The Nature Conservancy

KENTUCKY

FIELD NOTES

SPRING/SUMMER 2023

Restoring Healthier Forests

Summer and early fall have always been fire season in the western United States, and fire is a normal and healthy part of that landscape. But over the last decade, we have seen the fire season lengthen dramatically and the fires themselves get larger, more intense, and more destructive to both nature and human communities. A combination of climate change, prolonged drought, poor forest management, and, ironically, nearly a century of organized fire suppression has left our western forests and the wildlife and people who live in them in a dangerous and challenging situation that will take years and billions in investment to improve.

The story with our eastern forests is neither as acute nor as dramatic, but all is not well. While a green canopy blankets the Appalachian Mountains of Kentucky and surrounding states, a similar combination of stressors threatens the health, resilience, and value of our forests back East. While large, uncontrolled wildfires are not common, they are increasingly a threat (see Gatlinburg, Tennessee 2016). And on a much bigger scale, forests that were once a complex mix of young and old trees, and open woodlands combined with closed canopy oak, hickory, and pine forests are now much more uniformly late middle-aged forests with poor oak recruitment. For anyone who supports sustainable rural economies, enjoys clean water, values natural climate solutions, and appreciates a good bourbon (aged in new white oak barrels), this slow but steady loss of ecological health and economic value of our eastern forests should be alarming.

The good news is that there are solutions to the challenges facing our eastern forests. One solution is to return a critical natural disturbance to these lands using prescribed fire to mimic natural fires once started by lightning and fires native peoples used to manage forests and enhance wildlife. We highlight some of the growing work we are advancing on this front on pages 4-5. Another tool is forest management guided by a professional forest management plan that focuses on increasing the natural and economic value of the forest over time. We are also investing in this space through the Family Forest Carbon Program (see page 7).

As always, a central challenge remains in implementing these solutions at a scale commensurate with the problem. New federal investments and revenues from carbon credits provide great opportunities, but as always, private donations represent the foundation for all of our work. Thank you for your love of Kentucky's forests and all the values they provide us. And thanks for your generous and ongoing support.

See you outside,

David Phemister
Kentucky State Director

Printed on 100% PCW recycled, process chlorine-free paper, creating the following benefits:

7.2 trees preserved for the future

541.6 gallons water not consumed

1,051.3 lbs. CO_2 emissions avoided

COVER Louisiana Waterthrush © *Joseph F. Pescatore;* THIS PAGE TOP TO BOTTOM Kentucky Warbler © *Joseph F. Pescatore;* Kentucky State Director David Phemister © *Mike Wilkinson*

Help for DOGTOOTH BEND

MASSIVE RESTORATION EFFORT IN PROCESS

On a rural bend in the Mississippi River in Illinois, farmers and landowners are looking for new options. Repeated flooding, including a 2016 flood that breached the river's levee, has wiped out crops and made living in the area impossible. Fueled by extreme weather events and a changing climate, the situation at Dogtooth Bend is critical. The Nature Conservancy in Kentucky is helping the Illinois chapter and our partners find solutions that benefit nature and the local community.

"The community wants to see change—they've suffered repetitive crop losses over recent decades," says Viv Bennett, director of protection and conservation strategies for TNC's Illinois program. "This is a very meaningful conservation project, with immediate on-the-ground benefits for both people and nature."

The first trees are being planted this spring at Dogtooth Bend, after several years of working with the Natural Resources Conservation Service (NRCS) to enroll landowners into voluntary conservation easements. These frequently flooded croplands will become bottomland hardwood forests, able to withstand flooding and store much more floodwater to protect nearby communities.

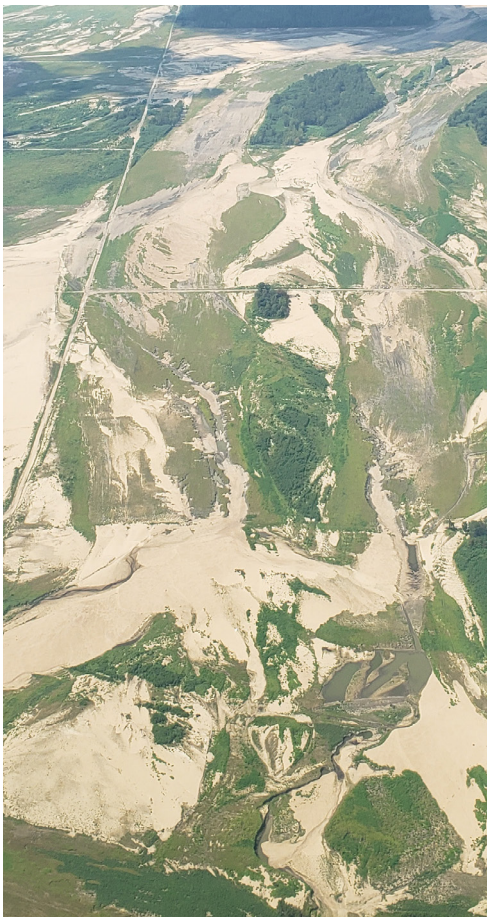
"Planting bottomland hardwood trees and other native vegetation will help stabilize the area, which has seen considerable erosion and sand deposition since the levee breach," says Shelly Morris, director of floodplain strategies for Kentucky and Tennessee. "This is a unique opportunity to restore a large area; NRCS is enrolling more than 5,000 acres into these easements, with the potential for thousands more in the future."

TNC is wrapping up a six-year scientific monitoring study on wetlands in Kentucky and Tennessee. A similar study specific to Dogtooth Bend is taking place in Illinois. This study will monitor the effects of wetland restoration efforts, including water quality, nutrient retention, and biodiversity impacts. TNC is also working with partners to do a socioeconomic study of the area.

"We want to know what restoration does for local economies," says Morris. "They may have new revenue from restoration related jobs, waterfowl hunting, and other activities."

Bennett says restoration plans include planting approximately 1.6 million trees in the Dogtooth Bend project. There is a shortage of tree nurseries across the region, so TNC is working with the Arbor Day Foundation to explore the possibility of restarting a local state nursery. This would provide needed trees in addition to creating new jobs.

"There are only 30 state-owned nurseries in the United States," Bennett says. "This southern Illinois nursery was shuttered years ago, and there is a lot of excitement about bringing it back. This would be a real benefit to nature, the people of Dogtooth Bend, and the local economy."



TOP TO BOTTOM Dogtooth Bend flooding breached the levee on the Mississippi River; Sediment left after flooding
© Courtesy NRCS

Additional capacity for PRESCRIBED FIRE

HEALTHIER FORESTS WITH NEW PERSONNEL

The Nature Conservancy has increased its capacity to apply prescribed fire in the Central Appalachian Mountains. This year, we added additional seasonal fire personnel, and soon we will have a new fire management specialist charged with assisting the continued growth and sophistication of TNC's fire programs in Kentucky and Tennessee. With this additional capacity, we are targeting nearly 40,000 acres of controlled burning with partners in the two states.

"We have a long history of working in the Central Appalachians, mostly on the Cumberland Plateau," says Chris Minor, director of land management and fire manager for the Kentucky and Tennessee programs. "Our focus in the Appalachians is supported by the biological integrity of the area and its connections within the larger Appalachian landscape."

The Kentucky program has protected tens of thousands of acres in the eastern Kentucky region, including the 55,000-acre Cumberland Forest Ataya property and thousands more in the Daniel Boone National Forest. Improving the health of these forests requires a hands-on approach.

"It's not enough just to protect those forests and those landscapes," says Minor. "We need to manage them as well if we're really going to increase biodiversity and provide habitat for rare and declining species. Fire is a way to do that at a landscape level."

Fire management in a critical landscape

The Appalachians are a climate stronghold. TNC science shows wildlife moving north as the planet warms, and these mountains provide a critical migratory pathway for mammals, birds, and amphibians as wildlife change their ranges to find more suitable habitats. In addition, this landscape has some of the

"With the new capacity, we'll be in a good position to take advantage of future opportunities."

– Chris Minor

last intact temperate hardwood forests in the world, and these forests store immense amounts of terrestrial carbon. While prescribed burns do release CO_2, reintroducing this disturbance regime is essential to restoring forest health and resilience. And that restoration is critical to securing and expanding the forests' carbon sequestration capacity over the longer term. Reintroducing fire is also essential to the regeneration and growth of oaks, hickories, and other tree species essential for wildlife and sustainable forestry operations.

"Fire is a great tool for managing a large portion of this landscape," says Kentucky's land steward, Zach Pickett. "It's not just about increasing biodiversity—it's also about making these forests more valuable for people. The bourbon industry is beginning to reckon with the long-term supply of white oak, and I'd offer that fire and improved forest management are essential ingredients in the solution."

Fire management is a part of a multipronged strategy for healthy and resilient forests. Invasive species management, selective timber harvest, and manual or motorized thinning are also often important tools for enhancing forest composition and habitats, especially when the forest has suffered from improper management or destructive logging practices.

The new fire management specialist will work to expand fire management in both Kentucky and Tennessee. This year, TNC had three seasonal fire teams working at multiple locations in the central and southern Appalachians in the two states.

"There is so much opportunity out there to grow these programs, especially with additional federal funding for this important work," says Minor. "With the new capacity, we'll be in a good position to take advantage of future opportunities."

A new geography

As the Kentucky prescribed fire program continues to expand, we are exploring fire management in a new space. The wildland/urban interface is the zone of transition between unoccupied land and human development, where structures intermingle with undeveloped wildland. Introducing prescribed fire to this landscape is a strategy for keeping homes safe from wildfire and benefiting wildlife habitat diversity.

"This is an opportunity where we can manage for safety of property while also managing wildlife habitats that may be missing or not well represented elsewhere," says Minor. "Some of the practices associated with the wildland/urban interface, like decreasing fuels around occupied areas, can be beneficial to wildlife habitat on the edge of forests."

Learn more about our fire program:

THIS PAGE LEFT TO RIGHT TNC land steward Zach Pickett ignites a prescribed fire; USFWS fire personnel tends the fire line; USFWS fire personnel refuels for a prescribed fire © *Mike Wilkinson*

Bringing FORESTS BACK TO LIFE

Along rough, remote roads winding into eastern Kentucky's Appalachian Mountains, The Nature Conservancy and its partners have hauled hundreds of thousands of trees to reforest former mine lands. On these lands dominated by invasive species and compacted soil, young native forests are coming to life once again.

The Nature Conservancy's reforestation partnership with Green Forests Work continued this spring with a new 100-acre site in Leslie County. TNC chose this particular site for its healthy soils and to address the presence of an invasive species, autumn olive. As the Kentucky program continues planting new tracts of land on the Cumberland Forest Ataya property, our goals are to connect healthy forested areas for wildlife migration and create climate resilient new forests.

"We're working with the TNC science team on our connectivity model, identifying the best places to connect forested habitat on this landscape," says Chris Garland, Central Appalachians project director for the Kentucky program. "Working with our partners, we're laying out a roadmap for where our next sites will be."

Professional crews planted approximately 58,000 trees on the Leslie County site, with white oak and shortleaf pines dominating the mix of species. Crews also planted forbs, grasses, and wildflowers to provide food and habitat for wildlife and pollinators.

"One really special thing about this site is that our partner, Green Forests Work, was able to get a couple thousand American chestnut trees included in the planting," Garland said. "This is an important step in trying to restore a formerly keystone species that has been missing from this system for many decades."

Chestnut blight, a fungal disease native to east Asia, completely wiped out the American chestnut by the 1940s. Scientists have been crossbreeding American and Chinese chestnuts for decades to produce a hybrid that is virtually identical to the American chestnut but with the blight resistance from the Chinese.

"The hope is that there will be enough resistance, and that we're putting enough out there onto the landscape, to re-establish this species," says Garland. "It will take a long time, but getting started on these former mine lands is really exciting."

TNC and Green Forests Work set aside 10 acres of the site for volunteers from Beam Suntory to plant approximately 8,000 trees. This is the second year the company has provided funding and volunteers to plant former mine lands on the Cumberland Forest Project.

"Growing for Good and Giving Back to Society are core values at Beam Suntory, and everything we do is through the lens of our Proof Positive sustainability strategy," says Kyle Day, senior manager of Forest & Field Sustainability for Beam Suntory. "We are proud to help further flagship programs like the reforestation program at the Ataya property in eastern Kentucky and work with our partners The Nature Conservancy and Green Forests Work in support of our ambitions to plant more trees than harvested to make our new barrels and donate one million volunteer hours to our communities by 2030."

Watch our new reforestation video:

Kim Marotta, Beam Suntory's Global Vice President of Environmental Sustainability, plants a tree on the Cumberland Forest Ataya property. © *Mike Wilkinson*

New FORESTER
TO BEGIN CARBON PROGRAM

The Nature Conservancy recently hired a new conservation forester to help design and deliver the Family Forest Carbon Program in eastern Kentucky. Sean Bowers, who received a forestry degree from the University of Tennessee-Knoxville, will also assist the Virginia and Tennessee programs with forest management.

The Family Forest Carbon Program is a collaboration between the American Forest Foundation (AFF) and The Nature Conservancy. Together the organizations are enrolling small forest owners into 20-year stewardship agreements that will protect and increase carbon storage in their forests. The Nature Conservancy and AFF provide forest management plans, up-front payments, and long-term forestry support. Ultimately, the program will offset its costs by selling verified carbon credits from these properties. Having a financial incentive and expertise for better forest management is critical in eastern Kentucky, where forest owners who want to earn an income from their lands have previously had few choices. The norm for the region is an unsustainable practice called high grading, where low-value trees are left on the landscape and species like oak and walnut are removed. Now, landowners stand to benefit from letting their trees grow and managing them as healthy forests.

"We want to keep forests in the family, and we want to support long-term economic value," says Danna Baxley, conservation director for TNC's Kentucky program. "This is a huge opportunity for conservation and scaling up forest management."

The program supports TNC's conservation goals in the Appalachians, a continentally critical migratory corridor for wildlife as the climate changes, and the globally significant home to some of the last temperate hardwood forests in the world. Connectivity is vital to protecting these mountains.

"What we're trying to achieve in the Appalachians is building a resilient and connected network," says Baxley. "We don't just want to protect land; we want to make sure the land is resilient and can support people and animals."

During the program's 20-year commitment period, the owner must abide by the forest management plan, which could include sustainable timber harvest as well as traditional forest protection.

"This is an opportunity that eastern Kentucky landowners have never had," says Chris Garland, Central Appalachians project director for TNC's Kentucky program. "Building these relationships now could lead to other protection programs in the future. We see great potential in this program."

For Bowers, bringing this opportunity to eastern Kentucky is all about giving landowners new choices. Investing in small forest owners while improving the health of the region's natural resources is a win for people and nature.

"This is definitely a step in the right direction for underserved landowners," Bowers says. "Most have not had the opportunity to manage their forests in a way that will store more carbon and provide additional benefits for wildlife and connectivity in this landscape."

THIS PAGE New conservation forester Sean Bowers © *The Nature Conservancy*

The Nature Conservancy
Protecting nature. Preserving life.

The Nature Conservancy
Kentucky Chapter
114 Woodland Ave.
Lexington, KY 40502

nature.org/kentucky

Kentucky Field Notes

SPRING/SUMMER 2023

facebook/TheNatureConservancyofKentucky
twitter/nature_ky
instagram/nature_kentucky

A view of Cumberland Gap in eastern Kentucky © *Cameron Davidson*

IN THIS ISSUE

Restoring Our Eastern Forests

Learn how The Nature Conservancy and our partners are applying prescribed fire to enhance the health of our forests in eastern Kentucky. You'll also learn about the new Family Forest Carbon Program, which brings small forest owners into carbon markets to benefit people and nature.

Northern saw-whet owl. © Megan Lorenz/TNC Photo Contest 2010