

Year In Review

Highlights from The Nature Conservancy's Work in Tennessee

2022



KEEPING OUR EYE ON THE PRIZE

TWO SUCCESS STORIES HIGHLIGHT WHY WE DO WHAT WE DO

Almost 47 years to the day since listing the **snail darter** as an endangered species, the U.S. Fish and Wildlife Service officially removed the diminutive fish from the Federal List of Threatened and Endangered Wildlife on October 5, 2022. Once limited to the Little Tennessee River, the snail darter now inhabits rivers and streams in Alabama, Georgia, Mississippi and Tennessee.

The conservation community marked the delisting of the **Cumberland sandwort** after more than three decades of hard work and patience that included key acquisitions by The Nature Conservancy at the Pogue Creek State Natural Area. The Cumberland sandwort represents the third plant, after Eggert's sunflower and Tennessee coneflower, to be delisted as a result of species recovery in Tennessee.

BOARD NOTES



Welcome to 2023 and to a new way of reporting on The Nature Conservancy's accomplishments in Tennessee over the past year. We are excited to expand upon our work—in print and online—with this *Tennessee Year In Review*.

One big piece of news as we enter the new year is that our Tennessee state director, Terry Cook, leaves his post to pursue new projects and spend more time with family. For nearly three decades, including six years advancing TNC's mission in Tennessee, Terry has worked around the globe to protect and enhance nature for the benefit of people and our planet. As you might guess from this report's cover photo, Terry has served as a competent leader and committed scientist who retains a child-like wonder for the natural world around him, regardless of his job title. Thank you, Terry!

Thanks also, to YOU. None of the accomplishments shared in this report would be possible without your support.

Today, we encounter the biggest, most complex environmental challenges in our lifetime as the dual crises of rapid climate change and biodiversity loss threaten the planet. Addressing both is crucial. We are doing our part in Tennessee—in the state's forests, rivers, caves, farmlands and cities—to preserve biodiversity, sequester carbon, and fortify resilient landscapes that can safeguard the people and places most vulnerable to the impacts of climate change. This report celebrates these efforts that lay the groundwork for the years to come.

Happy New Year!

James McDonald, Chair
The Nature Conservancy's Tennessee Board of Trustees



As The Nature Conservancy's Tennessee state director, Terry Cook always found time to mentor our future conservation leaders out in nature.

COVER Terry Cook tests a wildlife camera at Stones River near Nashville. © The Nature Conservancy. ABOVE, LEFT TO RIGHT © Courtesy/James McDonald; © The Nature Conservancy

BIODIVERSITY

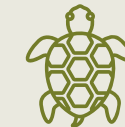
PROTECTING BIODIVERSITY PROTECTS OURSELVES

Monitoring With MOTUS

Three declining species in Tennessee will benefit from the state's growing Motus Wildlife Tracking System, part of an international network of stationary towers that track migrating bats, birds, insects and other wildlife with radio telemetry.



The Nature Conservancy's staff and partners secured transmitters on **68 federally endangered gray bats** in one night (a record for our Tennessee program). Small and light enough to adhere to these diminutive creatures, the transmitters help scientists understand movement throughout the landscape to inform conservation strategies.



A University of Tennessee graduate student found and fitted **federally threatened bog turtles** with transmitters that will generate data on their patterns. Bog turtles are notoriously secretive and challenging to study in the field, so using the Motus technology to better understand the turtles' activity represents an exciting advancement.



TNC teamed up with the City of Nashville, Friends of Warner Park and the Nashville Symphony to monitor the iconic "bird of the people," **the purple martin**. Over the years, large groups of purple martins have gathered to roost in Nashville prior to their southern migration, often occurring in numbers estimated to be close to 100,000 birds. Thanks to a series of Motus stations installed in Middle Tennessee over the last three years, researchers gathered valuable movement data, an effort further enhanced by students who monitored roosting behavior in downtown Nashville every night during June and July. This information was coordinated with data collected by Motus stations in Central and South America to shed more light on the life cycle of North America's largest swallow.



Rattlesnake Whispering

The Nature Conservancy worked with Dr. Danny Bryan from Cumberland University on inventorying and monitoring timber rattlesnakes at the Bridgestone Nature Reserve at Chestnut Mountain. In the field study, Dr. Bryan identified six hibernacula (where timber rattlesnakes go during cooler months) and three gestation sites. In this part of their range, timber rattlesnakes hibernate—individually or in small groups—in mammal burrows, old stumps and shallow rock crevices. Dr. Bryan's data will inform TNC's decisions about preventing disturbance to these areas, and advance conservation for this Species of Greatest Conservation Need in Tennessee.

Advancing Bluebird Science

A Tennessee Tech University (TTU) student, Chance Hale—together with TTU biology professor Dr. Nikki Panter and The Nature Conservancy's forest expert, Trish Johnson—conducted a study: *Effects of Predator Guard Type on Eastern Bluebird Nesting Success* at TNC's Bridgestone Nature Reserve at Chestnut Mountain. Already aware that such guards protect bluebird nests, the researchers sought to determine which worked best. At three locations within the Reserve, Chance set up four bluebird boxes with a different type of predator guard. While his observations provided valuable information, the team determined that a larger study is needed to arrive at more conclusive results.



ABOVE A timber rattlesnake hides in leaves. © W. H. Martin; A bluebird visits a bluebird box. ©Terry Cook/TNC

TENNESSEE BOARD OF TRUSTEES

- James McDonald (chair)
- Tara Armistead
- Keith Aulson
- Matt Bentley
- Jeff Chapman
- Virginia Dale
- Tracy Frist
- Caren Gabriel
- Lela Gerald
- Jay Gullede
- Whitfield Hamilton
- Mary Johnson
- Carol Kirshner
- Carolyn Long
- Sandra Martin
- Luther Mercer
- David Miller
- Holt Shoaf
- Christy Smith

TACKLING THE CLIMATE CRISIS

Climate-Smart Agriculture

In Tennessee, where nearly half of the land is farmed, agriculture represents an industry that generates more than \$50 billion annually and supports more than 200,000 jobs. It comprises an enormous footprint that cannot be ignored as we work to fortify the state's lands and waters against flooding, drought and other impacts of climate change. That is why The Nature Conservancy is proud that its project, *Expanding Agroforestry Production and Markets*, was one of only 70 out of 450 submissions funded by the USDA's Partnerships for Climate-Smart Commodities program after a highly competitive process. The award will provide support to farmers, ranchers and private forest landowners working in 37 states to create market opportunities for American commodities produced using agroforestry and other climate-smart production practices.



Alley cropping is an agroforestry practice that places trees within agricultural cropland systems. It represents one of several approaches to agroforestry that The Nature Conservancy and partners are exploring in Tennessee.

#USEYOUROUTSIDEVOICE

Inflation Reduction Act

In 2022, our nation witnessed unprecedented funding with passage of the Inflation Reduction Act, a generational investment in fighting climate change and building a green economy.



Powering homes, businesses and communities with more clean energy by 2030.



Protecting nearly two million acres of national forests to build resilience.



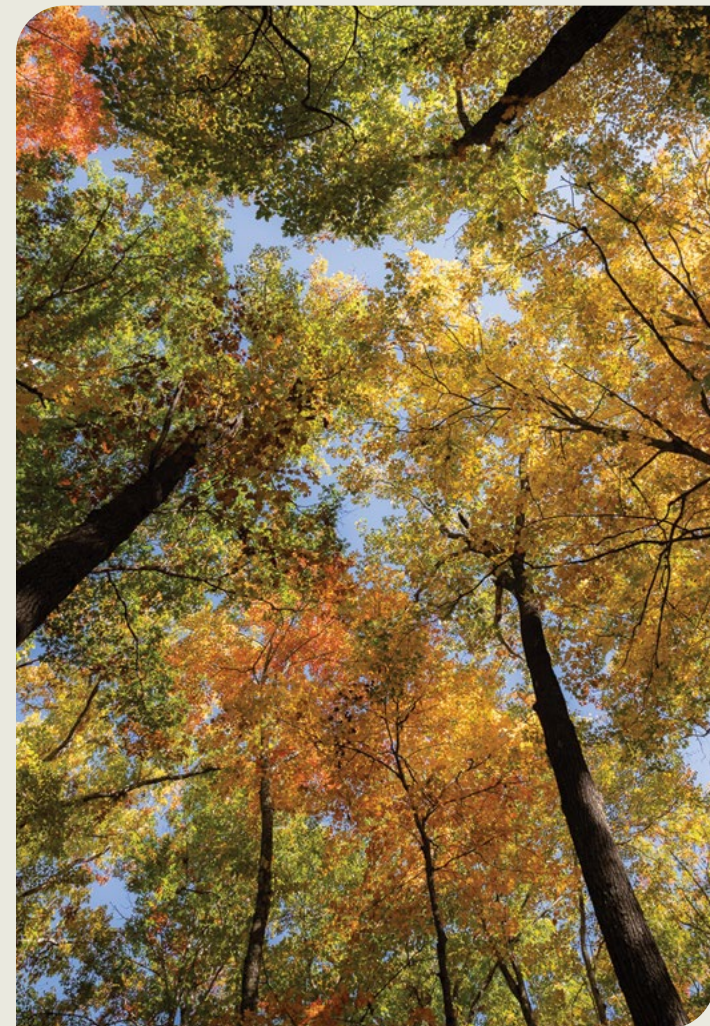
Reducing greenhouse gas emissions by approximately a billion metric tons.



Planting more trees to absorb carbon, improve air quality, lower air temperature, store and filter water, and connect people with nature.

"A share of the funding from the \$370 billion Inflation Reduction Act—as well as from the \$200 billion Infrastructure Investment & Jobs Act passed in November 2021—is beginning to flow into Tennessee through state agencies, grants and tax incentives. We are working to ensure that it is put to good use to maximize positive impacts around our state."

— Lindsay Hanna, TNC's director of government relations and climate policy in Tennessee



ABOVE The colorful tree canopy at Chestnut Mountain does double duty as an important vessel for storing carbon. © Terry Cook/TNC; © USDA Forest Service

THE GREATEST CHALLENGE TO LIFE ON EARTH

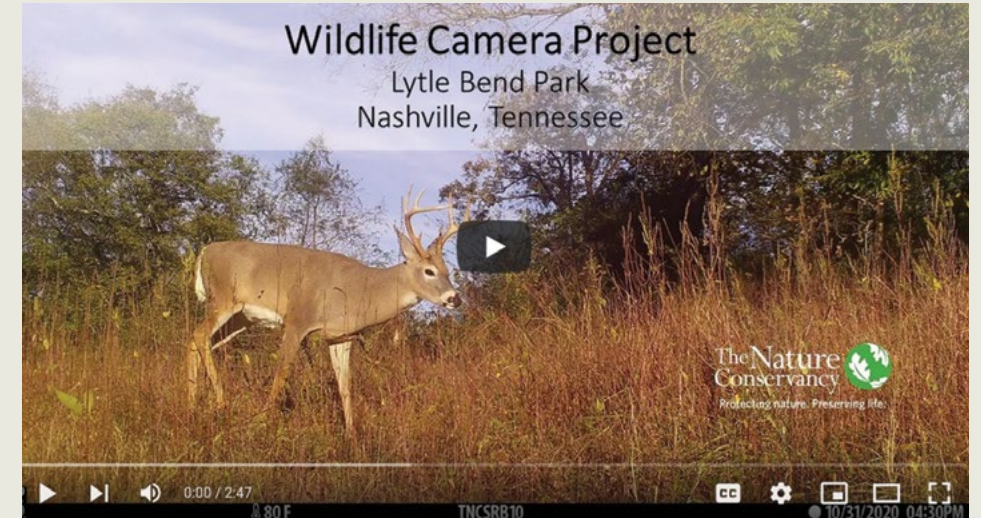
Chief Scientist Visits Tennessee (twice)

Before becoming The Nature Conservancy's chief scientist, Dr. Katharine Hayhoe earned respect for her work as an atmospheric scientist who studied climate change. During 2022, Dr. Hayhoe spent time with TNC's Tennessee staff, trustees and donors to share her hopeful approach to a changing climate and ways that we can all make a difference.



"While climate change can be a discouraging topic, our work at The Nature Conservancy to address the biggest challenges facing our future gives me hope. Our TNC priorities for tackling climate change are ambitious, but I believe by using our voices, together, we can fix this."

— Dr. Katharine Hayhoe, chief scientist at The Nature Conservancy



Laying Out a Green Infrastructure

At Lytle Park in Nashville, which was once a working farm, The Nature Conservancy is working with Metro Parks and others to show how infusing nature into cities can support wildlife and fortify the landscape against the impacts of climate change.



Greening With Grasslands Summer interns from the University of the South collected soil samples that will inform the restoration of former pastures into a healthy native grassland to attract pollinator species. The interns also surveyed meadowlarks, a grassland dependent species that has shown a 90 percent decline over its range, to document their use of pastures and response to a more native landscape.



Promoting Pollination TNC inventoried Lytle Park for the presence of suitable habitat (ie milkweed) for monarch butterflies migrating through Tennessee each year. This is important since the International Union for the Conservation of Nature (IUCN), the global leading authority on the status of biological diversity, declared the monarch butterfly as endangered. TNC's research findings will be integrated into a national data repository that informs scientists about the abundance and distribution of these butterflies across North America.



Capturing Wildlife on Camera TNC secured wildlife cameras and bioacoustics equipment in strategic locations as part of an effort to inventory wildlife at Lytle Park. Some of the results were so surprising that TNC produced a YouTube video featuring images of animals captured on film, including coyotes, opossums, foxes, bobcats, river otters, beavers, owls, osprey and a variety of songbirds. The bioacoustics recorders also revealed big brown, eastern red, hoary, silver-haired, evening and tri-colored bats!

ABOVE, LEFT TO RIGHT © Courtesy/Dr. Katharine Hayhoe; © The Nature Conservancy

LANDS

THIS LAND IS YOUR LAND



Key Parcel Connects a Wildlife Corridor

At the beginning of 2022, The Nature Conservancy and the Tennessee Wildlife Resources Agency (TWRA) announced that the 43,000-acre North Cumberland Wildlife Management Area's (WMA) Ed Carter Unit would be permanently protected by a conservation easement. The easement will be held by TWRA to secure wildlife habitat for the Tennessee elk herd and other species while providing public access for nature-based recreation. The property also falls within TNC's larger 253,000-acre Cumberland Forest Project. This network of high conservation value lands and waters, secured along the Tennessee-Kentucky border and in Southwest Virginia, has the potential to store millions of tons of carbon and serve as a natural corridor for plants and animals shifting ranges in response to climate change.

Taking Our Work Underground

As 2021 came to a close, The Nature Conservancy purchased a cave in Middle Tennessee known to harbor federally-endangered gray bats. Once used as a saltpeter mine during the American Civil War, the cave served as a personal bunker for the most recent property owner.

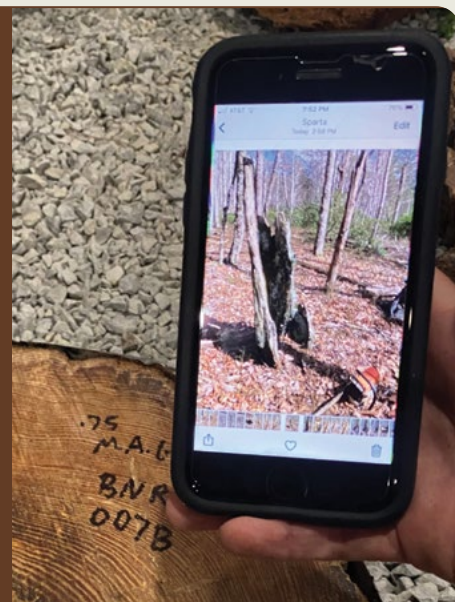
Not long after assuming ownership, TNC's Tennessee bat expert, Cory Holliday, began cleaning out and restoring this subterranean space to support hibernating bats during winter and maternity colonies during summer. With only small windows of opportunity to work between these seasons, he and volunteers from the local caving community removed a significant amount of manmade material and debris within a short amount of time. The team also re-opened the cave's natural entrances and built a bat friendly gate to prevent trespassing. While there is more to do, Holliday already sees signs that the hard work is paying off.



"Since I started visiting the cave in 2010, gray bat counts peaked at 3,858 over the following decade. In June 2022, I recorded 14,461 bats emerging from the cave. That is a much greater impact than I expected only one year after launching restoration efforts. Projects like this are exactly what we need to do to prevent a species from becoming threatened or endangered. And after 46 years, we are well on our way to delisting gray bats."

- Cory Holliday, TNC's cave and karst program manager in Tennessee

On the heels of a remote sensing study that revealed periodic fire once dominated as much as 85 percent of the Cumberland Plateau, a researcher from the University of Missouri's Center for Tree Ring Science confirmed the presence of past periodic fires at The Nature Conservancy's Bridgestone Nature Reserve at Chestnut Mountain. In response, the Reserve became a focus for controlled burns implemented by TNC's first Tennessee-based fire team.



WATERS

SECURING CLEAN AND ABUNDANT WATER



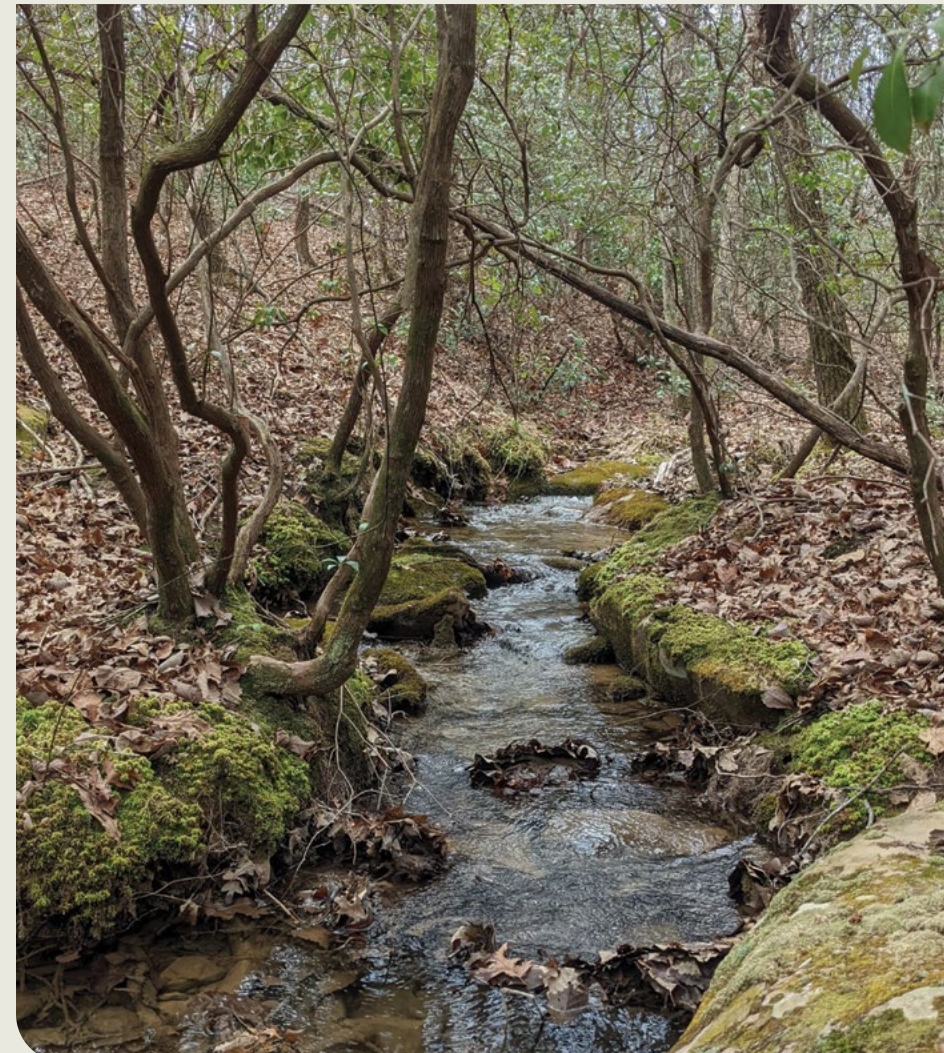
Following the Flow Represented by the Southern Environmental Law Center, The Nature Conservancy and the Tennessee Wildlife Federation reached a settlement with state government and a local water utility that upholds Tennessee's ability to manage water withdrawals from the Duck River, especially during a drought. Recognizing the relationship between the river's natural flow and health of aquatic wildlife marks a victory for conservationists, the outdoor recreation industry and people who rely on the river for drinking water.



Weaving in Wetlands The West Tennessee River Basin Authority and The Nature Conservancy celebrated the opening of Middle Fork Bottoms Recreation Area to the public. This 850-acre formerly undeveloped property boasts paved and dirt trails, designated fishing areas and lakes for kayaking, canoeing and paddle boarding. The partners are also restoring bottomland hardwood forests, marshes and other wetland habitat key to retaining and slowly filtering floodwaters that previously inundated the property.



Staying On Task The Nature Conservancy and partners formed a task force to develop a comprehensive plan for restoring Tennessee's portion of the Mississippi River floodplain over the next decade. Officially named the West Tennessee Floodplain Task Force, the group will coordinate partners and resources to collectively restore floodplains, forests and streams that can support wildlife, agriculture, industry and local communities.



"I believe large portions of the southern Cumberland Plateau are irreplaceable and very much warrant preservation so that future generations will have the opportunity to explore and enjoy the beauty of the area. After careful consideration, I have been pleased to work with responsible conservation organizations on this project."

- Robert D. McCaleb, who worked with The Nature Conservancy, TennGreen Land Conservancy and the Open Space Institute to secure a conservation easement that permanently protects a 620-acre forested property that he owns.



The Nature Conservancy in Tennessee
2 Maryland Farms
Suite 150
Brentwood, TN 37027

(615) 383-9909
nature.org/Tennessee

NONPROFIT ORG
US POSTAGE
PAID
NASHVILLE, TN
PERMIT NO. 1369

- facebook/NatureConservancyTennessee
- Instagram/TN_nature
- Twitter/nature_TN

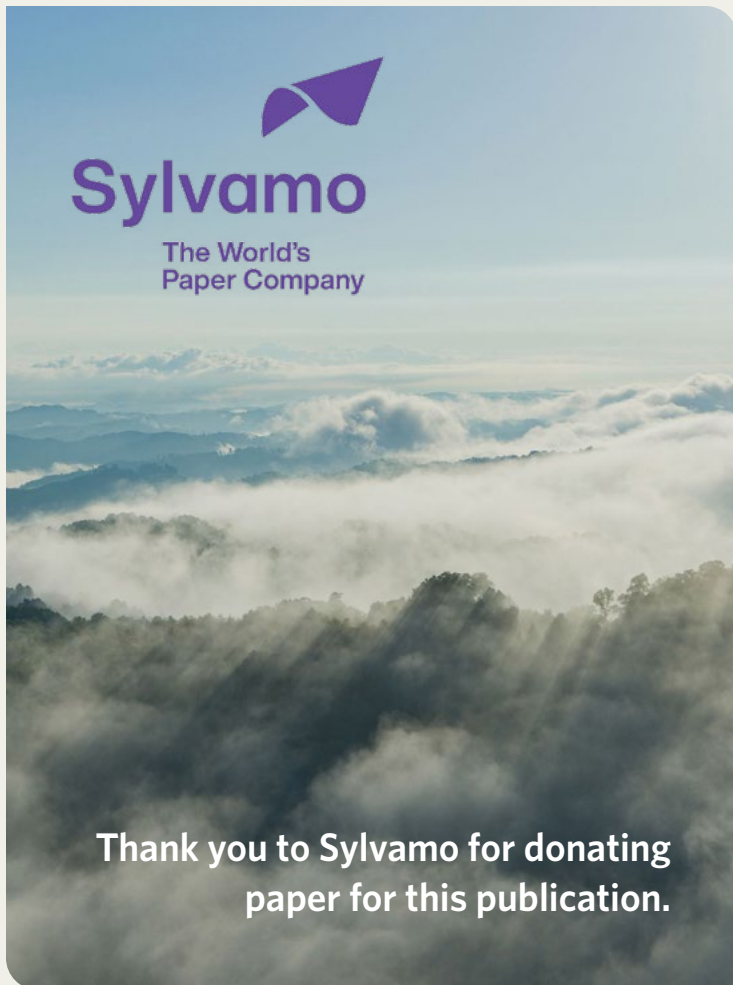


photo from the Clark Preserve webinar

See You Online!

The Nature Conservancy continued to expand on virtual opportunities, which began during the global pandemic. In all, our Tennessee program hosted or participated in 10 webinars on topics ranging from virtual preserve tours to women in conservation and spotlights on conservation projects across the state. In addition to featuring our staff in Tennessee, these webinars included colleagues from other states, partners and trustees. Register for upcoming webinars or find past recordings at nature.org/tnwebinars.