

FREE

# The Appalachian VOICE

April / May 2019

## APPALACHIA UNDERGROUND

Protecting bats, regional spelunking adventures, and cool cave critters



Solar Projects Shine in Southwest Virginia

**ALSO INSIDE:** Exploring Old Growth Forest in Harlan • Community Broadband • Pipelines Plagued by Delays



## Environmental Groups Reach Agreement with Forest Service for Timber Sale

On March 19, three environmental groups reached an agreement with the U.S. Forest Service regarding the Nettle Patch timber sale in Jefferson National Forest.

Under the agreement, the agency dropped its plans to log Pickem Mountain and reduced commercial timbering from a proposed 1,419 acres to 577 acres. The Forest Service also cancelled the project's use of prescribed fire and agreed to other measures to protect water quality, including conducting thorough reviews of future logging roads.

"The Forest Service's agreement to not log on Pickem Mountain was critical to protecting these incredibly special areas," Southern Environmental Law Center Attorney Kristin Davis commented in a press statement.

The agency issued the proposal for

the High Knob section of the forest's Clinch Ranger District in 2016. Local grassroots organization The Clinch Coalition, nonprofit law firm Southern Environmental Law Center and the Sierra Club had opposed the original plan. The groups cited concerns about erosion, flooding, water quality, species diversity, recreation and more. But after years of engagement with the Forest Service and months of settlement negotiation, the groups' objections were resolved.

"We very much appreciate that the Forest Service took time to meet with us, listen to our members' concerns and make changes to their plans accordingly," Wally Smith, vice president of The Clinch Coalition, said in the statement. — *By Molly Moore*

## Withdrawal of Planned Pikeville Employer Enerblu, Inc., Linked to Global Events

In January, Lexington-based battery manufacturer Enerblu, Inc., suspended plans to build a rechargeable battery production facility in Pikeville, Ky. The company had intended to create 875 jobs, which Kentucky Senator Ray Jones and others hoped would provide needed economic opportunities in Eastern Kentucky.

Enerblu halted the plans after the loss of their primary investor, Japanese technology organization Softbank Group. Following the October murder of journalist Jamal Khashoggi at a Saudi Arabian consulate, the Softbank CEO did not attend a Saudi investment conference and the company lost investments from the country, according to reporting from Ohio Valley ReSource.

The proposed facility site was on reclaimed mine land and would have needed ground repair. At a Southeast Kentucky Chamber of Commerce meeting in Pikeville, former Enerblu CEO Daniel Elliot stated that the ground repairs would cost \$30 million, but that they hoped to overcome the difficulty and move forward with their plan.

John Thomas, Enerblu's new CEO, expressed the company's disappointment with the investor's departure in a press release. "As we move forward as a company to develop a viable and impactful project, we encourage other companies to discover what we found within this region of Appalachia," he stated. — *By Jamie Tews*

## Appalachian State Student Government Passes Climate Neutrality Bill

On March 12, in the lead-up to the Global Youth Climate Strike, the Student Government Association at Appalachian State University in Boone, N.C., unanimously voted in favor of a bill calling for the university to pursue climate neutrality by 2025. "Climate neutrality" refers to having a net-zero impact on greenhouse gas emissions.

If the policy is adopted by university administration, it would accelerate the university's existing climate neutrality commitment by 25 years and put Appalachian State in the ranks of more than 100 universities in the United States committed to climate or carbon neutrality prior to 2030.

The act would commission a Climate Neutrality Working Group comprised of university and community members to develop a plan to achieve the goal, mandate energy efficiency measures, and implement a 100 percent renewable

energy purchasing agreement. Along with necessary financial and institutional measures, the bill outlines an internal carbon price, financial support and mechanisms for oversight and accountability.

Student Government Association Senator Devin Mullins drafted the bill with the Appalachian Climate Action Collaborative, a campus organization, in hopes that it would make the university and community stronger and serve as a model for the rest of the state. The bill was sponsored by academic departments, Greek life organizations, Chancellor's scholars and several campus clubs who filled the student government meeting room to capacity.

Next, the collaborative intends to bring a climate neutrality resolution to the Faculty Senate and build partnerships with the local group Climate Transition Blue Ridge and with related organizations across the state. — *By Natalie Lunsford*



## Exposing "Our Ecological Footprint"

Jim Magruder captured this photo of earthmoving equipment required in the NC Hwy 221 widening project dwarfing construction workers spraying erosion-prevention on freshly scraped slope near West Jefferson, N.C.

Macgruder's image, titled "Large Scale Graffiti," is the winner of the Our Ecological Footprint category in the 16th Annual Appalachian Mountain Photography Competition. Appalachian Voices is one of the sponsors of the environmentally focused category.

"While we all recognize the need for expanding infrastructure to support growing population and expanding commerce, such

massive projects to reshape the earth to our will come at a high price," Macgruder says in his entry description. "We forfeit land and scenery for generations, and we yoke our communities to a perpetual tax burden for the maintenance, policing and pollution remediation of every new or expanded road project. At the very least, the huge long-term costs of these projects should give us pause to research and debate lower impact alternatives."

The photo exhibit is on display through June 1 at the Turchin Center for the Visual Arts in Boone, N.C. Visit [appmntphotocomp.org](http://appmntphotocomp.org) to view this year's finalists and winners.

[www.traildays.us](http://www.traildays.us)

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# Hiking the Highlands

## Exploring Old Growth Forest in Historic Harlan County

By Dave Cooper

Harlan County, Ky., is home to a stunning old-growth forest preserve. It is also probably the most famous — or notorious — coal-mining county in Appalachia, and was once known as “Bloody Harlan.”

Barbara Kopple’s 1976 Academy Award-winning film, “Harlan County, USA” about the bitter 1973 United Mine Workers of America strike against Duke Power is considered by experts to be one of the greatest documentary films ever made. I have watched it more than 100 times, and it brings tears to my eyes every time. The film features Florence Reece’s haunting song “Which Side Are You On?”

*If you go to Harlan County, there is no neutral there*

*You’ll either be a union man or a thug for J.H. Blair*

*Which side are you on? Which side are you on?*

Reece, the wife and daughter of coal miners, wrote the song in the 1930s, when miners and their families were literally starving to death, while the coal companies used violence in their attempt to crush the fledgling National Miners Union. It was a dark time.

Today, Harlan is a peaceful, safe and quiet little place tucked deep in the mountains of Eastern Kentucky. The coal mines are mostly silent, and community leaders are struggling to find new sources of revenue. Fortunately, there are some dedicated souls trying to promote tourism and new ways of thinking. There are even solar panels

installed on the roof of the Kentucky Coal Museum.

I have been hosting college student groups in Harlan since 2010 through a program called Alternative Breaks. The students learn about the history of coal mining and Appalachian culture and music, and they do service projects such as planting trees on former strip mines. We also go hiking, and Harlan County is blessed with one of the most beautiful mountains in Kentucky — Pine Mountain.

Pine Mountain is a 120-mile long ridge that runs along the border of Virginia and Kentucky, averaging about 3,000 feet in elevation. Geologic upheaval made coal mining here difficult or impossible, so it is largely unscathed by underground mines or mountaintop removal — unlike nearby Black Mountain.

The 40-mile Little Shepherd Trail runs along the ridgetop from Letcher County to Harlan County, and it is a peaceful one-lane road good for mountain biking, horseback riding or hiking. Kingdom Come State Park has majestic views from the top of Pine Mountain and also offers hiking, overnight camping and a small fishing pond. Though it cannot be climbed, there is also a cool old fire tower on the ridge in the Harlan County community of Putney. And for students of Appalachia, there is a lot of history in Harlan County.

Grover and Oxie Blanton bought



The peaceful top of Pine Mountain offers panoramic views. Photo by Scott Goebel



Students from the University of Maryland reach the top of Knobby Rock during a hike with the author on an Alternative Spring Break trip to Harlan County, Ky., this spring. Photo by Dave Cooper

land on Pine Mountain just outside Harlan in 1928. They never allowed logging on their land, and passed it down to their daughters with that understanding.

Few areas of old-growth forest remain in Kentucky. Marc Evans of the Kentucky State Nature Preserves Commission noticed the old-growth in 1992. Several years later, the Kentucky Natural Lands Trust was formed to acquire and permanently protect land on the mountain from logging or mining. Pine Mountain is extremely biodiverse, with rare mixed mesophytic forest that contains a vast array of tree species.

The crown jewel of Pine Mountain is the Blanton Forest State Nature Preserve, which shelters the largest old-growth forest in the state. The preserve’s

3,510 acres encompass more than 2,200 acres of old-growth forest and are bordered by more than 1,000 acres owned by the land trust.

The preserve’s 4.5 miles of trails lead to Knobby Rock, Sand Cave and The Maze. The hike starts at Camp Blanton, a Boy Scout camp on a beautiful lake. From the parking area, the well-marked, moderate loop trail to Knobby Rock covers 2.2 miles with an 800-foot elevation gain.

The expansive view from Knobby Rock is breathtaking. From here, hikers can return on the loop or add the more strenuous 1.3-mile Sand Cave loop, which winds through a maze of sandstone formations to a large rock shelter.

These trails come highly recommended. You will see towering old oaks, massive hemlocks, rhododendron thickets, pristine mountain streams, ferns, wildflowers and rock formations. And if you take the time to explore Harlan County’s rich culture and history, you will find it is just as fascinating as Pine Mountain’s natural wonders. ♦

### Blanton Forest

**LENGTH:** Various trails total 4.5 miles  
**DIFFICULTY:** Moderate. No pets or bikes are allowed; trails close at sunset  
**CONTACT:** Visit [knlt.org/blanton](http://knlt.org/blanton) or call the land trust at (877) 367-5658

**DIRECTIONS:** From downtown Harlan, take U.S. Route 421 north to U.S. Route 119. Bear left onto U.S. 119 south, continue for 3.1 miles. Turn right on Kentucky Route 840 and head up a steep hollow. Continue for 1 mile and the entrance to Camp Blanton will

be on your right. Take the first right into the parking area — the second right is a private gravel road for the scout camp.

**NEARBY ATTRACTIONS:** The Kentucky Coal Museum and Portal 31 exhibition coal mine in Benham and Lynch; The Schoolhouse Inn Bed and Breakfast; see mountaintop removal from the top of Kentucky’s highest mountain, Black Mountain, just above Lynch; Little Shepherd Trail; Pine Mountain Settlement School; and Bad Branch Falls in Letcher County.

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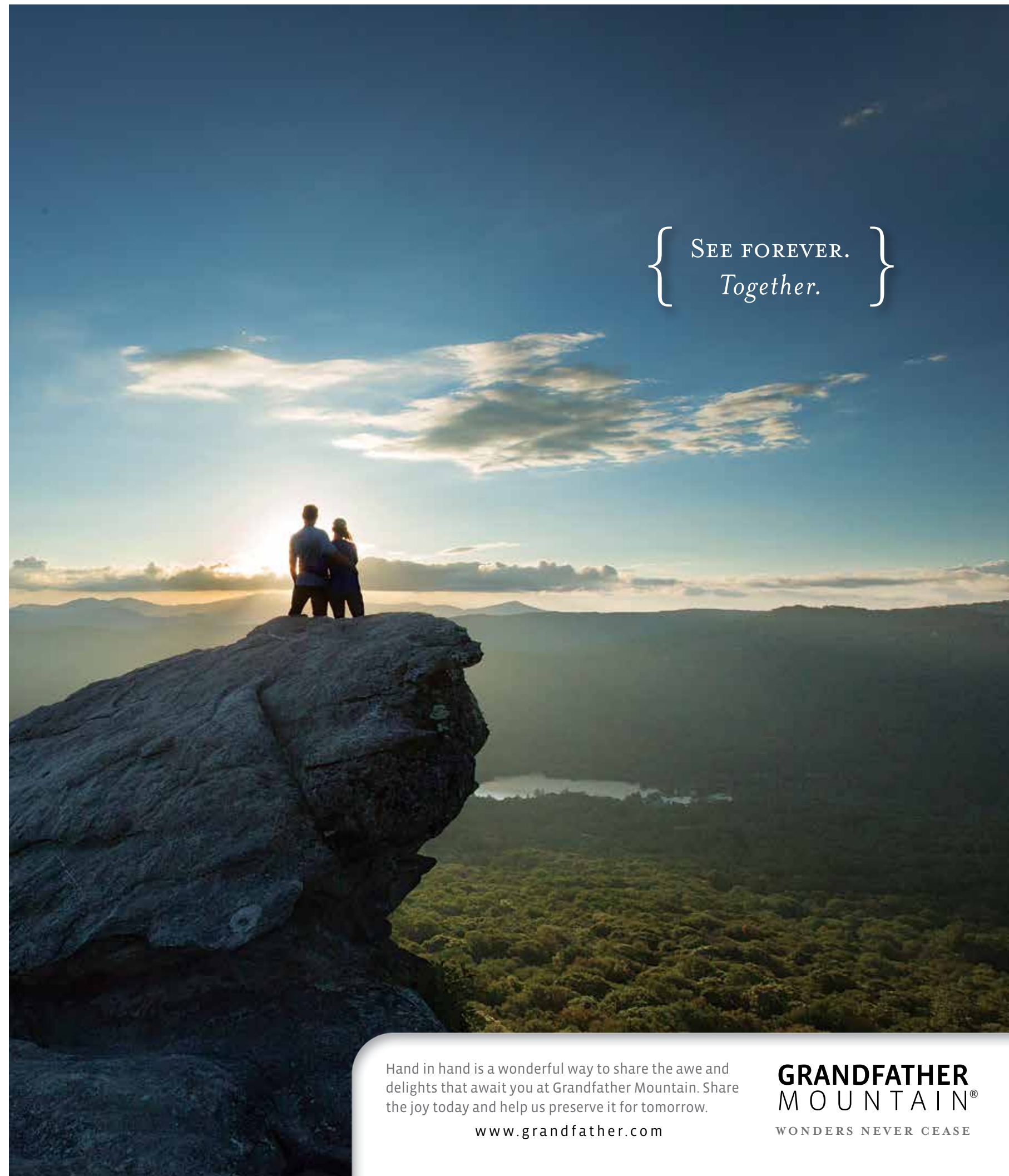
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# Pulling Together

By Kevin Ridder

In Letcher County, Ky., Gwen Christon has kept Isom IGA, the only grocery store for 10 miles, open for more than 20 years despite the region's economic downturn. When she needed help with the store's utility bills, Christon reached out to Kentucky nonprofit organization Mountain Association for Community Economic Development.

MACED helped Christon finance, apply for grants and find contractors to make Isom IGA's lighting, HVAC and refrigeration more energy-efficient. As of November 2018, the store's utility bills had fallen by \$40,000 a year, allowing Christon to hire two more full-time employees.

"This community is my community," Christon told MACED. "I love it, I'm proud of it, I want it to survive. I just think [the store] gives stability to our community."

MACED President Peter Hille believes that small, locally owned businesses like Isom IGA are critical in creating a more diverse, sustainable and resilient



economy for the region.

"In order for those dollars to circulate in local markets, there has to be locally owned businesses that provide the goods and services that people need," says Hille. "We need to make these communities once again places where people want to live."

## Influencing Policy

In February, Hille and other Appalachian community leaders testified before the House Subcommittee on Energy and Mineral Resources about the importance of helping the region transition from a fossil fuel-based economy. Hille said that Kentucky lost 10,000 jobs — half of the state's coal jobs — when natural gas became cheaper than coal in 2012. But he stated that even prior to coal's downturn, Appalachia had faced economic difficulties for generations.

According to Hille, economic distress has contributed to the region's comparatively low rate of people with

## A wide range of efforts are underway to boost Appalachia's economy



Whitesburg, Ky., resident Tara Jensen, one of MACED's clients, runs a mobile workshop where she teaches baking techniques to audiences like this one at Berea College Farm Store. Photo courtesy of MACED

higher education, a track record of poor health statistics, and a mass exodus of young people from Appalachia due to a lack of jobs. In his congressional testimony, he wrote that this has resulted in "a population that is disproportionately made up of the very old, the very young, and many who are unable to participate in the labor force. We also face the same opioid epidemic that plagues many other rural areas. All of that was true before the collapse of the coal industry."

Hille states that an ideal economy focuses on multiple industries, is environmentally minded and provides opportunities for all.

"Even if we could replace those 10,000 jobs that were suddenly lost, it would only put us back to where we were 10 years ago, and 10 years ago the region was still characterized by deep, persistent economic distress," he says.

According to Hille, Appalachia's economic problems are part of a cycle intrinsically linked to a declining population. He states that amenities and resources such as retirement communities, healthcare, farmers markets, music venues, craft breweries and more can be opportunities for local entrepreneurs while also helping the tourism industry.

"It can create amenities that are important for people looking around saying, 'Hey, I could live here,'" says Hille. "If you're going to have tourism, you have to have places to stay, and you have to have places to eat and things to do."

## Investing in West Virginia

In West Virginia, Stephanie Tyree works to help develop and grow local leaders in rural areas across the state as the executive director of the nonprofit West Virginia Community Development Hub. The Hub then connects these leaders to one another so that they can be a part of the bigger movement to revitalize small West Virginia towns.

One part of this movement is Turn This Town Around, an initiative co-sponsored by the Hub that aims to help West Virginia towns identify and complete innovative projects. At a 2015 meeting in the community of Whitesville, population 500, residents proposed turning an old railroad corridor into a 15-mile multi-use recreational trail. And in June 2018, the town secured a \$2.25 million federal Abandoned Mine Land Pilot grant to begin construction of the Clear Fork Rail Trail.

"Progress, combining thousands of volunteer hours, public support, new private investments and ranging attitudes of optimism and grit prove Whitesville is still turning," reads a blog post on The Hub's website. "Though premature to claim the town is turned around, Whitesville is now a visibly different place turning firmly toward the future."

To help promote the trail, Whitesville resident Adam Pauley collaborated with Base Camp Printing in Charleston,

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## Pulling Together

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W.Va., to create unique posters that were sold to help raise money for future projects in Whitesville.

Other participating West Virginia localities include Ripley, Grafton and Matewan.

"We're really focused on showing that there's a lot of activity happening around the state even though that's not what always gets captured in the news about our state," says Tyree. "There's a lot of innovative local leadership that is trying to think big about how to redevelop small economies that don't have the support of a major metropolitan area."

Tyree states that while a lack of large investments makes the work challenging, local leaders find creative ways to work with what they have.

"Communities in our network do really innovative, challenging work on shoestring budgets," Tyree says. "We're having to do this all through volunteer labor where people are doing that in addition to their one or two or sometimes more jobs in addition to taking care of their families."

## A Just Transition

Since 2015, the U.S. Appalachian Regional Commission's POWER Initiative has invested \$144.8 million in hundreds of counties affected by coal's downfall. The ARC estimates that these investments have created or retained more than 17,000 jobs, created or improved more than 7,200 businesses and brought approximately \$771.3 million in private dollars into Appalachia's economy.

"The communities are identifying potential economic opportunities and then putting together project proposals, initiatives, activities, investments, blueprints, strategies," says ARC Communications Director Wendy Wasserman. "Congress has said, 'Hey, we have to pay attention

to Appalachia's coal communities as the country goes through this change in energy production."

Heidi Binko is the co-founder and executive director of the Just Transition Fund, a nonprofit organization and grantmaker dedicated to helping communities with historically coal-based economies. Environmental nonprofit organization Appalachian

Voices, the publisher of this newspaper, is a Just Transition Fund grantee.

"When we say 'just transition,' we want to make sure we are supporting solutions that are sustainable economics, that are equitable," says Binko. "We want to make sure that the people that are affected are engaged and part of the solution, and we also are looking for solutions that are energy resilient, meaning that we are really looking for low-carbon, environmentally sustainable solutions."

One thing that people have to be careful of, she states, is the idea that Appalachia's economic problems can be solved by a single solution.

"I think that there is a natural tendency for people to look for a silver bullet," Binko says. "I think the key is to not look to any single one industry or sector, but to invest in a variety of approaches."

Industrial hemp could serve as a major cash crop for farmers in the coming years after its legalization under the 2018 Farm Bill. Peter Hille states that it could take the place of tobacco, historically an Appalachian cash crop.

"With the tobacco market changing the way it has, there hasn't been that same kind of ready market for something that small producers could grow and add cash income to the other food crops that they might produce," says Hille.

One industry that MACED and oth-



Gwen Christon owns the Isom IGA grocery store in Letcher County, Ky. With MACED's help, Christon installed energy efficiency upgrades to lower the store's utility bills by \$40,000 annually. Photos courtesy of MACED



ers across the region are investing in is retrofitting homes and businesses like Isom IGA to be more energy efficient. These projects help to plug economic leaks in small communities by decreasing bills that often go to monopoly utilities based in large cities.

Plus, the jobs would have to be local. "You can't ship these buildings off to be retrofitted," says Hille.

## GO Virginia

While circulating money within the community through local jobs like these is important, improving the economy also requires bringing in outside investments. Virginia is attempting to do this through the Virginia Initiative for Growth and Opportunity In Each Region, established in 2016. Called GO Virginia for short, it is a statewide collaborative effort between leaders in government, education and the private sector to attract outside investors to the state and create jobs.

The Southwest Virginia region of GO Virginia is led by UVA-Wise. To Shannon Blevins, associate vice chancellor of the university's Office of Economic Development & Engagement, fixing the region's economy is personal.

"Part of what drives me is being from this area and seeing friends and family that have been impacted by the

declining energy industry," Blevins says.

"We are the only public four-year institution in the [Virginia] coalfield region," she continues. "As we continue to grow, we want to have good places, good jobs for our students when they graduate. Whether they go on to go directly into the work world or they go on to further their education, the same thing holds true: you want to have a diversified industry base so that they want to come back."

In Southwest Virginia, GO Virginia focuses on bringing money into advanced manufacturing, agriculture, food and beverage manufacturing, information and emerging technologies, and energy and minerals.

In August 2018, the GO Virginia state board awarded a \$27,547 grant to the Southwest Virginia Technology Council for initial work on a regional online jobs platform. The platform would connect job-seekers to technology industry employers. The City of Norton, the Town of St. Paul and Buchanan County are participating in the project.

According to Blevins, there has never been a better time to invest in Appalachia — and especially Southwest Virginia.

"We've got some things that people from outside this region want," she says. "They just don't know it yet." ♦

## Non-traditional Loans Fund Regional Entrepreneurs

An innovative nonprofit devised a way to fund entrepreneurs with no access to bank loans. KIVA is based in San Francisco and offers business loans to people across the globe who are underserved by traditional banking. Through the KIVA platform, anyone can apply for one regardless of their credit, and anyone can pledge \$25 or more to help fund a loan anywhere in the world.

Clothing Designer Stephen Curd used an \$8,000 KIVA loan last summer to expand his business, Lavelle Manufacturing, in Glade Spring, Va. The loan allowed him to pay for equipment and contractors and fueled his company's growth enough that he is now in the process of hiring a full-time seamstress.

"A loan came at a perfect time to expand," Curd says. "The fact that it's a no-interest loan and we've got three years to pay it off was definitely helpful."

Although KIVA loans don't require a good credit score, applicants must go through an approval process that includes a solid plan for repayment. Lenders provide funds online and are gradually repaid by the borrower, after



Stephen Curd, a clothing designer, received a KIVA loan in 2018 for his small business.

which lenders can withdraw their money or re-invest it in another business.

A coalition of community development and business support organizations called Opportunity SWVA serves as a trustee for Southwest Virginia businesses applying for KIVA loans, which means that the organization is listed online as vouching for the entrepreneurs. Including Lavelle Manufacturing, Three of the businesses they have supported — Lavelle Manufacturing, Sugar Hill Brewing Company and Adventure Mendota — have received KIVA loans.

"I think KIVA is a really cool opportunity for small businesses," Curd says.

Visit [KIVA.org](http://KIVA.org) for more information.

— By Lorelei Goff



MACED offers energy audits to Eastern Kentuckians interested in energy efficiency upgrades. Photo: MACED

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# Solar Projects Shine in Southwest Virginia

Collaborative efforts to bring solar to businesses, homes, schools and an abandoned mine move forward

By Kevin Ridder

Southwest Virginia could soon have its first large-scale solar farm. Better yet, the 3.5-megawatt project is slated to be built on a former Wise County coal mine.

The solar array would help power the Mineral Gap Data Center, a 65,000 square-foot facility that handles critical government information. A \$500,000 federal grant pending approval from the U.S. Office of Surface Mining Reclamation and Enforcement would fund the project, and Sun Tribe Solar, based in Charlottesville, Va., would install the panels.

The funds are part of a \$10 million grant from the agency's abandoned mine land pilot program to the Virginia Department of Mines, Minerals and Energy to reclaim old mine lands in Southwest Virginia. Appalachian Voices, an environmental nonprofit organization and publisher of this newspaper, helped organize the collaborative grant application. If approved by the the federal surface mining agency, developers expect construction to start this summer or fall and be complete by December.

"Powering Mineral Gap Data Centers with clean energy was a goal of ours from the very beginning," wrote Mineral Gap spokesperson Marc Silverstein in an email. "In fact, we built Mineral Gap's infrastructure so we could eas-

ily introduce renewable energy into the site."

The March announcement of the Mineral Gap installation is the latest in a string of solar projects and initiatives in Southwest Virginia. In eight municipalities, local leaders are working to turn their communities into solar hotspots through the federally funded SolSmart program. Local governments work with SolSmart advisors to make sure their policies are solar-friendly, with the intent of attracting potential businesses. This effort was spurred largely by the Solar Workgroup of Southwest Virginia, a group consisting of several governmental, educational and nonprofit entities and co-convened by Appalachian Voices, UVa-Wise and community action agency People, Inc.

The Mineral Gap array has been years in the making. Appalachian Voices co-authored a report in 2016 that profiled the project concept, and a solar developer unsuccessfully attempted to develop the site in 2017. Then, three weeks before the Oct. 31, 2018, deadline to submit proposals to the Virginia DMME for a grant through the



Members of the Solar Workgroup of Southwest Virginia interview solar developers in 2018 for the chance to install the workgroup's planned 1.5 megawatts of solar arrays across six sites in the region. Photo by Christine Gyovai

abandoned mine lands pilot program, Sun Tribe Solar contacted Adam Wells, Appalachian Voices' regional director of community and economic development.

"In spite of the almost impossible timeline of just three weeks, we decided it was worth at least getting a proposal turned in to DMME, with the worst case scenario being that we get the partnership together and try again in 2019," says Wells. "By some miracle, we were able to pull together the data center and county leadership, all of whom recognized the opportunity and wanted to make a push. A big part of that miracle was the support from the county and a lot of energy from Downstream Strategies, who provided critical capacity and technical assistance for the proposal."

The project is expected to create 26 temporary jobs and bring approximately \$1 million to the local economy over the array's 35-year lifespan.

"The goal is really to build an ecosystem where this workforce is going to be able to support future projects," says Sun Tribe Solar's Chief Technical Officer Taylor Brown. "Being that this is one of the first larger scale projects of its kind, I think it's a huge building block for the region to build up this workforce."

According to Brown, Sun Tribe hopes to work with local universities and community colleges to set up workforce development programs.

"We don't have the exact blueprint worked out yet, but we look forward to working with them to try to incorporate some hands-on curriculum," says Brown.

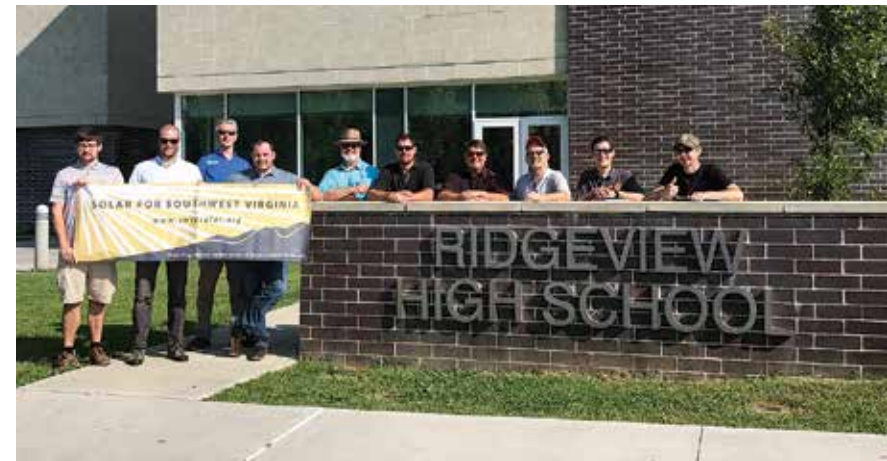
Marc Silverstein states that with these new efforts to bring solar to the region, Virginia will be able to hold onto its historic identity as an energy-producing state.

"We see this project as a single stepping stone toward transforming the state of Virginia into a green energy-based economy," wrote Silverstein. "Our hope is that this pilot project will be replicated across Southwest Virginia and grow into a huge economic benefit for the region and for the entire Commonwealth."

## SolSmart

SolSmart Regional Advisor Gary Hearl works with Southwest Virginia communities to make their policies more solar-friendly in order to obtain the program's bronze, silver or gold designation.

"You are providing more streamlined ordinances, regulations, engagement with citizens in order to promote the use of solar energy within that applicant's jurisdiction," says Hearl. "There's both an internal promotional value to it for the citizens within the area and also an external economic development component that helps to recruit



## Solar Projects Shine

Continued from page 10

businesses into that jurisdiction because the community has gone through the process to promote renewable energy."

SolSmart is headed by The Solar Foundation, a nonprofit solar advocacy group, and funded by the U.S. Department of Energy. More than 300 communities across the country have applied for or achieved a SolSmart designation. Southwest Virginia's Lee, Wise, Dickenson, Russell and Tazewell counties are pursuing SolSmart designations, as well as the Town of St. Paul and the City of Norton. In June 2018, the Department of Energy awarded the cohort of communities a grant for Hearl to work as a technical advisor.

Norton, Va., City Manager Fred Ramey states that his city decided to pursue SolSmart to make sure that Norton does not have anything standing in the way of new solar projects.

"We're not aware of any [barriers to solar] that we have at this point, but we're hoping the process will lead us through that to just ensure that that's the case," says Ramey. "I think it's going to help us be in a position to learn best practices from other communities that have already gone through this process."

"What we're about is helping our citizens and businesses," he adds. "And if having more solar projects is a benefit to them, we want to make sure that we're a help in part of that process."

According to James Schroll, a SolSmart project manager for The Solar Foundation, one of the most common barriers on the part of local governments is a lack of transparency about the process for a home- or business-owner to install solar panels on their property.

"Another one is that a lot of communities haven't really thought through

Solar Workgroup of Southwest Virginia members by Ridgeview High School, left, one of the group's proposed solar installation sites. Photo by Denechia Edwards. At the 2018 Southwest Virginia Economic Forum, right, local leaders kick off the region's SolSmart designation. Photo by Jamie Goodman

the planning and zoning aspects for solar," says Schroll. "They haven't really thought through where they might want to allow it or not allow it, so there's not really a regulatory framework on the zoning side for that. Communities can run into some issues, and there have been some communities that are getting sued by residents because they didn't like that a neighbor installed solar."

St. Paul, Va., Councilman Josh Sawyers explains that when the town looked into their ordinances regarding solar, they found a blank slate.

"Most of our ordinances have not addressed solar in any fashion," says Sawyers. "So that's something that we're looking to do is to be proactive on that."

"We've learned a whole lot during the process of how to work with our power provider in the area with the solar projects," he adds. "I think just the benefit of doing that is going to make it a little bit easier for our residents to put it on their homes."

James Schroll states that going through the SolSmart application process will help Southwest Virginia communities figure out how to respond to potential developers interested in building large-scale solar farms. He points to a need for balance between bringing in new industry and maintaining the area's agricultural land and rural character.

According to Schroll, solar farms on areas with previous construction and former mine lands could be a sound solution.

"It could be a good use for a site like that that may require a fair amount of mitigation if it were to be used for a more occupied space," says Schroll.

Wise County Administrator Michael Hatfield agrees.

"Putting a solar farm there is a potential use that will help the area and



generate jobs on land that otherwise would not be productive," says Hatfield.

## Commercial-scale Solar

The regional push for SolSmart designation was spurred largely by the efforts of the Solar Workgroup of Southwest Virginia. The coalition recently completed a call for bids on a 1.5-megawatt commercial-scale solar project that is spread across six Southwest Virginia sites ranging from high schools to a low-income apartment complex.

"The idea of a commercial-scale solar group purchase program is to aggregate different business owners, schools and nonprofits in a group purchase," says Appalachian Voices' New Economy Program Manager Chelsea Barnes. "Basically, by aggregating these projects together, we're able to negotiate a lower price with the solar developer because we're bringing them a larger project rather than just one smaller project. It also helps walk people through the process so that they can learn from their peers and not feel like they're the first person to be doing this."

Contracts from the first bids between the owners of the six sites and the solar

developer are currently under negotiation. The workgroup will release a second commercial-scale group purchase program on April 1 with a slightly larger cohort and overall generation capacity.

"We have at least 17 buildings that have expressed interest, which could potentially be several megawatts of solar," says Barnes.

One of the potential solar installations from the first commercial solar group purchase would be on the Wetlands Estonia Learning Center in St. Paul, Va.

"Having solar on it to be able to educate students and anybody that comes through on the viability of solar, it's just a great opportunity to do that," Councilman Josh Sawyers says of the center's potential solar installation.

Sawyers states that the project combined with a SolSmart designation will help increase the demand for solar in St. Paul.

"From a residential side and homes that are looking to put it in, I wouldn't say that the demand is high right yet," says Sawyers. "But I think looking forward to the next three to five years we may see more of our homes taking on the solar profile." ♦



A proposed 3.5-megawatt solar farm built on an abandoned coal mine in Wise County, Va., would help power the Mineral Gap Data Center. Photo courtesy of Mineral Gap Data Center

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# Eastern Kentucky Community Groups Pursue Solar

By Kevin Ridder

Four community-led organizations in rural Letcher County, Ky., plan to go solar in 2019 with assistance from the nonprofit Mountain Association for Community Economic Development (MACED). The organizations include the Hemphill Community Center, the Kings Creek Volunteer Fire Department, nonprofit housing construction company HOMES, Inc., and the grassroots multimedia cultural center Appalshop.

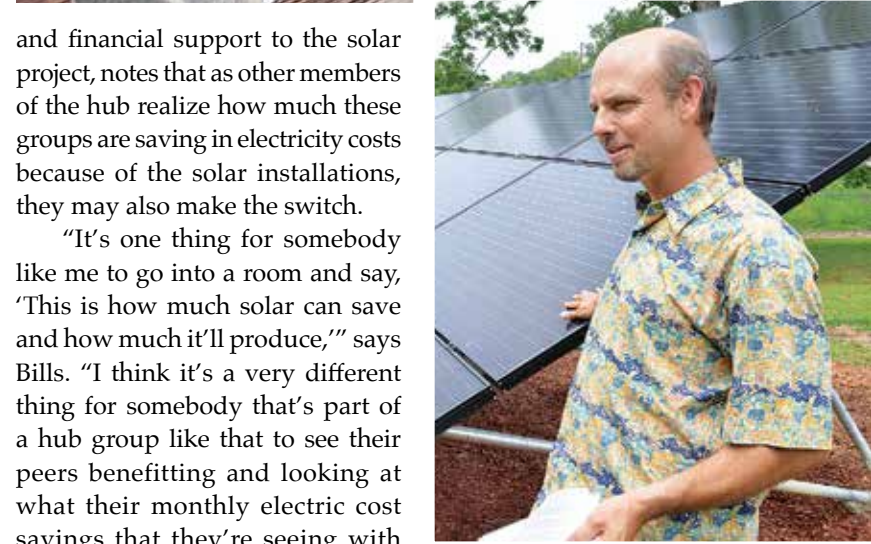
The loan payments and energy bills are structured in a way that the solar panels will start saving money on day one. The solar installation for HOMES, Inc., which broke ground in early March, will take nine years to pay off, according to MACED's Josh Bills. He estimates that some of the projects will take up to 15 years to be paid off.

The four installations will provide 190 kilowatts of power and cost \$500,000, \$230,000 of which will be used for the construction of an outdoor pavilion with solar panels for Appalshop.

In a February Lexington Herald-Leader op-ed, representatives of the four organizations wrote that this makes the installations the largest renewable energy project in Letcher County history. The representatives explain that they chose to participate in the project due to constant price increases from monopoly utility Kentucky Power.

"Energy costs have been rising for years, and Kentucky Power has recently implemented new demand charge rates that place further strain on our cash-strapped community facilities," reads the op-ed. "These increases come at a time when our rural communities face an unusually cold winter, bringing some of our partners to the brink of closing their doors."

All four organizations are partners in the Letcher County Culture Hub, a network of community-led groups. Josh Bills, who helped provide technical



and financial support to the solar project, notes that as other members of the hub realize how much these groups are saving in electricity costs because of the solar installations, they may also make the switch.

"It's one thing for somebody like me to go into a room and say, 'This is how much solar can save and how much it'll produce,'" says Bills. "I think it's a very different thing for somebody that's part of a hub group like that to see their peers benefitting and looking at what their monthly electric cost savings that they're seeing with solar versus how much they're having to pay to finance it."

## Kentucky Solar Policy

A bill passed by the Kentucky House and Senate and awaiting Gov. Matt Bevin's signature could affect future solar projects in the state. S.B. 100 would greatly limit a solar policy called net metering by reducing the amount of money utility companies pay Kentuckians for the excess energy produced through rooftop solar panels. The net metering changes would only apply to projects installed after 2019 and would not affect the Letcher County project.

Utility companies argue that they are paying too much for energy from ratepayers, and that other customers are shouldering those costs. But Bills argues that the amount of money ratepayers pay to subsidize net metering is miniscule. Additionally, the development

Standing outside Appalshop in Whitesburg, Ky., at top, planners look at diagrams for a proposed outdoor pavilion with integrated solar power. Josh Bills with MACED, above, stands by a solar array that the group helped fund. Photos courtesy of MACED

of solar can save money and decrease carbon emissions by lessening the need to invest in fossil fuel infrastructure.

"If you spread that out across all customers in Kentucky, it comes out to like 3 or 4 cents per customer per year," says Bills. He states that S.B. 100 would have negative effects on residential solar.

"If it passes, it means we'll still see solar installed, it's just going to be happening on grocery stores and buildings that have daytime use and less so on residences, which is really unfortunate," Bills says. "The place we want to see solar, yes it is on small commercial and businesses, but we also want to see that happen on low-income homes." ♦

# Community-owned Broadband Expands Rural Opportunities

By Lorelei Goff

What comes to mind when someone mentions internet providers? Most people probably think of big corporations like Comcast, Verizon or Charter Communications. But in East Tennessee, the face of wireless broadband might soon be a neighbor.

Sustainable & Equitable Agricultural Development (SEAD), a nonprofit organization based in Knoxville, Tenn., is working to help rural communities find economic recovery through self-sustainability while providing affordable broadband internet service for themselves.

SEAD is the agricultural and rural economics working group for the Community Economic Development Network of East Tennessee. SEAD organizes rural communities to explore options for self-sustainability, mainly around environmental or agriculture issues.

A year ago, the organization hatched the idea to build community-owned and operated wireless broadband in places where lack of connectivity is an obstacle to education and economic growth. SEAD partnered with the Highlander Research and Education Center in New Market, Tenn., to start a pilot program called Southern Connected Communities Project and received \$30,000 from the Mozilla Foundation in February of 2018 to develop wireless broadband project ideas.

The initial phase of the program saw the completion of an 80-foot prototype tower at the Highlander center, which now serves residents within a

five-kilometer radius who have a clear line-of-sight connection between their antenna and the tower.

The SCCP pilot program won an additional \$400,000 through Mozilla in November of 2018 to expand the program to Clear Fork, Tenn. SCCP Co-coordinator Jamie Greig says that Clear Fork, located in Claiborne County in Northeast Tennessee, has no internet connectivity except for a couple of satellite providers.

"We're willing to come in and make investments in broadband infrastructure in these communities," says Greig. "This project is a part of a larger rural issue to rely less on outside influence and to develop self-sustainable practices within the community."

SEAD will lead the Clear Fork community through a process of learning how to create economies that incorporate three principles: design it yourself, build it yourself and operate it yourself.

"We're looking for additional funding because the idea for this project isn't just to build this network in Clear Fork, but to use it as a base for training other communities to build networks too," Greig says. "So outside of just getting this community network up and running, our additional funding is going to be used to expand the project to other locations and also to bring in other community residents to train them on how to do it themselves."

According to Greig, these concepts



seem to be a national trend. For the Clear Fork project, SCCP partnered with the Detroit Community Technology Project, which has built three community networks in underserved areas of Detroit under their Equitable Internet Initiative. Each of those networks serves about 50 residents.

The Detroit model combines the knowledge to build and design the network with a program that trains residents to install and operate the equipment so the networks can be sustained by the communities.

"In Detroit they've already done this over the course of a number of years," Greig says. "We are their first national expansion project. They're bringing their Equitable Internet Initiative model and partnering with us to develop that model here in Clear Fork Valley with our funding, our knowledge, our local people."

Aside from the obvious benefit of having internet access, Greig says community-owned broadband infrastructure provides other boons, such as allowing people more control over data and who has access to their information.

Locally owned internet means being able to store data instead of giving it to third parties.

Community ownership also means more control over pricing. Detroit's Equitable Internet Initiative charges on an income-based sliding scale; their lowest tier costs \$10 per month. It also creates jobs. In Detroit, three jobs paying \$15 per hour were created for every 50 people served by their community-owned network.

Other benefits are less quantifiable but equally as important, Greig says. Socially, it brings communities together and forms bonds and trust between residents.

"It demystifies technology," Greig says. "It's not that complicated but we're often told that it is. [Residents who complete the training] can teach other people that technology is something they don't need to be intimidated by."

Laws governing community-owned and operated broadband vary by state.

Contact Jamie Greig at [jamie@southernconnectedcommunities.org](mailto:jamie@southernconnectedcommunities.org) for more information. ♦

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## Preparing for Outdoor Adventure Careers

The Adventure Tourism & Outdoor Education Department at Southwest Virginia Community College offers students five degree and certificate programs to prepare for work in the outdoors. Options include Outdoor Leadership, Outdoor Recreation, Adventure Tourism, Guide Essentials and Outdoor Interpretation and Education.

According to the SWCC website, the programs are a unique blend of entrepreneurship, tourism and recreation, that will help to stimulate economic development.

The program connects students with possible employers and provides state

parks, outfitters and other outdoor markets with a stream of qualified professionals entering the workforce. According to a 2018 report from the Outdoor Industry Association, the outdoor industry in Virginia generates more than \$21 million in consumer spending.

"Some careers, students will look for the biggest money but just don't get outside because of it," SWCC Associate Professor Michael Brown says. "A program like this is a life changing event for students. You might not be making the big bucks, but your quality of life will be a lot better." — By Lorelei Goff

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# APPALACHIA UNDERGROUND

Hidden beneath our renowned mountains lie equally incredible wonders, such as stunning rock formations, subterranean waterfalls and bizarre, one-of-a-kind creatures that have adapted to meet the rigorous challenges of life underground. While caves and their inhabitants are often out of sight, they play a vital role in sustaining life on the surface — and below.



## A QUEST TO PROTECT AT-RISK BATS

Researchers and conservationists found and saved the land where an endangered bat species roosts

By Kevin Ridder



A Virginia big-eared bat swoops out of a cave in North Carolina. Researchers estimate that there are only 19,000 of this endangered species left in the wild. Photo by Michael Durham

In April 2013, then-Indiana State University graduate student Joey Weber squeezed into a three-foot-tall cave on the side of North Carolina's Beech Mountain. A nerve-racking, 20-foot crawl into the darkness ensued, but Weber pushed on until he could stand. When he looked up, Weber was greeted with dozens of eyes staring back — a welcome sight.

He had discovered the cave where North Carolina's only known population of Virginia big-eared bats rear their young, called a "maternity roost." The aptly named species has been listed as endangered since 1979; currently, there are only an estimated 19,000 Virginia big-eared bats in the country, with an estimated 350 in North Carolina.

"When I got in there, there were

probably 150 bats on the ceiling, and at that point I basically knew that that was the spot," says Weber.

The project began when the state proposed widening part of state Highway 105 in northwestern North Carolina in 2010, which triggered a study on how endangered species might be affected.

"We knew the [bats'] hibernation site was near there, but we didn't know where the maternity site was, and we had concerns about that," says U.S. Fish and Wildlife Service Wildlife Biologist Sue Cameron. The bats use different caves for hibernating in the winter and for birthing and raising pups in the summer.

"We had concerns about whether the

widening project could act as a barrier to the bats or impact their foraging habitat at all," she says.

### Finding the Roost

To find the bats' maternity roost, the Indiana State University researchers tagged 19 bats, tracking them with radio telemetry equipment.

"It sends out a pulse every couple of seconds, and with that you can listen for a louder signal," says Joey Weber. "Whichever way your louder signal is coming from is the direction of the bat."

The researchers knew that the bats hibernate in a cave on Grandfather Mountain. So in late March and early April 2013, they went in with special gear and plucked several bats off the ceiling. If the bat looked to be a healthy adult, researchers would trim the fur on its back and use surgical glue to attach a tiny radio tag about the size of a fingernail, with an antenna sticking out several inches.

"It doesn't seem to impair their flight, as far as we can tell," says Joy O'Keefe, lead researcher of the project and director of Indiana State University's Center for Bat Research, Outreach, and Conservation.

Extensive preparations, including a series of rabies vaccinations, are required before technicians can han-

## WHITE-NOSE SYNDROME: A STEALTHY KILLER

For more than a decade, a killer has crept stealthily but steadily across North America. *Pseudogymnoascus destructans*, a white fungus with no way to move on its own, has nevertheless infested numerous caves by piggybacking underground on unwary humans. The fungus infects and often kills bats that inhabit the caves and can be spread from bat to bat. As a result, millions of the furry, flying mammals have died.

When bats hibernate, the cold-loving fungus takes advantage of the bat's lower metabolic rate and body temperature to burrow into the skin on its wings and multiply. It causes the bats to dehydrate, their blood to become more acidic and can even cause holes in their wings. The discomfort of the infection makes the bats wake more often during the winter when food is scarce, using up their fat reserves, and the bats die of starvation or hypothermia. The disease caused by the fungus is commonly referred to as white-nose syndrome because of a characteristic white fungal growth around the bat's nose.

The disease has been found in half of the United States, including Georgia, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.

According to a study in the journal *Science* in 2010, white-nose syndrome may cause regional bat extinctions. Several invertebrate species that live exclusively in



A little brown bat displays the trademark sign of white-nose syndrome. Photo by Jonathan Mays, ME Dept. of Inland Fisheries and Wildlife

caves rely on bat excrement and the fungi that grow on it as a source of nutrients. These species in turn are a food source for other predators and scavengers. Bat extinctions can lead to cascading detrimental effects on the rest of a cave's ecosystem.

"The situation is dire for cave-dwelling or cave-hibernating bats, but recent reports of a potential method of treating bats is hopeful," says National Forest Service Biological Technician Mike Donahue.

A study published in the journal *Nature Communications* in January 2018 found that ultraviolet light exposure may treat the condition. Researchers are also studying probiotic bacteria and antifungal chemicals as possible counters to white-nose syndrome. All seem to offer hope but also have the potential to harm the bats or their ecosystems. — *By Lorelei Goff*

dle bats. All wear several layers of coveralls and Tyvek suits to help prevent the spread of white-nose syndrome, a fungal disease that has wreaked havoc on bat populations across the country (see "White-nose Syndrome" above). The Tyvek suits are thrown away and the clothes worn under the suits are boiled between each cave visit to ensure no spores are transferred.

To prevent bites, O'Keefe's technicians wear leather batting gloves — more commonly used to handle bats on baseball fields — which allow more dexterity than work gloves. These are also boiled between visits and are worn under latex gloves that are discarded between bats.

Many individuals in this population of Virginia big-eared bats already carry

white-nose syndrome. But strangely, O'Keefe states, no related fatalities have been recorded.

"We're not really sure, this is just speculation on my part, but possibly the fact that they live in caves all the time has helped them to ward off the disease whereas other bats that move out of caves in the summer are less resistant," says O'Keefe.

Researchers are careful when handling bats, as they are surprisingly delicate — O'Keefe notes that Virginia big-eared bats weigh about the same as 10 paper clips. When picking up a bat, she states that they can often be "pretty squirmy," but that this species is typically more docile.

"It seems like each bat has their own

*Continued on page 16*



Sarah Gline explores the Enchanted Forest room at Wolf River Cave in Fentress County, Tenn. The Wolf River Cave is home to 2,500 endangered Indiana bats. Photo by Chuck Sutherland

## CAVING ADVENTURES

By Sam Kepple and Jen Kirby

In Appalachia, most of us stick to mountains and rivers for our outdoor adventures, but if we limit our experiences to the surface, we overlook the magical caverns beneath our feet. Like caves themselves, navigating information about where, when and how to explore them can be challenging. Curious visitors can tour a number of commercial caves in the region, but many more caverns are closed to protect the rare and fragile ecosystems within.

Expert cavers recommend interested adventurers find a

grotto, a local caving club. Grottos organize group expeditions, host trainings in safe caving practices and provide resources.

For those looking for a more accessible and less daring experience, commercial caves are a great fit. Throughout Appalachia, education, history and adventure become entwined in spaces such as Linville Caverns or Organ Cave, both featured below. These caves offer various public tours.

Regardless of ability or age, there is a cave for us all. Read on to find yours.

## KENTUCKY

### Carter Caves State Resort Park

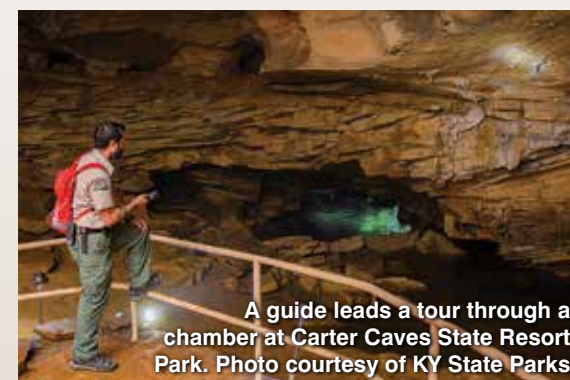
WHERE: Olive Hill, Ky., in Carter County

HOW TO ACCESS: Multiple caves lie within the state park, which has a variety of amenities including camping and hiking.

DIFFICULTY: The most accessible caves feature shorter tours with relatively easy terrain. Several of the more strenuous caves offer longer tours from Memorial Day to Labor Day. There are two caves open for independent exploration, although a permit is required.

FUN FACTS: The Dance Hall in Cascade Cave, the largest scenic cave, received its name because the previous owner of the land held weekly dances in the space.

CONTACT: Visit [parks.ky.gov/parks/resortparks/carter-caves](http://parks.ky.gov/parks/resortparks/carter-caves) for more information.



A guide leads a tour through a chamber at Carter Caves State Resort Park. Photo courtesy of KY State Parks

hibernating. The conservancy requires cavers to submit a visitation form two weeks before their planned trip, and also requires at least one member of the party to be a member of the conservancy or the National Speleological Society or one of its approved chapters. Parties must be between three and 12 people, and any larger groups require special permission. More information can be found online at [kci.org](http://kci.org)

### Mammoth Cave National Park

Spanning 52,830 acres in Central Kentucky, Mammoth Cave National Park features the world's longest cave system at about 400 known miles. Other large cave systems nearby include Great Onyx Cave, which is within the park's borders, and the Fisher Ridge Cave System, which is separated from the Mammoth Cave system by a mere 300 feet. Mammoth Cave offers wheelchair-accessible tours, surface-level activities,

camping and independent cave adventures. The park recommends making an advance reservation for caving. Visit [nps.gov/macaca](http://nps.gov/macaca) or call (270) 758-2180 for more information.

### Hidden River Cave and American Cave Museum

Hidden River in Horse Cave, Ky., offers three caving experiences. The cave was closed for most of the 20th century due to groundwater pollution caused by sewage. In 1987, the American Cave Conservation Association relocated to Hidden River and established a site of education, appreciation and conservation. Contact: Visit [hiddenrivercave.com](http://hiddenrivercave.com) or call (270) 786-1466 for more information.

## NORTH CAROLINA

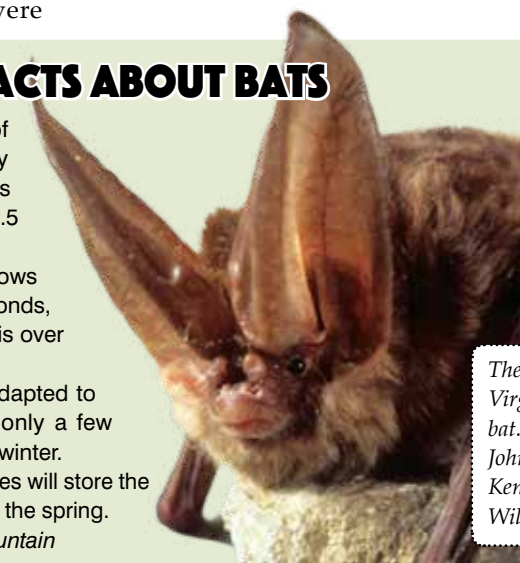
### Linville Caverns

WHERE: Linville, N.C., in Avery County. HOW TO ACCESS: Linville Caverns is one of the most accessible caving experiences in Appalachia, with portions open to wheelchairs. The caverns are open to the public daily March through November, with varying hours. All tours are guided and last between 30 and 45 minutes. Prices vary, and children under the age of five can enter for free with adult supervision.

*Continued on page 17*

## FOUR INCREDIBLE FACTS ABOUT BATS

- ▶ Bats are the only major predators of night-flying insects. A summer colony of 1,000 bats can consume 22 pounds of insects each night, or as many as 4.5 million insects.
- ▶ The heart rate of a hibernating bat slows to only one beat every four or five seconds, while the heart rate of a bat in flight is over 1,000 beats per minute.
- ▶ Because their bodies are so well-adapted to hibernation, a bat can survive on only a few grams of stored fat for a five-month winter.
- ▶ Most bats breed in autumn but females will store the sperm until fertilization takes place in the spring. — *Amy Renfranz, Grandfather Mountain*



The endangered Virginia big-eared bat. Photo by John MacGregor/Kentucky Fish and Wildlife Service



# SPELUNKING SAFETY

By Sam Kepple

My sophomore year at UNC Asheville, I led college students on expeditions through Worley’s Cave in Bluff City, Tenn. Exploring caves, also called spelunking, can feel like being transported to an alien planet. But while caves are fascinating and fun, there are three major considerations when entering these underground worlds: the features of the cave, the wildlife within and personal safety.

## Cave features

Not everything is touchable! Caves are naturally decorated with sculptural features that hang from the ceilings or grow upwards from the ground. These formations are caused by a buildup of water with a high concentration of calcium carbonate, which is hardened by chemical changes within the cave. Oils and dirt from your skin can permanently

affect and even destroy these features by inhibiting the mineral buildup that formed them. So please, admire with your eyes only.

## Wildlife within

The most common cave critters are bats. You are entering their home, so be a polite visitor. Never touch bats, and avoid shining lights on them, especially in the winter when they might be hibernating.

Bats are also highly vulnerable to a disease called white-nose syndrome, which has killed millions of bats (*read more on the centerspread*). To combat this, cave visitors are often asked to take part in a cleansing routine after exiting the cave. The U.S. Fish and Wildlife Service requests that spelunkers obey any cave closures and research their caving spot before entering. Stay out of caves with prior cases of the syndrome to help stop the spread.

You may also encounter other species within the cave, such as salamanders or crawfish. Some cave creatures may be



These young explorers at Carter Caves State Resort Park are equipped with headlamps. Photo courtesy of KY State Parks

blind and unbothered by headlamp light, but some could be highly light-sensitive. As with bats, try not to shine your light on these critters, as it can disturb their sleep or alarm them — and don’t touch!

There are no restroom facilities within caves. Human waste can damage the cave, so make sure to go to the bathroom beforehand and bring supplies to use the restroom and pick

up trash (yes, you will have to pee in a bottle if necessary!). To protect both the cave and its wildlife, do not leave any waste behind.

## Personal safety

The most important gear when caving is sturdy shoes, headlamps with extra batteries, and helmets. Many caves in the region are typically around 50 degrees Fahrenheit, so dress accordingly and in clothes you don’t mind getting very dirty. As with any outdoor adventure, it is also critical to bring water and stay hydrated.

Never cave by yourself. Always go with highly experienced friends or trained tour guides. Every caver should have a map in the event that someone gets lost, and the group should review the map and route of the tour beforehand to ensure everyone feels comfortable with the upcoming adventure. It is also wise to bring climbing gear, such as ropes and harnesses, in the event that the route proves too difficult. If you find yourself crossing over a hole or on narrow pathways where the risk of falling is high, maintain three points of contact between your body and the cave. ♦

## Protecting At-Risk Bats

Continued from centerspread

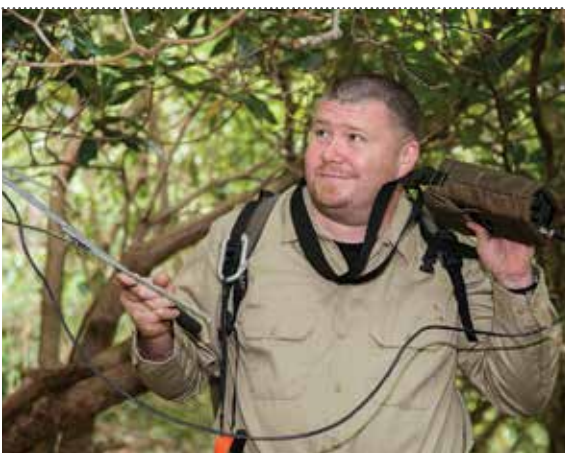
personality,” says Joey Weber. “Some of them don’t react much at all, they just kind of sit still and let you do your thing until you let go, but then some of them will try to bite you and get offended by you handling them.”

“Some of them try to look mean, but it’s really hard for them to be mean when they’re so small,” he adds.

Once the bats were tagged, finding the maternity roost was no easy task — according to Sue Cameron with the Fish and Wildlife Service, researchers had been searching for more than 30 years.

“The rocks in that area can really throw you off,” says O’Keefe. “You could be standing at the side of the road pointing your antenna at the mountain and it might sound like the bat is there, but it’s actually completely 180 degrees behind you and it’s just the signal bouncing off the mountain.”

But Joey Weber was able to track the bats to an area near North Carolina’s Beech Mountain roughly eight miles from Grandfather Mountain as the bat flies. Weber credits much of the success



Joey Weber listens for signals from the radio tags he and other researchers attached to 19 Virginia big-eared bats in 2013. Photo courtesy of Indiana State University

bats’ foraging territory, and the bright lights could make the bats more susceptible to predation. The bats might even abandon their pups.

“Sometimes people go and close off holes in the ground like that, which would be really devastating

for the bats,” says O’Keefe.

Once researchers discovered that the area might be developed, they reached out to the Blue Ridge Conservancy, a nonprofit land trust dedicated to protecting natural spaces in North Carolina’s High Country. The conservancy and multiple state and federal agencies collaborated to purchase the 174 acres from eight separate landowners and transfer it to the state park service. In a rare turn of events, all eight landowners agreed to sell their property to the state for conservation purposes.

“It was very pleasantly surprising,” says Eric Hiegl, the conservancy’s director of land protection and stewardship.

While the groups raised enough funds, a private philanthropist purchased and held the land to ensure no development took place.

“It’s really an awesome example of partnership with all the organizations,” says Nikki Robinson, communications and outreach associate for the conservancy. “They each had something really important to bring to the table.”

Since the Virginia big-eared bat is sensitive to disturbance, the conservancy is not disclosing the cave’s location.

“This isn’t going to be a campground or hiking trails, that kind of place,” says Hiegl. “Resource protection is the number-one reason for this.”

O’Keefe states that it’s important to preserve the maternity roost because this endangered species is native to North Carolina’s High Country.

“There’s no other places in North Carolina where you can find that species, so it’s a really unique and iconic species for the region,” says O’Keefe. “I think that’s important, the character or flavor of that area that is found nowhere else.” ♦

*Blue Ridge Conservancy and Appalachian State University Documentary Film Services produced a short film about this project. View it online at tinyurl.com/brc-bats-video.*

## Caving Adventures

Continued from centerspread

**DIFFICULTY:** These caverns are considered commercial, as opposed to wild. While Linville Caverns does not allow spelunking, this caving spot is great for families and children.

**FUN FACT:** In an area of the cave too dangerous for human traffic resides a rock that bears the signature of explorer William Hidden. He was sent to the area in the late 1800s by Thomas Edison in search of minerals needed to create the light bulb.

**CONTACT INFORMATION:** Call (800) 419-0540 or visit linvillecaverns.com

## The Flittermouse Grotto

Commercial caving is sparse in North Carolina, and the few wild caves are closed to the public. The longest known limestone cave in the state is only one mile long, according to Steve Bailey, the chairman of the Western North Carolina caving group Flittermouse Grotto. Named after an old-time word for bats, the Flittermouse Grotto promotes safe caving practices by leading group caving trips, surveying caves and hosting seminars that train would-be cavers about topics such as vertical techniques and ropework.

The grotto meets on the third Friday of each month in Asheville, N.C., and welcomes interested adventurers. Find more information on their Facebook page or at flittermouse.org.

## TENNESSEE

### Worley’s Cave

**WHERE:** Bluff City, Tenn., in Sullivan County

**HOW TO ACCESS:** Worley’s is located on private property, and it is recommended that visitors tour the cave with a third-party outdoor recreation company, such as High Mountain Expeditions, River & Earth Adventures, USA Raft or Wahoo’s Adventures. However, the owner may grant entry permission to experienced individuals or groups such as university programs or scout troops. Tours through Worley’s can be done as both day trips and overnight trips, and vary in length of time to complete.

**DIFFICULTY:** While Worley’s can be beginner-friendly when accompanied by a well-trained guide, this caving experience is physically strenuous and better for more adventurous or experienced cavers.

**FUN FACT:** The cave is also known as Morrill Cave, after 20th century explorer John Morrill who led trips at the site. It includes a giant, open room deep in the cave known as the Cathedral Room because of its natural curtains and other cathedral-like features.

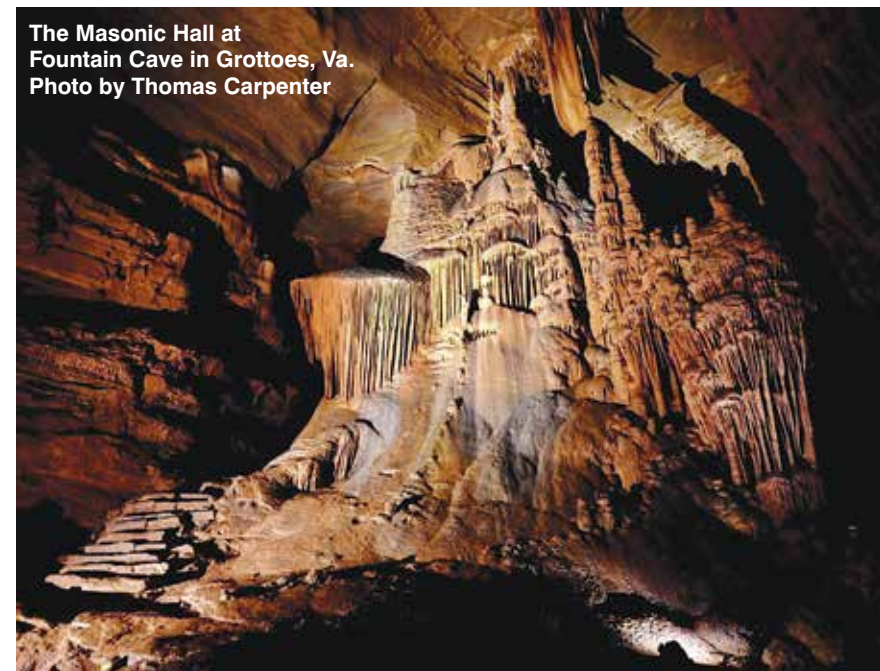
**CONTACT INFO:** Email worleyscaveinfo@gmail.com, or search the websites of the companies listed above for tour information.

### Appalachian Caverns

**WHERE:** Blountville, Tenn., in Sullivan County

**HOW TO ACCESS:** Appalachian Caverns offers several guided tours to the public.

**DIFFICULTY:** Appalachian Caverns offers a variety of experiences, from beginner to advanced. There are four different tours, available based on skill level and priced accordingly.



The Masonic Hall at Fountain Cave in Grottoes, Va. Photo by Thomas Carpenter

**FUN FACT:** Appalachian Caverns’ history includes archaeological evidence of Native Americans and land ties to both the Boone and Crockett families.

**CONTACT INFO:** Visit appacaverns.com, or call 423-323-2337

### Wolf River Cave

**WHERE:** Fentress County, Tenn.

**HOW TO ACCESS:** The cave sits on 33 acres and is co-supported by the Southeastern Cave Conservancy, The Nature Conservancy in Tennessee and Bat Conservation International. Closed from September 10 to April 30, the conservancy requires a permit to explore Wolf River Cave.

**DIFFICULTY:** Experienced cavers only

**FUN FACT:** Wolf River Cave is eight miles long. It is home to about 2,500 Indiana bats, the rarest endangered bat in the Southeast. Access is controlled by the Southeastern Cave Conservancy, a nonprofit organization that protects 31 preserves with more than 170 caves in six southeastern states. None of their caves are available for commercial use, but permits can be acquired for free on their website. After a permit is approved, parties are allowed to hike above ground on the preserves, as well as explore certain caves, although some are closed for conservation purposes.

**CONTACT INFO:** Visit saveyourcaves.org or call (423) 771-9671

## VIRGINIA

### Fountain Cave

**WHERE:** Grottoes, Va., in Augusta and Rockingham counties, adjacent to the more accessible Grand Caverns

**HOW TO ACCESS:** While this cave once had walkways, it is now a wild cave ideal for a more adventurous caving experience. Cavers must be 12 years or older, and the tour lasts roughly two hours. The cave is open year-round. Reservations are recommended. Prices, including discounts and group rates, are offered on the website.

**DIFFICULTY:** Visitors have the option to make

## WEST VIRGINIA

### Organ Cave

**WHERE:** Near Lewisburg, W.Va., in Greenbrier County

**HOW TO ACCESS:** The cave has more than 45 miles of mapped passages. Tours are offered year-round, and are by reservation only from November through April. Reservations are recommended May through October. Organ Cave is always closed on Sundays. Prices vary.

**DIFFICULTY:** Tours range from kid-friendly to more advanced spelunking options called “Exploring Expeditions.”

**FUN FACT:** Organ Cave is part of the longest cave system in the state and is listed as a National Natural Landmark. It is also listed on the National Register of Historic Places, and is a part of the West Virginia Civil War Trails. Organ Cave was used in the Civil War as a mining operation for saltpeter to produce gunpowder, and today the cave has the largest collection of saltpeter hoppers from the Civil War.

**CONTACT:** Visit organcave.com or call (304) 645-7600

### West Virginia Cave Conservancy

**WHERE:** Various cave locations in West Virginia and Virginia

**HOW TO ACCESS:** While the conservancy strives to preserve access to the caves it manages, all commercial use of its properties is banned. Several of the caves require advance arrangements with the conservancy for access.

**DIFFICULTY:** The conservancy’s cave preserves are largely restricted, and only highly experienced cavers are encouraged to explore these locations.

**FUN FACT:** West Virginia Cave Conservancy is a volunteer-based nonprofit organization committed to preserving and managing cave resources. In order to protect significant caves and preserve the access to them, the conservancy owns and seeks out ownership of cave properties, as well as forming agreements with other property owners for the management of the caves.

**CONTACT INFO:** wvcc.net

♦ ♦ ♦

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# FASCINATING CAVE CREATURES OF APPALACHIA

By Ridge Graham

The Central and Southern Appalachian region is known for its biodiversity with some of the highest numbers of salamanders, plants and fungi anywhere in the temperate world. But another enchanting and diverse ecosystem hides underneath these lush and scenic mountains in a wide variety of caverns found across the region.

The Cumberland Plateau hosts an especially stunning array of caves. For years, Matthew Niemiller, a professor at the University of Alabama in Huntsville, has been studying organisms that are only found in caves.

"The southern part of the Cumberland Plateau is recognized as a global hotspot of subterranean biodiversity with over 200 species that are only found in caves," he says. "For cave biodiversity, there's no better place in North America."



Cave biologist Matthew Niemiller ventures through Armours Cave in Overton County, Tenn. Photo by Chuck Sutherland

## Clever Adaptations

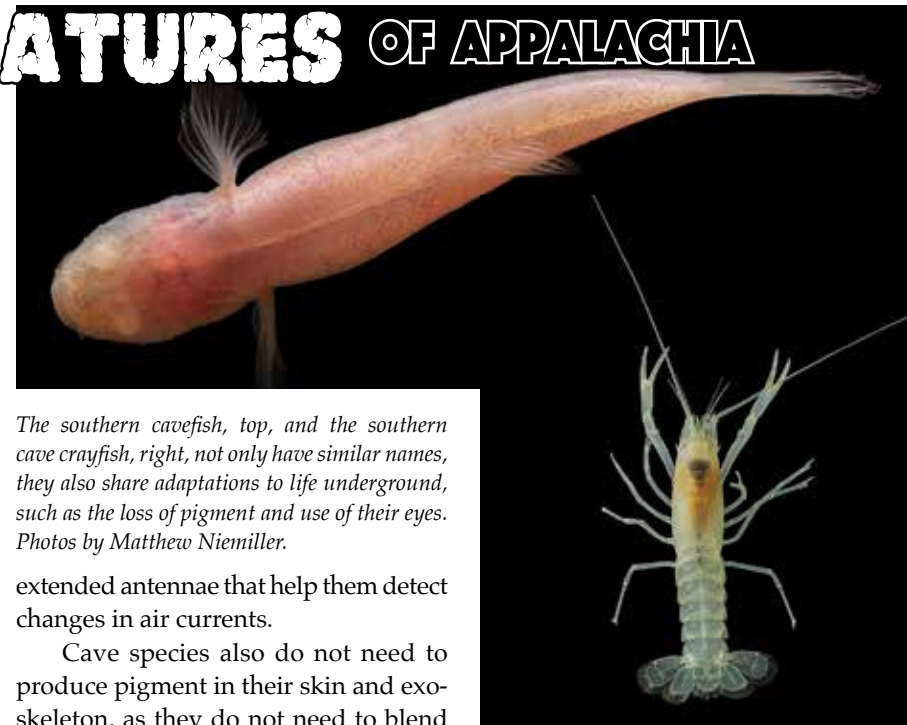
The hundreds of species that call Appalachia's caves home have overcome these challenges through a host of bewildering adaptations.

Deep underground, there is no light, and the source of most nutrients comes from the surface, such as plant debris that washes into the cave and the fungi that grows on the droppings of bats, woodrats and cave crickets that venture down below.

"Different species have evolved different strategies to [adapt to the cave environment]; in some cases they've converged on similar solutions," says Niemiller. "The biggest constraint [physically] is you can't use your eyes. You have to rely on your other senses to detect food, each other, potential predators and where you're at in your environment."

Many species have stopped growing eyes completely. Instead of eyes, southern cavefish have a finely tuned system of sense organs that run along their body with large structures called neuromasts that allow them to detect the tiniest vibrations in the water. They use this to locate potential food sources and to navigate.

Some invertebrates have developed elongated limbs and appendages to help them maneuver. Millipedes and springtails have noticeably



The southern cavefish, top, and the southern cave crayfish, right, not only have similar names, they also share adaptations to life underground, such as the loss of pigment and use of their eyes. Photos by Matthew Niemiller.

extended antennae that help them detect changes in air currents.

Cave species also do not need to produce pigment in their skin and exoskeleton, as they do not need to blend in with their surroundings or protect themselves from the sun.

In addition to these physical changes, cave species also adapt their lifestyle to the infrequent and sparse availability of food.

"Reproduction is delayed, lifespans get longer [and] metabolism slows way down," Kirk Zigler, a professor at Sewanee: The University of the South, says. "They require less nutrients and they can live longer without being fed at all."

According to Zigler, while crayfish found in surface waters typically live for two to three years, studies indicate that subterranean crayfish can live for several decades.

With these physical and lifecycle changes, many cave species are unable to live on the surface or move from cave to cave. Over time, this isolation has led to the diversity on display today.

"There is a group of cave beetles ...



Endemic to Cumberland Plateau caves, Tennessee cave salamander populations are threatened by deforestation. Photo by Matthew Niemiller

that has 150 named species that are all eyeless and wingless and are scattered all along the Appalachian Trail from West Virginia down into Georgia," he continues. "There's no obvious close surface relative, so it's hard to understand how they have such a wide range through the Appalachians when they've never been found on the surface."

This is an extreme example of endemism, the ecological state where a species is unique to a defined geographic location. Around a third of known cave species, like these beetles, are found in just one or a handful of cave systems.

## Conserving Caves

Endemism provides challenges for researchers who want to learn more about the biology and biodiversity of cave species, which in turn leads to difficulties in understanding how to protect them.

"They're not a panda," says Niemiller. "They're not charismatic. It's tough to develop a conservation platform for the public. They're fascinating to look at. They're bizarre. They have a wow factor—but why should we care about them? They're underground, out of sight and out of mind."

While cave creatures might not be the prettiest mascots for environmental protection, they are vital for understanding the health of the region.

Continued on next page

# HOW TO BE A FRIEND TO BATS BARRING THE WAY TO DISEASE

Bats are necessary pest controllers, pollinators and seed dispersers. But of approximately 1,300 bat species, nearly one-third are threatened, according to global bat protection organization Bat Conservation International. Destruction of their roosting sites and the rise in white-nose syndrome, a fatal fungal disease, have greatly affected bat populations.

Bats find shelter in dead trees and caves, but people can provide additional roosting sites by constructing bat boxes on the sides of buildings or on top of metal poles. Boxes should receive six to eight hours of sunlight daily, have covering to protect bats from rain and predators, and be located 12 to 20 feet above the ground. Boxes on the sides of buildings retain the most heat, which helps maintain a healthy temperature of between 80 to 100 degrees Fahrenheit during the summer when bat pups are young. The National Wildlife Federation provides a helpful bat box how-to guide at [tinyurl.com/build-bat-house](http://tinyurl.com/build-bat-house).

To attract bats to an open yard, plant flowers like white jasmine and evening primrose or herbs like mint and lemon balm. Planting oak or field maple trees nearby to provide shelter can also attract bats.

And to ensure that a yard is bat-friendly, keep cats indoors. If that is not possible, keep them inside from a half hour before sunset until an hour after, when bats are most active.

During fall and winter, bats typically hibernate in caves or trees. When disturbed by human activity during hibernation, they prematurely burn through their fat reserves, which can lead to death. To respect bats, do not disturb their roosting sites — especially during hibernation season.

Another way to protect bats is by supporting organizations like Bat Conservation International. This global nonprofit group is engaged in researching white-nose syndrome and other threats to bats, educating the public to combat the bat's negative reputation, and protecting habitats like forests, caves and abandoned mines. Visit [batcon.org](http://batcon.org) for more information. — By Jamie Tews



A bat house in Virginia. Photo by Jon Fisher

Bat-friendly gates are barriers placed over the openings of caves and mines that allow bats to freely fly in and out but prevent humans from entering. Bats awakened during hibernation use up energy stored as fat, which can lead to starvation, especially if they have been infected by the fungus that causes white-nose syndrome. Humans entering caves or mines can unknowingly spread the fungus. The gates also protect humans by keeping them out of dangerous areas.

"Bats can be awakened by human entry even if the humans are quiet — their presence is enough to rouse the bats," U.S. Forest Service Biological Technician Mike Donahue says. "Smoke from campfires within the cave or even blowing into the cave from a campfire at the entrance disturbs the bats. Smoke from campfires is bad any time, since the bats can be suffocated."

If Donahue determines that bats use a cave or mine, staff and volunteers build the gates onsite. The sites often lie in steep terrain and construction requires heavy materials and equipment that must be transported by hand, which can be dangerous.

The biggest obstacle Donahue faces is the small number of people who resist having the cave or mine closed to their entry. Some gates are vandalized or breached, rendering them ineffective.

According to U.S. Forest Service Public



A bat gate blocks a mine entry in Virginia's George Washington and Jefferson National Forest. Photo courtesy of USFS

Affairs Specialist Rebecca Robbins, in 2009 the Forest Service closed all caves and mines on national forests in the agency's southern region to human entry for one year. The Forest Service extended the closure multiple times, including in 2014 when it was extended for an additional five years through 2019.

"We are hopeful that bats can continue to be protected as long as necessary — they are a critical part of our ecosystem," Donahue says. — By Lorelei Goff

## Underground World

Continued from previous page

"There's a tight connection between what happens in our caves and what happens with our groundwater," says Zigler. "Disappearing or crashing cave populations usually mean something is wrong with the groundwater."

Caves and their inhabitants are inherently vulnerable to changes on the surface. Pollutants can enter underground waterways through surface water or through human disturbances such as pipeline construction near porous karst rock formations. Deforestation destroys the homes of bats and other animals, disrupting the cycle of nutrients coming in to the cave, and can change surface water patterns in ways that alter the water flowing underground. All of these impacts can have a cascading effect on the communities of subterranean organisms.

"Cavefish and cave salamanders are great bioindicators," Niemiller says. "Cave bacteria and fungi are great purifiers for groundwater."

The majority of rivers in the Southeast are derived from mountain headwaters, and a majority of communities

in the Appalachian region rely on groundwater as a drinking source.

Cave species are also important models for learning more about aspects of certain diseases. According to Niemiller, southern cavefish have curiously avoided developing metabolism disorders that should arise from the lack of nutrients they receive. Diabetes researchers have focused on the Mexican blind cavefish, a relative of the southern cavefish, with hopes of finding a new strategy to help humans with the disease.

Other species could have completely undiscovered applications.

"Twenty years or 50 years from now, [we might find] a breakthrough that will benefit humans in the future," says Niemiller. "Preserving this biodiversity is critically important."

Whether it's the eyeless and long-limbed Appalachian cave harvestman arachnid or the ghostly Tennessee cave salamander, these creatures have demonstrated an ability to thrive under circumstances that most life forms would find impossible. As Earth undergoes the shifts of climate change, there may be much to learn from these underground survivors. ♦

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# Pipelines Plagued by Lawsuits and Delays

By Kevin Ridder

As spring arrives in the Appalachian Mountains, construction remains frozen on a majority of the Atlantic Coast Pipeline's proposed route due to a slew of court decisions. Work is also halted at water crossings and national forests along the Mountain Valley Pipeline's intended route.

In a March interview with Bloomberg Television, Duke Energy CEO Lynn Good conceded that the monopoly utility might need a "Plan B" if the Atlantic Coast Pipeline fails to overcome opposition. Duke owns a 47 percent share in the proposed fracked-gas pipeline.

Good noted that Duke "remains committed" to completing the pipeline, which is estimated to cost up to \$7.5 billion. When asked at what point the utility would consider the project too expensive, Good refused to comment. Good told Bloomberg that if the Atlantic Coast Pipeline project fails, Duke will likely look into a pipeline from eastern to western North Carolina.

"Duke Energy is finally getting the picture that it cannot overcome the power of the grassroots, the economics that favor clean energy over fossil fuels, and our fundamental environmental safeguards," Kelly Martin, the Sierra Club's Beyond Dirty Fuels campaign director, said in a press statement. "Now, Duke is trying to double down on fracked gas, but 'plan B' for Duke is still a worst-case scenario for our climate and communities."

In March, lead Atlantic Coast developer Dominion Energy stated that pipeline construction likely will not resume until the third quarter of 2019. This comes after the U.S. Fourth Circuit Court of Appeals negated several key federal permits in late 2018, including one issued by the U.S. Forest Service that would have allowed the pipeline to cut across two national forests and the Appalachian Trail. On Feb. 25, the Fourth Circuit refused developers' request to rehear that case, and a Dominion spokesperson stated that they planned to appeal to the U.S. Supreme Court within 90 days.

In December, the Fourth Circuit suspended a U.S. Fish and Wildlife Service permit that would have allowed Atlantic Coast developers to cut through the habitat of threatened and

endangered species. A hearing was set for March, but the federal court pushed it to May 9 due to the government shutdown. The Southern Environmental Law Center, a nonprofit law firm, is representing several environmental groups in both cases.

In March, student reporters from Morgantown High School in Morgantown, W.Va., interviewed Atlantic Coast Pipeline Lead Engineer Brittany Moody and found that the project would provide about 20 permanent jobs in total. The students worked with PBS NewsHour's Student Reporting Labs.

Previously, developers had stated that the pipeline would create 82 permanent jobs, a claim that originates from a 2014 report prepared for Dominion Energy by research firm Chmura Economics and Analytics.

## Native Americans Stand Up to Pipeline

The Atlantic Coast Pipeline is implicated in another lawsuit, this time at the pipeline's southern endpoint in Robeson County, N.C. The case involves whether the Robeson County Commissioners should have issued a permit for a pipeline-related metering facility and 350-foot tower in the town of Prospect. In March, a county judge postponed a hearing until April 15.

Four of the five plaintiffs — Tammie and Dwayne Cummings and brothers Robie and Dwayne Goins — are members of the Lumbee Tribe, and plaintiff Cecil Hunt is of the Tuscarora Tribe. All but Robie Goins own land adjacent to the proposed pipeline facility. The 93 percent Native American community,



Protesters repeatedly chanted "Shame! Shame!" after Virginia regulators voted not to pursue revocation of Mountain Valley Pipeline's Clean Water Act certification. Photos by Lara Mack

population 981, already has a natural gas compressor station owned by Piedmont Natural Gas, which leaked gas in November 2017.

In August 2017, the Robeson County Commissioners unanimously voted to allow pipeline developers to build the station in Prospect, expecting \$6.5 million in tax revenue for the county. The site would be on land that was previously zoned as agricultural.

Dwayne and Robie Goins filed a petition that October with the Robeson County Superior Court alleging that the commissioners illegally granted the permit to Atlantic Coast developers by failing to hold a proper public hearing. The other three plaintiffs joined afterwards.

The N.C. Alliance to Protect the People and Places We Live, a nonprofit advocacy group fighting the pipeline, is raising money to fund the legal fight. Learn more about the case at APPPL.org.

"The public should have been



entitled to hear sworn detailed expert testimony and should have been able to cross examine the experts as well as inspect and question the documents submitted by the ACP," said the Alliance in a press statement. "According to [Sean Cecil, the Goins' attorney,] none of this happened."

Additionally, North Carolina law states that governing boards deciding on a special permit are not supposed to have a fixed opinion on the issue prior to receiving all of the evidence. According to NC Policy Watch, the Robeson County Commissioners passed a resolution in support of the pipeline in 2014, which later appeared on Duke Energy letterhead.

Cecil told NC Policy Watch that the judge can either deny the permit, affirm its issuance or send it back to the board to be reconsidered.

## North Carolina Governor Under Investigation

As of March 29, the North Carolina legislature was investigating Gov. Roy Cooper for his involvement in the state's issuance of permits to Atlantic Coast developers.

On Jan. 26, 2018, the state Department of Environmental Quality granted key permits for the pipeline's construction in the state. That same day, Gov.

Continued on next page

## Pipelines Update

Continued from previous page

Cooper announced that Duke and Dominion would pay into a \$57.8 million clean energy and environmental mitigation fund slated for communities in the pipeline corridor. Then-Virginia Gov. Terry McAuliffe also signed a \$57.8 million environmental mitigation agreement with the monopoly utilities right before he left office in early 2018.

The North Carolina fund would have been under Gov. Cooper's control, but the legislature took control of the proposed fund later in 2018 and redirected any future dollars to school districts in the pipeline's path.

In December 2018, the governor's office released more than 19,000 pages of documents related to the pipeline and the \$57.8 million deal which show that Duke and Dominion had close access to the governor. Additionally, legislators claim the records show that Gov. Cooper used Atlantic Coast permits as a bargaining tool to get Duke to support solar policy changes that benefitted a Cooper family business partner, according to the Raleigh News & Observer.

While the governor was negotiating the multimillion-dollar fund, Duke was at a standstill in talks with solar companies on how much power the monopoly utility would purchase from them, WBTV reports. Strata Solar CEO Markus Wilhelm, whose company used to rent land in Nash County from Gov. Cooper and still does from his brother, came to the governor in 2017 and asked him to speak with Duke leadership about the impasse.

Days after the state issued the Atlantic Coast permits in January 2018, Duke reached a deal with solar companies that resulted in the utility purchasing more solar power. A legislative oversight committee hired private investigators to look into the matter. The governor's Chief of Staff Kristi Jones has called the investigation an "extraordinary open-ended political fishing expedition," according to the News & Observer.

## Despite Problems, Mountaineer XPress Pipeline Begins Operation

In West Virginia, a federal agency allowed TransCanada to begin full service on the 170-mile Mountaineer XPress Pipeline in March. The state had fined TransCanada \$122,350 in November for environmental violations, and pipeline construction contributed to numerous landslides throughout winter. Developers had documented 260 landslides as of Feb. 26, according to nonprofit environmental group Ohio Valley Environmental Coalition.



## Mountain Valley Pipeline

On March 1, the Virginia State Water Control Board unanimously voted to stop pursuing revocation of the Mountain Valley Pipeline's Clean Water Act permit. Environmental groups including Appalachian Voices, the publisher of this newspaper, denounced the board's decision.

"The public is so interested in this process and this permit, and I think they deserve a much better explanation for the board's about-face," Appalachian Voices' Peter Anderson told The Roanoke Times on March 9.

The board had previously voted in December to consider revoking the project's certification after developers racked up more than 500 reported violations of the permit and Virginia's water pollution laws during construction.

In an attempt to explain their most recent vote, board members stated they had no authority to strip the pipeline of the permit. However, the certification that the board previously approved included the stipulation that the board may revoke it for noncompliance.

The board claimed they relied on the advice of an assistant attorney general, but the Attorney General's office as well as the DEQ declined to offer an explanation, according to the Roanoke Times.

After the March 1 meeting, a board member told the Roanoke Times that because the board's certification alone did not authorize Mountain Valley



At left, a section of the Mountain Valley Pipeline in Anne Way Bernard's Franklin County, Va., field in March. Photo by Anne Way Bernard. Five Robeson County, N.C., Native American residents with land near a proposed Mountain Valley Pipeline Southgate facility are suing the county to revoke their permit. First row, from left to right: Rev. Mac Legerton, Donna Chavis, attorney Sean Cecil, plaintiff Robie Goins. Second: Greg Yost, Steve Norris, John Wagner. Third: Jerome Wagner, Attorney Jane Finch, and Tom Clark. Not Pictured: plaintiffs Cecil Hunt, Dwayne Goins, and Dwayne and Tammie Cummings. Photo courtesy of APPPL

Pipeline, LLC, to do anything, it was not technically a permit and could not be revoked by the board.

More than 300 of the pipeline's permit violations are cited in a lawsuit against Mountain Valley filed by Virginia Attorney General Mark Herring in late 2018. Environmental groups are calling on state officials to order a stop to construction while the suit is pending.

Construction along some of the route remains at a standstill as federal agencies have not reissued two permits to Mountain Valley that were thrown out in 2018 by a federal court.

On March 18, Virginia Del. Chris Hurst sent a letter to the DEQ requesting an immediate stop-work order on the entire pipeline.

"Clearly there is evidence of violations and a lack of seriousness on the part of the Mountain Valley Pipeline, LLC," wrote Hurst.

## Southgate Extension

Mountain Valley is currently suing three Alamance County, N.C., couples to gain access to their land to survey for the company's proposed 73-mile Southgate pipeline extension into the state.

Mountain Valley claims that state law allows them to enter people's land to survey it before eminent domain proceedings. However, developers are unable to condemn the land without the Federal Energy Regulatory Commission's approval. A hearing was set for April 1.

FERC announced in March that they would release a draft Environmental Impact Statement for MVP Southgate in July, which will be followed by a public comment period. The agency expects to release their final environmental study by December and decide whether to approve the fracked-gas pipeline by March 2020. ♦



One of the two tree-sits. Photo by Appalachians Against Pipelines

## Protest Marks 200 Days

On March 23, two tree-sitters in the path of the Mountain Valley Pipeline in Elliston, Va., celebrated their 200th day above ground. The protest was still going strong at press time.

"I think Mountain Valley will run out of money and give up," tree-sitter Phillip Flagg told CityLab in March. "I think we're going to win."

In December, Mountain Valley Pipeline, LLC, asked a federal judge to fine the tree-sitters and authorize U.S. Marshals to forcibly remove them if they don't comply. The judge had not issued a decision as of late March.



## Permaculture Ponds

By Eliza Laubach

In the tale of Peter Rabbit, Robert McGregor waters his garden from a pond. Author and illustrator Beatrix Potter drew this scene with a white cat perched on the pond's edge beside a watering can. The cat intently watches goldfish swim between lily pads, as Peter Rabbit safely slips away.

Jonathan Todd, water systems ecologist and designer, interprets this scene as relating directly to the work he does to improve water quality. The plant life creates nutrients, which feed the fish. While perhaps only occasionally eaten by the cat, the fish can be a food source, but even more importantly they help to cycle nutrients through the water.

Peter Rabbit was written in England in 1902, before plumbing captured water in garden hoses. The fictional Robert McGregor's traditional garden pond was well-designed with plants and animals present — as if the pond were lined not with cobblestones but a wetland.

Jonathan Todd refers to this story as an example of permaculture, a sustainable design system integrating harmonious relationships between humans, plants, animals and the soil. He and his father, John Todd, design systems that mimic ecological processes to treat water through their company, John Todd Ecological Design.

John Todd developed a patented ecological technology that filters polluted wastewater by passing it through a series of fiberglass tanks. These tanks hold a diversity of life, from algae and

fungi to plants and small aquatic animals. Sometimes the tanks are placed inside a greenhouse and grow tropical plants; for oil spill remediation, boxes of polypore mushroom spawn are added to the system.

"Any tech I wanted to create would have to have a place for all kingdoms of life," says John Todd.

Growing up on the ocean and with experience working at sea, son Jonathan is deeply connected to water.

"It's gotten a lot more intense and kind of intimate, repairing water and seeing how nature can do it given the opportunity," he says. "The power of nature to heal itself is tremendous."

The two taught a workshop in March at Living Web Farms in Mills River, N.C., to address water systems in small-scale agriculture. The Organic Growers School, an organic farming school and incubator that hosts biannual conferences in Western North Carolina, sponsored the workshop in collaboration with their spring conference.

Living Web's large pond experiences eutrophication, a condition where excess nutrients lead to algae blooms, low oxygen levels and sunlight, ultimately killing animal and plant life. Eutrophication plagues many watersheds, from Lake Erie to the Mississippi River to small ponds, especially where fertilizer runoff and industrial activity are present.

John Todd's work over the past 30 years has helped to address eutrophication and to treat wastewater from sewage, agriculture and industry. His new book "Healing Earth," which includes a strategy to transform strip-mined land in Central Appalachia into regenerative communities, is part memoir and part manual for creating these "biologically complex, mechanically simple" systems.

During the workshop, Jonathan Todd guided participants in redesigning the ecology and landscape around the pond to address the algae overgrowth. Some of the principal design options are explored below.

### Aquaculture

Cultivating fish will help keep algae levels low as they filter it through



Above, Jonathan Todd points toward the pond at the focus of the workshop, while Living Web Farms landowner and director Patryck Battle looks on. At left, workshop participants discuss various solutions for streambank erosion with Todd and Battle. Photos by Lisa Soledad Almaraz

their gills. You can grow protein for the dinner table and create higher-quality water for irrigation with the nutrients the fish deposit. Tilapia can grow to harvestable size in just nine months. Feed them food scraps to close the loop! Aquatic scavengers, such as snails and tadpoles, will also control algae.

### Flowforms

Wrought from turn-of-the-century philosophies about water's regenerative processes and ability to harness energy, British designer John Wilkes developed clay forms in the 1960s shaped to manipulate moving water with circular or cascading designs. Mimicking the way water moves over rock, flowforms aerate water through a spiraling, corkscrew effect.

"When we put the spin back in, we're speaking the language of water," says workshop participant Tika Vales of Living Design Consultants. According to Vales, the spiraling effect restores an aspect of healthy ecosystems.

### Wetland habitat

Plants grown along the edge of the pond help to filter runoff and aerate the water. Diversify with swamp azalea, swamp rose and wapato, or duck potato. Cattails' early spring shoots are edible! Consider native trees and shrubs such as birch, willow, spicebush and

elder. Floating water plants that cover 50 to 70 percent of the pond's surface will reduce algae growth by limiting light penetration, according to the USDA Natural Resources Conservation Service. Using native species is imperative, as some floating water plants are invasive. If you choose other plants, establish a filter or catchment for runoff. To stabilize water edges, the Todds have successfully used spent mycelium from mushroom cultivators, which inevitably produces more mushrooms!

A permaculture practitioner can help those seeking to apply these concepts to their waterways or ponds. Farmers may be able to receive assistance from the USDA Agricultural Management Assistance program, especially for the creation of a new pond.

Come June, the Todds will return to Living Web Farms to implement the water system design developed in March. Sign up for this hands-on, all-day workshop at LivingWebFarms.org.

The benefits of ponds ripple throughout the watershed: they diversify habitat, help mitigate polluted stormwater runoff and lessen erosion from flooding. And there are personal pond perks: they attract wildlife, provide food for the table and yield naturally fertilized irrigation water. ♦

## Congressional Hearing Addresses Abandoned Mine Cleanup

On March 28, a U.S. House subcommittee held a legislative hearing titled "Abandoned Mine Land Reclamation: Innovative Approaches and Economic Development Opportunities."

The hearing provided an opportunity for regional leaders to testify before members of Congress about strategies to restore abandoned mines, sites that coal companies deserted prior to 1977 federal surface mining regulations.

Witnesses expressed support for the RECLAIM Act, a bipartisan bill introduced in 2016, 2017 and 2018 that would use \$1 billion in existing AMLabandoned mine land cleanup funds to restore damaged land and water while advancing economic and community development. The bill's advocates expect a new version to be introduced in the coming weeks or months.

"In Eastern Kentucky and across Appalachia, a strong local movement for the RECLAIM Act has been building for many years now and has earned unequivocal and bipartisan support for this bill," testi-

fied Eric Dixon of Appalachian Citizens' Law Center. "It should be shaped and implemented in a way that maximizes public awareness and meaningful community engagement, and directs benefits to local workers and residents."

The hearing also addressed the Community Reclamation Partnerships Act, H.R. 315, which would allow non-profit organizations and other groups not paid by states to assist with hands-on remediation of AML sites without taking on all of the project's liabilities.

In his testimony, Dixon expressed how this program could help address water contaminated by acid mine drainage, which he said is common in his Eastern Kentucky community. "Our organizations believe that this approach displays merit and should be seriously considered as a possible approach to Good Samaritan relief for coal AML," he wrote of the bill.

Citing a backlog of AML sites awaiting reclamation, many of the witnesses discussed the need for Congress to re-

authorize the AML Trust Fund that pays for cleanup of these mines.

"The fee on which the [AML] program relies is set to expire in 2021," said Eric Cavazza, a Pennsylvania regulator representing the Interstate Mining Compact Commission and National Association of Abandoned Mine Land Programs. "Meanwhile, in an era of increasing economic hardship for coalfield communities, the state AML programs' work has become more important than ever."

Robert Hughes of the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation called on Congress to raise coal companies' contributions to their historic levels. "The scope of the abandoned mine land and water problems continue to exhaust available resources, and the Abandoned Mine Land Trust Fund has been impacted over the years by sequestration, leading to even less funding being distributed for reclamation and water restoration," Hughes stated. — By Molly Moore

## Duke and Dominion Energy's Contributions to NC Legislature

In North Carolina, Duke Energy is one of the top contributors to state legislative campaigns. Appalachian Voices, an environmental nonprofit organization and publisher of this newspaper, examined how much legislators and candidates received from the monopoly utility in 2018.

In total, Duke and the company's top executives gave \$465,450 to the state's House and Senate last year. Senate President Pro Tempore Phil Berger (R-30) received the highest amount, \$76,250. House Speaker Tim Moore (R-111) received \$16,550, the highest in the House. About 78 percent of Duke's contributions went to Republicans, who control both chambers.

Virginia-based Dominion Energy and their subsidiary PSNC Energy contributed \$119,100 to the North Carolina legislature. Roughly 78 percent of their donations went to Republicans. Dominion and Duke are the largest stakeholders in the proposed fracked-gas Atlantic Coast Pipeline. PSNC Energy would be the primary buyer of gas from the Mountain Valley Pipeline's Southgate extension.

In February, a coalition of 15 local, state and national groups including Appalachian Voices, the publisher of this newspaper, launched a campaign that aims to end Duke's monopoly control of North Carolina's energy markets, stating that the corporation is harming communities, gouging consumers and worsening climate change.

"The financial contributions of the corporate fossil fuel industry create a quid pro quo situation in our state houses, whereby these polluters get a big return in investment by obtaining political favor to reduce the rules and laws that regulate their environmental impact," says Appalachian Voices' Amy Adams. "This is why groups like the Energy Justice North Carolina Coalition have formed to challenge this 'pay to pollute' scheme." — By Kevin Ridder

## Most Sweeping Public Lands Bill in Decades Becomes Law

President Donald Trump signed the bipartisan John D. Dingell Jr. Conservation, Management, and Recreation Act on March 12, designating 1.3 million acres of new wilderness among other public lands provisions. Many of the act's congressional supporters praised it for being the most sweeping of its type in a decade. The act is a conglomeration of more than 100 separate bills.

This legislation permanently authorizes the Land and Water Conservation Fund, although it does not guarantee funding. The federal fund was created in 1964 to protect America's natural areas. It has broad bipartisan support and is financed by \$900 million annually in offshore drilling revenue, though

Congress determines how much of that money goes towards the fund's conservation purposes. It expired in September 2018 and lost more than \$403 million during the following months, according to the LWCF Coalition, a group that advocates for the fund. Trump's 2020 budget proposal does not include any money for the fund, though the president's budget is essentially a non-binding recommendation.

Additionally, the act opens all public lands to hunting unless specifically prohibited. It reauthorizes and funds the Neotropical Migratory Bird Act, protecting habitat for 368 migratory bird species. Further, it continues a program that allows the U.S. Fish

and Wildlife Service to provide assistance to landowners who take certain steps to protect key habitats. The act also permanently withdraws federal mineral rights for parcels of land near Yellowstone National Park and North Cascades National Park, preventing future mining in those areas.

The bill marks the creation of new public lands in Appalachia, including Mill Springs Battlefield National Monument and Camp Nelson National Monument in Kentucky, which was recently designated by the president under the Antiquities Act. Kennesaw Mountain National Battlefield Park in Georgia will be expanded by eight acres. — By Jen Kirby



An illustration from Peter Rabbit by Beatrix Potter

116 <sup>TH</sup> CONGRESS:	Kentucky		Tennessee		North Carolina		Virginia		West Virginia							
HOUSE	T. Massie (R) KY-04	H. Rogers (R) KY-05	A. Barr (R) KY-06	P. Roe (R) TN-01	T. Burchett (R) TN-02	Fleischman (R) TN-03	S. Desjarlais (R) TN-04	V. Foxx (R) NC-05	P. McHenry (R) NC-10	M. Meadows (R) NC-11	D. Riggleman (R) VA-05	B. Cline (R) VA-06	M. Griffith (R) VA-09	D. McKinley (R) WV-01	A. Mooney (R) WV-02	C. Miller (R) WV-03
<b>S. 47, the Natural Resources Management Act</b> , designates 1.3 million acres of new wilderness, reauthorizes the Land and Water Conservation Fund, withdraws federal mining claims from two national parks, and more. <b>AYES 363 NOES 62 ... PASSED</b>	X									X		X	X			
SENATE	M. McConnell (R)	R. Paul (R)	M. Blackburn (R)	L. Alexander (R)	R. Burr (R)	T. Tillis (R)	T. Kaine (D)	M. Warner (D)	J. Manchin (D)	S. M. Capito (R)						
<b>S. 47, the Natural Resources Management Act</b> , designates 1.3 million acres of new wilderness, permanently reauthorizes the Land and Water Conservation Fund, continues a federal assistance program for conservation on private land, and more. <b>AYES 92 NOES 8 ... PASSED</b>		X														
<b>S.Amdt. 187 to S.Amdt. 112 to S.Amdt. 111 to S. 47</b> , the Natural Resources Management Act, tabled an amendment that would have limited presidential authority to protect national monuments. <b>AYES 60 NOES 33 NV 7 ... PASSED</b>	X	X	X													

## Groups Urge Virginia Mining Agency to Strengthen Regulations

The Virginia Department of Mines, Minerals and Energy is undergoing a review of the commonwealth's surface coal mining regulations.

During the public comment period, which was scheduled to close on April 8, environmental groups urged the state agency to strengthen protections for land, air and water. Both Appalachian Voices, the publisher of this newspaper, and the grassroots organization Southern Appalachian Mountain Stewards asked the agency to make it easier for citizens who file complaints to get involved in site inspections.

The groups also called on the DMME to strengthen bonding regulations to ensure that financially unstable

mining companies do not walk away from reclamation obligations. Virginia operates a pool bond that allows mining companies to pay a portion of the amount necessary to reclaim their mines into a shared fund, rather than posting a bond that is sufficient to fully restore the site. The groups suggested eliminating the pool bond's \$20 million cap so that the fund can better respond to market changes and stay solvent. In 2017, a state advisory board identified the mining companies owned by the family of West Virginia Gov. Jim Justice as the single greatest threat to the pool bond fund.

Among other regulatory updates, the environmental advocates also urged the DMME to replace its remaining self-bonds with full-cost bonds. In 2014, the state legislature abolished the practice of self-bonding, where a company can simply show that they have the resources to cover reclamation instead of posting a bond. This puts taxpayers on the hook if a company fails, particularly if the company owns multiple mines in need of cleanup. Despite the 2014 law, Justice-owned A&G Coal Corp. still holds self-bonds.

The groups also sought limits to

"temporary cessation," which is when a mine operator temporarily abandons a mine and is exempt from various regulatory timetables. Currently, a mining company can declare that a site is in temporary cessation for years. The groups argue this encourages prolonged disrepair and can lead to the mining company forfeiting its bond and failing to reclaim the site. "Temporary cessation should be limited to one six-month grace period, after which the company must resume operations or begin reclamation," the groups stated in their comments to DMME. — *By Molly Moore*

### Fracking Company to Pay Millions for WV Clean Water Act Violations

On Feb. 12, fracking company Antero Resources was ordered to pay \$3.15 million for violations of the federal Clean Water Act and the West Virginia Pollution Control Act.

The company's settlement with the U.S. Department of Justice, U.S. Environmental Protection Agency and West Virginia Department of Environmental Protection follows multiple violations at 32 sites.

While extracting natural gas, Antero discharged unauthorized pollutants, including dredged and fill material, into streams and wetlands in Harrison, Doddridge and Tyler counties. According to the complaint, the EPA learned of the violations in 2011 and began enforcement proceedings that year.

In addition to paying the fine, the court ordered that Antero will be responsible for restoration and mitigation of the damaged sites, which the EPA estimates will cost \$8 million. — *By Hannah McAlister*

### KY Holds Hearing on 10,000-acre Mining Ban

The Kentucky Energy and Environment Cabinet held a public hearing on March 29 regarding a petition to ban surface coal mining on more than 10,000 acres surrounding the towns of Benham and Lynch.

The petition was filed by four area residents and the nonprofit organization Kentucky Resource Council. They argue that declaring the land near the towns off-limits to surface mining is necessary to protect the watersheds that supply municipal water sources and the historic towns' viewsheds.

The group originally filed the request in 2010. It was denied, and the petitioners appealed. In 2018, the state reversed its decision and allowed the group to resubmit their claim.

The state of Kentucky once again denied

the petition in January 2019, citing existing mining permits, but the following week changed course and scheduled the petition's March 29 public hearing. According to Tom FitzGerald of Kentucky Resource Council, the state also put a pending extension of a strip mining permit for Revelation Energy on hold.

Details on the hearing were not available at press time. Visit [appvoices.org/thevoice](http://appvoices.org/thevoice) for updates. — *By Molly Moore*

### NC Governor Proposes Wind Energy Study

On March 6, North Carolina Gov. Roy Cooper (D) proposed a \$25 billion budget for the 2019 to 21 fiscal years. Included in the budget was a one-year, \$300,000 study that would analyze the state's potential for offshore wind energy, if approved by state legislators.

Similar studies conducted in Mid-Atlantic and New England states have led to those states starting to corner the U.S. offshore wind market, Katharine Kollins, the president of the advocacy group Southeastern Wind Coalition, told Energy News Network.

The study, Kollins said, would help North Carolina maintain a competitive advantage.

A December 2018 analysis conducted for the state of Virginia by renewable energy consultant group BVG Associates recommends a "collaborative, multi-state cluster" to service southern Atlantic offshore wind projects. — *By Hannah McAlister*

### Proposed Mine Causes Concern in Birmingham

A Birmingham, Alabama water utility and a local conservation group, the Black Warrior Riverkeeper, have teamed up against a coal mine proposed by Mays Mining, Inc., citing concerns over permit deficiencies and potential drinking water contamination.

The proposed Alabama Surface Mining Commission permit would authorize surface coal mining at a former industrial

site with contaminated groundwater just 5.5 miles upstream of Birmingham's major drinking water intakes, which service 200,000 people. According to Black Warrior Riverkeeper, the permit does not adequately address the existing contamination at the site or how mining could safely occur.

The public comment period ended on March 29. Local residents and advocacy groups have been fighting proposals to mine coal at this site since at least 2006. — *By Hannah McAlister*

### Friends of Perry State Forest Fight Mine Permit

A proposed 545-acre strip mine in Ohio's Perry State Forest is garnering local opposition. If approved, the mine would encompass 12 percent of the public forest, which is a popular spot for hiking, hunting, fishing and horseback riding.

Members of Friends of Perry State Forest, a grassroots group that formed to fight the mine, were among the more than 150 people who attended a Ohio Department of Natural Resources meeting about the mine permit this February. At the meeting, regulators acknowledged hearing from more than 1,000 concerned people, the Perry County Tribune reported.

Opponents of the permit are concerned about air pollution, noise, harm to nearby drinking water wells and property damage from blasting. They also cite the forest's recreational and economic value.

"This area, this forest, creates a lot of revenue for this town," Jeff Ivers, whose property is surrounded by the public forest, told WOSU Public Radio. "They just don't see that. And they think mining is going to create more revenue? I don't see how."

Friends of Perry State Forest is also concerned about the financial stability and ethics of the company applying for the per-

*Continued on next page*

## TVA Releases Long-term Energy Plan, Announces Retirement of Two Coal Power Plants

On Feb. 15, The Tennessee Valley Authority released its draft energy generation plan for the next 20 years for public comment. The report outlines several different scenarios, such as an economic downturn or potential federal limits on carbon emissions, and also projects several different strategies, such as continuing with its current energy mix, prioritizing renewables or emphasizing distributed resources.

The report outlines potential solar additions of four to nine gigawatts by 2038, which amounts to the utility

achieving between 3.6 percent and 8.2 percent of its 2018 electricity generation from solar. In all scenarios, TVA plans no new solar until 2023.

All of the utility's scenarios include adding energy sources, even if demand continues to fall, citing a need to replace aging resources. The report does not project any added energy efficiency savings, aside from specific low-income programs, over the coming years.

The public comment period on TVA's long-term plan runs through April 8.

At the utility's quarterly meeting

on Feb. 14, the board of directors voted to shutter two aging and polluting coal-fired power plants, Bull Run near Oak Ridge, Tenn., and Paradise 3 in Muhlenberg County, Ky. Bull Run is now scheduled to close in 2023 and Paradise in 2020. Even with their closure, the amount of energy TVA generates through burning coal is expected to remain at 17 percent for the next decade.

President Donald Trump and U.S. Senate Majority Leader Mitch McConnell (R-Ky.) had urged TVA to keep the Paradise plant open, but the utility's

board members cited a combined \$320 million in savings from closing the older, inefficient power plants.

Environmental advocates, including Appalachian Voices, Southern Alliance for Clean Energy, Sierra Club and Statewide Organizing for Community eMpowerment, applauded the move and called on TVA to ensure economic opportunities for workers and sound cleanup of the facilities. — *By Molly Moore*

### West Virginia Enacts Coal Tax Cut

On March 27, West Virginia Gov. Jim Justice signed a bill to gradually drop West Virginia's severance tax on steam coal from 5 percent to 3 percent over the next three fiscal years. By year three, this will cost the state an estimated \$60 million in revenue annually.

Supporters of the bill said it would help the state's steam, or thermal, coal mines compete, while opponents argued it would benefit out-of-state companies and cost West Virginians needed services.

The governor also signed a bill granting a 35 percent tax credit for cost of new equipment for coal companies that expand or open new mining operations. — *By Molly Moore*

## Reinterpretation of Migratory Bird Law Favors Energy Companies

On Sept. 5, eight states joined environmental groups in federal lawsuits against the U.S. Department of the Interior's December 2017 reinterpretation of the Migratory Bird Treaty Act of 1918. The act prohibits killing certain bird species, but the Trump administration's legal opinion states that the act only applies to the intentional, as opposed to incidental, killing of migratory birds.

In April 2018, DTE Midstream Appala-

chia, a natural gas pipeline company, took advantage of this reinterpretation when the agency granted their request to clear trees during birds' nesting season for the Birdsboro Pipeline Project in Pennsylvania, according to the Federal Energy Regulatory Commission.

Since the 1970s, the federal government has used this act to threaten the energy industry with fines and prosecution for activities that kill migratory birds.

Oil companies were responsible for 90 percent of incidental killings under the act, according to the Audubon Society, and the Deepwater Horizon spill and 1989 Exxon Valdez oil tanker wreck accounted for 97 percent of all fines issued under the act. Under the administration's new interpretation of the law, oil companies would not be fined for incidental bird killings that result from oil spills. — *By Hannah McAlister*

*Continued from previous page*

mit. Oxford Mining Company, a subsidiary of Westmoreland Coal, originally applied for the permit in 2017. Following Westmoreland's October 2018 declaration of bankruptcy, Oxford sold the permit to a newly formed company, CCU Coal and Construction, which is owned by former Oxford owner Charles Ungurean. Under Ungurean's tenure in 2014, Oxford was found to have intentionally modified water discharge reports to hide violations from state regulators.

In January, Friends of Perry State Forest filed an appeal of a Clean Water Act permit issued to the mine by the Ohio Environmental Protection Agency. — *By Molly Moore*

### Westmoreland Coal Allowed to Sever Worker Agreements

On Feb. 15, a federal bankruptcy court judge ruled that Westmoreland Coal Company could sever union collective bargaining agreements for its active and former mining operations. This includes agreements that affect Westmoreland's former mines in Virginia.

Although Westmoreland left Wise County, Va., in the mid-90s, the company has many area retirees whose benefits can now be terminated.

The American Miners Act of 2019, released in January, attempts to rectify this situation by amending a federal mining law to increase allocations to the United Mine

Workers of America pension plan, and to restore funding for the Black Lung Disability Trust Fund that was reduced at the end of 2018. The bill's sponsors estimate that it would protect the pensions of over 87,000 current beneficiaries and more than 20,000 retirees. — *By Matt Hepler*

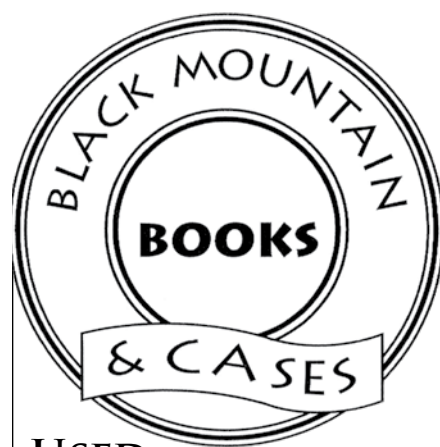
### U.S. Sees Growth in Clean Energy Jobs

Clean energy jobs in the United States saw a growth rate of 3.6 percent, a total of 110,000 net new jobs in 2018, according to a March report released by Environmental Entrepreneurs, a national business group.

At the end of 2018, nearly 3.3 million Americans worked in clean energy, which outnumbers fossil fuels jobs nearly three to one. Clean energy employers anticipate a 6 percent increase in job growth in 2019. Wind technicians and solar installers are predicted to be the top two fastest-growing jobs over the next seven years.

While energy efficiency led in total number of jobs, jobs in clean vehicles manufacturing saw the most growth in 2018, with a national growth rate of 15.4 percent. Solar jobs declined in 2018, which is attributed to tariffs on solar and steel, but the group expects those jobs to increase in 2019.

Ohio, North Carolina and Virginia were ranked among the top 10 states for clean energy jobs. — *By Hannah McAlister*



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## Campaign to End Duke Energy's Monopoly in N.C.

In February of this year, Tarheel residents and partner organizations including Appalachian Voices joined together in Raleigh, N.C., to launch the Energy Justice North Carolina Coalition to promote energy choice and end monopoly control of the state's utility structure.

Coalition members include residents from local communities suffering the impacts of Duke Energy's toxic legacy — including coal ash pollution, hot waste biogas, worsening effects of climate change, and the proposed Atlantic Coast Pipeline.

The Energy Justice NC Coalition's three primary goals are to end the dirty money influence of Duke and Dominion; encourage decision-makers to promote common sense energy policies that shift the state to a more affordable, safer and secure energy system and opens the energy market; and support appointees to the N.C. Utilities Commission who will stand up to Duke Energy and prioritize the public interest and the state's natural beauty.

## Revitalizing Coal Communities

In March, Virginia announced \$10 million in grant awards from the federal Abandoned Mine Lands Pilot Program. Appalachian Voices assisted with two of the successful grant applications.

Russell County and the Dante Community Association will receive \$269,000 for a project that includes the sealing of two open mine portals and the development of multi-

use trails to connect downtown Dante, Va., to other nearby communities and recreation areas. The multi-use trails are intended to support the community's vision of attracting sports enthusiasts and other tourists to the area and motivate local entrepreneurs to locate new, profitable ventures in Dante. Mineral Gap Data Center and Sun Tribe Solar were awarded \$500,000 for a 3.5 megawatt solar installation on a former strip mine in Wise County, the first of its kind in Virginia. Read more about the project on page 10.



Appalachian Voices North Carolina Campaign Manager Amy Adams (above) and Bobby Jones of the Down East Coal Ash Coalition (right) were among the speakers at the Raleigh launch of the new Energy Justice NC Coalition in February. Photos by Jamie Goodman



changing climate," said Bobby Jones of the Down East Coal Ash Coalition at the public launch Feb. 13. "Duke's influence is a moral decay that erodes our democracy — and we're calling for people across North Carolina to tell their public officials to stop taking Duke Energy's toxic influence money," he said.

On March 27, the groups hand-delivered North Carolina Gov. Roy Cooper a letter urging him to select three new commission members who have no ties to polluters, will help fight climate change, consider economic and environmental justice in their decisions, and who will move the state's fossil-fuel-dominated electricity system to clean energy.

The coalition will also be pursuing legislation to open the state to electricity competition and increase options for renewable energy generation.

The Energy Justice NC Coalition formed to bring an end to the Duke Energy monopoly because the electric

utility continues to burn fossil fuels, build new dirty energy plants and hinder the widespread adoption of clean energy — all actions that work against the public interest.

"We must create a utilities commission that puts the future of our residents above the stock prices of Duke Energy," said Appalachian Voices' Amy Adams. "We must demand freedom from the relentless rate hikes that hurt our low-income and fixed-income neighbors ... and freedom from decisions based on profits."

Currently, North Carolina residents are burdened by Duke's blocking of competition from cheaper renewable energy companies, and the utility's \$13 billion scheme for unnecessary transmission "improvements" — all of which cause power bills to soar year after year. Charlotte-based Duke Energy is the largest U.S. power provider, and generates 90 percent of the electricity used in North Carolina.

Individuals and businesses are encouraged to sign on to a petition asking Gov. Cooper and legislators to begin an open process for revamping the state's electricity system and stop hindering growth of solar, wind and energy storage companies.

To learn more about the Energy Justice NC Coalition and sign the petition, visit [energyjusticenc.org](http://energyjusticenc.org).

## Now Hiring!

Appalachian Voices is hiring three new positions to help us achieve our goal of bringing energy democracy to the region!

We are adding two new positions to work on our grassroots efforts to build statewide engagement in the growing energy democracy movement. The North Carolina and Virginia Energy Democracy Field Coordinators will work in their respective states to empower communities with tools necessary to decide their own energy future and work towards a cleaner, more affordable and more just energy system. The Virginia position will be based in Charlottesville, Va., and the

North Carolina position has the option of Boone or the Raleigh/Durham area.

We are also seeking a Major Gifts Officer to develop and implement an effective philanthropy program that will support Appalachian Voices' strategic plan. The position will serve as the primary manager of our nationwide portfolio of major gift donors and prospects, and will involve a significant amount of travel.

Appalachian Voices is committed to diversity, equity and inclusion, and seeks applicants who share and exhibit these principles. If you think you have what it takes to join our team in this exciting new work, visit [appvoices.org/employment](http://appvoices.org/employment)!

## Farewell Lauren

We bid a fond farewell to Lauren Essick, a longtime team member with a passion for sustainability and energy justice. Lauren started as a volunteer in 2009 with our campaign to end mountaintop removal coal mining, and was a key distributor of The Appalachian Voice for four years. She joined our staff full time in 2015, working in several roles including the paper's Distribution Manager and Operations and Outreach Associate, and served the last two years as our N.C. Energy Savings Outreach Coordinator promoting energy efficiency and solar in electric cooperatives. We wish her the best in her future endeavors!



## Sister Beth Davies: "Love Your Neighbor" in Action

### Member Spotlight

By Sam Kepple

Sister Beth Davies of the Congregation of Notre Dame is a noted advocate and activist in Appalachia. Her work has covered a vast spectrum of issues, from environmental activism to helping people suffering from addiction to improving conditions for inmates.

Born on Staten Island, N.Y., Sister Beth moved to the coal mining town of St. Charles, Va., in 1972. She became involved in environmental advocacy after witnessing how strip mining destroyed her community's mountains and water sources. Sister Beth played a crucial role in fighting and blocking the creation of private landfills in her community in the 1990s, and in pursuing federal regulatory changes for coal mining.

According to Sister Beth, major companies have tried for years to manipulate her small community with false advertisements and offers of money, whether it be Purdue Pharma trying to bring in OxyContin or coal companies trying to dump more waste in an already burdened area.

In the effort to prevent such landfills, Sister Beth founded the Citizens of Lee Environmental Action Network, also known as CLEAN.

"They wanted to dump in waste from the industrial Northeast and Northwest, they wanted to use our coal areas to dump it in on the mountains they had already destroyed," says Sister Beth. "They'd say, 'We know something we can do for you, we can bring in this coal ash and we can bring in this waste. We know the people there are very indigent and there's money needed there.' And, well, you can imagine the outrage at that."

Sister Beth Davies (center) in 2014 with (l-r) her friend Jill Carson of the Appalachian African-American Cultural Center in Pennington Gap, Va., and her sister, Jane Davies.



Sister Beth and CLEAN met with the executives attempting to convince her community of the coal ash landfill's benefits. However, she knew the damage caused by the landfill would far outweigh the benefits, and says that she refused to allow her community to be bought. Together, Sister Beth and the community were able to effectively block the project.

"People have become much more aware of their voices, how their voice can be heard, and that's so important," Sister Beth says. "We're always telling people that your boards of supervisors, they work for you. You don't work for them."

Sister Beth has witnessed firsthand the ways in which environmental issues, public health and addiction are interconnected. Many people within her community suffer from complex health concerns, especially coal miners. St. Charles has a high rate of black lung disease, Sister Beth explains, adding that coal mining takes a physical and mental toll on workers that can make people more susceptible to addiction.

In the 1990s, she played a major role in the creation of a community coalition that ultimately pursued serious charges against Purdue Pharma. Sister Beth describes how Purdue introduced OxyContin to the community and advertised it

in a way that made it appear less addictive than other painkillers. But the drug's negative effects were swift and it made its way to high school students almost immediately, according to Sister Beth. The coalition worked to bring legal action against Purdue until the lawsuit was taken over by the U.S. Department of Justice. In 2007, the government announced a more than \$600 million settlement with the pharmacy giant's holding company.

But this did not solve the problem of addiction, and from this point Sister Beth committed herself to creating clinics and addiction education centers to help those who had become addicted.

She became involved with Appalachian Voices after visiting Boone, N.C., many years ago. For seven years she has helped two others distribute 100 copies of each issue of The Appalachian Voice newspaper in Lee County, Va. Sister Beth reaches out to locations where the paper will be welcomed, such as a local motel and grocery store.

Her faith is central to her activism. She believes there are no exceptions to the principles of "do unto others as you would have them do unto you" and "love your neighbor."

Sister Beth never begins a day without an hour of prayer and reflection, explaining that the time and space keeps her grounded. These sentiments carry over into her work with people struggling with addiction. She states that the people she works with say the practice of quiet reflection is what they love the most.

"The way the world is going today, the way the country is going today, everybody's moving at such a pace," she says. "People hardly have time to think, and I think we've got to step back and start reflecting and centering ourselves first."

In her decades of advocacy, Sister Beth has seen many challenges, but she also knows the strength of the region's spirit.

"Despite all that seems to be working against us in so many ways, there's a resilience and there's a joy in living despite all the negatives," she says. ♦



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

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The promise of summer hiking can be found in Nathan Farber's "Rhododendron Tunnel," a finalist in the Flora and Fauna category of this year's Appalachian Mountain Photography Competition. Farber took this shot of rhododendron blooms on the Appalachian Trail near Grassy Ridge Bald. The 16th annual exhibition is on display now through June 1 at the Turchin Center for the Visual Arts in Boone, N.C. To learn more visit [appmntnphotocomp.org](http://appmntnphotocomp.org).

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