



SUMMER 2021 Tennessee
field notes

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PHENOMENAL FIREFLIES

A Conversation With Tennessee Firefly Expert, Lynn Faust

Known to most as fireflies or lightning bugs, or to some outside of North America, as “glow worms,” or “blinkies,” 2,000 species of these prolific flying beetles inhabit every continent except for Antarctica—each with a unique flash, timetable and preferred conditions. In an effort to learn more about these treasured signs of summer, we turned to Tennessee’s own citizen-scientist-turned-firefly-expert, Lynn Faust.

TNC: Where did your love of fireflies begin?

Lynn Faust: Until I was 38 years old, I thought there was only one kind of firefly (though I knew them as lightning bugs). My love for these insects grew at the historic Elkmont community in the Great Smoky Mountains National Park where my in-laws had a cabin. Every summer, we gathered for the “Elkmont Light Show,” named by my late mother-in-law, Emily Faust, back in the 1960s.

(Find the rest of this interview on page three.)

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

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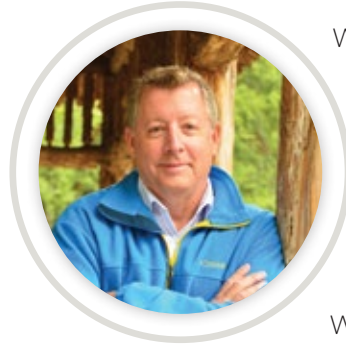
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FROM THE DIRECTOR

Director's Message



What a difference a year makes. This time last year, I wrote about a health crisis that brought the world to a stand-still. As I write this today, almost halfway into 2021, we see signs of hope. Our loved ones, and many of us, have received vaccines to help us emerge from the global pandemic. Outdoors, colorful wildflowers, baby critters and blooming trees remind us of renewal, in nature and in ourselves.

With summer upon us, I hope that you enjoy good health as we collectively gain resilience in the face of the virus. And don't forget that our nature preserves remain places where you can get outside for socialization or to spend time alone if life has been stressful.

On that note, if you have found solace in the outdoors during the past year, I urge you to consider making a donation to support The Nature Conservancy's work in Tennessee by the end of our fiscal year (June 30). Within these pages, you will see that nature provides so much—from flood protection to fireflies—and much more. Just as there has never been a more critical time to seek nature, it is also an important time to give back.

Thank you for taking the time to read these pages. We feel fortunate to have your interest, and your support.

See you outside.

Terry Cook

P.S. If you haven't already, please consider joining us at our monthly webinars highlighting our conservation work in Tennessee. Learn more and register at www.nature.org/tnwebinars.



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With Gratitude . . .

We remember our friend, long-time supporter and Trustee Emeritus, **Hayne Hamilton**, who passed away in January 2021.

We thank **Whitfield Hamilton** for nine years of service as a TNC trustee in Tennessee.

We welcome five new board members: **Matt Bentley** (McDonald), **Virginia Dale** (Knoxville), **Lela Gerald** (Memphis), **Sandy Martin** (Knoxville) and **Christy Smith** (Nashville).

Conversation With Lynn Faust

(CONTINUED FROM THE FRONT PAGE)

TNC: When did you realize that the “Light Show” was something special?

Lynn Faust: In 1991, I read an article in *Science News* that reported there were no synchronous fireflies in the western hemisphere. However, I was certain that we had been watching synchronous displays at Elkmont for years! I contacted the scientists named in the article, who visited our little corner of the Great Smoky Mountains the following summer and confirmed the existence of *Photinus carolinus*, now North America’s best-known synchronous firefly species.

TNC: How would you describe the pattern of the synchronous fireflies found in the Smokies?

Lynn Faust: We call it a flash-train, where males in flight flash six times in rapid succession, followed by six seconds of darkness. Then all of the males repeat their flash trains, over and over and all together, for up to three hours. Females located on the ground respond with a dim single or double flash to the male who catches her fancy, even though many males might see the reply and visit to begin courtship. Only one lucky male ultimately wins.

TNC: Did that jump-start your research?

Lynn Faust: Yes. I worked with those scientists for the next 18 years, and became aware of many species during that time. We know so little about fireflies. Since they do not endanger health or jeopardize agriculture, there is little research money for studying them. I set out to identify species and learn about where and when they appear each year. I wondered, “Why are they abundant in some places and not in others?” “What do they require to survive?” I wanted to know about mating and courtship, eggs, larval stages, lifespans and ideal habitats. I found creative ways to access difficult-to-find



© Courtesy/Lynn Faust

“Fireflies are terrific ambassadors to lead people back into nature and to better understand the interconnectedness of it all.” —LYNN FAUST

scientific papers to gain knowledge. Until my book, few resources existed for an average firefly geek like me.

TNC: Where has this curiosity led you?

Lynn Faust: I seek out fireflies anywhere I visit—Taiwan, Thailand, Cambodia, Malaysia, Portugal, Honduras, Mexico and throughout the United States, from Florida to Canada and from California up to Montana and everywhere in between.

TNC: How did you cross paths with The Nature Conservancy?

Lynn Faust: Beyond the Smokies, TNC preserves are the first places I seek out when conducting field research, no matter which state. I have also led TNC trustees on firefly walks at Elkmont. My husband, Edgar Faust, has also been involved with

TNC for 25 years, including as a member of TNC’s board of trustees in Tennessee.

TNC: How many species of fireflies do we have in TN?

Lynn Faust: Tennessee has more than 26 species, and counting. We are lucky. Tennessee is a long state boasting unique habitats that include Mississippi River bottomlands and swamps, the Highland Rim, vast green valleys and the Appalachian Mountains. That means an abundance and variety of fireflies.

TNC: What can homeowners do to conserve fireflies?

Lynn Faust: When possible, turn off outside lights to limit light pollution. Mow less often and dedicate a portion of your outdoor space to letting native flowers and plants grow wild. Refrain from using pesticides and herbicides that seep into the ground where fireflies live for most of their life.

TNC: Why do fireflies continue to capture your interest after all these years?

Lynn Faust: I remember as a kid, and later seeing in my own children and grandchildren, a natural fascination with chasing and collecting fireflies, filling up a jar of blinking lights and releasing them into the wild. Enjoying the mystery of fireflies brings out the child in all of us. May we never outgrow that wonder.

Learn More!

Check out Lynn Faust’s book, *Fireflies, Glow-worms, and Lightning Bugs: Identification and Natural History of the Fireflies of the Eastern and Central United States and Canada* to learn more about fireflies.

New funding provides opportunities for farmers to work on behalf of floodplains



© Mike Wilkinson

More than two decades ago, Holt Shoaf, a Tennessee farmer and Nature Conservancy trustee, enrolled a portion of his family farm in the Natural Resources Conservation Service's (NRCS) Wetland Reserve Program (WRP), which assisted farmers who voluntarily agreed to remove frequently flooded lands from agricultural use in favor of natural habitat that absorbs floodwaters and supports wildlife. He has no regrets.

"It has been rewarding to be a part of the process of helping the Obion River recover from a dug canal into a near functioning, meandering river," says Shoaf, who lives in Milan. "I've seen wildlife change with the river's conditions, like the eagles, otters and the waterfowl that now live here year-round."

Now Shoaf is glad to see that the NRCS has awarded TNC with funding from a new iteration of the program, called the Wetland Restoration Enhancement Partnership (WREP), to invite West Tennessee and western Kentucky farms to participate in similar agreements. Specifically, funds will be used to purchase conservation easements on acres enrolled by participating farmers. Then, NRCS will work with the farmers, TNC and other partners to restore these areas to bottomland hardwood forest that connects the floodplain to the Mississippi River.

"We still own these lands and can enjoy them recreationally, and they'll be restored to the wetlands we need to protect water quality. It really is a win-win for nature and people," adds Shoaf.

For western Kentucky and West Tennessee farmers interested in enrolling acreage in WREP, eligible areas include the Obion River in Kentucky and Tennessee; the Mayfield Creek, Obion Creek and Bayou de Chien watersheds in western Kentucky; and the south fork of Obion River, Forked Deer and North Fork Forked Deer areas of West Tennessee.

"There are always more applications for easements than we have funding for, so this helps a lot," says Shelly Morris, director of floodplain priorities for TNC in Kentucky and Tennessee. She adds, "This is big because floodplains play an important role in improving water quality, storing floodwaters and supporting wildlife in local watersheds and in communities downstream."

As in the past, TNC will provide private matching funds to leverage public funding provided by NRCS.

"This partnership enhances the locally driven process to better address critical wetland functions," says Sheldon Hightower, NRCS state conservationist for Tennessee. "Our partnership with The Nature Conservancy helps us continue the important work with producers to help recover the health of wetland ecosystems on working lands in Tennessee."

For more information, farmers with frequently flooded farmland located in the project area are encouraged to secure an application at their local NRCS office.



Learn more about this work at nature.org/tnfloodplainsandfarms

GUIDED BY SCIENCE

Researchers Advance the Wildlife Inventory at Chestnut Mountain

Ever since Bridgestone Americas, Inc. gifted the 5,763-acre Chestnut Mountain property to The Nature Conservancy in 2018, inventorying plants, animals and habitats had represented a top priority for TNC's newest Tennessee nature preserve. This was the aim on a sunny March day, when members of TNC's Tennessee science staff toured the Bridgestone Nature Reserve at Chestnut Mountain with Mike Stambaugh, a University of Missouri researcher who is studying the property's fire history.

They were blown away by what they learned.

"I'll never walk through a forest in the same way again," says Katherine Medlock, TNC's East Tennessee program director, who gained a new appreciation for how scars on tree trunks and scattered stumps can tell a story about the origins, frequency and severity of past fires, and whether a forest, woodland or savannah dominated the landscape.

"These are key pieces of information that help us understand so much more about the property," says Medlock. "It is the reason why we are investing in learning as much as we can in order to be good stewards in the long-term."

In addition to Stambaugh's research on *Reconstructing a Historical Fire Regime at Chestnut Mountain*, TNC recently solicited proposals to meet other research needs. Projects that are moving forward as a result of this process include:

- **Exploration of Planting Patterns to Expedite Shortleaf Pine Ecosystem Diversity and Recovery**
Dave Buckley, University of Tennessee
- **Habitat Identification for Timber Rattlesnake, a Species of Greatest Conservation Need and Public Avoidance**
Danny Bryan, Cumberland University
- **Partnership to Facilitate Discovery, Monitoring, and Management of Biodiversity**
Carla Hurt, Tennessee Technological University
- **Faunal Bioblitz**
Emma Willcox, University of Tennessee
- **Plant Communities and Floral Investigations**
Charles Kwit, University of Tennessee



© The Nature Conservancy/Katherine Medlock

A handful of other volunteer researchers are also working to answer key questions about restoration opportunities at the preserve.

"Strategically placing trail cameras, bioacoustics equipment and a MOTUS station at the preserve compliment these research projects," says Terry Cook, TNC's state director in Tennessee. "Collectively, these partnerships and projects will add to an impressive body of knowledge about this unique pocket of the state, and contributes to our knowledge of the surrounding Central Appalachians landscape where we work with partners to achieve conservation at an even broader scale."

CONSERVATION UPDATES

Our staff has been hard at work throughout Tennessee



© Cory Holliday

Bat Conservation

Efforts to conserve Tennessee bat species continues no matter the season. Last fall, The Nature Conservancy joined Bat Conservation International in launching a pilot project that used lights to attract night flying insects to cave entrances to help bats gain calories prior to hibernation (since research shows that a higher Body Mass Index helps bats survive winter and white-nose syndrome). During winter, monitoring efforts yielded previously undocumented endangered species in several Tennessee caves, including the discovery of a Rafinesque's big-eared bat in Tennessee's Central Basin for the first time ever. The arrival of spring provided an opportunity to track bats emerging from hibernation to learn more about migration patterns and inform strategies for conserving these fragile creatures.



© Courtesy/Sally Palmer

Women on Climate

Our director of science and policy, Sally Palmer, recently participated in the Climate Equity Innovation Lab, a series of workshops—sponsored by TNC's Women on Climate initiative—that convened women from the corporate, academic and non-profit sectors in eight states and the District of Columbia to build a coalition of female leadership and problem solvers across the region.

→ Learn more at nature.org/womenonclimate

“The innovation lab provided a collaborative space for learning how to apply an intersectional lens to challenges created by climate change in a more equitable way, and particularly alongside communities already experiencing negative impacts the most.” —SALLY PALMER



© The Nature Conservancy/Katherine Medlock

Fire on the Plateau

The Nature Conservancy mapped 3,977,320 acres in 23 counties to gain a comprehensive ecological portrait of the entire Cumberland Plateau. A big takeaway was the significant loss of native, fire-adapted forest and woodland habitat that once covered 85 percent of the landscape.

→ Learn more about the project at nature.org/cumberlandplateau



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Chestnut Mountain Planting

Spring weather created ideal conditions for gathering with partners from Green Forests Work and the Arbor Day Foundation to plant 75,000 shortleaf pine plugs in portions of the Bridgestone Nature Reserve at Chestnut Mountain that had been previously clear-cut. Prior to planting, TNC performed a prescribed burn on some of the areas to remove briars, grasses and hardwood sprouts.

TNC Welcomes New Staff, Summer Interns and a Brand New Conservationist

The Nature Conservancy welcomes several new faces to our permanent staff and to our summer internship program.



© Courtesy/Tiffany Collins

Tiffany Collins comes to Tennessee after working for TNC in several capacities, including as a site steward in Minnesota and on a prescribed fire crew in Georgia. As conservation operations coordinator, Tiffany supports work at

TNC's Bridgestone Nature Reserve at Chestnut Mountain.

Our 2020 intern, **Caroline Crews**, returns as a staff member upon graduating from The University of the South. In her new role, Caroline analyzes plant and animal life at the Bridgestone Nature Reserve at Chestnut Mountain and Stones River Bend regional park in Nashville to inform



© Courtesy/Caroline Crews

TNC's conservation management approach in these locations.

Three interns will spend part of their summer advancing our mission around the state. **Emma Sermons** (communications intern) and **Anna Hawkins Dulaney** (conservation intern) represent The University of the South, while **Daniel Shaw** (conservation intern) joins us from Tennessee State University. We are glad to have them!



The world gained a new conservationist with the arrival of **Lucy Lane Woodhouse**, born on October 29, 2020 to TNC's Tennessee events and stewardship coordinator, Hope Woodhouse, and her husband Will.

Why would the nation's leading barge company partner with us?

To Ingram Barge Company, the inland rivers of the Mississippi River Basin are the company's lifeline.

One of the many reasons Ingram chooses to invest in partnerships with organizations like The Nature Conservancy is to ensure the overall health and safety of America's inland rivers are sound.

The long-standing partnership between The Nature Conservancy and Ingram Barge Company has created the financial resources for programs that support the restoration of critical floodplains. These restoration efforts reduce the impact of flooding that impairs barge transportation, and filters nutrients that degrade water quality for residents in cities and towns throughout the basin.

The company's investments have contributed to The Nature Conservancy's development of modeling and assessment tools for identifying stream restoration opportunities for improving water quality and protecting wildlife habitat in Tennessee and the surrounding region.

Ingram Barge Company not only helps create a safer, more reliable Mississippi River Basin for its bottom line, they also help The Nature Conservancy protect the water for the people who live there, including Tennesseans.

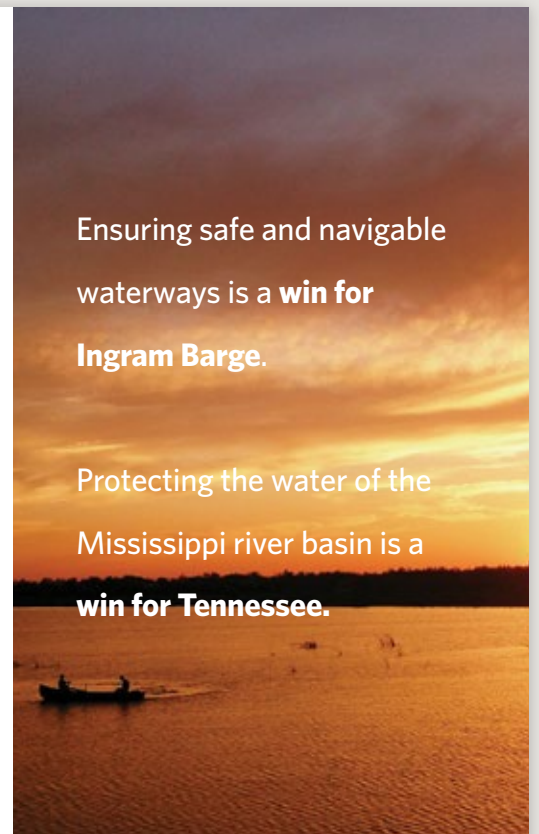


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The Nature Conservancy 

Ensuring safe and navigable waterways is a **win for Ingram Barge.**

Protecting the water of the Mississippi river basin is a **win for Tennessee.**






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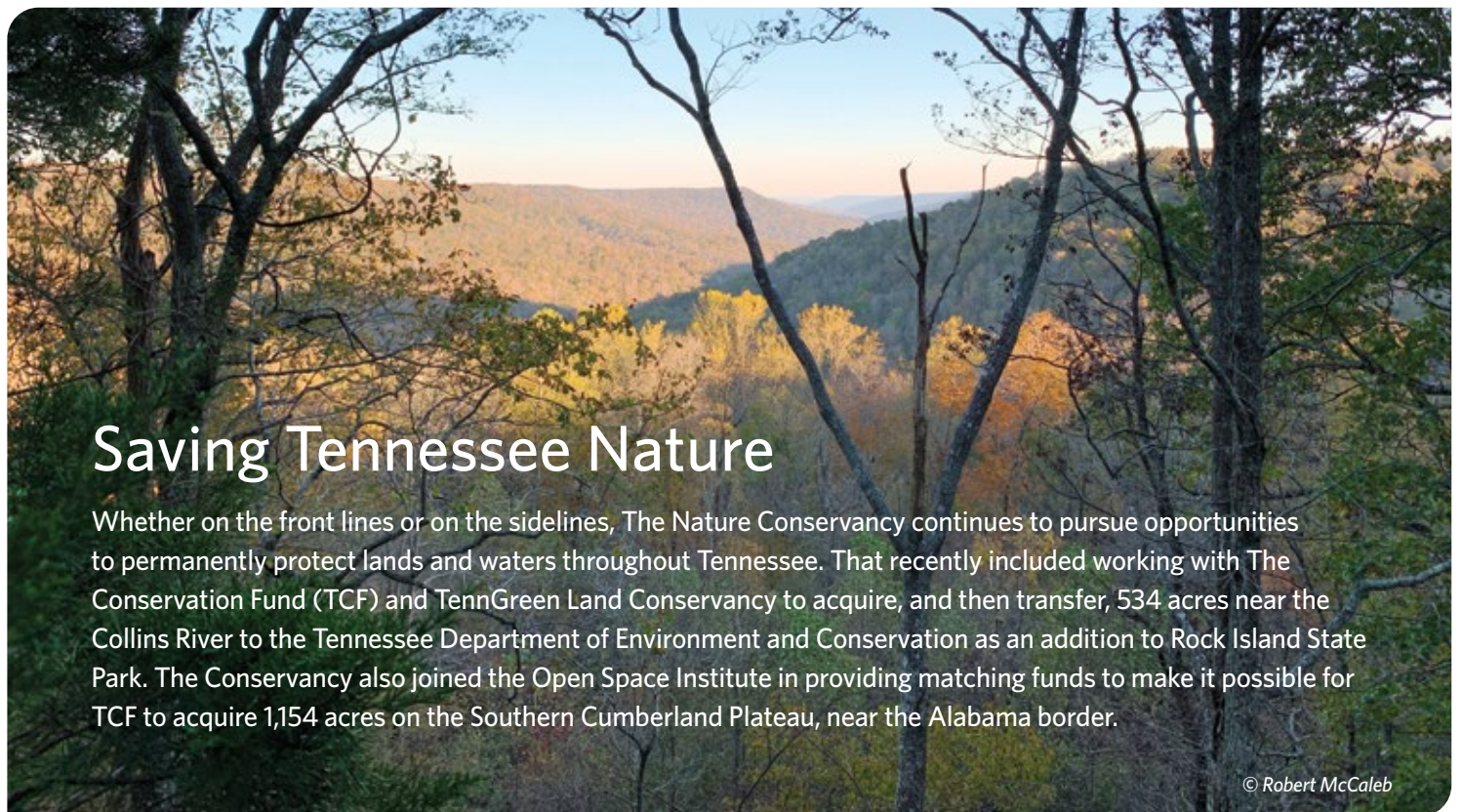
Working with Tennessee companies to align conservation with business goals.

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PLACES WE PROTECT



Saving Tennessee Nature

Whether on the front lines or on the sidelines, The Nature Conservancy continues to pursue opportunities to permanently protect lands and waters throughout Tennessee. That recently included working with The Conservation Fund (TCF) and TennGreen Land Conservancy to acquire, and then transfer, 534 acres near the Collins River to the Tennessee Department of Environment and Conservation as an addition to Rock Island State Park. The Conservancy also joined the Open Space Institute in providing matching funds to make it possible for TCF to acquire 1,154 acres on the Southern Cumberland Plateau, near the Alabama border.