitors are unlikely to stumble upon Saint Paul, Va., by chance, those who do might be surprised to learn that this small, rural town hosts some of the most novel trails in the country. Located along the crystal-clear waters of the Clinch River in Russell and Wise Counties, Saint Paul boasts the most publicly accessible riverfront land of all its neighboring southwest Virginia communities.

Long considered a hidden wonder of Appalachia by environmentalists and wayfaring travelers, the Clinch River is regarded by The Nature Conservancy as the number one hotspot in the United States for endangered aquatic species, including 17 varieties of federally endangered mussels. This distinction inspired a shared vision among community members and The Nature Conservancy: a network of hiking and biking trails that follow the sweeping curves of the river.

Over the past decade, this vision has evolved into an eclectic assortment of connecting trails that, for approximately nine miles, lead travelers past freshwater and hardwood forests, isolated wetlands, fertile floodplains, bald ridgetops and even the downtown streets of Saint Paul itself, suggesting that residents' fondness for diversity extends even beyond the banks of the river.

To identify this profusion of natural wealth and navigate these winding trails, smartphone users can download the EveryTrail phone application and check out three different interpretative trail guides for the area: Bluebell Island Trail, Sugar Hill Loop and Riverside Trail. The guides were created by the Southwest Virginia Citizen Science Initiative, a student-led

community effort at the University of Virginia's College at Wise.

According to Walter Smith, a biology professor at UVA-Wise and advisor for the initiative, it was only in the past two or three years that information on the area's natural features began to be substantially documented. "People weren't able to figure out where to go because when you asked, the directions could be 'Oh, the trail head is out by where Jen used to live.' There's been a lot of stuff here for a long time, but it's all been local."

Now, hikers can follow their GPS to trailheads, and select map pushpins to learn about the area's storied history of geology, ecology and coal. The newest addition to this network of trails, and a great starting point to explore all three paths, is the tremendously popular Bluebell Island Trail, which opened in summer 2013. The mile-long route travels along the Clinch River and its narrow floodplain, where rising water creates important habitats, including isolated pools of water and even washed-up debris. To a freshwater mussel, an old, half-submerged tire may seem like the perfect new home.

Lou Ann Wallace, a local leader in a variety of community and environmental initiatives, helped coordinate the creation of the Bluebell Trail through this sensitive natural area. Although she had grown up in the region, she had never explored this portion of the river, and was thrilled to discover what had long been a tucked away community treasure. "As a young girl, we always knew there was a Bluebell Island, but I didn't know where it was or why they called it that," Wallace says. "Now you can see the



Newly arriving settlers to southwest Virginia during the 18th century used Cliff Trail, which, during the spring, is covered in the purple hairy vetch legume native to Europe and West Asia. Photo by Kimber Ray

island, and see why they called it that."

In the early blush of spring, Virginia bluebells completely cloak entire sections of the floodplain. The full splendor of the trail's namesake fades by late April, but the mountain remains draped in color by plants such as the green-headed coneflower — a bright yellow bloom that graces the floodplains of southwest Virginia until early fall — and a variety of summer berries. Follow the trail though St. Paul's historic downtown, and then onto the Sugar Hill Loop trail. In mid-summer, the watchful observer may note some young fledglings just starting to grow comfortable with their wings as they feed on the mountain berries.

The Sugar Hill Loop Trail soon branches off to the Riverside Trail, a relatively flat path that follows the river. Butterflies seem to enjoy the river too,



The yellow-winged Eastern Tiger Swallowtail and the orange-spotted Spicebush Swallowtail are sipping nutrients from the mud in a process known as "puddling." Photo by Kimber Ray

sometimes gathering together to rest on its shores. If hikers can manage to part with the river, a steep climb up the grassy bald leads to panoramic mountain views and a 9-hole disc golf course.

Just a short walk further is Cliff Trail, a restored path that marks the trek of early settlers through the region. Travelers can take this trail back down the mountain, retrace the Riverside Trail, or complete the Sugar Hill Loop. Each path down, as for those up, is a pleasant surprise amongst the diversity of the Clinch River Valley.

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APPALACHIAN UNIVERSITY BUILDS HOME WITH SOLAR FLARE

By Nolen Nychay

Appalachian State University, partnered with a French university, will be the sole representative of Appalachia's green ingenuity in the third European Solar Decathlon. Kicking off June 28 in Versailles, France, the competition will pit 20 energy-independent houses built by collegiate teams against each other in a sustainable development showdown.

In 2011, Appalachian State, based in Boone, N.C., won the People's Choice Award in the U.S. Solar Decathlon. This year's team has tried to improve upon the best attributes of the last project for this year's competition.

The Appalachian team has dubbed their latest solar-powered home "Maison Reciprocity," which is, at press time, being ferried across the Atlantic in six separate modules. These pieces will be reconstructed in the l'Orangerie gardens near the Palace of Versailles. Until then, the team is finalizing drawings, writing a comprehensive project manual and creating an interactive iPad application to complement the building.

The Team

Appalachian has partnered once again with the Université d'Angers in France to form Team Réciprocité, or "Team REC," as they call themselves stateside. This is the most recent collaborative project between the two institutions, which have maintained an academic relationship for more than thirty years. After



The Solar Decathlon is entirely student-driven, from design and construction to securing sponsorships. Photo by Dudley Carter

nearly two years of intense planning, fundraising and construction, the students of Team REC feel confident about their entry in this year's competition.

"We are very lucky to have such a well-rounded and comprehensive [Appropriate Technology and Building Sciences] program here at App State," says Mark Bridges, Appalachian Solar Decathlon communications manager.

"It makes the whole process so much easier when everyone speaks the same lingo and can collaborate creatively to make an airtight design."

With the exception of a few faculty supervisors and consultants, Team REC is entirely student-run and managed. Twelve student officers oversee everything from construction and architecture to public relations and sponsorships.

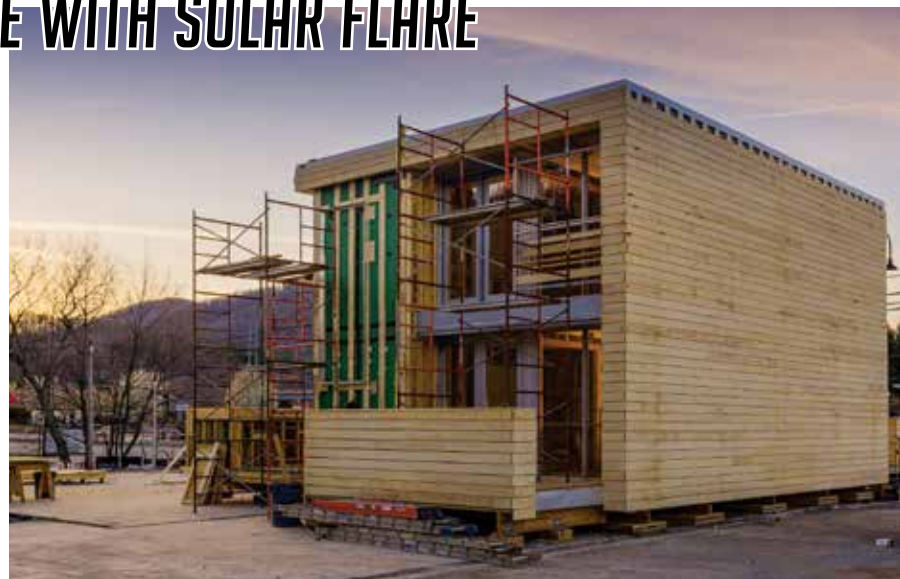
The Design

In order to thoroughly calculate their carbon footprint, Team REC researched "cradle to the grave" life-cycle assessments for nearly every building material and technology they used. This meant looking at extraction and refining processes of raw materials, manufacturing emissions and even the mpg-rating of vehicles involved in transportation. The result? An affordable, high-quality and durable home with a tiny carbon footprint.

Maison Reciprocity is based on an urban, multi-level row house model. The first floor is reserved for commercial activities, the second and third floors are duplex family homes and the fourth level is a rooftop terrace under a renewable energy canopy. To meet the height regulations set forth by the Solar Decathlon however, the building being presented in Versailles will include only two floors.

In their designs, Team REC utilized the German Passivhaus building concept — a popular trend in energy-efficient European construction. This meant making the entire house exceptionally well-insulated and heated naturally by the sun with intelligently positioned glass panes.

Inspired by Austria's 2013 Solar Decathlon team, Team REC used continuous insulation throughout the building to create an "Urban Shell." "By using cross-laminated timbers to support the



Appalachian State University's net-zero energy home, shown above under construction in Boone, N.C., will compete in the 2014 European Solar Decathlon. The university's Appalachian Energy Center offers green building and energy efficiency workshops for continuing education credit. Photo by Dudley Carter

structural walls, insulation is uninterrupted by thermal bridges such as studs, joists or rafters," says Chuck Perry, general contractor for Team REC. The use of these cross-laminated timbers in no way hinders the overall strength of the building, which is built to withstand 85 mph hurricane winds.

This, in conjunction with using a two-layer roof insulator of polyiso-foam and mineral wool, greatly reduces any unwanted heat transfer to the inside of the house. Heat transference both in and out of windows is also minimized through the use of Eastman Chemical Company's Heat Mirror® insulating

glass. This relatively new technology uses lightweight chemical films to allow the glass panes to insulate more efficiently. The 99.5 percent filtration of harmful UV rays is an added bonus.

Maison Reciprocity features a renewable energy canopy called the "Living Brise-Soleil," French for sunvisor, where the home's photovoltaic and solar-thermal arrays are attached. The canopy provides all of the building's electricity and heated water with kilowatts to spare. The canopy will also sport a living wall of vegetation beneath the arrays to promote passive cooling of

Continued on page 17

GREEN BUILDING: Local to Global Perspective

- Middle Tennessee State University and Vanderbilt University are working on a joint project for the 2015 Solar Decathlon in Irvine, Calif., that will balance the spacious comforts of Southern living and modern efficiency technology. West Virginia University and Italy's University of Roma Tor Vergata are also competing and will bring a flare of traditional Roman architecture with a unique arch design and a solar chimney for passive cooling.
- Habitat for Humanity has partnered with EarthCraft Virginia to build greener homes at affordable prices in the greater Richmond, Va., area. EarthCraft technicians work on-site with builders and volunteers to ensure new homes achieve 30-35 percent more energy efficiency than a standard home.
- University of Tennessee Knoxville students researching potential uses for undried oak won a \$90,000 grant this year from the EPA P3 contest for sustainability. Nicknamed "green oak" for being a carbon-friendly wood product, undried oak is commonly used to make cheap wood pallets. The students' full-scale building prototype demonstrated the capabilities of green oak as a sound building material.
- The city of Paris, France, began construction this year on "Tour Triangle," a highly sustainable skyscraper shaped like a pyramid. The 600-foot tall glass structure will use mostly natural light and solar capture technology to achieve a CO2 footprint a quarter the size of comparable skyscrapers.
- The Royal Seaport of Stockholm, Sweden, is ramping up to build 10,000 new homes and 30,000 offices using recycled and renewable materials by 2025. By 2030, the entire district is projected to be fossil-fuel free and have a positive impact on the regional climate.

Farmers Markets

Continued from page 7

summer. Staffed by volunteers, the year-round consignment market affords farmers more time for the harvest. Vendors can lead monthly classes about canning, cooking, herbal recipes, cheese making and more. Nonprofits lead various children's activities, such as making seed bombs. In June, enjoy a grand opening celebration during Old Central City Days, featuring food, music and antiques. 555 14th St., Huntington. Open: year-round, Monday-Friday, 9 a.m. – 7 p.m., Saturday, 8 a.m. – 4 p.m. Visit: wil-dramp.org or call (304) 523-7267

Charlottesville City Market – Va.

With more than 100 vendors, this downtown market is a bustling hub of seasonal cooking and artisan demonstrations accented by music. Chef Mark Gresge of l'etoile restaurant leads culinary workshops throughout the summer and food preservation classes later in the season. Ten community partners offer numerous children's activities. The annual Labor Day weekend Farm Tour, sponsored by the nonprofit Market Central, is an excellent opportunity to explore more than 20 vendors' farms by car. Corner of Water St. and South St. Open: Saturdays, April-Oct., 7 a.m. – noon, Nov.-

Dec., 8 a.m. – 1 p.m. Visit: charlottesville.org or call (434) 970-3371

Asheville City Market – N.C.

Situated in the heart of the city's thriving local food scene, Asheville's eclectic Charlotte St. market attracts hundreds of foodies craving monthly cooking demonstrations. Every Saturday, the Growing Minds @ Market booth hosts a nonprofit to engage children in exercise and food-related arts and crafts. A strawberry summer festival features samples of creative berry recipes, while the Market Meal Challenge in late June awards prizes to the healthiest shopper. Live local music as well as healthy living booths round out the weekly experience. 161 S. Charlotte St. Open: April 5 – Dec. 20, Saturdays, 8 a.m. – 1 p.m. Visit: asapconnections.org or call (828) 348-0340



Photo courtesy Independence Farmers Market

Solar Decathlon

Continued from page 16

the photovoltaics and the building itself.

At the heart of the design is the "Container for High-performance Operation, Recirculation and Distribution," or CHORD, module. This central module houses all of the building's electrical, mechanical and plumbing components for easy access and servicing.

Maison Reciprocity's urban-focused design allows multiple units to stack side-by-side, creating attractive neighborhood communities within dense, metropolitan areas where real estate is more expensive. The design is wildly space efficient compared to the typical stand-alone home of the American suburbs.

"Our target market for this design is downtown Winston-Salem," Bridges says. "Elegantly simple and functional, we wanted this build to mimic the community-oriented row houses of

the 1960s, but with a much stronger emphasis on energy efficiency." The design could also provide affordable and sustainable housing in some of Europe's more overcrowded cities, according to François Thibault, Faculty Director at the Université d'Angers.

The Competition

The biennial Solar Decathlon in Europe is modeled on a competition of the same name started by the U.S. Department of Energy in 2002. Both events offer the opportunity for students and experts to share their knowledge and research on renewable energy and green architecture.

The objective of the two Solar Decathlons is to design and build a solar home that is energy independent and economically prudent. The decision to hold this year's competition in Versailles — home of the Sun King, Louis XIV — is ironically appropriate.

A panel of international experts will

Children's Gardening Program Cultivates Lifeskills from SCRATCH

By Megan Northcote

When state legislators arrived at an annual conference at West Virginia State University last year, a 7-year-old girl marched up to numerous government officials, pointed to a brochure photograph of herself holding a tomato, and proudly announced, "I'm famous because I grew this tomato and I'm going to give you my autograph."

This level of confidence was enough to convince legislators that the university's SCRATCH program really is effective.

Now in its third year, SCRATCH teaches more than 80 children living in the most impoverished areas of Huntington, W. Va., how to grow and sell food locally through hands-on, educational activities. Funded by a five-year U.S. Department of Agriculture grant, the program is run by WVU's Extension Services, a community outreach branch of the university.

"We want them to learn how to be horticultural producers and entrepreneurs, but some of these kids have been through so much [hardship] that we primarily want them to seek solace in the gardens and build life skills and self-esteem," says Melissa Stewart, a WVU faculty member and principal investigator for the SCRATCH grant.

Raised garden beds located in abandoned lots behind two community centers and one elementary school provide the children with a place to cultivate basic gar-

dening skills. The Junior Master Gardener curriculum provides weekly activities to teach these skills, such as planting seeds arranged on paper towels to learn proper plant-spacing techniques.

To combat community hunger, these amateur gardeners are given first dibs on the produce they harvest; the rest, including more than 20 pounds of sweet potatoes grown last fall, is sold at The Wild Ramp, a local consignment-based farmers market.

This May, the children participated in National Lemonade Day, selling lemonade and seed bombs — bundles of soil containing seeds — at the market. Under the guidance of Unlimited Future Inc., a business incubator resource center, the children developed basic marketing and accounting strategies, creating original jingles and posters and setting their own prices for their products.

"The children have full ownership and direct control over what they do in the program," Stewart says.

In the coming years, participants will work towards creating a more interactive children's section at the market and partner with community members to learn how to make soaps, jams, sauces and other products of their choosing to sell.

For more information or to volunteer, visit scratchproject.org or call Stewart at (304) 532-1670.

judge each team's solar home. Teams can earn 100 points in ten individual categories including architecture, engineering, energy balance and affordability.

The competing solar homes will be open for public tours during the decathlon and anyone may submit a vote for the People's Choice Award. The

nine-day competition will culminate on July 6 when the official winners are announced. "When you've worked as hard as we have on something like this, you don't get nervous," Bridges says. "You get really excited."

For more information about Team REC and Maison Reciprocity, visit reciprocity2014.com



At What Cost?

Community Living with High Rates of Cancer and Disease Unites to Advocate for Coal Ash Cleanup

By Sarah Kellogg

Annie Brown, a lifelong resident of Belews Creek (pronounced “Blues”) in Stokes County, N.C., sits outside a small brick church. She’s looking at a patch of tiny flowers, trying to pick out the odd five-petaled bloom. Her grandmother taught her long ago that five-petaled flowers are good luck, even better than finding a four-leaf clover. Brown and others in the rural community — where folks all know each other and fondly recall growing up together — have been praying for better luck for years. Lurking just down the street from their homes is the Duke Energy Belews Creek

Steam Station and the largest toxic coal ash pond in the state.

Duke Energy began operating the Belews Creek Station in 1974, and over time the company has built six coal ash dumps to store the waste — a byproduct of burning coal — including the massive pond that holds more than 8 billion gallons of coal ash and water.

Brown, who lives two miles down the street from the power plant, started getting sick when she was 22. She remembers the ash that used to come out of the stacks and land on her car, eating away the paint. “Nobody had informed us of any toxics,” she says, “It was just floating in the air, my kids were out playing in it.”

Concerns about Duke’s toxic coal ash have prompted Brown and dozens of other community members to meet regularly at Forest Chapel Church. Since July 2013, the community has gathered with Appalachian Voices’ staff and volunteers to discuss the coal ash and how to get it out of their neighborhood once and for all. The group, which calls itself “Residents for Coal Ash Cleanup,” has recently grown in size, becoming more outspoken and more certain of their demands.

Doris Smith, a resident of Belews Creek for 70 years, has been with the group since the beginning. She is a fiery woman who frequently walks door-to-door in her neighborhood, raising awareness about the risks the coal ash dumps pose to the community. “We have to think about our children and our grandchildren,” she declares. “It’s not so much about me or my husband; it’s about them. If we don’t do something about it, who will?”

Another life-long resident of Belews Creek, Danielle Bailey-Lash started attending community meetings a few months ago at the urging of a friend. An otherwise healthy woman, Bailey-Lash was diagnosed with stage 3 brain cancer at age 35. After finding a tumor the size of a juice box, the doctors told her she only had a few months to live. Luckily, Bailey-Lash beat the odds — and her cancer. “It’s always on my mind,”

she says as she pulls her hair back to reveal where a piece of skull is missing. “I would never want for my children or my neighbors to have to go through this.”

Bailey-Lash, like others in the community, is concerned that the unusually high rates of cancer and other rare illnesses in a 10-mile radius around the power plant may be a result of the thousands of pounds of toxic pollution that Duke’s Belews Creek plant releases into the air and water every year.

“Since I started going to the meetings,” says Bailey-Lash, “I’ve realized that my illness, and the illness of all the people that are on this street ... could be linked to the environmental issues we’ve discovered are right here in our own neighborhood.”

Doctors have never been able to explain Annie Brown’s illness, which left her with a twisted hand that she cannot use. However, after reading about the health problems that the pollutants in coal ash can cause, Brown feels there must be a connection. Her daughter has also suffered from many inexplicable illnesses, despite living an otherwise healthy life. When Brown comes to meetings, she often brings a notebook with a list of residents on her street who have fallen ill or died prematurely. “I know them personally,” she says, looking over the list containing more than 30 names. “Young people, coming down with strange illnesses, like kidney cancer. Three young people, already on oxygen.”

Members of Residents for Coal Ash Cleanup regularly express a distrust for Duke Energy and the state. They say that Duke and its state regulators are not doing enough to protect their community or health. Mary-Frances Wrenn, one of the group’s members, says she won’t



Danielle Bailey-Lash (left) sits with her childhood friend Caroline Armijo at a recent paddle and picnic event to raise awareness about coal ash in the Belews Creek community. The friends are both featured in Appalachian Voices’ new video “At What Cost?” Hear their stories about living with coal ash at appvoices.org/coalash

drink her well water, which has taken on a black color since the power plant began operation. “I buy bottled water,” she says, shaking her head. “I don’t trust it.”

Since the February coal ash spill into the Dan River brought national attention to the coal ash problem in North Carolina, Governor Pat McCrory, state legislators, and Duke Energy have responded to the public pressure in various ways. So far, all the proposed coal ash cleanup plans leave Belews Creek out.

“I’m asking Duke Power to please step up,” says Smith. “They’ve had 40 years to make this mess, so why not clean it now?”

Residents in Belews say they are tired of buying bottled water and enduring the ash trucks that speed down their roads, releasing sticky black particles when the wind blows. At a recent community meeting, members raised concerns that a dam could break, releasing thousands of tons of ash onto their homes or into the Dan River. McKinley Warren, a resident who previously worked for Duke Energy, explained to the group that the coal ash landfills are only about 100 feet from the Dan.

The residents of Belews Creek are

Continued on page 19

Murky Rules Raise Questions About Coal Ash Minefill

By Brian Sewell

When FirstEnergy Corporation announced plans last year to close Little Blue Run coal ash pond, a 1,700-acre unlined basin that sits along the banks of the Ohio River, nearby residents were understandably relieved.

But not everyone was celebrating. The coal ash still has to go somewhere, and the Bruce Mansfield coal plant in Shippingport, Pa. — the largest coal plant in the state and the facility that sends much of its waste to Little Blue Run — produces approximately 3.4 million tons of ash each year.

So in January 2013, after initially seeking permits to build a second impoundment near Little Blue Run, FirstEnergy announced it had found a “beneficial use” for coal ash from the plant: as fill material at an abandoned strip mine that now operates as a coal waste dump, or “minefill” site.

If FirstEnergy gets its way, beginning on January 1, 2017, coal ash from the plant will be dried, loaded on barges, and floated up the Monongahela and Ohio rivers to a minefill in LaBelle, Pa., that D.C.-based Public Justice Foundation calls “really just another unlined dump.”

The coal and electric utility industries tout coal ash minefilling as efficient and affordable. The rules regulating it are scant — accommodating the health, safety and environmental risks of minefilling and concluded that

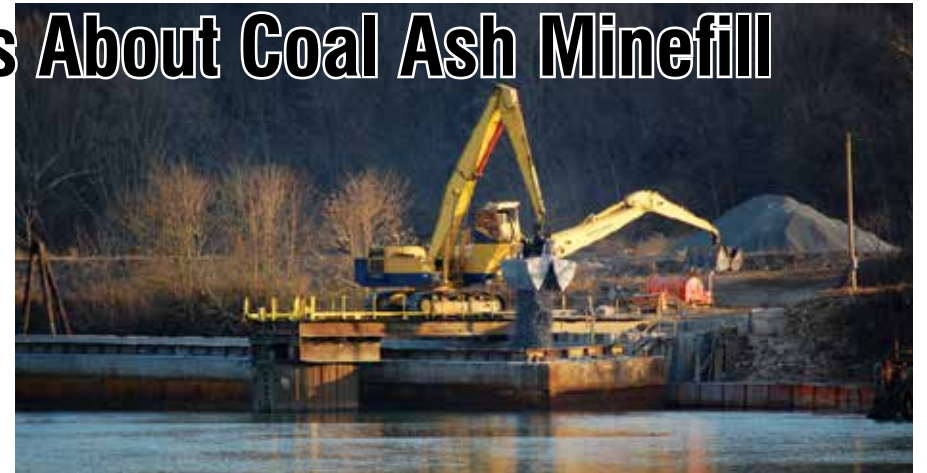
that mine the coal, and those that burn it. But communities near minefills are burdened by air pollution and the constant threat of water contamination.

Like coal ash stored near waterways, ash used as fill material can contaminate ground and surface waters with harmful levels of arsenic, selenium, mercury and other toxins. Minefill sites also pollute the air. Wind and workers moving the dry ash release harmful particulate matter that blows into nearby communities like LaBelle.

“I’m concerned that we’re transferring the risks from one community to another,” Lisa Graves-Marcucci, an organizer with Environmental Integrity Project, told the *Ohio Morning Journal News* last year in response to FirstEnergy’s plan.

In states including Pennsylvania, Ohio and West Virginia, minefill projects cannot receive permits unless a beneficial use for the coal ash is demonstrated. Agencies in charge of permitting often promote the practice, claiming it lessens the chance of contamination from acid mine drainage and increases soil fertility. Critics are skeptical of those claims and worry that the risks to air and water quality outweigh any perceived benefit.

In response to a request from Congress, the National Research Council released a study in 2006 that examined the health, safety and environmental risks of minefilling and concluded that



Coal ash is placed at a minefill site on the banks of the Monongahela River, a public drinking water source, in LaBelle, Pa. Photo by Lisa Graves-Marcucci, courtesy of Citizens Coal Council

federal standards are needed to ensure that states enforce adequate safeguards. A year later, the federal Office of Surface Mining Reclamation and Enforcement announced plans to craft a rule regulating minefills.

But the process has been slow,

complicated by the overlap with the U.S. Environmental Protection Agency’s rule-making on coal ash, and OSM has yet to issue a proposal. Until it does, the decision of whether minefilling is a benefit or a burden will be left in the hands of the states.

At What Cost?

Continued from page 18

not the only community at risk from Duke Energy’s coal ash. Duke owns thirteen other power plants across North Carolina, all with massive coal ash ponds that are illegally polluting groundwater. Increasingly, the communities surrounding these toxic dumps are also speaking out about health issues.

The Yadkin Riverkeeper, Dean Naujoks, works with the community surrounding Duke’s Buck Steam Plant in Rowan County. Like Belews Creek, the Buck community has also experi-

enced unusually high rates of cancer and has not been mentioned in any clean-up plans.

“Our recent well testing seems to suggest chemicals found in coal ash may be contributing to cancer clusters found in the community,” says Naujoks. “No one should ever have to live in fear of their health being compromised or drinking water from their own private wells.”

Back in Belews Creek, Annie Brown — a peaceful woman despite the illnesses she and her family have suffered — has one simple request: “I would like for Duke Power to take some interest in the human life.”



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Appalachia’s Political Landscape

113TH CONGRESS: Below are recent congressional bills and amendments on environmental issues and how central and southern Appalachian representatives voted. To see other recent votes, or for congressional representatives outside of the five-state area, visit thomas.gov. ● = pro-environment vote ✗ = anti-environment vote ○ = no vote

HOUSE

H.Res. 524 to H.R. 1459, the Ensuring Public Involvement in the Creation of National Monuments Act, would amend the Antiquities Act of 1906 to limit the president’s ability to declare national monuments. **227 AYES, 190 NOES, 14 NV. PASSED** No Senate vote at press time

H.R. 2824, the Preventing Government Waste and Protecting Coal Mining Jobs in America Act, would amend the Surface Mining Control and Reclamation Act to eliminate a Reagan-era rule that requires a 100-foot buffer zone between streams and mining waste and reinstate a less restrictive 2008 rule. **229 AYES, 192 NOES, 10 NV. PASSED** Blocked in Senate

H.R. 2641, the Responsibly And Professionally Invigorating Development Act of 2014, would streamline environmental reviews and permitting procedures and, among other measures, prohibit the lead agency conducting environmental reviews from considering the social cost of carbon. **229 AYES, 179 NOES, 22 NV. PASSED** No Senate vote at press time

H.R. 3826, the Electricity Security and Affordability Act, would prohibit the Environmental Protection Agency from issuing, implementing or enforcing greenhouse gas emission standards for new fossil-fuel power plants unless those standards meet criteria set forth in the bill. **229 AYES, 183 NOES, 18 NV. PASSED** Blocked in Senate

	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	F. Fleischman (R) TN-03	S. Desjarlais (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	S. M. Capito (R) WV-02	N. Rahall (D) WV-03
H.Res. 524 to H.R. 1459	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
H.R. 2824	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
H.R. 2641	✗	✗	✗	✗	✗	✗	✗	✗	○	✗	✗	✗	✗	✗	✗	✗
H.R. 3826	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Order Will Protect Portion of Historic Blair Mountain Battlefield

By Brian Sewell

A section of historic Blair Mountain is off-limits to mountaintop removal coal mining until at least 2018 when the permit comes up for renewal.

An order issued by the West Virginia Department of Environmental Protection prohibits Aracoma Coal, a subsidiary of Alpha Natural Resources, from mining within 1,000 feet of the mountain's historic battlefield. According to the DEP, the order affects about 50 to 60 acres of the company's 1,100-acre Camp Branch surface mine permit, which encompasses the southern portion of the battlefield.

The news was announced by Friends of Blair Mountain, a group

dedicated to the preservation of the Blair Mountain Battlefield, after site visits and meetings with the DEP revealed that a 1,000-foot buffer included in a Clean Water Act permit issued by the U.S. Army Corps of Engineers was absent from the state permit.

In 2009, the 1,600-acre battlefield was briefly added to the National Register of Historic Places, but was delisted after a successful campaign led by Alpha and Arch Coal, which has also received permits to mine near the battlefield.

In 1921, more than 10,000 miners attempting to unionize the southern West Virginia coalfields revolted against armed coal company guards in Logan County. The battle remains one of the largest civil uprisings in American history.

High Court Supports Air Pollution Standards

By Brian Sewell

A series of recent court rulings have supported air pollution standards proposed by the U.S. Environmental Protection Agency, adding to the challenges facing utilities that rely heavily on coal.

In April, a federal appeals court upheld the EPA's Mercury and Air Toxics Standard, a rule finalized in 2011 targeting emissions of mercury and other harmful air pollutants. The EPA predicts that the standards, once implemented, could prevent up to 11,000 premature deaths, and yield between \$33 billion and \$90 billion in economic benefits each year.

But the rule, expected to cost \$9.6 billion annually, has been criticized by the coal industry and some in Congress as the "centerpiece of Obama's war on coal" and has spent the past two years in court.

Petitioners in the case could still appeal to the U.S. Supreme Court, but analysts say this is unlikely. The rule is set to go into effect in April 2015, and many utilities have already announced plans to retire coal plants or invest in pollution controls to meet the standards.

Two weeks after the MATS ruling, the Supreme Court upheld the EPA's Cross-State Air Pollution Rule, which was created under the Clean Air Act's "good neighbor" provision to address air pollution that travels across state lines, harming the health of those downwind and making it harder for certain states to meet Clean Air Act requirements.

While these rules do not apply to greenhouse gases, they use the Clean Air Act as their legal authority, just as the EPA has for its impending rule regulating carbon pollution from existing power plants. That alone, legal experts say, could help the carbon rule stick.

Amid Debate, EPA Releases Proposed Selenium Criteria

By Brian Sewell

Selenium is often discharged from mountaintop removal coal mines and is difficult for mine operators to prevent and expensive to clean up — challenges that have favored environmental groups in lawsuits against coal companies. But federal standards for selenium proposed in May by the U.S. Environmental Protection Agency could make limits harder to test for and enforce.

The EPA's proposed standards rely primarily on testing for the pollutant in fish tissue. Environmental groups contend that not only is a fish tissue-based system more expensive for states to enforce, but it will make it nearly impossible for citizens to exercise their rights under the Clean Water Act, since collecting fish to test for pollution generally requires a special permit.

Critics of the proposal also say it could be difficult to determine — and prove in court — exactly where fish may have accumulated illegal levels of selenium along waterways with multiple pollution discharge points.

The proposed standards also include water-based limits using a 30-day average concentration of the pollutant in streams.

While the standards themselves are not a regulation and do not include legally binding requirements, they could pave the way for states to adopt similarly complex testing methods and gain EPA approval.

Last year, the EPA approved weakened selenium standards in Kentucky, prompting a coalition of environmental groups including Appalachian Voices to sue the agency. West Virginia and Virginia have also moved to weaken standards.

Mixed Reports on Coal Finance

Rainforest Action Network's annual coal finance report card found that the biggest banks put up \$31.7 billion for coal projects in 2013. Citigroup, the largest funder of coal, invested \$6.5 billion. JPMorgan Chase and Wells Fargo updated their policies to begin phasing out financing for mountaintop removal. Stanford University also announced it will no longer invest endowment funds in coal companies.

Oil Train Derails Along James River

On April 30, a train carrying crude oil derailed in Lynchburg, Va., spilling as much as 25,000 gallons of oil along the banks of the James River. Three or four tanker cars toppled into the river and burst into flames, causing an evacuation of downtown businesses. The same day, the U.S. Department of Transportation sent proposed rules to the White House aimed at improving the safety of oil transport by rail.

American Council on Renewable Energy's "Outlook for Renewable Energy in America 2014"



- 73% Percent of Americans that supported continued tax incentives for wind, solar and hydropower in a December 2013 USA Today poll.
- 43% Decline in the cost of wind energy during the past four years
- 143,000 Number of people employed by solar companies in the United States
- 26% Forecasted growth of the U.S. solar market in 2014
- 87% Share of U.S. utility-scale solar projects built in Arizona, California and North Carolina in 2013

White House Moves On Methane Emissions and Chemical Disclosure

By Brian Sewell

The Obama administration announced a strategy in March to reduce methane emissions as its latest move to address climate change through measures that do not require congressional approval.

Under the plan, the U.S. Department of Interior will update standards to reduce methane leaks at oil and gas sites on public lands. The department also began gathering public comments in April on a program for the capture and sale of methane produced at coal mines on government-owned land.

The U.S. Environmental Protection Agency plans to address landfill meth-

ane emissions and will work with the U.S. Department of Agriculture to reduce methane emissions from cattle farms.

Methane represents around 9 percent of greenhouse gas pollution, but it is more than 20 times more potent than carbon dioxide. Additionally, studies have found that some natural gas drilling operations emit as much as 1,000 times more methane than previously estimated and, if left unchecked, methane leaks could undercut the climate benefits of switching from coal to gas.

In May, the EPA announced that a program incentivizing companies to disclose potentially harmful fracking chemicals is also in the works.

Bipartisan Energy Legislation Stalls

Amendments related to the Keystone XL tar sands pipeline and the Obama administration's efforts to curb carbon pollution fractured the broad, bipartisan support for the Shaheen-Portman energy efficiency bill in the U.S. Senate. The modest bill aimed to make residential and commercial buildings more efficient and improve consumer access to high-efficiency heating and cooling systems. Senate Republicans also filibustered bipartisan legislation that would have extended the wind production tax credit, likely tabling the issue until after the November elections.

North Carolina Eager to Begin Fracking

After 18 months of study, the N.C. Mining and Energy Commission submitted proposed rules for regulating natural gas production in the state. The process has been marked with controversy and collusion between industry representatives, lobbyists and state officials. A bill introduced in the first days of the legislative session would make it a felony to disclose chemicals used in fracking approved as "trade secrets" and preempt communities from passing local ordinances to control fracking. Gov. Pat McCrory also hopes to open public lands for test drilling to determine the state's potential.

N.C. General Assembly to Consider Coal Ash

In the first North Carolina legislative session since a Duke Energy coal ash pond spilled 39,000 tons of toxic ash into the Dan River, two lawmakers introduced a bill based on Gov. Pat McCrory's coal ash cleanup proposal. The governor's proposal mirrors previous recommendations made by the utility itself, and State Senator Tom Apodaca (R-Henderson) has said McCrory's plan does not go far enough. Apodaca plans to introduce a separate bill, and other lawmakers have

also discussed legislation.

Disagreement regarding coal ash management also surfaced amongst shareholders at Duke Energy's annual meeting. More than 200 protesters gathered outside to denounce the utility's plan to charge customers for the cost of cleaning up all but two of its coal ash ponds. The estimated costs range from \$5 billion to \$10 billion, which could raise average household bills by more than \$20 per month.

Kentucky Pipeline Proposal Suspended

The controversial Bluegrass Pipeline project lost its luster in April after the project's backers suspended investment due to a lack of customers to buy the natural gas liquids the pipeline promised to carry. The Williams Company previously said it would put the project on hold for a year while it looked for customers.

Obama Unveils Efforts to Expand Solar and Efficiency

President Obama directed the U.S. Department of Energy to improve efficiency in affordable housing, set stronger efficiency standards for commercial appliances and strengthen building codes. The Energy Department will also expand the Solar Instructor Training Network through community colleges with a goal of training 50,000 workers by 2020.



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AV Launches Online Carbon and Climate Resource

The latest science on climate change is clear, urgent and underscores an important message — it's time to act to cut carbon pollution. Excess carbon in our atmosphere traps the sun's heat and, after decades of build-up, is causing changes in the earth's climate, putting public health and welfare at risk.

As a major producer of coal, crude oil and natural gas, the Southeast is a top contributor to America's carbon footprint. Our region also uses more energy than any other region in the country.

This gives us tremendous opportunity to make a big difference in curbing the worst impacts of climate change. The U.S. Environmental Protection Agency is crafting America's first-ever rules to reduce carbon emissions from power plants, described on page 10, and Appalachian Voices is working shoulder-to-shoulder with partner groups around the Southeast to make sure our voice and yours are heard in this critical conversation.

All Americans have a stake in the health of our planet, but in the South-

From the *Front Porch* blog

In a special five-part blog series, Energy Policy Director Rory McIlmoil illustrates the need for greater investments in residential energy efficiency in rural Appalachia. These ventures can serve as an economic driver by



east the proposed carbon regulations could have an especially strong impact. In central Appalachia, residents suffer from the environmental destruction and health problems that accompany mountaintop removal coal mining, and communities across the region face contaminated groundwater from coal ash, the byproduct of burning coal.

By making sure that polluters clean up their emissions, we can protect our mountains, our water and our climate.

TAKE ACTION!

Let your elected officials know you support cutting carbon pollution and you expect them to as well! Visit appvoices.org/carbon-and-climate/act

Learn More

We launched a new collection of webpages to provide more resources about the climate and public health impacts of carbon pollution. Visit appvoices.org/carbon-and-climate

helping to alleviate poverty and stimulate economic diversification. The proven benefits of energy efficiency investments suggest it should be a key focus in any plan for local economic resilience.

Read more at appvoices.org/frontporchblog

An Appalachian Family Tells Their Story

This summer, the Mullins — a tenth-generation Appalachian family — are hitting the road to share their story of raising a family in a culturally rich but economically and environmentally distressed region: the Appalachian coalfields.

On the Breaking Clean Tour, Nick Mullins, a former underground coal miner who writes the blog *The Thoughtful Coal Miner*, his wife Rusti and their children, Daniel and Alex, will speak in nearly twenty cities, towns and major environmental gatherings. Appalachian Voices is sponsoring the tour and helping with event coordination and media outreach.

Nick describes the tour as a way to use individual stories of struggle and hope to support the efforts of those fighting mountaintop removal coal mining and the destructive extraction and



use of fossil fuels.

"I hope people will take away a new knowledge and interest in how coal is extracted and used," Nick says. "But as we're doing this tour and visiting more sustainable communities, we can come away with ideas of things to bring back to Appalachia."

Learn more about the Mullins family and check for tour dates near you at breakingcleantour.org.

Pushing for Coal Ash Cleanup

After the February coal ash spill into the Dan River made national headlines, North Carolinians have grown louder about their concerns regarding Duke Energy's poor handling of coal ash, the toxic waste produced by burning coal.

From testifying before the state legislature's Environmental Review Commission to rallying crowds outside of Duke Energy's headquarters and the state capitol, we're making sure that those in power hear the public's demands for effective coal ash cleanup that protects our resources.

Our North Carolina team is work-

ing to support community members across the state who are concerned about what coal ash could be doing to their health and the health of their lakes and rivers. Duke's coal ash ponds are illegally contaminating groundwater at all fourteen sites in North Carolina. Read more about residents' concerns on page 18.

To learn more about coal ash, visit appvoices.org/coalash



Photo by Dave Walker

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Member Spotlight: Poet and Activist Scott Goebel

With heroes such as the activist playwright and poet Jim Webb — a longtime opponent of surface mining — and the late Bob Gates — a West Virginia filmmaker and photographer whose pioneering work exposed the practice — it's no surprise that Scott Goebel has a deep affinity for mountain culture. But he didn't always have such a strong sense of Appalachian identity. In his mid-30s, he connected with writer Richard Hague in Cincinnati. Hague, who would become a mentor and friend, introduced Scott to the Southern Appalachian Writers Cooperative. "More importantly," Scott says, "he introduced me to Appalachia."

Despite visiting family in eastern Kentucky since childhood, it was through SAWC that Scott embraced the region's rich culture and his connections to Appalachia. At Appalshop's annual Seedtime on the Cumberland Festival he discovered the beauty of the area and started a friendship with fellow writer Jim Webb, who runs Wiley's Last Resort, a private campground near Whitesburg, Ky.

Shortly after Jim relocated his family's ancestral cabin to his campground, he and Scott discussed building a writers retreat. Scott knew how to design and build the space, but it took time to settle on a location and secure funding. They wanted the cabin to be "off the grid" and have "enough room for one or two folks to write or relax." The structure's name — Elmo's Haven — pays tribute to Jim Webb's play of the same name, which confronts strip-mining and political corruption in West Virginia.

Scott kicked off the funding efforts by selling his 1975 Triumph TR6 — "a remnant



Scott Goebel refers to the Elmo's Haven retreat as a "cabin at the end of the whirled."

of my bachelor days," he writes — and received financial and labor help from friends and SAWC members. Completed in 2013, Elmo's Haven is part of Wiley's Last Resort, near Bad Branch State Nature Preserve. The cabin is sealed from the elements and is heated for year-round use. It features solar electricity, a composting toilet, and a serious collection of Appalachian literature. Though the campground has a shower, Scott hopes to raise funds for a solar shower at the cabin.

Elmo's Haven has evolved into a retreat space for anyone who needs quiet time, and has hosted activists, musicians and writers. Scott manages the cabin through The Bad Branch Institute, a volunteer-run nonprofit that promotes sustainability and cultural understanding.

He also furthers understanding by visiting classrooms and community groups to present information about mountaintop removal coal mining. When Scott began presentations in the Cincinnati area a couple of years ago, people were not familiar with the term "mountaintop removal." Now, his audiences seem more aware of the phrase.

"By offering a balanced presentation



Photo by Nelson Pilsner

and avoiding polarizing language, people seem receptive to learning more about [mountaintop removal]," he writes in an email. "I try to help folks understand their connections to mountaintop removal and the struggle against entrenched power."

"I'm less a treehugger than I am a people hugger," Scott notes. "As another of my heroes, Wendell Berry, has said, 'What we do to the land, we do to the people.'"

A resident of northern Kentucky, Scott is a writer and has edited the literary journals *Red Crow* and *Pine Mountain Sand & Gravel*, as well as Jim Webb's "Get In, Jesus — New & Selected Poems," published in 2013.

He is active with the Urban Appalachian Council, SAWC, and Kentuckians For The Commonwealth. Scott has been a volunteer distributor of *The Appalachian Voice* for about two years. His KFTC chapter helps distribute to libraries in Kentucky's Boone, Kenton and Campbell Counties.

To reserve Elmo's Haven, contact Scott at badbranch3@gmail.com.

Take Action: Stop the Virginia Coalfields Expressway

The fate of the Coalfields Expressway — a mountaintop removal coal mine disguised as a highway — remains in question as the Virginia Department of Transportation and Federal Highway Administration continue to review the project.

If approved, the Coalfields Expressway would give coal companies taxpayer dollars, regulatory exemptions and the power of eminent domain to blow up mountains and bury headwater streams along the route of the four-lane highway. And

what's worse: the proper environmental assessment has not been done to analyze the inevitable impacts of this project.

Recently App Voices staff and allies met with the Virginia Secretary of Transportation and were encouraged by his questions about the project. Now we need the Virginia Department of Transportation to hear your concerns.



Submit your comment at appvoices.org/virginia-cfx



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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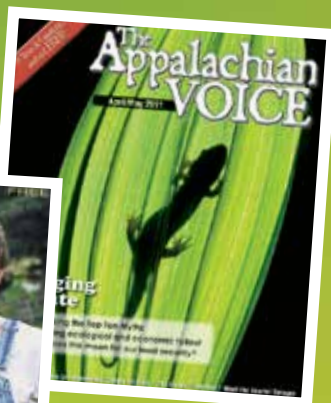
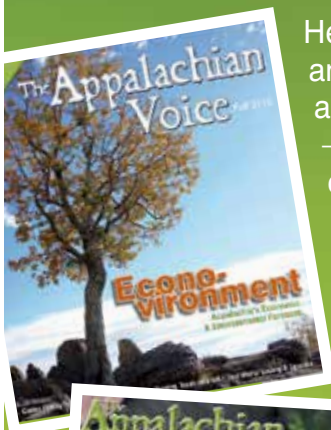
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The children's book "Lone Mountain" tells the story of a central Appalachian community resisting the devastation of mountaintop removal coal mining. After six years of work, author and illustrator Saro Lynch-Thomason completed the book this year. Proceeds benefit environmental nonprofit Tennessee Clean Water Network. To order a copy, visit lonemountainbook.com and email lonemountainbookproject@gmail.com

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