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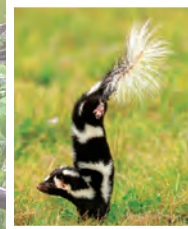
The Appalachian VOICE

Special Edition 2024

7 Geological Wonders of Appalachia



Residents Across 5 States Monitor Local Air Quality



Why Appalachia's Spotted Skunk is So Rare

ALSO INSIDE: Pipeline Safety Concerns | Hiking Views and Brews | Home Energy Efficiency

The Appalachian VOICE

A publication of
AppalachianVoices

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About the Cover



The awe-inspiring Natural Bridge in Virginia shows the power of erosion and time. Discover more Appalachian geological wonders on page 16. Photo by Chansak Joe | @chansak_joe

Inset: Willie Dodson of Appalachian Voices installs an air monitor; read more on page 4. Photo by Michael Swenson for Earthjustice

A note from our executive director:

As we're sending this annual issue of The Appalachian Voice to press, several of our staff in our Norton, Virginia, office are preparing for a community meeting.

That's not unusual, but this meeting is especially exciting. It's kicking off a new project to work closely with five Southwest Virginia localities that face flood risk and economic struggles. We will jointly design projects to make these communities more resilient to future challenges. This project, supported by an Environmental Protection Agency grant, dovetails with a Department of Energy-funded project to upgrade and electrify vital buildings with solar power so they can serve as community hubs during emergencies.

It's a time of tremendous — and well-deserved — opportunities for Appalachia. Appalachian Voices is thrilled to be securing new levels of federal investment for projects and initiatives that build power in our communities and benefit our land, air and water.

Federal funding is helping us gather air quality data with more than a dozen partners at about 40 locations

across the region, and allowing the Appalachian Solar Finance Fund to support more businesses, municipalities and nonprofits in reaching their renewable energy goals. And we are exploring how public funding can help realize our vision of reforesting former minelands to capture carbon from the atmosphere, restore healthy woods and provide local recreation and economic opportunities.

These projects have slightly different but interconnected goals: cleaning up our air, helping communities become more resilient to natural disasters and other shocks, lowering power bills, protecting our climate and more. Across all of this work, we're uniting with others to care for our families, our communities and our region. Building a better future for Appalachia isn't something that any of us can achieve on our own — it takes cooperation, sustained partnership and an open door.

And while we have demonstrated that we can make great strides, and even successfully stand up to some of our region's most powerful vested interests by banding together, we

still face the pervasive injustice of corporate greed.

Along the path of the Mountain Valley Pipeline, developers are rushing to build on steep terrain despite serious safety concerns documented by vigilant residents. Power companies are pushing for a reckless boom in fossil fuels by building new methane gas power plants and pipelines across the Southeast. Allowing this to happen would bring more pollution to our communities and lock us into decades of higher bills and more climate instability.

These challenges carry serious consequences for the people and places we hold dear. But this is our moment, and the actions we take now will shape our tomorrow. We hope you'll join us in striving for a more just Appalachia with healthy land, air and water, where all of our communities can thrive.

For our future,

Tom



Become a member of Appalachian Voices.

Take part in creating a healthy, sustainable Appalachia where all of our communities can thrive. Join today.

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New Effort to Reduce 'Forever Chemicals' in Drinking Water

The Environmental Protection Agency set new, stricter limits on the levels of certain PFAS chemicals in drinking water in April. Pre- and poly-fluoroalkyl substances, known as PFAS, are common in a number of household consumer products.

A third of the 412 drinking water systems tested in Pennsylvania, 38 systems in Kentucky, 35 in North Carolina, 19 in West Virginia and 18 in Virginia contain PFAS in concentrations above the new standards, according to multiple local news outlets.

Sierra Club testing found PFAS chemicals at 13.2 parts per trillion in drinking water from Hawkins County, Tennessee, which draws water from the Holston River below Holston Army Ammunition Depot. For years, these levels were considered safe, but they exceed the new standards.

On April 10, the EPA finalized regulations to limit the levels of five PFAS in drinking water. The regulations set the limit for the two most common types, PFOA and PFOS, at 4 parts per trillion.

Teflon is one source of PFAS, but the non-stick properties of this group of chemicals are commonly used in paint, furniture, packaging, water-resistant clothing and stain-resistant carpets.

Also known as forever chemicals, PFAS don't break down. They can accumulate in soil, wildlife, groundwater and waterways.

The chemicals can also accumulate in the human body, contributing to a number of adverse health effects includ-

ing developmental delays in children, decreased fertility, interference with natural hormones, weakened immune system, and increased risk of some cancers including prostate, kidney and testicular cancer. A 2022 EPA health advisory indicates the chemicals could be harmful with long-term exposure at concentrations from .004-.02 parts per trillion, much lower than the EPA's 2016 estimate of 70 parts per trillion.

The EPA also announced \$1 billion to help states implement testing and treatment in public systems and private wells, part of \$9 billion in the Bipartisan Infrastructure Law for addressing community drinking water issues with PFAS and other emerging contaminants. The 2021 law also included \$12 billion for general drinking water upgrades, and that funding can be used to remove PFAS.

PFAS can be filtered out at water utilities using carbon filters, but the treatment is expensive. The EPA estimates Virginia would need to spend between \$390,000 to \$2.4 million a year for 35 years to clean its water supply. Last year, Leitchfield, Kentucky asked the state for \$1 million to aid in implementing a granular activated carbon filter.

Early in 2023, the state of Kentucky filed a lawsuit against the chemical manufacturing giant DuPont for pollution to the Ohio River from a facility in West Virginia 120 miles upstream from the Kentucky border. The state is seeking damages to pay for treating the pollution caused by PFAS. — Matt Dhillon

Study Predicts Five-fold Increase in Regional Wildfires

Southern Appalachian forests could see a dramatic rise in land burned by wildfires due to climate change, according to a recent study published in the journal *Fire Ecology*.

By analyzing different climate scenarios, NC State researchers found that areas experiencing more severe and frequent droughts could witness a nearly fivefold increase in burned land by the end of the century. These fires could change which trees grow, favoring oak trees over others and affecting the biodiversity of the forests.

The study examined portions of Georgia, North Carolina, South Carolina and Tennessee. Chattahoochee-Oconee and Cherokee National Forests had the highest predicted

concentrations of wildfire in the study.

In March, wildfires spread across a dry Mid-Atlantic, with Virginia and West Virginia witnessing some of the largest fires. On March 21, the Virginia Department of Forestry reported that within the previous 48 hours, firefighters had tackled over 100 wildfires that burned more than 7,500 acres.

The study's lead author, Zachary Robbins, told the NC State press team that the study wasn't meant to scare people, but "to use this information to develop management plans so we can make better choices around development, firefighting and restoration activities." — Caleb Guedes-Reed

Climate Corps to Create Jobs Tackling Climate Solutions

The new American Climate Corps aims to recruit 20,000 young people, particularly from marginalized communities, to tackle climate change and environmental challenges. The first jobs are scheduled to begin in June.

In September 2023, the Biden-Harris Administration announced the creation of the American Climate Corps, modeled after President Franklin D. Roosevelt's Depression-era Civilian Conservation Corps.

The Corps will provide pay during training and for temporary job posi-

tions. This program focuses on regions at risk from the climate crisis, such as Appalachia, as it seeks to prevent wildfires, deploy low-cost clean energy, advance environmental justice and protect America's public lands and waters.

The program's funding includes a current investment of \$23 million and an additional \$8 billion over the next decade, coordinated between seven federal agencies, including AmeriCorps and the Environmental Protection Agency.

For more information or to apply, visit acc.gov. — Elijah Hopkins

Pisgah View, North Carolina's Newest State Park, Moves Forward

Buncombe County's first state park, Pisgah View State Park, has moved into the master planning stages after receiving positive feedback in public input meetings held in December 2023 and February 2024, which included in-person meetings and online surveys.

"We want to make sure we do our due diligence to get the community's input on what facilities and activities they

want to see at the park," wrote Public Information Officer Kris Anne Bonifacio, in an email to *The Appalachian Voice*.

There will be another meeting later in the spring to present the synthesized data collected from the feedback.

The move from an idea to formal planning marks an end to years of work between the North Carolina Division of Parks and Recreation and the Cogburn

family on a purchase of over 1,300 acres in Buncombe County for the new park, according to the *Citizen Times*. The state acquired the last 170 acres needed for the park in November.

The most recent figures provided to *The Appalachian Voice* show that a little over \$18.1 million was spent on land acquisition alone. In 2021, the Southern Appalachian Highlands Conservancy

helped secure \$1 million in matching funds for the state to purchase parkland and facilitated a 10-acre donation by Stagg and Cheryl Newman.

The North Carolina Division of Parks and Recreation acquired almost 3,000 acres of land for state parks in 2023 and welcomed more than 20 million visitors, a 4% increase from the previous year, WLOS reported. — Caleb Guedes-Reed

Residents Across Five States Monitor Local Air Quality

By Willie Dodson, with reporting by Jessica Sims and Meghan Albritton

"Everything's covered up with dust," Nancy Owens of Aily, Virginia, said in December 2020. "It's just really bad."

Dozens, or even hundreds, of coal trucks were driving past Owens' home each day, on their way from a nearby surface mine to a coal processing facility. As the trucks passed, they brought dust and mud into the community, which accumulated on and around the Owens' residence.

For over four years, dust levels in the coal community of Aily have been at least partially controlled. After a series of complaints filed by Owens with the Virginia Department of Energy and subsequent reporting on the problem in *The Appalachian Voice*, Alpha Natural Resources installed a truck wash at the mine in question, alleviating the worst impacts of the dust for Owens.

But this outcome is the exception, not the rule. For decades Appalachian Voices, the nonprofit organization that publishes *The Appalachian Voice*, has worked with communities across the region dealing with excessive dust from coal mines and coal trucks. Rarely are these issues resolved until mining is completed or abandoned in the area.

In response to concerns like these and inconsistency in whether environmental regulators address them, Appalachian Voices began conducting air monitoring in mining communities in 2020. This work now encompasses dozens of partners in communities across five states.

The Upper South and Appalachia Citizen Air Monitoring Project launched in 2023 with funding from the U.S. Environmental Protection Agency provided through the American Rescue Plan Act. Project partners installed small, easy-to-use devices that continuously monitor fine and coarse airborne particulate matter and make the data available to the public via a web map. Appalachian Voices analyzes the data quarterly and publishes

brief reports for each device, which staff share with community partners, the EPA and others. As of spring 2024, about 40 monitors have been installed.

USACAMP is primarily focused on documenting levels of fine particulate matter, also known as PM 2.5, soot or fine dust from fossil fuel combustion, manufacturing, mining, transportation and other sources. Through a partnership with Virginia Tech, there will be a secondary focus on volatile organic compounds in two Southwest Virginia communities.

PM 2.5 kills nearly 100,000 people in the United States every year. It causes asthma attacks, hospitalizations and emergency room visits for cardiopulmonary diseases. It is also linked to cancer and premature deaths. Exposure to high levels of PM 2.5 hits Black and Brown communities the hardest. A recent Environmental Defense Fund study showed that Black Americans 65 and older are three times more likely to die from fine particulate pollution than White Americans of the same age.

In February, the EPA lowered the National Ambient Air Quality Standard for PM 2.5 concentrations from 12 to 9 micrograms per cubic meter, measured as an annual average. This stronger standard would prevent 4,500 premature deaths annually by 2032, according to the EPA. The move was applauded by public health and environmental organizations, including Appalachian Voices, even though experts had recommended an even stricter limit. But the National Association of Manufacturers sued the administration and 30 Senate Republicans have co-sponsored a legislative effort

to block the rule's implementation.

The effectiveness of the new rule would depend in part on how well the EPA measures air quality and determines compliance with the national standard. In partnership with state regulators, EPA maintains a network of air monitors around the country, and uses the data from these monitors to determine an area's compliance with the national standard. But most communities do not have EPA air monitoring stations, which means the official government data is full of blind spots.

Through USACAMP, Appalachian Voices and partners are now able to evaluate local PM 2.5 concentrations and compare them to the annual national standard.

USACAMP partners represent a diverse array of communities and concerns. About a third of the monitoring sites are located in coal mining communities. Another third are situated in areas where residents are concerned about other fossil fuel infrastructure, including power plants, natural gas compressor stations and a major coal export terminal. The last third are in communities with chemical and manufacturing facilities, major highways and other sources of air pollution. Next are a few snapshots of USACAMP communities and partners.

Pittsylvania County NAACP and Chatham, Virginia

"We're very proud of our farm and of our legacy," says Elizabeth Jones, who, along with her husband



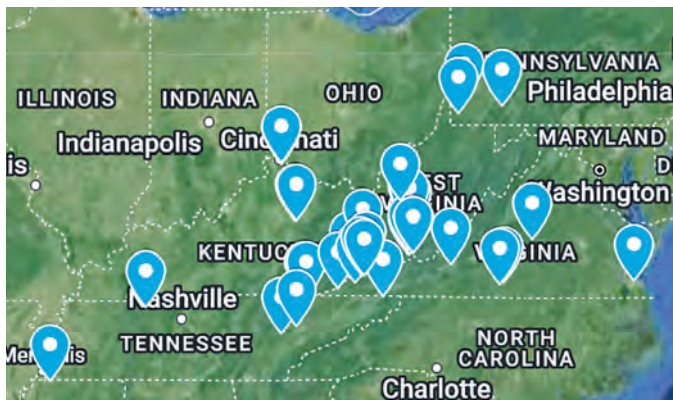
Elizabeth and Anderson Jones pose with an air monitor in their community near Chatham, Va. Photo by Jessica Sims

Anderson, participates in USACAMP. "My husband's family is Native American and native southerners. They've been here since before the British. Our family legacy is almost a hundred years old, and we are trying our best to use the land for the legacy it was supposed to be used for, which is agriculture."

Concerned about local air quality due to the presence of multiple Transco fracked-gas compressor stations operating about a quarter mile from their home, the Joneses installed an air monitor on their property as part of the project in October 2023. The Transco stations began operating in the early 1960s and are part of the infrastructure for the Williams Transco methane gas pipeline, which runs from New York to the Gulf Coast. Transco recently announced multiple pipeline expansion projects, including the "Southeast Supply Enhancement Project," which could involve expansion of a nearby station.

Compressor stations release numerous pollutants into the air, including PM 2.5, that are associated with a variety of adverse health impacts, according to research by faculty at the University of Virginia and other institutions.

Continued on next page



USACAMP project partners have deployed about 40 air quality monitoring devices as of spring 2024.

Air Monitoring

Continued from previous page

"I have sinusitis," Elizabeth Jones says. "I use a spray to breathe better. My husband has asthma."

Jones is concerned that local pollution may contribute to these issues, and she is distressed by the lack of easily available public air quality data for her area. The closest PM 2.5 monitor maintained by state regulators is 42 miles away, and on the other side the Blue Ridge Mountains from Jones' community.

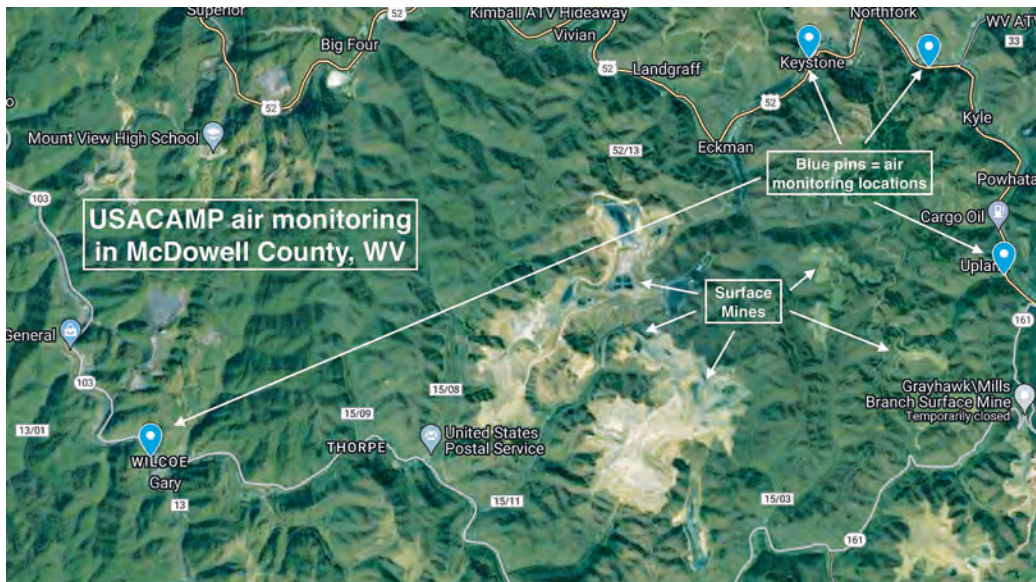
In 2021, the Joneses faced an additional threat. The developers of the Mountain Valley Pipeline, which would traverse 303 miles through West Virginia and Virginia and terminate near the Jones' home in Chatham, planned an extension called MVP Southgate. Developers recently redesigned MVP Southgate (see pg. 11), but the earlier route would have crossed the Jones' land and required another methane gas compressor station nearby.

Along with other members of the Environmental Justice Committee of the Pittsylvania County NAACP and allied organizations, the Joneses helped defeat a state permit for the compressor station in December 2021. Virginia's Air Pollution Control Board denied the permit because it did not meet the requirements for "fair treatment" of environmental justice communities under the Virginia Environmental Justice Act. With Southgate's recent redesign, it is unclear what new emissions may be planned.

The couple's farm sits just east of the town of Chatham within the Banister District, which is majority Black per the 2020 Census. The impacts of pollution are disproportionately borne out by communities of color, a fact that is all too real for Elizabeth Jones.

"I'm African American, so I know that we've been unjustly treated in terms of some of the places where the government will put industrial [sites] without anybody having a say," she says. "We have to stop [the pipeline] because this is more of the same. ... Clean air and water and soil seem to be civil rights to me."

The Joneses have long been environmental justice leaders in the region and are excited to be citizen scientists, advocating for their community's health. The air monitor on their



Appalachian Voices has air monitors across McDowell County, W.Va., where the mining, processing and transportation of coal releases dust into communities. Map by Willie Dodson

property will help evaluate particulate matter levels from ongoing and legacy pollution and provide baseline data if any existing compressor stations are expanded, or new stations are built.

Kentuckians For The Commonwealth and Covington, Kentucky

Susan Vogt describes the neighborhoods of Latonia and Wallace Woods as "the heart of activism" in Covington, Kentucky, a small city across the Ohio River from Cincinnati.

"I've lived here for 40 years," Vogt, a member of Kentuckians For The Commonwealth, says. "Covington is very mixed, and my neighborhood Latonia is very mixed. It's mixed racially, economically, educationally — and this is one reason I like it. Usually neighborhoods are more divided. It's a little bit unique here in that way."

Kentuckians For The Commonwealth is a statewide grassroots organization that advocates for social, economic and environmental justice. KFTC's projects are driven by their members, who are organized into local chapters across the state. For the Northern Kentucky chapter, which has members in Covington and nearby communities, emissions from a plastics manufacturing facility are a cause for concern, as is air quality generally.

After retiring from a career in the Catholic Church, Vogt sought opportunities to get involved with environmental activism. She was drawn to efforts to reduce single-use plastics, which led her to examine the plastics industry in her own backyard.

"Neighbors and friends ... were concerned about what was happening at Interplastics," Vogt says, adding that she lives about a mile from the plant. "People were asking some pretty serious and painful questions about, 'does the existence of this plant in our area threaten our health?'"

Interplastics manufactures polyester, vinyl and other materials. Their facility in Fort Wright, Kentucky, which abuts Covington and the community of Latonia, has been the subject of scrutiny for many years.

In 1997, the company settled a lawsuit for \$4.75 million with hundreds of community members who alleged that fumes from the operation were causing headaches and nausea. In 2019, a shelter-in-place order was issued to nearby residents after an incident



Susan Vogt monitors air pollution in Kentucky. Photo courtesy of Susan Vogt

caused a "chemical cloud" to waft into the community. Another shelter-in-place order was issued in 2022, after a report of explosions at the facility.

While styrene and other dangerous chemical emissions are of particular concern to those living near the Interplastics plant, fine particulate matter is also an issue. Vogt explains that KFTC members and others in her community want to know whether they are exposed to dangerously high levels of fine particulates, and how their level of exposure compares to levels in the United States as a whole.

If USACAMP air monitors in Latonia detect dangerously high levels of particulates, Vogt says community members can ask, "Is any of that related to being close to this Interplastics Plant?"

She adds, "If so, this has got to stop."

Appalachian Voices and Northfork, West Virginia

"When they blast, it becomes a plume. The plume falls down 15 minutes after each blast into our community," said Timothy Hairston at a February 2024 community meeting organized by Friends for Environmental Justice. "That plume includes silica dust."

Hairston is a minister who lives in the tiny community of Upland, near the town of Northfork in McDowell County, West Virginia. He contacted Appalachian Voices after reading about the organization's support for a regulatory change intended to protect coal miners from high levels of respirable silica, a substance that causes the most severe form of black lung disease. Hairston was concerned about exposure to silica and other constituents of fugitive coal mine dust, not only for miners working in the mines, but for communities like his own, which are exposed to dust caused by blasting on nearby surface mines.

Hairston's home is immediately downhill from the Blue Eagle Surface Mine, a 450-acre mountaintop removal coal mine. On Valentine's Day of 2023, Hairston was shocked to see a particularly huge plume of dust settling into his community. Several months later,

Continued on page 19

A Conversation with Archbishop Marcia Dinkins

Archbishop Marcia Dinkins founded the multi-state Black Appalachian Coalition in 2021 to amplify and center the stories and lived experiences of Black Appalachians. BLAC is an initiative of nonprofit organization Black Women Rising. Dinkins is executive director of Black Women Rising and Ohioans for Sustainable Change. In April, she spoke with Molly Moore of Appalachian Voices.

This interview has been edited for length. Find the full interview at AppVoices.org/TheVoice to read about BLAC's work to cement health care as a human right, advocate for a strong Farm Bill and spur the conversation on voter engagement.

To learn more about BLAC, visit BlackAppalachianCoalition.org

Molly Moore: You founded BLAC, to quote your website, "to ensure accurate and inclusive accounts are being told." Can you tell me more about why that was needed?

Archbishop Marcia Dinkins: What we know is that the narrative associated with Appalachia, when people first hear about it, the first thing they think about is more White than Black or multicultural. And so the story that's being told has just consisted of White poverty, White pain, and it's absent of the voices of others who have made contributions to the region. So that's why we felt it was necessary, because if you don't articulate someone, they don't exist. And that's one way of rewriting history, by not articulating someone or telling the story accurately.

Moore: Are you seeing more accurate and inclusive stories of the region?

Dinkins: I think what I'm seeing is an interest. I do see where people are now speaking to the fact of the Black voices or the Native, Indigenous voices that are missing. I think we are at a good pivotal start. There's more work to do. But I do see people coming out and supporting that history, and then I also see people who live in the region writing books, telling their stories and using different components or methods to rewrite this narrative or to help advance the conversation.

Moore: How do you see the Black Appalachian Coalition fitting into the long history of Black people in Appalachia?

Dinkins: Our tagline is, "Our roots run deep." So I see it as a means to not only preserve culture and heritage



• OUR ROOTS RUN DEEP •

but to bring in the different stories that can go down from generation to generation. And I see BLAC really setting the framework for some legacy work that somebody can pick up and hold. So, we can pass this down, because one of the things that we often lose or don't use often is our redeeming of memories. For us to have to redeem those memories also means we can have a restorative conversation, or we can restore some things that are lost. And that's how I see BLAC — in redeeming those memories, there's a redemptive act to that.

And it's also this way of orating a verbal history because the written history — you know, they can toss those books out, but you can't toss our stories out. You can't toss our identities out as easily as you can say, "This book can no longer go on the shelf." You can't say BLAC can no longer go on the shelf because we're not on the shelf — we're on the pathway.

So I see us being able to expand the dialogue and to bring in diversity, through story, through imagery, poetry, however the imagination can imagine.



And keeping this moving because of us creating the space for voices that have often been unheard to be heard.

Moore: Could you tell me about one of those stories and why it is important?

Dinkins: One of the stories that really hit me when we first started BLAC and we started our listening sessions was Akisha Townsend-Evans; she is a lawyer and she does animal protections law. She said, "My grandmother was a midwife. She was a midwife in the Appalachian region. But when I went to go back and to find her, there was nothing there about her." There was nothing there about the midwives and the journey that they took in helping to bring life into the region. And not being able to pinpoint yourself.

That really stuck with me, and it made me think about how much more is absent from the conversation, and what do we need to do about it?

And the second story, it really became the launchpad for deeper work, was our story around Clairton, Pennsylvania, and hearing about all of the environmental harms and degradation that they are suffering from. But also knowing that part of this suffering is connected to industrial therapy, which is really connected to another form of slavery, which is also connected to the liberating of slaves. And so, JP Morgan Chase, they helped to fund the steel mills or US Steel.

In Baltimore, Maryland, they had a hospital called Crownsville Hospital and it was supposed to be a mental health hospital. And what they did was use the patients who were suffering from mental illness or had disabilities and things of that nature, they use them to build all these properties. They use them to build it and they call it industrial therapy.

And so when US Steel was launched in some of these areas, it was also launched through industrial therapy, which connected to environmental racism, which is why we really got engaged with Clairton. Because that steel plant has been there for a massive amount of years, and people are suffering from seizures and asthma and cancer, but we only make it case studies. And so I got tired of people being case studies and wanted to tell the stories as well.

So those were some of the things I think hit me hardest, because we never see ourselves, as Black people, we really never see ourselves in the [environmental justice] space because it doesn't speak to us, it just speaks about us in a way that doesn't help us all the time. I won't say, that some of the time. I won't say all the time. I'll be fair.

Moore: Can you share more about what is happening in Clairton, Pennsylvania and how that's affecting local residents?

Dinkins: So Clairton is still suffering from legacy pollution, poor air quality, food insecurity, economic decimation,

Continued on page 28



Why Appalachia's Spotted Skunk is so Rare

By Matt Dhillon

A characteristic white stripe on a black pelt is an instant warning to tread gently. Nature's stink bomb, the striped skunk carries this distinctive mark on its back. But Appalachia has a second variety of this master of malodor, marked instead by a blotchy pattern of black and white fur.

The Eastern spotted skunk, *Spilogale putorius*, was not always as rare as it is today. Decades ago, it was relatively common for trappers to catch the polecat, as it's also known, for its pelt. But spotted skunk populations crashed between 1940 and 1970, according to a landmark paper from the University of Missouri looking at harvest data from trappers. By the 1980s, the study found, harvest numbers had plummeted by 99%, reflecting a steep decline in the skunk's population.

Meanwhile, the spotted skunk's striped cousin has thrived throughout the United States. So why have their populations diverged so drastically?

Emily Thorne spent six years collecting information about the distribution and habitat of eastern spotted skunks while pursuing a doctorate at Virginia Tech. She explains that there is a key difference in the habitat requirements of the two species.

"Striped skunks are what we consider opportunistic and generalists,"

Thorne says. "They can live pretty much anywhere and eat basically anything. And they've actually done really well and thrived in urban environments."

According to Thorne, spotted skunks were at one point thought to be the same kind of generalists.

"But the more we learn about them, the more we realize they're particular about their habitat," Thorne says. "I suspect that they're a conditional specialist where they require very specific habitat features, but during particular times of the year."

Spotted skunks are much smaller than their striped counterparts. Males, on average, weigh about a pound and are 18 inches long, with a third of that being their tail. That makes them about five times smaller than the striped skunk and more vulnerable prey than their lumbering cousins.

For both species of skunks, the primary predator is the great horned owl and smaller owls. But the spotted skunk is more reliant on its habitat for protection.

"They prefer early succession to mid-succession hardwood forests, like mixed pine-hardwoods, specifically ones dominated by oak," Thorne says. "They'll den in tree cavities created by either rot or woodpeckers, and they're almost always in oak trees."

The skunks rely on areas with understory shrubs like mountain laurel and rhododendron as cover from predators, according to Thorne. She also found that their denning behavior changes with the seasons.

"During winter we almost always tracked them high up into trees," Thorne says. "During the summer, when females have kits, they are always underground in a dirt burrow. We suspect that the temperature and humidity is a lot more stable, [and] they're safe from predators."

The next stage is a rocky outcrop where the kits can run and still have

Emily Thorne tracked spotted skunk populations in the Blue Ridge Mountains. Thorne is a trained researcher; members of the public should not touch wild animals. Photo by Emily Thorne

easy access to cover.

"These conditional specialist requirements for habitat, depending on reproductive state and time of the year, were really cool, that we didn't expect to find," Thorne says.

The spotted skunk's decline reflects the loss of its habitat. In a paper detailing the distribution of Eastern spotted skunks, Thorne reported that, in Virginia, they are mostly found in isolated populations west of the Blue Ridge Mountains at high and mid elevations. These colonies are small and patchy, Thorne reports, and habitat fragmentation has kept them separated.

Thorne estimates 20 to 30 skunks at the best habitat site she researched.

"Some of the higher elevation, less productive sites with less food, less habitat available, smaller habitat patches, it was probably around 10," she says.

Despite reported decline, the Eastern spotted skunk is not federally listed as endangered, though some states do



This gymnastic feat serves a purpose. If threatened, the spotted skunk will rise up on its front legs into a threatening handstand to scare away attackers. Adobe Stock Photo

have protections. However, Thorne states that it is deserving of conservation attention. A major factor in establishing effective conservation efforts is learning where the skunks are. If you see a spotted skunk in the woods, you can help researchers by reporting it at EasternSpottedSkunk.weebly.com.

More About the Spotted Skunk:

- The spotted skunk is a great hunter. These small carnivores will chase insects and small rodents and invade bird's nests for their eggs.
- The skunk is itself hunted by bigger predators like bobcats, coyotes and owls.
- This critter has a unique defense strategy. If threatened, the spotted skunk will rise up on its front legs into a threatening handstand to scare away attackers. If that doesn't work, the skunk has a scent sac from which it can shoot a noxious stream of liquid. It not only stinks, but burns, similar to mace.
- Skunks are nocturnal, like their main predator, the great horned owl. They are more active on dark nights closer to the new moon than on full moon nights when they are more vulnerable to predators.
- There are four varieties of spotted skunks in Central America and North America. The Eastern spotted skunk is the only one in Appalachia.



As Rushed Construction of Mountain Valley Pipeline Nears Completion, Safety Concerns Endure

By Dan Radmacher

On an early spring evening, dozens of residents impacted by construction of Mountain Valley Pipeline showed up at Bent Mountain Center in Virginia. A long-needed meeting with representatives from the federal Pipeline and Hazardous Materials Safety Administration finally came together after months of failed attempts and cancellations.

It was the first chance many had to speak directly with state or federal regulators about their longstanding concerns over the pipeline's construction and the dangers it could pose once operational.

And they had a lot to say.

Some brought photographs of problems with pipeline installation — lack of supports for the pipeline in the trench, rocky outcroppings that could pierce the pipe if the ground beneath the trench should shift, and more. Others talked about dangers posed by the steep grades, sharp turns, fragile karst topography and potential seismic activity.

"I'm proud of the community and how we showed up and made clear how much we know," says Russell Chisholm, managing director of the Protect Our Water, Heritage Rights Coalition. "There's still some lingering frustration in terms of what we do from that meeting going forward if PHMSA can't guarantee our safety. We'll have to continue to keep each other safe as best we can."

Many of the responses from PHMSA staff seemed to highlight powers the agency does not have as well as the limits of its resources.

When a community member expressed concern about how close the pipeline route was to homes, Deputy Administrator Tristan Brown said, "Congress gives us no authority to regulate setbacks."

"PHMSA does not have authority to permanently shut down any pipeline," said Deputy Associate Administrator Linda Daugherty when another person asked what circumstances could prompt the agency to stop construction on a pipeline. "We don't have the authority

to say we don't like how you are constructing the pipeline, so we are shutting it down."

The agency can issue a Notice of Proposed Safety Order if it finds unsafe conditions that require action by the pipeline developer — as it did with MVP in October 2023. The agency noted several concerns, including the effect of protective pipeline coating being exposed to the elements over years of construction delays.

That order led to a consent agreement between the agency and the pipeline developer that outlined review requirements for recoating the pipeline and other construction issues.

PHMSA staff tried to offer some reassurances. The consent agreement will require the developer to run a baseline test checking for corrosion and measuring the thickness of the pipe, a test that usually doesn't happen until after the pipeline is in service for years. But discussion of these measures and promises to investigate some of the issues documented by community members did little to alleviate the palpable anger and frustration in the room.

"PHMSA staff talked a lot about how they were there to listen to the community," says Jessica Sims, Virginia field coordinator for Appalachian Voices, the organization that produces this publication. "But they cannot understand what it feels like to live in the blast zone of



Robert Jones' home is literally a stone's throw away from the pipeline right-of-way. Photo by Dan Radmacher



PHMSA Deputy Administrator Tristan Brown (foreground) listens to Georgia Haverty, a Giles County landowner (center), during a Bent Mountain community meeting on March 13. Photo by Dan Radmacher

a pipeline when it does not seem like state and federal regulators are doing nearly enough to protect you."

Robert Jones' house is about half a football field away from the pipeline. The retired engineering professor has contacted PHMSA and the Federal Energy Regulatory Commission repeatedly about concerns he has over a section of pipe near his home that was installed last year.

Jones believes the trench wasn't backfilled and compacted properly, and the pipe didn't have proper support beneath it. There are visible cracks in the ground running where the trench was dug, and a pipeline marker that was at a 90-degree angle is now drunkenly tilted, indicating that the ground beneath has shifted.

In reports sent to federal agencies, Jones and his neighbor Lynda Majors warn that these conditions indicate "a serious construction problem that could lead to an explosion at a pipeline crossover in Montgomery County when the

pipeline is filled with gas."

The crossover connects two sections of pipe on either side of the right-of-way. According to Jones, the purpose of the crossover is to allow for thermal expansion and contraction of the pipeline.

The report is filled with pictures taken by Majors, who routinely monitors the right-of-way and took photos of various stages of the crossover construction and the settling of the ground over the installation. The photos show a length of pipe installed in the trench that is not supported by sandbags, as it normally would be.

The photos also show the progression as the ground settled, cracks appeared and the marker tilted more and more over several months following the installation and burial of the pipe.

Jones and Majors were not very satisfied by the response from federal regulators. FERC responded by forwarding a letter from the pipeline developer that denied what it called "serious yet unfounded allegations regarding pipeline construction" in the report. MVP's letter included a photo the company said

Continued on next page

The Peoples' Protector Meet Crystal Mello

By Dan Radmacher

A customer of Crystal Mello's house-cleaning business keeps a safe deposit box at a local bank. In that deposit box is a Mason jar with a lock of hair. The customer, who lives in the blast zone of Mountain Valley Pipeline, keeps it there so, if the worst happens, authorities might be able to identify her body.

"That hits when you hear about that," Mello says. "A lot of people I love live in the blast zone. I can't imagine life without them."

Mello — a community organizer in eastern Montgomery County, Virginia, for the Protect Our Water, Heritage Rights Coalition — first came to activism lifting up the rights of incarcerated people. She first became involved in the fight against the pipeline when opponent Alan Moore took her on a three-hour drive touring different parts of the route. Hearing stories from people dealing with trouble from the pipeline's construction made her want to get involved.

"MVP's shitty work made me stay engaged," Mello says. "The more people

you meet, everyone has these stories. It keeps you fired up."

Protecting people is the common denominator between Mello's work to reform the criminal justice system and her efforts against the pipeline, according to Russell Chisholm, co-director of POWHR.

"She's always looking for ways to protect people," Chisholm says. "There is not a more honest, real, kind spokesperson for this movement because of her relationships with directly impacted people. Crystal doesn't mince words. She's very direct and honest about what is happening to people because of this project."

Mello lives in Shawsville, Virginia, in what she says always felt like a "forgotten part of Montgomery County." The pipeline fight has helped her make more connections in other parts of the county.

"Blacksburg folks have really invested in us," she says. "They've really stuck around and supported us."

Chisholm respects the working-class perspective Mello brings.

"She's balancing the life of a working mom with volunteerism and all that," he says. "She knows there are many people who want to get involved



Crystal Mello, community organizer for POWHR, in the shadow of MVP's work carving a path across Poor Mountain. Photo by Dan Radmacher

but are struggling to just subsist and live and aren't able to take on much more. She deeply and personally understands those issues and goes about trying to work from that lived experience."

One project Mello is working on — bringing a community garden to Shawsville — may not seem related to the pipeline fight, but Chisholm sees the connection.

"She's watched \$8 billion flushed down the drain for a fossil fuel interest that won't provide any lasting local benefit, while people have to drive 30

minutes to a grocery store," he says. "Crystal's heart is in matching the same level and intensity she brought to the pipeline fight into building things the community needs. I admire her so much for not losing sight of that."

Mello has looked into how other small communities have developed such gardens, and tapped into local contacts and the broader community of organizers she's become involved with.

"I want the garden to include art and music in some way," she says. "I hope it can be a healing place."

MVP Safety

Continued from previous page

showed the pipe resting on sandbags, a photo Jones dismissed as "inconclusive" in a response to FERC.

After Jones followed up, FERC responded by saying his concerns fell under PHMSA's areas of responsibility.

Nita Raju, a PHMSA community liaison, wrote, "At the crossover trench site in question, final restoration work is still pending. The applicable MVP documents were reviewed and there were no non-compliances found."

Majors was let down by the response. "What this tells us is ... how little agencies care," she says.

Jones was a bit more blunt. "We're stuck with a bunch of yo-yos who point their fingers at each other," he says. "They shift responsibility for any action. MVP does something wrong

and I point it out, but nothing happens."

While he's especially concerned with the problems he sees with the crossover near his home, Jones believes the entire route is misguided and dangerous.

"You've got poor soil, landslides, the Giles County seismic zone, frequent downpours and karst topography," says Jones. "FERC only looks at damage to environmental features like streams and wetlands. They should not just be asking what the pipeline can do to the environment — they should be asking what the environment can do to the pipeline."

If MVP is allowed to go into service, some things will change in the Jones' household.

"We used to host Thanksgiving, Christmas and birthdays here," he says. "I can't imagine having my family members come here with the possibility the pipeline could explode. I wouldn't put my family in that position."

Local Emergency Response Planning

The Appalachian Voice reached out to officials in Roanoke and Montgomery counties to find out what, if any, special safety planning is happening as the final stretches of pipeline are trenched. Both counties said that, while they don't have specific emergency plans for pipeline disasters, they have plans that cover a variety of situations.

"First responders across Montgomery County have received specialized training from Paradigm, a company that specializes in pipeline training," says Mary Biggs, chairwoman of the Montgomery County Board of Supervisors.

Roanoke County first responders have not received training specific to pipeline emergencies, according to Amy Whittaker, public information officer for the county.

"Public safety agencies are already prepared for any kind of emergency," Whittaker says. "We have emergency drills, including tabletop drills and real-world-type drills on how to respond to emergencies. We keep emergency personnel trained and ready."

Officials in both counties said they have mutual aid response plans to coordinate response to incidents with the pipeline along the portion of the route that stretches along the counties' borders.

Residents, Environmental Groups Voice Concerns Over Proposed Methane Plant

By Lorelei Goff

In Middle Tennessee, proposals to replace aging coal plants with methane-fired gas plants and pipelines are causing concerns about water quality and explosion risks.

The Tennessee Valley Authority, the nation's largest federally run utility, and Tennessee Gas Pipeline Company, a subsidiary of gas giant Kinder Morgan, are pushing ahead with plans for the Cumberland Pipeline, a new project that's part of a massive proposed build-out of fracked gas.

The 32-mile-long, 30-inch-diameter pipeline would carry pressurized methane — a highly explosive and climate-warming gas — through Dickson, Houston and Stewart counties in Tennessee.

The pipeline would connect existing gas infrastructure in southern Dickson County, where a pipeline exploded in 1992, to a proposed gas plant in Cumberland City at the current site of the Cumberland Fossil Plant. The coal plant is.

The 50-year-old Cumberland plant, one of the largest and dirtiest operated by the TVA, shut down during frigid weather from Winter Storm Elliot in December 2022 — along with multiple coal and methane gas plants throughout

the region. Those coal and methane gas failures led TVA to implement rolling blackouts.

TVA intends to replace one of the Cumberland plant's coal generators with a 1,450-megawatt combined cycle methane-gas plant slated for operation by 2026. In May 2023, TVA announced plans to partially replace the lost generation from the second coal-burning unit with another gas plant and pipeline in Cheatham County. They have not yet announced how they plan to make up the remaining lost generation.

Meanwhile, two lawsuits from environmental organizations to stop the pipeline and power plant are moving forward, as residents and environmental groups raise the alarm over potential safety hazards to people, property and the environment.

The Southern Environmental Law Center and Appalachian Mountain Advocates, on behalf of Sierra Club and Appalachian Voices, the organization that publishes *The Appalachian Voice*, are challenging a state permit for the Cumberland Pipeline, alleging state officials from the Tennessee Department of Environment and Conservation ignored the significant impacts it will have on the Harpeth River and Cumberland River watersheds.

The Southern Environmental Law Center is also representing Appalachian Voices and Sierra Club, along with the Center for Biological Diversity, in a lawsuit against TVA over the proposed Cumberland Plant, alleging the utility committed to building the plant before fully evaluating its environmental and climate impacts. Both lawsuits are currently pending in federal court.

"The decision to replace coal with another fossil fuel will have devastating impacts on our region," said Bri Knis-



A sign stands outside the Jackson's Chapel Community Center in Charlotte, Tenn., where a community meeting was held to voice concerns over a proposed methane pipeline in August 2022. Photo by Angie Mumaw

ley, director of public power campaigns for Appalachian Voices.

The pipeline project undermines federal climate goals, including the national goal for a carbon-free energy sector by 2035.

The pipeline would also threaten seven wetlands and cross streams more than 155 times, including a stream that is home to a potential new species of crayfish. The streams include tributaries of the Harpeth River, which is a popular outdoor recreation destination as well as a source of drinking water for the Nashville, Tennessee, area. Its construction would impact over 5,000 linear feet of streams and require temporary water withdrawals from eight streams and one reservoir.

A decision by the U.S. Army Corps of Engineers on whether to issue a 404 water permit for the pipeline is pending. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States.

Physical alterations to waterways in Tennessee also require an Aquatic Resource Alteration Permit. The Tennessee Department of Environment and Conservation held a public hearing in March concerning a request by Tennessee Gas Company to amend its permit to include additional stream crossings. TDEC has proposed to waive its author-

ity under the Clean Water Act to certify that these additional impacts will not result in a violation of state water quality standards.

In a petition, Appalachian Voices urged TDEC to deny the permit because the company plans to use explosives and the open-trench method to cross waterways. Both would have major environmental consequences.

In addition, the cost of constructing new gas plants and pipelines could result in rate hikes for customers. TVA has already raised rates once to fund its gas spending spree.

Risks abound

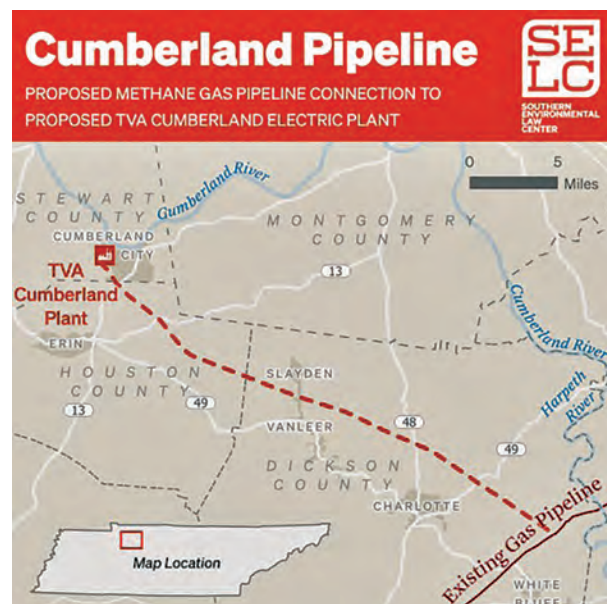
In 1992, a pipeline explosion in Dickson County injured five people, destroyed three homes, and burned 400 acres of farmland.

Richard Honeycutt was a firefighter with the Charlotte Volunteer Fire Department at the time. He said metal fatigue contributed to the explosion.

"It released gas until [it reached] an ignition source, and it got so hot that it burnt the tar out of the asphalt," Honeycutt says. "The road, instead of being blacktop, was white."

His department was unable to get close enough to the homes to fight the fires due to the intense heat.

"It was so bad that it dried up a pond
See Cumberland Pipeline on page 15



The proposed 32-mile-long, 30-inch-diameter Cumberland Pipeline would carry pressurized methane — known to be a highly explosive and climate-warming gas — through Dickson, Houston and Stewart counties in Tennessee. Map courtesy of Southern Environmental Law Center

MVP Southgate

Changed plans for the pipeline are part of a web of proposed methane gas

By Jen Lawhorne

At the end of 2023, Equitrans Midstream, a company behind the Mountain Valley Pipeline, announced a dramatic change in plans for its Southgate extension that would reduce the length of the pipeline but increase how much gas it would carry. The announcement came less than two weeks after the Federal Energy Regulatory Commission granted the project permission to build for another three years.

This came despite a groundswell of public opposition including comments and petitions from tens of thousands of members of the public, letters from dozens of legislators at the state and federal levels from North Carolina and Virginia, and N.C. Governor Roy Cooper asking FERC to deny MVP's request for another three years to build Southgate.

"MVP Southgate changed its plans because of the delays that our organizing was causing," says Kasey Kinsella of 7 Directions of Service, an Indigenous-led group that works to protect the rights of people and nature in North Carolina. "We've proved that our base building and mobilizing is effective."

Haw Riverkeeper Emily Sutton agreed. "I sincerely believe that the change is a direct result of the strength, perseverance and resilience of our impacted communities and team of advocates," she says.

In late April, a number of conservation groups including Appalachian Voices, the publisher of this newspaper, filed a petition in the U.S. Court of Appeals for the D.C. Circuit challenging FERC's decision to grant Mountain Valley Pipeline's Southgate project the additional three years.

Construction for the MVP Southgate extension, which was planned to run through a southern Virginia county and two North Carolina counties, never began. The pipeline was proposed in 2018 but was denied permits from state agencies and failed to acquire land through eminent domain in North Carolina.

So pipeline opponents were puzzled by Equitrans Midstream's announcement

on Dec. 29 that it planned to reduce MVP Southgate from 75 to 31 miles and cut down on the number of water crossings for the pipeline by removing North Carolina's Alamance County from the route, as well as dropping plans for a compressor station in Pittsylvania County, Virginia.

Maps of the newly proposed route were not available as of press time in April, so it's unclear how many new landowners and water crossings would be directly impacted by the change. Mountain Valley has said the new design would provide up to 550,000 dekatherms per day of gas capacity, a significant increase from the original capacity of 375,000 dekatherms per day. That means more pressurized gas would flow through, and the new plans for Southgate would contribute to more fracking and more emissions at power plants than the original.

"[MVP Southgate] was ballooning in costs and there was no longer a feasible return on investments [for Equitrans Midstream]," said Sutton. "Those ballooning costs were a direct result of delays from denied permits, local government resolutions to oppose the project, lack of access for surveying, eminent domain fights and environmental justice wins."

Virginia authorities rejected a permit for Southgate's Pittsylvania compressor station in 2021, while the North Carolina Department of Environmental Quality twice denied MVP Southgate a crucial water quality permit.

Although the MVP Southgate extension is no longer crossing Alamance County, where the Haw River is located, community organizers were not calling this change a win.

"Initially, we felt relief for the communities in the Haw River watershed that have been fighting this proposed project alongside us for six years," Sutton says. "When we more fully understood the proposed plan was not canceled, but rerouted to other communities, I immediately contacted our other partners in the Waterkeeper movement to make sure they had the tools and resources and support they needed to help the newly impacted communities."

"The process of constructing a



Top: 7 Directions of Service leads a Water Walk in February near the route of MVP Southgate. Left: A banner at the Water Walk. Photos courtesy of 7 Directions of Service. Right: Sierra Club Senior Field Organizer Caroline Hansley shares information with landowners potentially impacted by the Southeast Supply Enhancement Project. Photo by Jessica Sims

fracked gas line [poses] serious dangers that no community should be exposed to for corporate greed and fossil fuel expansion," Sutton adds. "We can not allow fossil fuel companies to continue to designate communities of our friends, family and neighbors as sacrifice zones."

Kinsella noted that while Southgate would no longer cross the Haw River, the Haw is connected to the Dan River, which would be crossed by the pipeline.

"All of our water and all of our fights are connected. We're facing a number of new fracked gas expansion proposals, like the Transco Southeast Supply Enhancement Project pipeline and T-15 Project, on our plates," Kinsella says. "We're evaluating the landscape and our strategy moving forward."

The Transco Project is a nearly 55-mile pipeline that would cross through Virginia and North Carolina with additional compressor units. Dominion Energy's T-15 Reliability Project is a proposed 45-mile pipeline within North

Carolina from Eden, the terminus of the proposed MVP Southgate line, to Hyco Lake. Because T-15 would be entirely within North Carolina, it doesn't need federal approvals, and a state law passed in 2023 dramatically weakened North Carolina's pipeline review process.

On the shores of Hyco Lake, Duke Energy wants to use the gas from MVP Southgate and Williams Transco to convert the Roxboro Steam Station, a coal-fired power plant, to run on methane gas instead of pursuing clean energy. Duke is proposing the Roxboro plant conversion to gas as part of a massive uptick in electricity generated from fossil fuels.

The utility giant is required by North Carolina law to regularly update its Carbon Plan to reduce fossil fuel emissions. Duke's 2024 proposal for North and South Carolina calls for nearly 9 gigawatts of new gas by 2035 — almost three times the amount proposed in the

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Hiking the Highlands

Views and Brews

By Grace Ficara

There's nothing better than some time well-spent in nature followed by a pick-me-up glass of something smooth. Whether it's coffee or beer, a hike or a stroll, enjoy a carefully crafted list of the perfect pairings.

Massie Gap and Wilburn Ridge Loop + Molley Chomper Cidery

Make the most out of your day trip by exploring two states in one day. Massie Gap, located inside Grayson Highlands State Park in Mouth of Wilson, Virginia, is just a 25-minute drive from Molley Chomper Cidery in Lansing, North Carolina.

Enter Grayson Highlands State Park for a fee of \$7 on weekdays and \$10 on weekends per vehicle. The Massie Gap and Wilburn Ridge loop involves taking the Rhododendron Trail, Horse Trail North, Appalachian Trail and Appalachian Spur Trail on a moderately challenging 2.3-mile hike through meadows and forest. Pause on a boulder to enjoy the mountain views, the birds and the ponies along the trail (yes, ponies). Feel free to bring a furry friend — leashed dogs are welcome. Afterward, take your pup and head on over to Molley Chomper Cidery, where dogs are also welcome inside and outside the cidery.

Founders Kate and Tim Arscott moved to their farm in the High Coun-

try around 2009. When they noticed apple trees in the yard, they embarked on their own journey making cider.

"Ideally, we're trying to grow 20% of our apples or a little bit more," Kate Arscott says. "And then the rest of our apples come from the Appalachian Mountains."

She explains that they like to have relationships with the orchardists from whom they get their apples. They also use other local fruits for their ciders, like blueberries and pawpaws.

Molley Chomper is located at 165 Piney Creek Road. With a variety of outdoor games and a pizza place right down the road, this spot makes a great post-hike hang out. You don't need to know much about cider to know that Molley Chomper and Grayson Highlands make the perfect pairing.

Kephart Prong Trail + Qualla Java

This hike has history! Located off Newfound Gap Road, about 21 miles past the Sugarlands Visitor Center in the Great Smoky Mountains National Park, the approximately 4-mile loop of Kephart Prong Trail is perfect for hikers and history buffs alike. The trail is home to an old Civilian Conservation Corps camp. The CCC provided young



Above: A "Burger of the Week" special from March at Terra Cafe. Photo courtesy of @terracafermorgantown on Instagram. Left: Kephart Shelter along the Kephart Prong Trailhead. Photo courtesy of Virginia Trail Guide.



Although ponies at Grayson Highlands may seem friendly, visitors should not approach or feed them. Eating high volumes of apples and other sugary treats can have devastating health consequences for the ponies. Photo by Molly Moore

men with work on public lands projects from 1933 to 1942. While hiking, you can explore the ruins of their camp and imagine what life was like back then.

Sounds of the river will be the soundtrack to your adventure as you cross historic railroad tracks, rocky paths and log bridges. Make sure to check out the Kephart Prong Shelter before finishing your hike.

Fishing is allowed in all streams with a valid fishing license or permit from Tennessee or North Carolina. There is no entrance fee, but be sure to register your car with the park for a small fee before you go.

After your adventure, take a 20-minute drive to Qualla Java, a coffee shop in Cherokee, North Carolina. Right on the riverfront at 938 Tsalagi Road, Qualla Java makes small-batch Colombian coffee in multiple different roasts. And you can sip your espresso drink on the riverside deck! According to their website, the owners of Qualla Java consist of three members

of federally recognized Indigenous nations and a Colombian national.

Caperton Rail-Trail + Terra Cafe

This wheelchair-accessible rail-trail runs through Star City and Morgantown, West Virginia. A great place for runners, walkers, bikers and even roller-skaters, Caperton Rail-Trail makes a great metropolitan addition to the list! Approximately 6 miles long and part of an extensive 48-mile rail-trail system alongside the Monongahela River, Caperton is a good choice for river views and brews. Parking is available at Hazel Ruby McQuain Riverfront Park in Morgantown or at Edith Barill Riverfront Park in Star City.

Right on the rail-trail in Star City, Terra Cafe has something for everyone. Grab a coffee or a glass of beer or wine and sit on the outdoor patio to people watch. Gain the energy you need to keep adventuring along the trail with bakery items, pepperoni rolls and other cafe items like sandwiches and salads.

Continued on next page

Views and Brews

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With local and fresh ingredients, Terra Cafe is the perfect pit-stop with made-from-scratch delicacies! This accessible and fun pairing is perfect for outdoor enthusiasts and sweet treat lovers, and is located at 125 Industrial Ave., Morgantown, West Virginia.

Roaring Branch Trail + 404 Cafe and Creamery

Roaring Branch Trail is a great place to view waterfalls and step through old-growth forest. Located near Big Stone Gap, Virginia, off of US-23 Business, Roaring Branch is an 8.8-mile out-and-back trail for advanced hikers and nature lovers.

Stay cool on this stream-side hike and enjoy roaring water sounds and sights. Multiple creek crossings can make this hike challenging after a heavy rain, so remember to check the weather before you embark. The Youth Conservation Corps built a set of stairs on this trail in the 1970s, so while you enjoy a

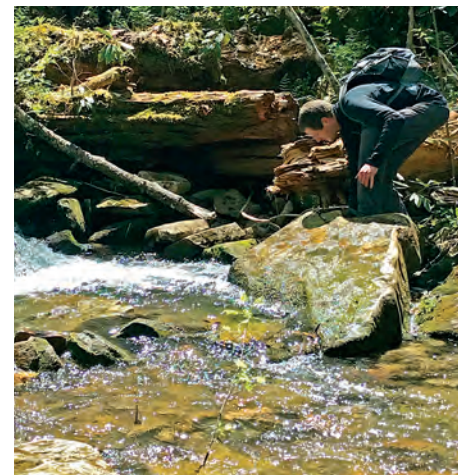
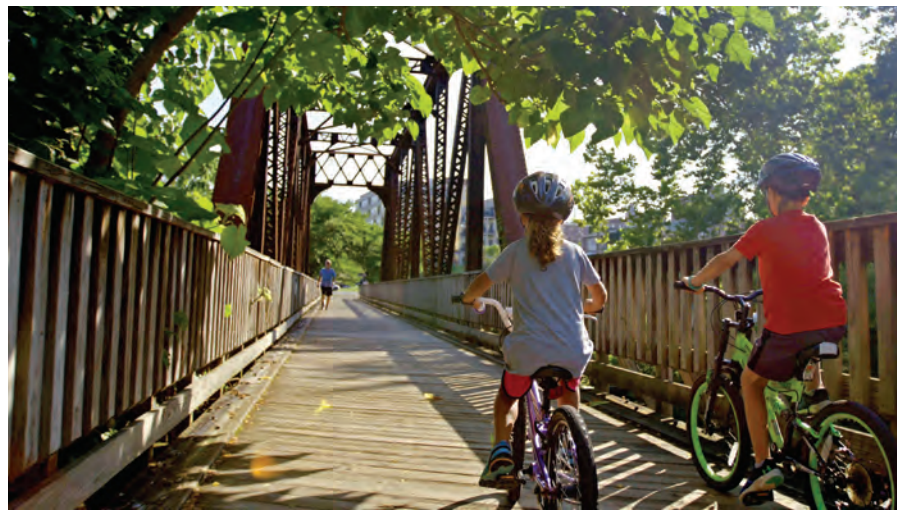
little slice of history, be sure to watch your step, as the stairs can get slick.

A short, 3-minute drive from Roaring Branch Trail will take you to the charming 404 Cafe and Creamery in Big Stone Gap. This locally owned business has all the ingredients to put the icing on the cake of your after-hike self-care routine. Get re-energized with a coffee, cool down with an ice cream, or refuel with light lunch fare and baked goods.

If you're looking for somewhere to take your little ones, the garden of painted rocks out front is sure to give your toddler something to explore.

For a more accessible outdoor experience, 404 Cafe and Creamery is also near the Greenbelt walking and bicycle trail. Treat yourself after a nice hike or walk to something sweet, and enjoy more time outside on their patio.

Top: Children ride bikes on the Caperton Rail-Trail. Photo courtesy of the Mon River Trails Conservancy. Bottom left: A toddler enjoys her ice cream no-spoon-style at 404 Cafe and Creamery. Bottom right: Exploring the terrain at Roaring Branch. Photos by Chelsea Barnes



MVP Southgate

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original 2022 Carbon Plan.

"Duke Energy's latest attempt to expand our reliance on methane gas is moving North Carolina in the opposite direction of where we need to go," said Ridge Graham, North Carolina Program Manager with Appalachian Voices. "Families and farmers are being asked to sacrifice land, health and peace of mind for projects that are less reliable and affordable than renewables."

Additionally, in Person County, N.C., Dominion Energy has proposed a 25-million-gallon liquified natural gas storage facility called Moriah Energy Center, which would also emit air pollutants.

But Kinsella noted these new proposed projects won't slow down the community organizing that groups are doing to build a movement against fracked-gas projects in the region.

"We're going door-to-door and connecting with impacted folks, landowners and community members," she says. "We're building community around our opposition."

Mountain Valley Pipeline Construction and Lawsuits Advance

By Lorelei Goff

In late April, Mountain Valley Pipeline sent a letter to the Federal Energy Regulatory Commission asking for approval by May 23 to place the pipeline in service. The letter from MVP acknowledges that developers have completed less than two-thirds of the project to final restoration, and have yet to fully comply with the safety requirements from the consent agreement they reached with the Pipeline and Hazardous Materials Safety Administration.

"Requesting an in-service decision by May 23 leaves the company very little time to implement the safety measures required by its agreement with PHMSA," said Jessica Sims, Virginia Field Coordinator with Appalachian Voices. "There is no rush, other than to satisfy MVP's capacity customers' contracts — a situation of the company's own making. We remain deeply concerned about the construction methods and the safety of communities along the route of MVP."

Litigation around the controversial 303-mile Mountain Valley Pipeline contin-

ues. In March, six landowners in Franklin, Montgomery and Roanoke counties of Virginia asked the U.S. Supreme Court to hear their lawsuit challenging eminent domain laws used to seize their property. The suit, filed in 2020, challenges FERC's decision to grant its authority to implement eminent domain to Mountain Valley Pipeline, LLC. Landowners contend that Congress cannot delegate eminent domain powers to an agency — in this case, FERC — which took their private property and transferred rights in that property to another private party, MVP, LLC.

A decision by the high court could take months, and pipeline developers aim to complete construction of the pipeline by the end of June, making the implications uncertain. However, a favorable ruling could benefit other landowners in the future.

Also in March, the Virginia Department of Environmental Quality cited MVP, LLC for violations resulting in damage to a stream and wetland, and assessed a \$34,000 fine. The developers did not dispute the findings. A petition and protests across the state called on the

DEQ to issue a stop work order in light of the continued violations.

"Every day, diligent construction monitors traverse our streams and steep slopes to ensure our communities are safe from MVP's reckless construction; they are to thank for this recognition of MVP's violations," Russell Chisholm of the POWHR Coalition said in a statement. "However, DEQ-issued fines amount to pennies for a corporation that's throwing billions of dollars into an impossible project, with money to spare for [Strategic Lawsuit Against Public Participation] suits against the community."

A lawsuit filed by MVP, LLC against 40 individuals and two organizations in September 2023 now includes more than 50 individuals. In March, a judge removed the organization Rising Tide of North America from the lawsuit. Appalachians Against Pipelines remains named in the suit. Pipeline developers are seeking over \$4 million in damages.

Critics contend the suit seeks to squelch opposition to the pipeline by preventing the organizing and funding of protests and intimidating activists.

Coal Companies Point Fingers while Local Residents Contend with Damages

By Dan Radmacher

There are strange things happening near Wolf Pen, West Virginia, about seven miles north of Welch.

Geysers of water have shot up out of the ground in some places. Elsewhere, wells have gone dry. Building walls have cracked. Strange slime has shown up in streams. A dead buck with no apparent wounds was found partially submerged in a creek.

The most dramatic strangeness occurred on Feb. 21, 2023, when Jamie and Tina Christian woke up to a yard flooded by a geyser erupting behind their double-wide trailer. A similar geyser was jetting up out of the ground just down the road.

The West Virginia Department of Environmental Protection sent an inspector to look into what was happening. He concluded the water was being forced out of the ground by internal pressure — known as “artesianing” — because of what was then an unauthorized discharge of coal mine water from the nearby Pinnacle Mining Complex into an inactive underground mine. Underground mines in this area require constant pumping to keep from flooding.

The inspector issued an “Imminent Harm Cessation Order” directing Pinn MC Wind Down Company, known as the Pinnacle Mining Company prior to a 2018 bankruptcy, to stop all mining operations and take all necessary actions to prevent discharges from the mine.

When the company failed to take action, DEP took them to court in March 2023, asking the judge for a preliminary injunction ordering the company to deal with the situation.

After nearly a year of back-and-forth in court, little action has resulted, and the case is still pending. Jamie Christian put in his own drainage pipe

where the water was gushing out from the ground behind his trailer home to Indian Creek. Eventually, the court ordered Pinn MC Wind Down to put in a rock-lined drainage ditch that runs from the geyser down the road into the same creek and obtain a water pollution permit for the discharge.

Pinn MC Wind Down has repeatedly denied responsibility, arguing that most of the Pinnacle Mine Complex had been purchased by Bluestone Resources, a company owned by West Virginia Gov. Jim Justice’s family. But DEP has yet to transfer the accompanying permits, leaving responsibility for the mines in limbo.

Bluestone, in turn, argued that the discharge was coming from a portion of the Pinnacle complex that was sold to Contura, which merged with Alpha Natural Resources in April 2018.

“This case really shows how the modern mine reclamation system is failing local communities,” says Matt Hepler, Central Appalachian environmental scientist for Appalachian Voices, the nonprofit organization that publishes *The Appalachian Voice*. “Coal companies point their fingers at each other. And even when regulators try to hold someone accountable, it can be almost impossible when the coal companies are in bankruptcy. In the



Residents have noticed a strange slime in Indian Creek after water shooting up out of the ground was diverted to the creek. Photo by Dan Radmacher

meantime, communities live with the consequences.”

In addition to confusion caused by bankruptcy, companies’ failure to secure transfer of permits, and other issues, the area’s long history of mining also makes determining accountability difficult. It can be very hard to pinpoint the exact cause of problems like this.

Sometimes, the only thing that does seem clear is that people living nearby pay the price.

“The coal companies don’t care about people like us,” Jamie Christian says.

The Christians have nine grandchildren between them. For months after the yard flooded, they kept them away.

“When the water first went under our trailer and in our front yard, we didn’t know what was in it, so we told the kids to keep the grandkids away till

we knew it was safe,” Tina Christian says. “That was really hard on us. We’re used to seeing them almost every day.”

The Christians worry about what’s flowing into the creek behind their house from the mine drainage.

“That creek used to be full of fish,” Tina Christian says. “My kids and grandkids caught fish all the time. [The fish are now] gone.”

Richard Altizer, a family friend who’s had his own issues with property damage he attributes to coal mining under his home, spends a lot of time traveling the area with Jamie Christian trying to make sense of what’s happening.

Altizer regularly posts lengthy videos on social media, highlighting various mysteries and inconsistencies with the explanations from DEP and the coal companies. They have theories about

what’s causing the artesianing — Altizer believes the water is flowing from Alpha Natural Resources mines through a barrier breach. But solid answers are hard to come by.

“I think DEP is happy to let Pinnacle take the fall,” Altizer says. “They’re bankrupt anyway.”

The Indian Creek Community Church next door to the Christians’ property hasn’t seen the same kind of flooding,



Left: Mold visible on the Christians’ ceiling has appeared since their yard flooded last year. Right: The drainage pipe Jamie Christian installed to keep water from pooling his yard. Photos by Dan Radmacher

Continued on next page

Residents Contend with Damages

Continued from previous page

but cracks have been showing up in the foundation, and there are problems with interior doors and walls. Jerry Morgan, a church deacon, believes the site is experiencing mine subsidence — when the surface begins to sink into underground voids created by mining.

“It’s been going on three or so years,” Morgan says. “Every time you come in, you see something else.”

In addition to the visible cracks in the foundation, there are also signs inside that the church is settling and twisting — drywall panels pulling away, door frames askew, bowing in the ceilings.

“If something isn’t done, it’s just gonna fall in,” Morgan says.

The church has talked with state regulators, but hasn’t gotten any satisfactory answers.

“They won’t give you a straight answer about anything,” Morgan says.

On March 4, the West Virginia Department of Environmental Protection issued a notice of violation to Pinnacle

Mining Company directing the company to repair or compensate the Indian Creek Community Church for damage caused by mine subsidence.

On April 9, regulators issued a Failure to Abate Cessation Order after the company took no action. The problems were ongoing as of late April.

Nearly a year after the flooding, the Christians are still dealing with the consequences. The flooding ruined their heat pump, which they haven’t been able to replace. They’re seeing mold grow in their home and there are signs that their home is also settling.

Meanwhile, the court case between DEP and Pinn MC Wind Down continues with no clear resolution in sight.

“People like us are the ones who get hurt,” Jamie Christian says.



The foundation of the Indian Creek Community Church in Wolf Pen, Va., is showing multiple cracks, and the interior is developing issues, too. Photos by Dan Radmacher

Cumberland Pipeline

Continued from page 10

across the road from where it blew up,” he says.

The proposed Cumberland Pipeline route follows TVA right-of-ways, placing pipes beneath high-voltage power lines.

Bob Baird and his wife live in the impact zone of the pipeline, meaning they’re so close that their home would likely be destroyed if an explosion were to occur.

“We lived close to high tension wires at a previous location and we had a garden underneath it,” says Baird, who believes the decades-old environmental study for the right-of-way didn’t account for the installation of a pipeline. “We used to get shocked multiple times when we’d be out there picking our fruit or vegetables.”

Honeycutt also believes the power lines increase the likelihood of an explosion.

Residents along the route have expressed concern about construction damaging springs and creeks. In response to a request from one resident for base-

line water testing, TDEC said it could not because of inadequate staff.

Appalachian Voices plans to test this resident’s water using money donated by the Tri-County Preservation Group, a nonprofit that formed to help fight the pipeline and future issues the community may face.

Communities push back

Tri-County Preservation Group, previously known as Cumberland Preservation Group, formed in December 2022 to fight the Cumberland methane plant and pipeline.

The group’s formation was prompted by an emergency meeting, attended by over 50 local residents, in July 2022 at the Cumberland Furnace Community Center.

The community group still holds monthly meetings. With continued support from Appalachian Voices and Sierra Club, the Tri-County Preservation Group has continued to grow its base, develop strategy and increase awareness about the proposed gas buildout.

Preparing for pipeline hazards

According to Honeycutt, Dickson County lacks adequate water infrastruc-

ture to handle a pipeline explosion.

“There’s very little water supply where a lot of that pipeline is gonna go,” Honeycutt says. “The water mains, they’re all really small. They’re over-used. We’ve had exponential growth here in our county, and the water supply is dismal.”

According to Bob Baird, TVA has ignored the fears of residents near the pipeline route.

“They’ve talked with and contacted the people that have property that’s going to be affected directly by digging in their dirt, but for those of us that are out here in the explosion zone, they’ve just ignored us,” Baird says.

The pipeline also puts undue strain on the local first responders, according to Honeycutt. Volunteer departments are typically understaffed and underfunded. Honeycutt, now retired from his department, explains that the annual budget didn’t cover much more than the fees for mandatory equipment testing.

Volunteer departments also face challenges to getting adequate training for special hazards like pipeline explosions. Most training is offered during the week when volunteers are working

their regular jobs.

“I would suggest that if they put the pipeline through our area, they need to fund a full-time firefighter for every fire department that pipeline goes through,” Honeycutt says. “Not only would that help with the increase in probability of an incident with the pipeline, but also it helps the entire area with reduced response times. It would also provide first responders for medical emergencies as well, because we have a lot of rural areas where it’s a long wait for an ambulance to get there.”

The pipeline would run right by the Claylick Volunteer Fire Department, Honeycutt points out, which would likely be destroyed in the event of an explosion in that area. That could cost lives as well as destroy the building, along with the trucks and equipment housed inside.

Honeycutt predicts the potential for a disaster will increase over time.

“From now on for future generations, it’s always gonna be there,” he says. “And the longer it’s there, the more likely it is that an incident is going to happen.”

Seven Geological Wonders of Appalachia: A Deep Dive into our Region's Fascinating Features

By Megan Pettey

The Appalachian Mountains, the oldest mountain range in North America, are abundant with magnificent natural wonders. Alongside a variety of gemstones and rare minerals, Appalachia is home to the New River Gorge and Seneca Rocks in West Virginia, intriguing salt deposits near Saltville, Virginia, breathtaking Chimney Rock in North Carolina, and so much more. Here's a sampling of stunning geological features within the region.

Lost Sea at Craighead Caverns

Located 140 feet below ground in Sweetwater, Tennessee, lies the largest underground lake in the United States, known as the Lost Sea. This lake is part of the elaborate Craighead Caverns cave system, which hosts an abundance of gemstones and a rich, ancient history.

Explorers discovered the fossils of a prehistoric jaguar within the cave, and visitors have also found arrowheads and pottery belonging to the Cherokee Tribe, according to Lisa McLung, general manager of The Lost Sea Adventure, which currently owns the cave.

Named after Cherokee Chief Craighead, these caves once held tribal council meetings. Later, Confederate soldiers used minerals from the cave floor to make gunpowder during the Civil War.



Lights illuminate the waters of the Lost Sea 140 feet below ground. Photo by William Trey Sullins

The Lost Sea is fed by several underground springs and covers four and a half acres, with the deepest point approaching 70 feet. The lake can rise and fall depending on how much precipitation the area receives. Pumps maintain water levels to avoid flooding the cave. Rainbow trout, introduced shortly after the lake opened to the public in 1965, swim through water illuminated by underwater lighting that gives the water a blue appearance.

The Lost Sea is home to over half of the world's anthodites, which are long, needle-like crystal formations.

"[Anthodites are] formed from water that seeps through the rock and is mixed with aragonite crystals and calcite," McLung says. "We call them flowers because they're spiky and they can form in different colors, depending on what minerals are coming through the rock in that particular area."

The full extent of the lake is unknown, as the convoluted cave system makes it difficult to explore even with modern technology. What is known is that there's no shortage of geological and historical marvels for those who visit Craighead Caverns.

Flynn Creek Impact Crater

When most people think of craters, the image of a large, circular indentation in the desert comes to mind, or a "big bowl-shaped thing," as Michael Hawkins puts it. Hawkins owns the Jackson County, Tennessee, property that contains part of the Flynn Creek Impact Crater. While this crater strays from the stereotype, it remains captivating.

"Geologists find evidence of structures that they suspect are craters, but this one is known and scientifically proven to be an impact crater," Hawkins says. "And just those two words, impact crater, mean a whole lot in the world of geology, because a lot of places show cryptovolcanic evidence or evidence of some kind

of disturbance, but this one we know has happened from a thing that came from space and hit the Earth."

Spanning two miles in diameter and originating between 350 and 450 million years ago, the Flynn Creek Impact Crater is preserved underneath layers of stone, with portions of the crater visible via the creek. Such well-preserved instances of impact craters are extremely rare, as most evidence of surface anomalies like this one have been lost to erosion.

Luckily, a sediment from the Chattanooga Sea, a calm body of water existing hundreds of millions of years ago, created a protective layer of shale that preserved the crater's impact on the land. Millions of years after that, Flynn Creek developed and eroded through the layers of shale, exposing segments of the crater.

Adding to the rare nature of the crater is the Hawkins Impact Cave, which is the only known cave in the world to occur in the central uplift of any meteor or impact crater.

"What a central uplift is, it's like a great big example of a pebble being dropped in water, how the water splashes back up in the middle of the thing, except this was stone that splashed back up,"

Hawkins says. "It kind of became plastic when this thing hit."

Energy company Enbridge is currently threatening the preservation of this geological site with the proposed Ridgeline Pipeline. The 122-mile methane gas pipeline would run through eight Tennessee counties to provide fuel to the Tennessee Valley Authority's proposed Kingston gas plant. The construction would go directly through the central uplift and the watershed of Hawkins Impact Cave. Appalachian Voices, the organization that publishes The Appalachian Voice, is working closely with community members to urge TVA to consider clean energy alternatives and stop Enbridge from constructing the pipeline.

Linville Gorge

With sweeping vistas and one of the deepest chasms in the Eastern United States, North Carolina's Linville Gorge in Burke and McDowell counties rightfully earned its nickname as "The Grand Canyon of the East." Jonas Ridge to the east and Linville Mountain to the west form the chasm, which plummets roughly 2,000 feet to the Linville River. Rock formations such as Hawksbill Mountain, the Chimneys and Table Rock stand out in the steep, ragged terrain.

Primarily composed of quartzite that

solidified from molten rock over a billion years ago, the jagged horizon of Linville Gorge is a sight to behold. Logging proved extremely difficult in the rugged gorge, resulting in an abundance of old growth trees.

The dramatic steepness of Linville Gorge fascinates many, including Brad Johnson, associate professor of Environmental Studies at Davidson College, who discovered that a phenomenon called stream capture created the chasm. Stream or river capture occurs when a stream with a lower-elevation base captures and diverts a higher-level stream.

"It turns out that basically all the streams that are north of Grandfather Mountain used to flow to the west into the Toe River, and then the Linville captured those rivers and for that reason they pulled a lot more water through them," Johnson says. "It's like three times more water as soon as that capture is made. And so now you have all this extra energy eroding down into the gorge and creating the gorge."

Johnson sought physical evidence to prove this idea, which he found in the form of gravel deposits produced by streams. In May 2020, Johnson located large gravel deposits containing quartzite in places where there aren't rivers today, which he claims confirmed a stream capture indeed took place millions of years ago.

Considering the remarkable nature of Linville Gorge and its astounding beauty, it's no wonder this designated wilderness area is an outdoors hotspot.

Natural Tunnel

Among Virginia's spectacular natural wonders, Natural Tunnel in Scott County features a looming tunnel almost 100 feet tall arising from the powerful forces of erosion.

The formation of this 850-foot-long site is attributed to subterranean stream capture, which took place when the upper reaches of Stock Creek flowed into a cavern that would eventually become Natural Tunnel. The force of the water eroded through limestone, creating the grand passageway that would later be a vital transportation route for both Union and Confederate soldiers.

Visitors to Natural Tunnel State Park can take a boardwalk to the tunnel entrance and feel the cool breeze coming from the shadowy interior of the



Above: Railroad tracks run through the nearly 100-foot tall and 850-foot long Natural Tunnel in Virginia. Photo by Jason Barnette. Right: Virginia's 215-foot tall arch known as Natural Bridge is a sacred site for the Monacan Indian Nation. Photo by Dan Radmacher

tunnel. Norfolk Southern trains run this route daily, but once per year on Railroad Day, the trains pause so that hikers can explore the tunnel's interior. Intricate rock layers form patterns on the tunnel walls, evidence of the transformative forces of water over time. Railroad Day is typically the third Saturday in July, but visitors should call ahead to confirm.

Natural Bridge

In the heart of Virginia's Shenandoah Valley lies a 215-foot-tall limestone wonder known as Natural Bridge. This renowned archway is located at the center of a gorge carved by Cedar Creek, which flows beneath the towering bridge. An estimated 500 million years old, this formation dates back to the Odocivian era and is part of the Beekmantown formation.

The powerful forces of Cedar Creek eroded through limestone over time, creating the captivating Natural Bridge. Covered in lush vegetation, the bridge has long been a sacred site for the Monacan Indian Nation. Thomas Jefferson purchased the Natural Bridge in 1774, and the initials "G.W." carved into the bridge feed the unconfirmed rumor that former President George Washington also visited this stone beauty. The site was a source of inspiration for many landscape artists in the 19th century — the abundance of artwork featuring the glorious arched



passageway is a testament to its natural splendor.

Natural Bridge State Park opened in 2016 and has far more to offer than the bridge itself. Visitors are drawn to the beloved Lace Falls, which provides an idyllic setting for soaking in the sights and sounds of nature. Among the park's diverse trails is the universally accessible Cedar Creek Trail, which includes a wheelchair lift and complimentary shuttle — visitors should call ahead for accessibility accommodations.

Cranberry Glades Botanical Area

Nestled in Pocahontas County, West Virginia, is Cranberry Glades Botanical Area, which protects the largest area of bogs in the state within a stunning 750



Explorer Clinton Elmore stands at the Hawkins Impact Cave, named after its discoverer Michael Hawkins. The cave is one reason why geologists from around the world are drawn to the Flynn Creek Impact Crater. The crater has long been a vibrant site for research, and NASA used the site to train astronauts for Apollo missions prior to the first moon landing. Photo by Chuck Sutherland



Table Rock juts out above the Linville River in Linville Gorge Wilderness Area. Trails in this area are often steep and unmarked. Photo by Megan Pettey

Continued on next page

Seven Wonders

Continued from centerspread

acres. While most bogs in the United States are found farther north, the last glacial period gifted this ecosystem a special home in West Virginia.

Cranberry Glades formed over 10,000 years ago, according to Rosanna Springston, a representative of the Gauley Ranger District of Monongahela National Forest, which encompasses the glades. At that time there was little vegetation and a lot of moving water pushing sediment, Springston explains. This formed embankments along the streams and gradually created four large ponds.

“Then fast forward a little bit, the water became still and sphagnum moss and other plants moved in, and that’s what started the Cranberry Glades as we know it now,” Springston says. “So it formed, essentially, what ended up being Long Glade, Big Glade, Round Glade and Flag Glade.”



Left: Steep cliffs, sandstone arches and the Red River draw adventurers to the Red River Gorge. Photo by Troop 199 Fishers, IN is licensed under CC BY 2.0. Right: Auxier Ridge is part of a trail network that offers views of landmark rocks and arches. Photo by Brandon Jett

These names refer to the four bogs within Cranberry Glades, which are wetlands composed of decaying plant materials, typically sphagnum

moss. This environment provides ideal habitat for carnivorous plants, such as the pitcher plant and the sundew. Both small and large cranberries are abundant, as well as eight species of orchids.

“This is the southernmost point for a lot of species, things that you would usually have to find a lot further north,” Springston says. “So we’re looking at things like bog rosemary, oblongfruit serviceberry, Jacob’s ladder, buckbean, northern coralroot. You’d have to travel much further north to be able to find those.”

A half-mile boardwalk allows visitors to easily admire the bogs without disturbing the precious ecosystems. Springston notes that Cranberry Glades is also an excellent spot for birding.

“The main tip I have for any visitor is to take their time and be very patient on their journey around the boardwalk, and let nature reveal herself to you,” Springston says.

Red River Gorge

In Daniel Boone National Forest, Kentucky’s Red River Gorge has long drawn travelers with its impressive sandstone arches, steep cliffs and gushing Red River.

The sandstone formations populating Red River Gorge date back over 300 million years to the Paleozoic era. Sand and sediment deposited in ancient seas formed these sedimentary rocks, which were later uplifted and exposed through tectonic activity. Erosion from wind and water carved out the deep valleys and

cliffs visible today.

Visitors can choose to enter the gorge via Nada Tunnel, a 900-foot limestone tunnel constructed in 1910 to transport lumber. Within the gorge there are over 100 natural sandstone arches.

An extensive network of caves are hidden beneath the gorge, primarily composed of limestone and dolomite. Entering the caverns is currently prohibited in an effort to minimize the spread of white-nose syndrome, a deadly fungal disease that kills hibernating bats.

Mammoth Cave

Though technically situated just outside the Appalachian region, Mammoth Cave National Park deserves an honorable mention for housing the world’s longest known cave system. Located in south-central Kentucky, this 426-mile-long cave system is a designated UNESCO World Heritage Site and an International Biosphere Reserve.

Various types of passageways populate Mammoth Cave, the tallest of which are canyon-type passageways, which can be between 30 to 40 feet wide and 50 to 60 feet high, and in some places even higher, according to Supervisor Park Ranger Johnny Meredith. The cave also contains flowing subterranean rivers and white gypsum crystals that grow as “flowers” in petal-like shapes from cave walls.

Read more about Mammoth Cave in the online version of this story at appvoices.org/seven-wonders.



Tawny cotton grass is one of the many blooming species found along the half-mile boardwalk in Cranberry Glades Botanical Area. Photo courtesy of USDA Forest Service



APPALACHIAN
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The Appalachian Solar Finance Fund provides financial and technical assistance for Central Appalachian solar projects. Eligible entities include nonprofit organizations, public institutions and certain local businesses.

Learn more at SolarFinanceFund.org

Towns Pursue Redevelopment of Blighted Buildings

By Lorelei Goff

Tazewell, Virginia, Mayor Michael Hoops recalls when local transportation and coal trains ran through town five or six times a day during the 1980s. The town bustled with residents and visitors.

Now, a coal train may pass through every couple of days, the population continues to decline and deteriorating, unused buildings cast a pall of blight on the north end of the town.

To change this, Tazewell — along with the Southwest Virginia towns of Pocahontas and Pound — is accessing state grants to fund brownfield redevelopment projects.

Brownfields are properties deemed to be contaminated or hazardous and don't contribute to the local economy. Brownfields grants can help towns inventory brownfield properties, assess which properties pose the biggest hazards or can potentially have the biggest impact in revitalization efforts, and assist in creating redevelopment plans.

Some grants are federally funded each year through the U.S. Environmental Protection Agency's national Brownfields Program. The program provides various funding and grant opportunities for communities, states, tribes and others to assess, safely clean up and sustainably reuse contaminated properties. Those opportunities can change from year to year, and may vary in length from one year to multiple years.

Virginia also has a brownfield grant

opportunity called the Virginia Brownfields Restoration and Economic Redevelopment Fund, managed by the Virginia Economic Development Partnership in collaboration with the Virginia Department of Environmental Quality.

Amanda Killen, formerly the New Economy program coordinator with Appalachian Voices, the organization that publishes *The Appalachian Voice*, assisted Tazewell in applying for a community development block grant for the section where a former bowling alley stands.

Karen Weber, brownfields coordinator for VDEQ, provided the town with information related to the Virginia Brownfields Restoration and Economic Redevelopment Assistance Fund program. The Tazewell Industrial Economic Development Authority subsequently applied for and was awarded an assessment and planning grant.

Killen believes that brownfields redevelopment causes a ripple effect by removing barriers to make the community more attractive to developers and investors.

"Brownfields projects can be a catalyst for community development by addressing blight," Killen says. "In each brownfield case I am working with, this has been true. Often the brownfields projects are 'the first on the dance floor'



Tazewell community members are interested in redeveloping the Cardinal Lanes building, built in 1947. Photo by Amanda Killen

in revitalization efforts."

Like Tazewell, the town of Pocahontas flourished when the coal industry was strong and has declined with it.

Current brownfield projects include the former Pocahontas Fuel building, the adjoining coal company store property and a doctor's office. While renovating the fuel building has the potential for the most economic impact due to its size, Cates hopes the doctor's office will be resurrected as a functioning medical office, something the town lacks.

An EPA grant administered by VDEQ is covering the cost of phase I and phase II environmental site assessments, an asbestos and lead-based paint survey, and a market and feasibility study. A later-stage effort involves concept design work that will be finalized by the Community Design Assistance Center of Virginia Tech.

Appalachian Voices New Economy Field Coordinator Emma Kelly has been working with the town of Pound, Virgin-

ia, since 2022, providing technical assistance with grant writing, community outreach and project management. The redevelopment initiative is providing much-needed technical support and guidance for addressing blight in the town.

Another partner in Pound's redevelopment effort is West Virginia University BAD (Brownfields, Abandoned, Dilapidated) Buildings. WVU BAD, based out of the univer-

sity's Morgantown campus, provides technical assistance to communities in West Virginia to address abandoned and dilapidated buildings. Through a partnership with VDEQ, they created a new initiative to pilot the same kind of services in Virginia.

"Our model is dependent on a sort of core philosophy that communities and the priorities and direction of those communities should be built by the people who live there," says Carrie Staton, director of WVU BAD.

Tazewell Mayor Michael Hoops hopes successful redevelopment in his town will stem the tide of Tazewell's youth leaving town to find better employment opportunities.

"I understand going off to college," he says. "But I'd like for them to come back and maybe bring some good ideas to open their own businesses."

Find a longer version of this story online.

Air Monitoring

Continued from page 5

he documented thick, black sludge flowing down the small stream behind his house, which originates within the Blue Eagle Surface Mine boundary.

In response to Hairston's sludge complaint, the West Virginia Department of Environmental Protection issued a citation, prompting the company operating the mine to reroute runoff so that it no longer flowed into Upland.

But DEP did not cite the Blue Eagle Surface Mine over the dust incident, stating that they found no evidence of any infraction. In their investigation of the dust complaint, DEP referenced a 2012 report by the research organization

Battelle Memorial Institute, claiming that surface mining did not cause dust levels to exceed health standards. This study is often cited by DEP, but it only looked at particulate levels in one community where surface mining was occurring, measured over a two-week period 12 years ago.

Unsatisfied with DEP's findings, Hairston is now participating in USACAMP with an air monitor at his home to document potential spikes in fine particulate matter corresponding with blasts on the Blue Eagle Surface Mine.

"We've had six deaths right there where I live, all next door to each other," Hairston says. "In the summertime, we sit out on our porches.

We have picnics. We gather together. And they blast, and that dust is inside of us ... It's sad what they've done to us."

In February, West Virginia law-



Timothy Hairston of Upland, W.Va. Photo courtesy of Timothy Hairston

makers introduced a bill supported by polluting industry lobbyists that would have prohibited the DEP from examining data collected by community air monitoring programs, such as USACAMP. The bill passed the state House but died in the Senate.

Even if a similar bill later becomes law, data from the monitoring device at Hairston's home, and the dozens of other USACAMP monitoring locations across the region, will be shared directly with the EPA, which maintains oversight authority over state air quality programs.

To review data collected by the Upper South and Appalachia Citizen Air Monitoring Project, visit appvoices.org/usacamp.

Real Stories of the Rural Energy for America Program

By Taylor Pate

The Rural Energy for America Program offers grants and loan guarantees to agricultural producers and small businesses in rural areas to foster energy efficiency and renewable energy growth. Through REAP, grants can finance up to 25% of overall project expenses, while loan guarantees can cover up to 75% of these costs.

Since its inception, the program, led by the United States Department of Agriculture, has distributed billions of dollars in grant funding. Between 2018 and 2022, REAP allocated over \$700 million across Kentucky, North Carolina, Tennessee and Virginia alone.

Well-known for its backing of solar initiatives, REAP can fund a diverse range of projects beyond solar panels. This encompasses wind turbines, biomass facilities, and the installation and construction of various energy-efficient upgrades. From high-efficiency HVAC systems to insulation, lighting or cooling, the REAP grant can be used for a broad spectrum of energy efficiency improvements.

Dive into these stories of Appalachian entrepreneurs and farmers leveraging REAP to build a greener future for their communities.

⚡ Crafting Change: Gat Creek's Path to Sustainable Furniture Manufacturing

Twenty-eight years ago, Gat Caperton purchased an old factory in Berkeley Springs, West Virginia, and transformed it into Gat Creek, a family-owned furniture manufacturer known for its hand-crafted solid wood furniture. Gat Creek is now one of the largest private employers in the area with 165 employees.

In 2023, Gat Creek, also known as Caperton Furniture Works, received a \$362,630 grant from the U.S. Department of Agriculture's Rural Energy for America Program. This funding allowed them to upgrade their 50-year-

old dust collection system.

"The grant program is a wildly valuable program and truly essential to development in Appalachia in particular," Gat Caperton says. "I find it a wildly valuable and widely effective thing. I truly appreciate it and I would recommend anyone to go after it."

The project took about eight months to complete, as the crew gradually replaced the old system with the new one. As a result, Gat Creek is saving \$11,900 in energy costs annually and reducing their electricity consumption by 106,971



The new, highly efficient dust collection system at Gat Creek. Photo courtesy of Gat Caperton

kilowatt-hours per year. The new dust system is compatible with their biomass boiler, a previous project also made possible by a REAP grant. The new dust system enables the company to recycle sawdust in their biomass boiler and generate power from their own waste.

The REAP grant typically covers 25% of project costs, making it a significant source of project funding for companies like Gat Creek. Through ini-

tiatives like the REAP grant, they have enhanced their operations, reduced energy costs and promoted environmental responsibility.

"The best way to create economic change in an area is to bring capital to the area, and it has been critical for us in many cases," Caperton says. "It's worth the paperwork, and it's a program I truly appreciate."

⚡ Solar Comes to SouthDown Farm

SouthDown Farm of Ermine, Kentucky, received a \$7,688 grant from the Rural Energy for America Program in 2020, enabling the family-owned farm to install a 20-kilowatt solar array. The installation reduced the farm's electricity expenses from \$350 to \$21.50 monthly.

Grant writing assistance from the Mountain Association, a nonprofit organization that works to advance the economy of Eastern Kentucky, helped farm owners Seth and Sheryl Long secure REAP funding for the project.

Spanning 55 acres, SouthDown Farm practices organic farming and hosts an annual Maple Day to educate the community on land stewardship. But Seth



Solar panels generate 20 kilowatts of power at SouthDown Farm. Photo courtesy of Seth Long

Long's journey with solar energy did not start here. He was inspired to apply for REAP after his experience with HOMES, a Kentucky nonprofit that provides affordable housing to low-income families, where Long serves as the executive director. Initially skeptical, he recognized solar's potential amid economic challenges. Witnessing its success, Long went on to support solar education and expanded HOMES' services to include solar installation.

Reflecting on the success of solar energy on his farm and within his community, Long emphasized the importance of embracing renewable energy solutions, particularly for small businesses.

"This is a way you can reduce your operating costs for the next 25 years," Long says.

⚡ Shepherd's Whey Creamery

Shepherd's Whey Creamery, a Martinsburg, West Virginia-based farm, dairy facility received a \$19,990 grant from the Rural Energy for America Program in 2022.

Backed by this grant, the creamery constructed an energy-efficient cold storage facility, nicknamed the "cheese cave" by owner Suzanne Behrmann. This sustainability project slashes energy consumption by 50%, saving the company \$1,605 annually. Maintaining a stable 50°F temperature beneath the creamery's grounds, the cave eliminates the need for energy-intensive cooling systems by leveraging natural insulation to facilitate the gradual maturation of the creamery's cheeses.

"One of my passions," Behrmann says, "is helping communities who have been distanced reconnect with agriculture." From cheese-making courses to bottle-feeding goats, Shepherd's Whey provides people the opportunity to get closer to their food and fosters a sense of togetherness. The creamery has thrived for 13 years, specializing in minimally processed goat milk products.

Lowering Costs for Energy-Efficient Home Upgrades

By Grace Ficara

Running out of ideas on how to save money and energy? Cue the solar-powered light bulb flashing above your head!

Homeowners who make select energy-efficient changes to their home qualify for the Energy Efficient Home Improvement credit provided by the Internal Revenue Service. In order to qualify, the residence must be an existing home in the United States. Properties used solely for business do not qualify.

General contractor John Kidda of Re-New Home, Inc., helps homeowners with energy audits, which pinpoint the areas in a home using or leaking the most energy. Energy audits can be eligible for up to \$150 worth of tax credit on a \$500 audit.

The biggest energy user is heating and cooling, according to Kidda, with water heating and plug loads trailing behind.

Kidda was eligible for a tax credit after purchasing a heat pump for his home in North Carolina. He describes the process as easy. His accountant just requested documentation to make sure the heat pump met efficiency standards.

Kidda spent approximately \$3,000 on his heat pump and was credited around \$900 on his tax returns.

Credits are available from the Energy Efficient Home Improvement Credit and the Residential Clean Energy Credit. They can be used the year improvements are made. For improvements made in or before 2022, applicants should use IRS form 5695.

Additionally, the Inflation Reduction Act of 2022 allotted \$8.8 billion for home energy rebates. Eligible homeowners can receive cash back on their energy-efficient home improvements. Every U.S. state and tribe that wants to participate

must apply for and be approved for funding through the Department of Energy, and then they can roll out their own programs. The DOE estimates these rebates will contribute to \$1 billion saved annually on electric bills and will support over 50,000 jobs.

Home Efficiency Rebates are intended for homeowners taking comprehensive steps to reduce energy use. Projects that reduce home energy consumption by 20% or more will be eligible for up to \$8,000 in savings – depending on household income and reduction of energy usage.

Home Electrification and Appliance Rebates are designed for updating equipment and appliances. Homeowners whose income is similar to or lower than the average household income in their area are eligible for up to \$14,000



Energy audits involve using infrared technology to detect heat loss. Photo: iStock

in rebates. Examples include saving up to \$4,000 on electrical panels and \$2,500 on electrical wiring, depending on your state and income qualifications.

Once a state has been approved, rebates should become available. As of April, New York is the only state that has been approved. Rebates have yet to roll out.



Make an Energy Savings Plan!

Renters and homeowners can get help navigating energy efficiency and renewable energy programs and calculate estimated savings at [RewiringAmerica.org](https://www.rewiringamerica.org).



Federal Energy Savings Hub

The Department of Energy's clearinghouse for home and vehicle tax credits and rebates, [Energy.gov/Save](https://www.energy.gov/save) provides information on available incentives. There's also a library of energy savings tips!

WV Companies Deploying Federal Manufacturing and Clean Energy Incentives

By Taylor Pate

The wheels of progress turned as four West Virginia school districts welcomed new all-electric school buses in December 2023. Cabell, Clay, Kanawha and Monongalia counties are spearheading the shift towards cleaner, more sustainable transportation. Manufactured at the GreenPower Motors facility in South Charleston, West Virginia, these buses were a significant leap in reducing emissions and fostering a greener environment.

"This is the wave of the future," says Kanawha County Schools Superintendent Tom Williams. "We need to get on the bus, literally, and move along."

Kanawha County Schools takes pride in leading the charge, according to Williams.

"There are former Kanawha County students that were part of the Green-

Power team that built our bus," Williams says. "And with GreenPower's tremendous growth, we look forward to more of our graduates working there."

School districts and other tax-exempt entities that purchase electric school buses built by GreenPower are eligible for Commercial Clean Vehicle Credit tax credits of up to \$40,000 through the 2022 Inflation Reduction Act. In addition, the U.S. Environmental Protection Agency announced that West Virginia counties would receive \$18 million under the 2021 Bipartisan Infrastructure Law's Clean School Bus Program to help purchase electric buses from Green Power.

Meanwhile in Huntington, West Virginia, the former ACF Industry's machine shop, dormant for a decade, is undergoing a significant transfor-

mation. It is set to house the Marshall Advanced Manufacturing Center, a facility that offers equipment, training, and guidance to empower manufacturers and generate employment opportunities.

"We will be able to train more students to meet industry demand, but also so young people can find good paying jobs right here at home," says Mike Friel, the director of communications at the Marshall Advanced Manufacturing Center.

The facility received a boost of \$550,221 from the Rural Development branch of the U.S. Department of Agriculture to support its expansion. They received additional funding through the U.S. Economic Development Administration's Build Back Better Program. Through



A new electric school bus manufactured in South Charleston, W.Va., to serve West Virginia students. Photo courtesy of Kanawha County Schools

these funding opportunities, the Marshall Advanced Manufacturing Center aims to double the capacity of its welding program and introduce new programs focusing on robotics and aerospace welding.

Under the Inflation Reduction Act, new and improved tax credits and incentives are available to manufacturers with the aim of enhancing domestic manufacturing capabilities and producing clean energy.

How McDowell County, West Virginia, is Addressing Its Decades-old Water Problems

By Lorelei Goff

Donna Dickson's home sits perched on the mountainside along a winding stretch of Highway 52 in McDowell County, West Virginia. The area is best known as coal country, where generations of stalwart miners harvested the black rock that heated the United States' homes, fueled its industrial revolution and westward expansion, and powered allied ships during the second world war.

The area abounds with water. Water flows from rivers and creeks and bursts from roadside springs.

Ironically, it hasn't always flowed as freely from faucets inside homes along this stretch of highway.

"We always had good water up here, you know, just sometimes we had a lot of problems with the pumps blowing out and stuff like that," Dickson says. "We just didn't know when the water was gonna go off on us."

Dickson's predicament was a snapshot of a much larger problem that has plagued the county for decades.

During the industry's heyday, coal companies built towns to house miners and their families. That included installing and maintaining pumps, tanks and pipes to convey water into homes. When the companies left, the already-aging water systems were abandoned, handed over to town governments that lacked the money and staff to maintain

them, or sold to private water companies that didn't invest back into them.

Pumps failed. Tanks rotted. Pipes disintegrated. Residents resorted to hauling water from springs and creeks.

In 1990, the McDowell County Public Service Department formed and began acquiring and updating the failing systems. The utility employs 17 people and serves about 3,500 customers through 16 different water systems.

When the department acquired the system that served Highway 52 from a private company in 2006, water outages were frequent and lasted for days. Maps of the county's pipelines had been destroyed by a flood, making the task of finding and fixing the leaks difficult and, sometimes, impossible.

"We started immediately applying for funding to replace all of it," says MCPSPD General Manager Mavis Brewster.

The funding for the Highway 52 area fell under phase two of the MCPSPD's Elkhorn Water project, completed in December 2021. The project cost \$6.3 million. Funding included grants in the amount of \$50,000 from the McDowell County Commission, \$50,000 from the McDowell County Economic Development Association, \$1.2 million from the USDA's Rural Utilities Service, \$1.8 million from the Appalachian Regional Commission, \$1.5 million from the U.S. Department of Housing and Urban Development: Small Cities Block Grant program, and \$1.75 million from the U.S. Economic Development Administration.

Having to cobble together funding from so many agencies takes time and can get complicated, but according to Brewster,



Mavis Brewster, general manager of McDowell County Public Service Department, and MCPSPD Field Supervisor Randy Whitaker discuss how to fix a drainage problem on the road beside the Kimball water plant. The dilapidated condition of the plant makes it a high priority for the department to replace. Photo by Lorelei Goff

the MCPSPD is committed to completing future projects without additional loans, which would raise rates for customers.

"Right now we have 18 different loans with USDA," she adds. "So every month, with a very limited revenue stream, we're paying around \$34,000 in just loan debt."

Phases one and two of the Elkhorn Water Project replaced three aging systems and included the communities of Upland, Powhatan and Kyle, moving 112 households onto a new water plant at Maybeury. The project also replaced systems operated by the town of Northfork and the city of Keystone — which had been under a boil water notice for 10 years until the completion of phase two — that serve about 264 households.

But the funding only paid for the mainlines to be laid. The grants can't be used for lateral lines to connect homes to the mainlines, and customers can incur additional costs during construction.

When MCPSPD receives funding to construct a new project, those funds can be used to install meter setters and meters for existing customers. If residents sign for service before the construction passes their homes, they

are not required to pay a \$300 tap fee. If they refuse service and then later decide to connect, they then have to pay the tap fee.

Many residents can't afford to connect their homes.

Appalachian Water Project

That's where an innovative nonprofit organization stepped in to assist. DigDeep develops and funds community-led projects to bring clean water into American homes. Current projects include the Navajo Water Project in New Mexico, the Colonias Water Project in Texas and the Appalachia Water Project in West Virginia.

DigDeep hired local talent to take the helm of its Appalachia Water Project, which has connected more than 300 households in West Virginia to water so far, many in collaboration with MCPSPD, with more projects planned.

When DigDeep approached Brewster about assisting with water projects, she suggested replacing the 30- to 40-year-old lateral lines. When old lines are connected to new mains, the increase

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Biril Lowe turns on the faucet in his home. Biril and his wife Tonda live on Atwell Mountain in McDowell County, West Virginia, where the water in their well is unusable. The nonprofit DigDeep installed a rain catchment system to their home to provide clean running water. Photo courtesy of DigDeep

McDowell County

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in pressure can cause the lines to blow, leaving customers without water and resulting in water loss to the department.

Brewster calls it a good partnership. MCPSD Field Supervisor Randy Whittaker agrees.

"We're close knit, and everybody knows everybody," Whittaker says.

The partnership bridged much of the gap between MCPSD's funding limitations and residents' needs.

Dickson could not have afforded to hire a contractor to install the connector line to her home, and she is grateful to MCPSD and DigDeep.

"When you get up in the morning, turn the water on, wash," Dickson says. "No boil orders. No advisories. It's just the way it should be."

DigDeep's community relations coordinator for the Appalachia Water Project, Edward George, is quick to point out that success depends on local partnerships. He also credits those partnerships with helping AWP to expand its reach.

"We're moving into Eastern Kentucky," George says, adding, "We're getting ready to get a new centralized hub in Bloomfield. We'll actively be looking in all the surrounding states and Appalachia."

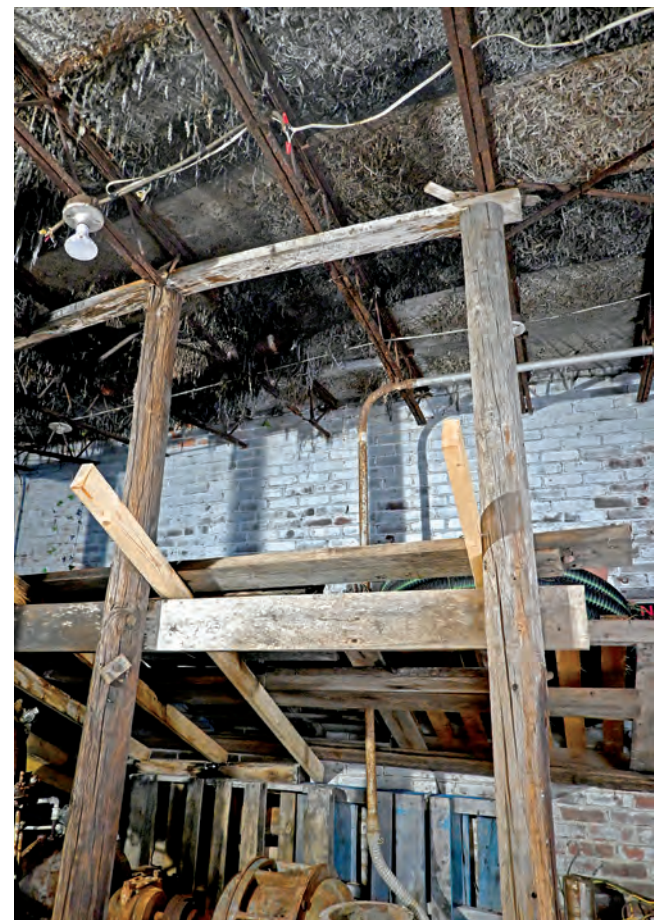
Both organizations will continue collaborating on multiple projects in McDowell County. An additional 600 to 800 homes that still lack adequate water can feasibly be connected to mainlines, according to Brewster. Funding for the projects is at various stages.

Upcoming projects

The Elkhorn Water Phase Three project is fully funded and in the design stage. It will include construction of a new water treatment plant and installation of new mains, fire hydrants, service connections and meters for 280 customers.

Funding for the estimated \$7.5 million project includes grants in the amount of \$5.8 million from the U.S. Economic Development Administration, \$856,500 from West Virginia Infrastructure and Jobs Development Council District 3, and \$856,500 from the West Virginia Drinking Water Treatment Revolving Fund.

The public service department has applied for nearly \$17 million in additional funding for four separate projects



Left, top and bottom: Inside the Kimball water plant in McDowell County, West Virginia, an approximately 60-year-old pump spills water onto a cement floor. The plants serves about 300 customers. Right: Discarded telephone poles hold up the sagging ceiling. Photos by Lorelei Goff

to extend water lines, upgrade a water treatment plant and replace another water system.

Additional projects have been proposed for the Caretta and Yukon communities, as well as a Clean Streams Sewer Study for Elkhorn.

"We also have a sewer project [in the Keystone and Northfork areas] that we just received \$75,000 for a [preliminary engineering report] search grant from USDA, but it's all working with the Closing America's Wastewater Access Gap program from the EPA," Brewster says.

McDowell County is one of 11 communities included in the Closing America's Wastewater Access Gap Community Initiative pilot, a joint project of the The U.S. Environmental Protection Agency and U.S. Department of Agriculture. The pilot program doesn't provide funding for construction or engineering, Brewster explains, but it funds assessments of a project area — in this case, the towns of Northfork and Keystone — organizes public meetings to receive residents' input and brings several other agencies together for brainstorming. The program provides a solutions plan that can be

used as reference for the future project.

The EPA provides funding for many of the programs MCPSD has received grants from. The 2024 fiscal budget reduced the EPA's budget, but funding for its Clean Water and Clean Drinking Water State Revolving Funds, which received a huge boost in the Bipartisan Infrastructure Law, remained at 2023 levels.

Additional funding for MCPSD projects has come from the U.S. Economic Development Administration, which received \$400 million in the 2024 budget, a decrease of \$30 million from 2023, and the USDA's Rural Utilities Service, which

received a minor decrease in funding.

However, the MCPSD faces another ongoing challenge. Floods have devastated the county over the years. Much of the property that could be used for building water or sewer plants is located in the floodplain where no funding would be granted.

Innovative solutions

Even with the best efforts of MCPSD and the Appalachia Water Project, not every home in McDowell County can

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be reached by piped water due to the terrain and the high cost to serve very few customers. One booster station to pump water to a few homes on a mountaintop, for example, would cost \$200,000 to \$300,000 in addition to the cost of running lines.

For those outside the reach of piped water, other options are being considered and developed. AWP, for example, installed a pilot rain catchment project on one home.

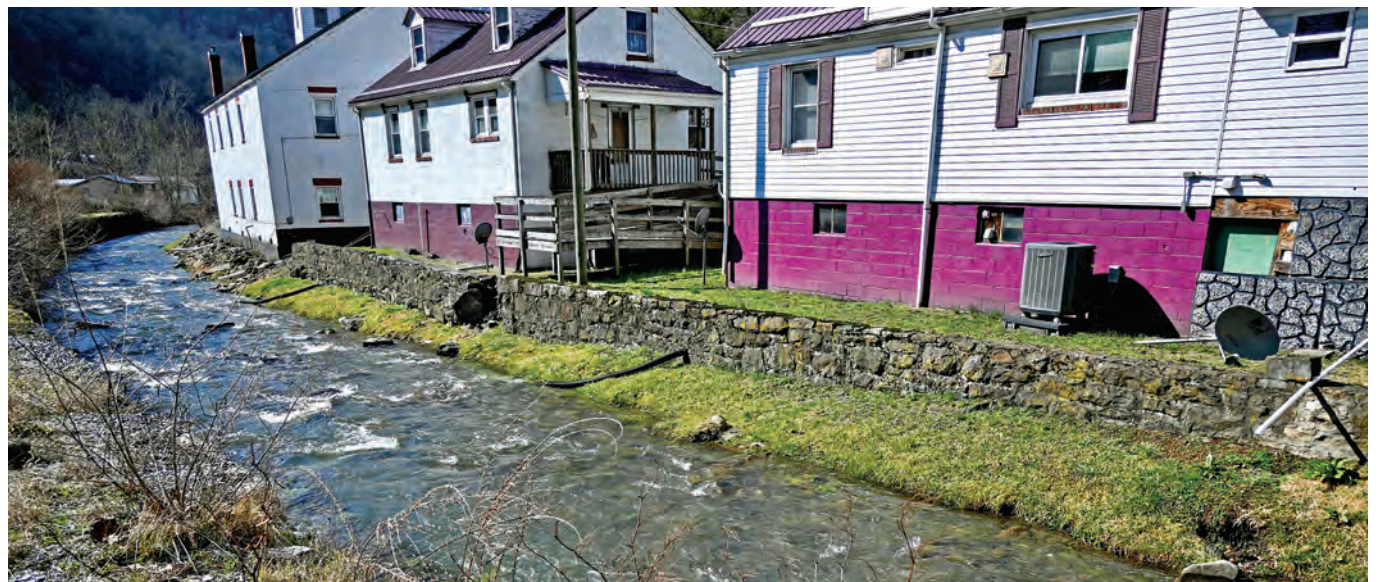
Tonda and Buril Lowe live on Atwell Mountain. They have a well but can't use it due to a strong sulfur odor.

"The water here is hard water for one thing," Buril Lowe says. "And when they were doing all the mining stuff, that made it even worse."

It also frequently runs too low to use.

George found out about their problem from Brewster, and the DigDeep team came up with a rooftop rainwater catchment solution.

"It's something that people have been using for centuries, really," says Abby Bradshaw, AWP's field engineer. "But up here we basically just bring the rainwater into two tanks through the gutters, and then that gets filtered. ... The water is then pumped into the house, and it's stored in a pressure tank where it's pressurized. And that allows you to use the water without the pump having to turn on every time. Then it goes through two-stage filtration, as well as a UV LED system. And then it goes



Above: Coal companies built employee housing so close together there is no room for septic tanks. Straight pipes, the black and white pipes seen here extending from houses to the creek, have been used for decades to funnel wastewater straight into creeks and rivers. Current and planned projects will connect many of these homes to sewer systems. Right: This water treatment building is one of two buildings constructed during phase two of the McDowell County Public Service Department's Elkhorn Water project. The project was completed in December 2021, at a cost of \$6.3 million. Photos by Lorelei Goff



into water heaters and into the home."

The team drew some inspiration from systems installed in DigDeep's Navajo Water Project, and a few members of the Navajo team traveled to McDowell County to collaborate on the project.

The simple system, which Buril Lowe says he wouldn't have had the money to install himself, has had a profound effect on their lives. Tonda Lowe's days used to revolve around water.

"I'd go outside and carry water and heat it up on the stove to do dishes," she says. "Have to carry it to fill up a bathtub,

and heat that water up to take a bath. It wasn't easy."

Buril Lowe loves that he can take a shower in his own home now.

Merle and Darlene Pruett are next in line to receive a water catchment system through the Appalachia Water Project. They can no longer use their well on Atwell Mountain.

"The problem that we have here is there's so many underground mines underneath a well," Merle Pruett says. "It doesn't last but two or three years, and the bottom falls out and the water goes away."

"Water-wise, right now I'm doing okay. I have a natural spring," he says, adding, "I really need a septic tank worse than I do water."

But while the spring water works for washing, they buy bottled water to drink.

"I'm not a big fan of the spring," Darlene Pruett says.

She adds, "The water just does not taste good and I am scared to death to drink it. That's the reason I cook with bottled water and we drink [bottled] water."

Particles in the water quickly clog filters on the spring pumps, making it impractical to filter it for drinking, and the bleach used to disinfect the water in the tank leaves an unpleasant taste. The springs also run low and occasionally dry up when there's not enough rain.



Abby Bradshaw, field engineer for the nonprofit DigDeep, explains how the phase one filter on a rain catchment system works. The system was the first the organization installed in McDowell County, West Virginia. Photo courtesy of DigDeep

The problem with using bottled water, according to Leigh-Anne Krometis, an associate professor at Virginia Tech who conducts studies on drinking water and spring water in the region, is the expense.

"That can cost eight to 25% of the household's income," says Krometis, who describes the amount as insane.

Besides rain catchment, Krometis suggests another alternative to well and spring water for homes that can't be reached by piped water systems.

"I actually believe that there might even be places where water delivery makes sense," Krometis says. "It costs less to build a cistern and deliver water weekly in a tanker truck than it would to run a pipe."

While there are still many people not yet reached, MCPSD and AWP have pledged to get water to as many homes as possible.

"Everyone deserves to have water," Bradshaw says, adding, "We're not superheroes or anything; we're not solving the whole problem. But if we can bring a solution to at least a couple people one day at a time, it's pretty nice."

Brewster says, "It's a challenge, but you know, we're working on it. We'll get there. It's just a matter of time."



10 New Spider Species Discovered in Appalachia

By Matt Dhillon

Early on a fall morning, the stubble of a field glitters, interlaced with drooping strands of spiderwebs. Set to snare insects that flick through the grass, they've caught mostly dew in the still hours before the world wakes up. Spiders are all around us — as the webs they leave behind reveal — but they prefer to stay hidden from humans, sticking to shadows, cracks, caves and corners, hunting in dark, forgotten places.

For many, even the thought of spiders sends a shiver down the spine. But the webs they weave are immensely beneficial to us and important in holding the ecosystem together.

Spiders are crucial in controlling insect populations. They are so effective in this role that scientists have estimated that the world would quickly be faced with widespread famine without them. The insects they consume, such as flies, ticks and mosquitos, are common disease vectors, whereas over 99% of spiders are harmless to humans.

While some people run away from spiders, biologists Marshal Hedin and Marc Milne have spent years looking for them. In February, they co-authored an extensive, 130-page study covering over 30 years worth of collected specimens — approximately 2,100 — which identified 10 new species that had previously managed to stay hidden from scientists in the caves of Appalachia.

The *Nesticus* genus, to which these spiders belong, now contains 37 known species in Appalachia and almost 300 worldwide. *Nesticus* are in the family of comb-footed spiders, named for the serrated bristles on their hind feet that they use to pull silk from their spinnerets.

"*Nesticus* is unique, however, in the family because they are largely cave-adapted, and they live in subterranean habitats," Milne says.

Suited to their environment, these spiders are troglomorphic, meaning they're adapted to the perpetual darkness of caves.

"When we talk about troglomorphy, we're looking at features such as a smaller body size, having reduced eyes, sometimes the eyes are even missing, and reduced pigmentation, so a lot of them will have a lighter color," Milne says. "Most *Nesticus* have an orangish color, but some that are more cave-adapted are a lighter shade of tan."

Life in these dark reaches can be delicate. There are not many resources to go around.

Many cave-dwellers develop exaggerated sensory organs to compensate. For *Nesticus*, the spider's web is particularly potent in the cave's confines.

"It's the opposite of that perfect, round, Charlotte's Web that you think of," Milne says. "A *Nesticus* web will be between a couple of blocks and it's a bunch of threads of silk going here and there. It's what we call a hackle-band web, and they commonly hang upside down in the middle of that. And they'll wait for little arthropods to come along, and they'll consume them."

In their subterranean habitat, those arthropods will usually be tiny insects like springtails, beetles and millipedes. The spiders will be preyed upon in turn by bats and small mammals. Spiders are often an important bridge between



A female *Nesticus nasicus* carries her egg sac. *Nesticus* spiders live in subterranean habitats such as caves. Photo by Marshal Hedin.

invertebrates and vertebrates in the food web, according to Milne.

The *Nesticus* spiders that the team studied occupy a microhabitat in Appalachia and are specifically adapted to a unique home. A lot of these species are also considered micro-endemic.

"An endemic species is known from a particular region and only that region," Milne says. "But a micro-endemic is known from a very, very narrow region of the world and only that region."

Just how narrow that range can be is eye-opening.

"We know of three different species, at least, where they are only known from one cave in Appalachia and that's it, in the entire world," Milne says.

The isolation of cave habitats in Appalachia allows for this unique evolution. For example, *Nesticus dykemanae*, named in honor of the environmentalist Wilma Dykeman, lives only in a few locations near the headwaters of the West Prong of the Little Pigeon River.

"That's why Appalachia is such a great place to study

things," Milne says. "We call them relict populations. Basically, they've been sitting there and adapted to their particular niche habitat for millions of years, remaining seemingly unchanged."

But even the deep caves of Appalachia may not be able to shelter these unique species from modern threats.

"Because these micro-endemics are all cave-adapted, they require really specific temperature and humidity requirements," Milne says. "Temperature is usually a good bit cooler in caves and humidity is a lot higher. We're talking close to 100% humidity within most of these caves."

Milne explains that climate change is causing many of these caves to get warmer, and deforestation is causing them to be drier. Identifying *Nesticus* species as worthy of protection might help preserve the caves they live in from development and prevent visitation by humans.

Appalachia's ancient geography and temperate climate fosters a wide range of micro-habitats. Life here has had millions of years to adapt to unique habitats, according to Milne, and there are likely undiscovered species still waiting to be found in the hills and hollers.



Spiders in the *Nesticus* genus such as this male *Nesticus*, are largely cave-adapted, and live in subterranean habitats. Photo by Marshal Hedin

'Every Stick': SWVA Biochar Uses Local Waste to Create Quality Soil

By Carl Blankenship

When Jeff Wade and Jack Wall landed in Colorado in 2021, they were hoping to buy a single piece of equipment, but returned with the foundation of a multi-million dollar project.

The pair went to Berthoud, Colorado, to take a look at technology developed by Biochar Now — kilns that turn waste wood into clean charcoal with no notable emissions.

Wall and Wade are neighbors back in Floyd, Virginia. The pair have a long-shared interest in regenerative agriculture and run cattle and sheep together.

Wall is a longtime environmentalist and founder of Floyd Eco Village, a 75-acre site housing an event venue sustainable gardens, farms and woods. Wade's family has lived and farmed in Floyd County for generations. They saved all the manure from its animals and ran chickens in the yard for fertilizer, and his grandfather would even use scraps from trout he caught fishing to fertilize corn. When his family slaughtered hogs during the Thanksgiving season, nothing went to waste.

The pair became interested in producing biochar — a generic term for charcoal derived from natural waste products in low-oxygen environments — because of its potential uses in agriculture while maintaining a carbon-negative footprint.

"We were studying how to optimize our fields, our land, our soil," Wall says. "And we knew that biochar was a way to help with that."



Custom-built equipment at SWVA Biochar. Photo by Jimmy Davidson

Wade, who has a background in fabrication, had begun building a home-brew biochar kiln, but the pair decided to produce it on a larger scale and were turned on to Biochar Now's technology.

Wade explains that they visited the company's Colorado site with the intention of purchasing one of its vacuum kilns, but the plan changed after they met Biochar Now CEO James Gaspard.

"When we got there we realized James wasn't really in the business of just selling a kiln," Wade says. "We ended up spending the day with him, just looking around, and were really impressed with the technology, impressed with James."

One kiln turned into 30, with the first arriving in Floyd in 2022. Wall became LLC manager and Wade stepped in as general manager of the newly-formed SWVA Biochar. Biochar Now holds 25% ownership of the operation, which is a couple-hundred feet from Wade's doorstep on a site filled with equipment he describes as "looking like it came from outer space."

The kilns chug along every day, intense heat shimmering over their special emission-control stacks, fed with a steady stream of waste wood. The company has sourced wood from scraps and stumps at local logging sites, railroad ties and even the old FloydFest site that was torn down.

What is this stuff?

There's no regulation standard for biochar, and the quality can vary significantly depending on the process. But the basic requirements are a natural material and pyrolysis, a chemical process that occurs when a material is exposed to high temperatures under specific circumstances.

Biochar Now touts the quality of its process: A vacuum-sealed kiln uses a small amount of oxygen to begin a chemical reaction that reaches temperatures of 1,200 degrees Fahrenheit for hours on end, annihilating the chemical



Jeff Wade explains how SWVA Biochar's kilns operate. Photos by Jimmy Davidson

bonds of the wood inside. The company's technology carries certifications from the U.S. Environmental Protection Agency and the U.S. Department of Agriculture. According to Gaspard, BioChar Now's CEO, the process produces a pure, highly absorbent carbon material.

That the process works and checks out environmentally may sound far-fetched, but according to regulators and researchers, it does.

SWVA Biochar is exempted from Virginia's air emissions permitting process. According to an intra-agency memo acquired from the state's Department of Environmental Quality, the site's measured output of common particulates and pollutants falls well below the requirements for permitting.

"I mean, we're producing less pollution than a diesel truck that's going down the highway," Wall says. "It's just nothing."

Wade states that he only notices the kilns when they start up and they sometimes emit a pleasant, woody smell.

The process can even destroy the chemical treatments applied to railroad ties and still produce usable biochar. Biochar Now was featured in USDA research on the topic in 2020. The company pyrolyzed creosote-soaked ties under one heating protocol and a USDA facility pyrolyzed them under a different protocol to compare results. The case study found the higher-heat



protocol produced biochar suitable for use in soil — and Gaspard says Biochar Now's kilns are run at higher temperature to break down creosote when they are fed with rail ties.

Research into applications for biochar is an exploding field. It is well-documented that quality biochar can improve damaged or highly acidic soils. Biochar is not a fertilizer, but it holds water, nutrients and microbial life. It can improve soil health in the long run.

It's also carbon negative because it is a stable material that can be buried in soil, removing it from the carbon cycle for potentially thousands of years.

The material produced via Biochar Now's process is also a competitor to granulated activated carbon used in drinking water filtration, and biochar has potential to supply carbon to in-

Continued on next page

Biochar

Continued from previous page

dustries like battery manufacturing. Wade noted some of SWVA BioChar's product is being used as a component in tree-seed incubation balls.

Sights on expansion

Wall said Biochar Now's equipment and processes produce a quality material, but the problem SWVA ran into once it had the kilns on site was efficiently processing what they had produced. The biochar needs to be broken apart and filtered through screens to size it for different applications. SWVA BioChar spent over a year — from about September 2022 to November 2023 — working with engineers to design and build an automated system for processing the raw material from the kilns. The material is now crushed and run through screens with suction to separate the pieces by size.

If the operation is run at full steam, it would be able to produce about 4,000 tons of biochar every year. As it stands, it is churning out about a third of its maximum capacity as the company looks to scale up the number of shifts, make biochar around the clock and expand into composting. According to Wall, there is more local waste material than his outfit can process.

SWVA BioChar is looking to expand and produce compost out of waste material. The company is eligible for a grant via a USDA program aimed at expanding domestic fertilizer production, which would offset the cost of a \$6 million expansion.

As of publication in April, SWVA BioChar is actively bidding on sites. Once a new site is secured, it has to undergo an environmental review. The review, which is common practice for USDA grants, requires studies on any adverse effects a project could cause and requires the project complies with a laundry list of environmental laws. SWVA BioChar would also be required to implement stormwater management and prevent runoff from the site.

SWVA BioChar expects to be reimbursed for 48% of the cost of any equipment it buys for the project if it finds a qualified site. That would help pay for 30 more biochar kilns and composting equipment like aerators powered by onsite renewables.

According to Wade, the company hopes to start producing compost by late summer and ramp up to 25,000 tons of compost each year.

The company is testing its biochar as a ground cover at poultry farms, where it could be an important part of the composting mix. It can take years for microbe and nutrient loads in biochar to make a difference in the soil it is applied to, but the company plans to sell biochar to chicken farms as litter before buying it back loaded with nutrients that feed microbial activity. This would allow it to make a greater impact on soil health sooner.

There is a growing body of literature on using biochar to control pollution on poultry farms. The carbon may also improve the health of poultry birds when used as a feed supplement.

Wall explains that the litter is highly concentrated and would be diluted



Waste wood awaits SWVA Biochar's kilns. Photo by Jimmy Davidson

with food waste, leaves, wood shavings and other organic components before spending weeks composting. Wall said the move to running a composting operation would allow the company to use "every stick" of waste wood it can get.

The Biochar Now process works well for waste wood like stumps, but a large amount of waste is not suitable for the kilns. A grinder in SWVA BioChar's grant application changes that equation.

"Half of [the waste wood] will go to making biochar; half of it will go to make the wood shavings we need to make compost out of," Wall says, adding that many government entities aim to reduce waste entering landfills.

Floyd County Administrator Linda Millsaps shares that the county has had several conversations about diverting

more of its wood products from the county waste stream to SWVA Biochar. The EPA estimates 8.3% of landfill waste in the United States is waste wood. Floyd County — with a budget just shy of \$22 million — spends up to \$960,000 on tipping fees every year.

SWVA BioChar is currently taking about 10% of the county's waste products and all the brush dropped at its transfer station. Millsaps describes the brush diversion as a "huge win."

"Our transfer station can't take brush, which often leads to dumping or burning," Millsaps says.

In the immediate future, Wall and Wade are hoping to add a second shift and make biochar around the clock. Fully staffed, the operation would employ about 15 local people and reach its 4,000-ton per-year goal.



This Green House



Home Gardening with Biochar

Jeff Wade has applied biochar to part of his land as a topical dressing to try and improve the soil on his farm, but he does not expect immediate benefits. For people intending to use biochar to enhance the fertility of their soil, he noted it takes time for the material to work its way down to the root base layer, load it with nutrients and develop microbial

Biochar can have benefits or drawbacks in a home garden depending on the circumstances. Photo by Jimmy Davidson

life, but it can benefit soil that struggles to hold on to water in a home garden.

Wade applied biochar to a section of his wife's backyard garden, about 20 by 40 feet, and deliberately tilled the charcoal deeper into the soil. He noticed an immediate benefit — the untreated area dried out in the sun, but the section with biochar retained water for days.

Biochar can have both drawbacks and benefits in the garden. A fact sheet from Washington State University out-

lines that biochar can decrease soil bulk density, improve aeration and improve fungal life with no drawbacks, but it can also cause waterlogging, increase soil alkalinity to unhealthy levels and reduce the effectiveness of pesticides, depending on how it is used.

The fact sheet advises that only a small amount of biochar should be used in the soil, only commercially produced biochars should be used in gardens, and that plants should be monitored for short-term nitrogen deficiency.

Solar Apprenticeships in Southwest Virginia

By Lorelei Goff

Isaac Carter's summer days started early. The 17-year-old from Dryden, Virginia, unloaded trailers, carried equipment up ladders to rooftops and pulled wires to connect solar panels.

It was hard but satisfying work, and it paid \$17 an hour. He also earned college credit for it, has an internship experience to add to his resume, and obtained an Occupational Safety and Health Administration certification, commonly known as an OSHA 10 card, that makes him more desirable to employers — all before he began his last year of high school.

Carter accomplished all this as part of the Solar Workforce Accelerator Program, a youth apprenticeship program in Southwest Virginia. The program operates as a partnership between Mountain Empire Community College, the Solar Workgroup of Southwest Virginia collaborative group, solar company Secure Solar Futures, Wise and Lee county public schools and the electric company Got Electric.

"I took the apprenticeship just to see what I would get into and I found out that, yeah, I really like to do electricity work," says Carter.

The apprenticeship began with a week-long orientation that included safety training and obtaining the required OSHA 10 card before students could work on-site. They also received training in basic photovoltaic system

design and electricity. Then, they helped with the installation. Carter worked on rooftop solar arrays on Coeburn and Union primary schools and Union Middle School.

The solar power systems installed at four elementary and middle school campuses are expected to save the Wise and Lee county school districts \$7.5 million over the lifetime of the solar equipment.

Carter hopes to work for Got Electric in the future and plans to use the college credit he earned to further his education at Mountain Empire Community College.

"It's opened my eyes to the stuff that I'm able to do," Carter says.

The Solar Workforce Accelerator Program develops the projects while creating jobs and building the workforce at the same time. The apprenticeship program and the groups involved partnered with the Appalachian Solar Finance Fund to make sure the school solar arrays could take advantage of power purchase agreements, a financing mechanism that the Virginia General Assembly allowed for K-12 public schools in areas serviced by Appalachian Power Company and Old Dominion Utility Services, Inc., in 2020.

Secure Solar Futures serves as the solar developer and programs lead through Securing Solar for Southwest Virginia, a partnership between the company and the Solar Workgroup



From left, Mark Long, career and technical administrator for Lee County Public Schools, Isaac Carter, a senior at Lee County Career and Technical Center, and Jonathan Mullins, an electricity teacher, stand with the school's rooftop solar array visible in the background. Photo by Rance Garrison

of Southwest Virginia that focuses on developing renewable energy in Virginia's seven coalfield counties. The workgroup includes People Inc., Dialogue + Design Associates, Southern Environmental Law Center, Virginia Department of Energy, paleBLUeDot, The Nature Conservancy and Appalachian Voices, which publishes The Appalachian Voice.

Funding sources for the apprenticeship program include the Virginia

Coalfield Economic Development Authority, Intuit and the National Energy Education Development project. The Inflation Reduction Act is making solar power more affordable through expanded tax credits. Net metering also allows the schools to save money long-term by receiving bill credits from their utility company for the value of the excess energy their solar panels generate.

[Read a longer version of this story online.](#)

Archbishop Dinkins

Continued from page 6

poor health indicators, increases in maternal mortality, as well as infant mortality. People are still saying, how do we improve our air quality here? What are some of the ways that we can reduce pollution?

We've launched the Freedom to Breathe campaign looking at health as a human right. And when we look at health as a human right, I'm not just talking about being able to go to the hospital. I'm talking about social health, economic health, health to where you can be able to put food on your table, environmental health, human decency and all of those things, because we tend to just relegate health down to one thing

and tell that story in that way. As a colleague of mine used to say, we're not in 50 different fights, we're in one fight with 50 different rounds.

So in Clairton we're not just in that fight about, how do we get to breathe clean air? How do we get to ensure that people don't have to drive two hours to go to the grocery store to get food? How are we ensuring that US Steel is either shut down or they're cleaning up their act? How do we push EPA to put regulations on benzene, which is a cancer-causing chemical? And so those are the things that we're looking at.

In addition, we are doing a study on Clairton. The study is around health, economics and air, but also looking at, if the plant wasn't there, what would be the health of the community? Would it reduce the collective trauma that they're

experiencing? And in the alternative, if they don't want it there, what would it look like to switch over to green steel? Would that also improve the economy and the human currency as well as the social currency and economic currency?

Moore: What else should people know about the Black Appalachian Coalition?

Dinkins: Although we focus on Black people and up lifting the stories of Black people, we invite others in. Because what we want people to know is that in order for us to get to the places that we need, the solutions that we desire, that is going to entail all of us. And so BLAC is about bringing those stories together. We want people to come on in, bring your story, share your story.

We also want people to understand that in history, the way that politicians

or the electeds have gotten away from things is because they have rewritten history. And we want people to understand that BLAC is like, nope, we want to be that history book. We want to do cultural and heritage preservation. We want to bring in these diverse elements of how we come and struggle together. So we need a politic of engagement and a politic of solidarity that will help us to rise to the occasion.

I often say my desire for BLAC is to create this universal hum. And that means that we all have the same sound, and we're all walking to the same drum beat. Even though we're different, there's an element to show that we are in sync one with another and we have syncopated our steps and synchronized our sound, and our sound is really that call to action.

Biden Admin Finalizes Silica Rule Update

On April 16, the U.S. Mine Safety and Health Administrations issued its final rule updating silica exposure standards for miners. Silica exposure is a leading cause of a resurgence in black lung disease among miners, especially coal miners.

Silica dust is released when miners cut through sandstone to seams of coal. Remaining coal seams are thinner now that thicker seams have been mined out, requiring miners to go through more layers of rock to get to smaller seams of coal.

The new rule cuts the amount of silica dust a miner can be exposed to during an eight-hour shift by half, from 100 micrograms per cubic meter to 50, granting miners the same silica exposure limit as workers in all other industries.

Miners and their advocates, while pleased with the stricter exposure

standard, expressed concerns about enforcement measures in the rule — including the absence of mandatory fines for coal operators who violate exposure limits, the rule's reliance on industry-conducted inspections and sampling, and allowing coal companies to require miners to work in areas where excessive silica levels are present so long as the company provides respirators, which miners have long criticized as impractical and ineffective.

"Without strong enforcement mechanisms, and without any prohibition against miners being forced to work in excessive dust, I'm not sure that this will actually reduce levels of black lung," says Willie Dodson, Central Appalachian field coordinator for Appalachian Voices, the publisher of this newspaper. — Dan Radmacher

Opposition to Proposed Prison on Mine

The federal Bureau of Prisons held a public hearing on March 28 regarding a 1,400-bed prison proposed to be built on a former mountaintop removal coal mine in Roxana, Kentucky.

Local residents were joined by formerly incarcerated people from Washington, D.C., to speak out against the proposal. Opponents cited structural and environmental risks of building on formerly mined land, quality of life impacts to the nearby community, and extreme social, economic and mental-health impacts to prisoners and their communities.

"It has taken this property 50 years to recover [from mining]," said Roxana

resident Mitch Whitaker. "I encourage the decision-makers to not surrender this piece of property to the federal government for a prison."

Like many others, Whitaker underscored the need for investments in infrastructure and housing in the community.

Rep. Hal Rogers (R-Ky.) has championed efforts to build a prison in Letcher County. Both the Obama and Trump administrations opposed funding for the project. The previous iteration of the proposal was canceled in 2019 after a landmark lawsuit was filed on behalf of both local residents and incarcerated individuals. —Willie Dodson

EPA Action to Prevent Power Plant Pollution

A suite of rules released by the U.S. Environmental Protection Agency on April 25 will limit greenhouse gas emissions, pollution in wastewater, and the amount of mercury and other airborne toxics from the nation's power plants.

In addition, the EPA finalized a rule to extend cleanup requirements to hundreds of old coal ash dumps that weren't covered by previous rules.

The rules will save thousands of lives, prevent hundreds of thousands of asthma attacks, and result in \$370 billion of health and climate benefits between now and 2047, according to EPA estimates.

"Today's announcement by the Biden-Harris administration marks a huge win for the country — and especially communities whose residents

have suffered and fought the impacts of power plant pollution for decades," said Tom Cormons, executive director of Appalachian Voices, the organization that publishes this newspaper.

Advocates expressed hope that the new rules would encourage utilities to invest in renewable energy to replace aging coal-fired power plants and rethink massive methane gas buildouts they're currently planning.

Events in recent years — such as rolling blackouts during Winter Storm Elliott in 2022 — have shown that fossil-fuel plants aren't always reliable during extreme weather that has become more common as the result of climate change. Price volatility of natural gas has also saddled utility customers with large rate increases. — Dan Radmacher

TVA Moves Forward with Kingston Gas Plant

Soon after the U.S. Environmental Protection Agency criticized the Tennessee Valley Authority for underestimating climate and air pollution impacts of converting the Kingston coal-fired power plant to methane gas, TVA decided on April 2 to move forward with its gas buildout plans for the plant. The decision ignores the EPA's concerns that TVA was not transparent, failed to reasonably consider clean energy alternatives and did not address other issues the EPA identified with TVA's draft environmental analysis.

This comes after the TVA Board of Directors again abdicated final decision-making authority on the proposed Kings-

ton gas plant to the TVA CEO last year.

Residents and congressional representatives continue to call for more transparency from TVA on plant decisions and TVA's long term energy planning process. Rep. Steve Cohen (D-Tenn.) and Rep. Tim Burchett (R-Tenn.), introduced the TVA Increase Rate of Participation Act in March. The bill proposes changes to increase public participation in the federally owned utility's long-term planning process, while also requiring the utility to take into account certain factors to ensure the plan will result in clean, sustainable, reliable and affordable energy for people in the Tennessee Valley. — Lorelei Goff

Reducing Methane Emissions from Wells Could Create Tens of Thousands of Jobs

Tens of thousands of jobs would be needed across four states to decommission unplugged oil and gas wells, and to reduce emissions at operating wells in accordance with new federal guidelines, according to a February report from Ohio River Valley Institute, a think tank.

In December 2023, the Environmental Protection Agency announced new regulations to reduce methane emissions from oil and gas wells into the atmosphere. The agency has described

methane as being "more potent than carbon dioxide and responsible for approximately one third of the warming from greenhouse gasses occurring today."

Kentucky, Ohio, Pennsylvania and West Virginia would collectively require between 13,005 and 15,530 direct jobs to help reduce methane emissions in accordance with the new rules. Between 7,793 and 9,714 of these jobs would be temporary, while the others would be permanent.

The report also looks at decommissioning wells in the four-state area that are no longer in use but continue to leak into the air and earth. This involves plugging the well and remediating the site and contaminated areas.

Decommissioning the 64,607 documented orphaned wells — wells without a known or solvent operator — would support approximately 11,600 job years. Decommissioning all estimated unplugged wells in the region over the next

few decades would create up to 157,000 direct job years.

These efforts would also create indirect jobs through the purchasing of goods and services, as well as the economic boost from employee pay.

The federal government has allotted approximately \$6 billion to decommission orphaned oil and gas wells and reduce methane emissions from low-producing wells. — Grace Ficara



Our Organization's Priorities for 2024 and Beyond



Unlocking support for Appalachia

We're securing new federal funding to advance renewable energy and help communities thrive. We continue to deploy funds from the Appalachian Solar Finance Fund, which is bringing 6.4 megawatts of solar energy to the region through 47 projects to date. We're committed to ensuring communities have direct engagement in plans to reap the benefits of federal investments, and to working across the aisle at the state and federal levels to bring transformative opportunities to our communities.



Addressing coal's devastating impacts

Our federal work helped lead the EPA to strengthen pollution limits and protect communities near power plants. We also launched a program with partners to monitor mine dust and other harmful air pollutants. We're campaigning to reform federal laws and improve enforcement of existing laws to ensure coal companies clean up mined land, along with monitoring new mines and helping residents affected by coal. Improving resources for miners suffering from black lung disease, and their families, also remains a priority.



Transitioning utilities to clean energy

Despite historic progress deploying federal investments in clean energy, and ensuring communities and rural electricity providers can access these opportunities, monopoly utilities still plan to expand the region's dependence on fossil fuels and invest billions of dollars in polluting infrastructure at ratepayers' expense. We're working to expand access to renewable energy and to hold big utilities in North Carolina, Tennessee and Virginia accountable through legislative and regulatory processes. Photo: John Todd Waterman



Fighting expansion of fossil fuels

Across Appalachia, industry's proposals for new hazardous methane infrastructure could lock us into decades of reliance on polluting fossil fuels with irreversible climate impacts. We remain steadfast in our opposition to new gas projects, including the Mountain Valley Pipeline and its Southgate extension. As Tennessee and North Carolina face the two largest proposed methane buildouts in the U.S., with new pipelines and gas plants, we are on the ground along the proposed routes of these pipelines assisting residents.

Mary Lou Dauray's Steadfast Support for Appalachian Voices

By Adam Wagner

At the heart of Mary Lou Dauray's art lies a profound concern for social and environmental justice. Her series "Coal" serves as a poignant testament to her dedication to raising awareness about the perils of fossil fuel consumption — particularly coal mining, burning and transportation. Through her art, Dauray gives voice to the landscapes scarred by industrial exploitation.

Dauray's journey toward joining Appalachian Voices began with a stark realization in 2014. Witnessing a freight train laden with coal in Idaho, she



A piece from the series "Coal" by Mary Lou Dauray. Photo courtesy of Mary Lou Dauray

couldn't ignore the potential ecological catastrophes such transport posed to pristine environments. Her concerns deepened during firsthand encounters with the fallout of mountaintop removal coal mining in Appalachia, where consequences like toxic water contamination left an indelible mark on her conscience.

Driven by a desire to effect change, Dauray channeled her emotions onto canvas, creating art that serves as a reminder of the urgent need to transition away from fossil fuels. Last fall, Mary Lou and her husband Alan Davis graciously agreed to display art from her series "Coal" at the Gefen Gallery in San Francisco to raise funds and awareness of Appalachian Voices' work. The event, which had over 100 guests in attendance, amplified the voices of those affected by coal-related environmental degradation and raised thousands of dollars to support Appalachian Voices' relentless advocacy for sustainable alternatives.

Beyond her artistic endeavors, Dauray's con-

MemberSpotlight



Dauray, photographed in her studio in Sausalito, Calif. Photo courtesy of Mary Lou Dauray

nection to Appalachia runs deep. Her yearly extended visits to family in Floyd, Virginia, provide her with strong ties to the region's cultural richness and creative vitality. Fond memories of spending nights on the Appalachian Trail and savoring makeshift "ice cream" made from orange-flavored Tang powder and snow evoke a nostalgia that fuels her commitment to preserving the region's natural beauty.

When asked about the importance of protecting Appalachia, Dauray speaks with reverence, emphasizing the need for collective action to safeguard the mountains and valleys' vital spirit and the people who call the region home. Through her art and advocacy, Mary Lou Dauray exemplifies a steadfast dedication to preserving Appalachia's heritage and ensuring a sustainable future for generations to come.

More information about Mary Lou Dauray's art can be found at maryloudauray.com.



Inside Appalachian Voices

Remembering David Hairston

In July 2023, we lost David Hairston, a profoundly inspirational community leader, a deeply respected member of the Appalachian Voices Board of Directors, and a treasured friend to many.

David's path crossed with Appalachian Voices when we were connecting with people living near Duke Energy's Belews Creek power plant and its massive coal ash pond. From first sitting in the back of the meeting room taking in all the information to leading the call to stand together and demand action, David took on the mantle of justice warrior.

When David saw injustice, he took action to right it. The list of organizations in which he played a pivotal role include: Residents for Coal Ash Cleanup, a group of Stokes County, North Carolina, residents pushing for pollution clean-up from the nearby coal-fired power plant; the statewide Alliance of Carolinians Together (ACT) Against Coal Ash; The Lilies Project, a creative endeavor that tells the stories of his community; the Stokes County NAACP; and the Mildred S. Hairston Youth Mentoring Center, which provides guidance, assistance with schoolwork and skills training for students in Stokes County.

David's care for his community was deep and unrelent-

ing. Beyond his work in cleaning up toxic coal ash, in 2015 he began serving as the president of the Walnut Tree Community Association. The predominantly Black community had been confronting racism from the neighboring town of Walnut Cove for decades, and David played a key role in winning annexation and securing municipal services for the Walnut Tree community.

Helping the children in his community thrive was another mission close to his heart. Especially important to David was the 2017 establishment of a new playground in Walnut Tree, a project that fulfilled one of his mother's wishes and that he spoke of with great pride.

David became a board member of Appalachian Voices in 2018, a position he held until his passing. As a leader, he didn't seek the spotlight

himself, but he was adept at turning the spotlight to illuminate injustices, highlight stories of resistance and hope, and light the path to change.

David was quiet, but had a big laugh and an even bigger presence that inspired those around him. His welcoming spirit and his support was deeply appreciated by staff and board members alike.



Above: David Hairston in 2020. Photo by Caroline Armijo. Left: North Carolina coal ash cleanup advocates attended a Climate Reality Project gathering in Atlanta. From L-R: Amy Adams, Danielle Bailey-Lash, Caroline Armijo and David Hairston.



In a 2018 interview, David shared his advice for other communities fighting for their rights: "Come together. When you come together and you fight the fight together and you are determined not to lose, you will win. There will be setbacks, but don't ever let a setback stop you. Know that as long as you are fighting that fight, eventually you will win."

David's ability to bring people together to advance common causes has made a profound impact in Walnut Tree and Walnut Cove, at Appalachian Voices, and across North Carolina and the region.

Read more at appvoices.org/david-hairston.



AppalachianVoices

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GET INVOLVED: Stay informed about environmental and energy issues in Appalachia and the Southeast! Find out about events and ways to make your voice heard on issues that matter.



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This Drosera plant, also known as the sundew, was photographed at West Virginia's Cranberry Glades. The carnivorous sundew has long tentacles with sticky glands at the tip. These glands produce nectar to lure insects, adhesives to trap their prey and powerful enzymes to help them digest. Read about the Cranberry Glades in the centerspread. Photo by Rosanna Springston

Appalachia is a place of unique beauty and biodiversity — home to vibrant communities that are connected by their love and pride for this region.

Appalachian Voices is countering unfair utility practices that put profits over people. We are securing progress in our communities and in clean energy to ensure that we all can enjoy a healthier, more vibrant future.

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