

WINTER 2021

field Tennessee notes

CLIMATE & BIODIVERSITY ISSUE

Last August, as fires raged across the American West, a Category 5 hurricane pummeled the Gulf Coast and record-breaking rainfall flooded the East, the United Nations issued a **code red for humanity**. The report confirmed irrefutable evidence that human-induced actions over the last century are causing weather and climate extremes around the globe.

But that's only half of the story. Our planet faces dual crises. The second is significant biodiversity loss, with nearly a 70 percent decline of birds, amphibians, mammals, fish and reptiles since 1970.

While some of what we are witnessing is irreversible, there is still time to reduce carbon and other greenhouse gas emissions to improve air quality and stabilize global temperatures. There is also time to secure healthy habitat and pathways for plants and animals that play an important role in the web of life we all share. However, *we only have years, not decades, to address both of these urgent, all-hands-on-deck situations.*

Thanks to your support, we are doing our part at The Nature Conservancy. That includes committing to a global effort in pursuit of two goals:



**Limit global
temperatures to 1.5
degrees Celsius or less.**



**Protect 30%
of the planet
by 2030.**

Reaching these goals requires perseverance, creativity, collaboration and unprecedented investment. We are glad to have you on board—as a member, partner and friend—on this important journey to conserve the healthiest, most resilient and biodiverse *lands and waters on which all life depends.*

The Nature Conservancy's mission is to conserve the lands and waters on which all life depends.

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FROM THE DIRECTOR

Director's Message



I am excited to share some good news. Our work really matters, not only here in Tennessee, but on a global scale.

In pursuit of the dual goals of slowing the pace of climate change and protecting 30 percent of the planet's biodiversity by 2030, The Nature Conservancy named four regions as global priorities for conservation: Borneo, the Amazon, Kenya and...the Appalachian Mountains. Covering approximately 2,000 miles—from Alabama to Canada—the Appalachians boast a variety of species and a level of resiliency that make it one of the most globally important landscapes for pursuing our mission. They also serve as home to 22 million people who rely on this landscape's natural resources for food, clean water and air, and economic stability.

Conserving the Appalachians requires coordinating across 18 states and an international border. We are off to a good start with TNC's 2019 Cumberland Forest Project, encompassing 253,000 acres situated in Tennessee, Kentucky and Virginia. These forests store millions of tons of carbon, potentially more if we manage them sustainably, and represent one of North America's most important routes for plants and animals shifting their ranges in response to the changing climate.

As part of this project, we are also piloting creative new approaches to improving the landscape's ecological health and resilience that might be duplicated elsewhere in the Appalachians. This includes developing solar energy at former coalfields, marketing sustainably sourced lumber, leasing lands for outdoor recreation and enrolling forests in the emerging carbon marketplace. Through the Cumberland Forest Community Fund, we are also investing in local projects that support nature-based economic and community development in five Tennessee counties.



The Appalachian Mountains represent a global focal landscape for The Nature Conservancy.

It is important work. And thanks to you, TNC hits the ground running with natural climate solutions that safeguard wildlife habitat and store carbon in the Appalachians and across the globe.

See you outside,



Board Notes

Thank you to Lisa Calfee for nine years of service as a member of The Nature Conservancy's Board of Trustees in Tennessee.



Calculating Carbon

Numbers tell a story of carbon storage potential at Chestnut Mountain

As the climate crisis reaches a tipping point, there is a growing appreciation for the ability of our forests to store carbon. But how do scientists determine a forest's current—and future—carbon storage capacity?

The Nature Conservancy is working to demonstrate how to collect this important information at the Bridgestone Nature Reserve at Chestnut Mountain. Such metrics will inform conservation strategies at the Reserve and might serve as an incentive for other Tennessee landowners to measure the storage capacity of their own forests.

"We conducted an inventory of the Chestnut forest and determined that the Reserve stores nearly one million metric tons of carbon, equivalent to greenhouse gasses emitted by more than 155,000 vehicles per year," says Trish Johnson, TNC's director of forest carbon programs in Tennessee.

Due to its carbon storage capacity, the Reserve can participate in a marketplace

that puts a price on carbon to provide partnership opportunities for businesses seeking to voluntarily offset emissions that result from their operations. They can pursue this by purchasing credits from landowners who have committed to quantifying and protecting carbon stored on their forested property in order to participate in the marketplace.

According to Johnson, since forests at the Reserve are certified by the Forest Stewardship Council®, TNC expects that their potential for storing carbon will improve with careful sustainable management. TNC will reinvest proceeds generated from the carbon marketplace into conservation projects at the Reserve and throughout the Cumberland Plateau.

"We have long been familiar with the sources of carbon emissions," adds Johnson. "However, we have only begun to recognize the role nature plays in reducing, removing and storing excess carbon in the atmosphere. It is an exciting time to pursue, with urgency, these types of projects."



"Climate change isn't just one more priority on our already overcrowded list. It is a **threat multiplier** that affects every single other priority already on it, from the air we breathe to the food we eat."

—KATHARINE HAYHOE,
Chief Scientist at
The Nature Conservancy



Resilient Cities

Urban forests are key to stabilizing climate and conserving wildlife

Slowing the pace of climate change and protecting biodiversity won't happen without taking action in cities. However, doing so requires different strategies since more than 66 percent of Tennesseans reside within the state's urban centers.

"In addition to improving the health and quality of life for millions of people, a city's natural areas help to reduce temperatures and attract wildlife," says Britt Townsend, The Nature Conservancy's conservation forester in Tennessee.

Townsend points to Nashville, which has become an important roost for more than 150,000 purple martins during fall migration to South America. Townsend is also excited about a new project at The Warner Parks, a 3,000-acre sanctuary for people and wildlife located in the heart of the city.

"Throughout the year, The Warner Parks welcome 191 bird species and other wildlife, including Tricolored bats and Timber rattlesnakes," says Townsend. "We are excited to help identify ways of safeguarding wildlife and improving the Parks' potential for storing carbon."

Thanks to support from Friends of Warner Parks (FOWP) and Metro

Nashville Parks and Recreation, that begins with inventorying forests to establish a baseline for conservation, including a focus on combating invasive species and identifying ways to improve habitat for birds, usually a strong indicator for healthy and diverse forests.

According to Townsend, the process began with identifying forested areas on a map. Then the team used a special sampling design to create 500 individual plots within those areas for data collection. At each plot, professionals from F&W Forestry collected data—for each tree—that included:

- Photographs
- Condition (including dead)
- Species
- Size
- Defects
- Invasive Species
- Special Features

As summer came to a close, the foresters collected and analyzed data for each of the 500 plots. After making recommendations to FOWP and Metro Nashville, Townsend and the partners look forward to advancing the project to meet TNC's climate and wildlife goals around Nashville.

Experts Weigh In

A Natural Climate Solutions report released by the National Audubon Society in 2021 reveals that habitats proven to be important for birds are also critical to reducing greenhouse emissions given their ability to naturally store and sequester carbon. For the report, researchers assembled data on forests, grasslands, aridlands, wetlands, tundra, and urban and suburban ecosystems. In each, they found significant overlap between important bird habitat—especially forests—and areas of high carbon value. The bottom line? Investing in the health and resilience of our farms, fields and forests could deliver significant emissions reductions while improving the places that are becoming increasingly important for the survival of birds (and all of us).



Forward Thinking Forestry

A Tree's Past Can Inform Its Future

Every tree has a story to tell, often revealed through the pattern of its annual growth rings. Wide rings indicate years of growing and thriving. Narrow rings correspond with stress, like a period of drought.

Some trees also boast scars left by fire, sometimes over many years. A closer look might even disclose the frequency, season and path of past fires.

“Studying trees located at our Bridgestone Nature Reserve at Chestnut Mountain informs The Nature Conservancy’s conservation approach here and in the surrounding Cumberland Plateau,” says Katherine Medlock, TNC’s Southern Appalachians program director who is working at the Reserve with several dendrochronologists—scientists who specialize in dating tree rings.

According to Michael Stambaugh, director of the tree-ring laboratory at the University of Missouri, fires were historically much more frequent in the region, changing over the last 300 years as humans settled across the landscape. He adds, “Based on studies around the



Cumberland Plateau’s fire ecology, we know that repeated fires—dating back to the 1700s—were frequent enough to sustain much more open conditions such as grasslands and open woodlands that were rich with fire-tolerant and sun-loving plants.”

TNC also recently conducted ecozone mapping on portions of the Cumberland Plateau once dominated by forests that required periodic fire. The map suggests that such fire-adapted habitats dominated as much as 85 percent of

the region, which is more widespread than any other mapped landscape in the Appalachians.

Medlock adds, “From studying the inner workings of individual trees to mapping the 3.9 million-acre Cumberland Plateau, we are employing the latest science available to restore and protect healthy, resilient, native Appalachian forests required—for people and wildlife—to adapt to the climate changes we are already beginning to witness.”



FOREST RESTORATION: BEFORE & AFTER

In 2020, The Nature Conservancy began taking annual photos of 10 shortleaf pine restoration plots at the Bridgestone Nature Reserve at Chestnut Mountain to track changes over time. These photos, taken a year apart, reveal hardwood saplings threatening to block sunlight from reaching native shortleaf pines (on the left) and new growth after removing invasive vegetation and conducting a controlled burn (on the right) to prepare for planting more than 75,000 seedlings.

Predicting Pathways

Securing safe natural corridors is key to protecting Tennessee wildlife

All About Elk

In September, The Nature Conservancy and The Conservation Fund acquired 850 acres that connect with the 100,000-acre Cumberland Forest Project and the Cumberland Gap Historic National Park along the Tennessee/Kentucky border. Together, these conservation lands form a natural corridor that supports wide ranging and migrating wildlife.

“This moves us closer to safeguarding quality habitat for species located within and around the North Cumberland Wildlife Management Area—from a one-gram butterfly to an 800-pound bull elk,” says Brad Miller, elk program coordinator at the Tennessee Wildlife Resources Agency (TWRA). Since 2000, TWRA has worked to welcome elk back to this part of East Tennessee due to its proximity to Kentucky’s elk restoration zone, sparse human population, and



opportunities for hunting and viewing. Currently, several hundred elk roam across 670,000 acres protected to date, 29 percent of which are public lands.

The newly acquired property is also near a bat cave and within a foraging zone used by federally endangered Indiana bats that have been documented in the area. Says Gabby Lynch, TNC’s director

of protection in Tennessee, “This project exemplifies the importance of stitching together connected corridors of wildlife habitat so that species can safely move and migrate. We are grateful to the State of Tennessee, The Conservation Fund, the Rocky Mountain Elk Foundation, and the Imperiled Bat Conservation Funds in Kentucky and Tennessee for supporting this important acquisition.”



DID YOU KNOW?

A monarch butterfly’s round-trip migration requires as many as five generations to complete, each following environmental and genetic cues.

Migrating Monarchs

This time of year, monarch butterflies from the eastern United States and Canada descend upon Mexico to spend the winter. When their journey took them through Tennessee last fall, members of Nissan North America’s Greenteam joined The Nature Conservancy at Nashville’s Lytle Bend regional park to catch and gently tag these fragile creatures with special stickers used to inform citizen scientists assembling data for a program called Monarch Watch, which aims to gain a clearer picture of migration patterns and species status around the world.

“We learned so much and look forward to hosting more volunteer events like this in the future, and to doing our part

by planting milkweed at home,” says Candace Listz, manager and Greenteam president with Nissan North America.

According to researchers, pollinators are experiencing dramatic decreases worldwide, with monarch populations diminishing by as much as 80 percent over the past two decades due to the impacts of more extreme weather patterns and dwindling habitat.

“We are grateful for the Greenteam’s help as the City of Nashville transforms Lytle Bend, formerly a working farm, into an urban park that can support diverse species and habitats, especially pollinators,” says Caroline Crews, TNC’s conservation research associate in Tennessee.

Faces Of Conservation

Staff promotions advance TNC priorities in the Appalachian Mountains

Two members of our Tennessee staff, Katherine Medlock and Sally Palmer, accepted new positions that advance The Nature Conservancy's priorities in the Appalachian Mountains.

"The designation of the Appalachians as a TNC focal area highlighted the need for a coordinated effort across the broader landscape," says Medlock, who formerly oversaw TNC's East Tennessee and Southern Blue Ridge programs. In her new role as Southern Appalachians program director, Katherine coordinates strategies across six states, including Tennessee, that aim to protect and restore forests, and enhance the connectivity and quality of freshwater systems.

TNC's former director of science and policy, Sally Palmer, has assumed the role of external affairs advisor for TNC's Central Appalachians Program. In her new role, she will help seven states design and deploy government relations strategies that support conserving forests and river systems and foster a just transition to cleaner energy resources.

She says, "I am excited to assist a wide network of TNC staff and partners with accessing the tools and funding they need to deliver substantial conservation on the ground in collaboration with local leaders who wake up every day working to create a healthy future for their families and communities."



© Courtesy/Katherine Medlock



© Courtesy/Sally Palmer

Why would one of the world's largest packaging, pulp and paper companies partner with us?

Because International Paper's entire business depends on the sustainability of forests.

Leveraging a more than 40-year relationship, International Paper relies on The Nature Conservancy to help it fulfill its commitment to create healthy forest ecosystems in Tennessee. Through sustainable forest management practices, International Paper helps landowners maximize the environmental, social, and economic benefits of healthy forests, including mitigating the effects of climate change by removing more carbon from the atmosphere.

Responsibly managed, sustainable forests help International Paper to transform renewable resources into the products people depend on every day while also helping The Nature Conservancy's goal of mitigating the effects of climate change.



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Working with Tennessee companies to align conservation with business goals.



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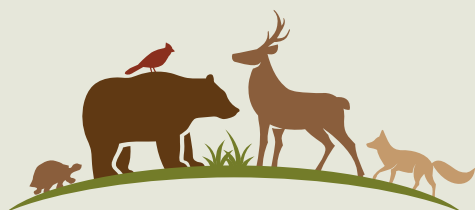
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If you follow us on social media, you already know that Wednesdays are dedicated to promoting Tennessee wildlife. We hope that you enjoy the cast of critters—from black bears and butterflies, to raccoons and rattlesnakes—that we are working to protect in Tennessee.

We welcome your submissions, too! Send your photos and videos to tn@tnc.org and maybe we will feature them on a future #WildlifeWednesday.



#WILDLIFE WEDNESDAY

CARES Act Extension

An extension of the CARES Act, passed in response to the COVID-19 pandemic, means that some donors may elect to deduct up to 100 percent of their adjusted gross income for gifts of cash. Establishing a charitable gift annuity with a gift of cash might qualify for this special treatment.

Note: This legislation is set to expire on
December 31, 2021.

For additional information on this and other aspects of the CARES Act and charitable giving, please contact our director of philanthropy, Britt Moses, at
britt.moses@tnc.org.