

# KENTUCKY FIELD NOTES

FALL/WINTER 2024





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# Through Thick and Thin



Two years ago, I sat down to write the most challenging Director’s Message I had ever tackled. Titled “The Full Story,” my essay outlined significant challenges The Nature Conservancy faced with both the Green Heart Louisville Project (losing hundreds of trees in a hot, dry summer immediately following planting) and the dam removal effort on the Green River (removal of Lock and Dam #5 halted over community water supply concerns). Sharing that news was the right thing to do for transparency and accountability. It was also important for supporters to understand that conservation is hard work, success is not guaranteed, and challenges are an inevitable part of the journey. It was still a hard essay to write.

Today’s message provides an opportunity to revisit both stories and proudly share that the Conservancy and partners have made tremendous progress since the summer of 2022. Rather than struggling with big challenges, we are now celebrating successes. With Green Heart, our partners at the Envirome Institute recently published study results, and the news is terrific. See Dr. Aruni Bhatnagar on the cover and the story on pages 4 and 5 for more details. On the Green River, an article on page 6 highlights positive mussel response to dam removal. More importantly, there is a teaser for even bigger news coming about progress at Green River Lock and Dam #5.

I am proud of how hard Conservancy staff and our key partners have worked on both projects over the last two years. The Nature Conservancy has brought our characteristic focus on solutions, dogged persistence, and ability to work with all stakeholders, and our approach yielded results. But I do not think our work is the key story here. Instead, it is you. More specifically, it is how our donors and supporters stayed the course with us, continuing to provide the generous support that drives all our conservation initiatives and is the foundation for all our success. We do not take that loyalty and long-view for granted, especially in a world that seems increasingly quick to punish perceived failures and increasingly hungry for quick results.

I always try to stress that our donors and supporters share in our conservation successes. Two years ago, I invited you to share in our setbacks as well. You did not shy away from the invitation, and that is a big reason the news on Green Heart and Green River is so much better in 2024 than it was two years ago. I am humbled by and grateful for your support. Thank you for everything you do for conservation and The Nature Conservancy.

See you outside,

David Phemister  
Kentucky State Director

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COVER Dr. Aruni Bhatnagar, director of the Christina Lee Brown Envirome Institute at the University of Louisville, stands with trees planted for the Green Heart Louisville Project. © Mike Wilkinson; THIS PAGE LEFT TO RIGHT A tree at Louisville’s Wyandotte Park © Mike Wilkinson; Kentucky State Director David Phemister © Mike Wilkinson

# Celebrating Kentucky CONSERVATION

Back in December 2023, The Nature Conservancy and our partners at the Kentucky Department of Fish and Wildlife Resources (Kentucky Fish and Wildlife) completed the largest conservation and public access easement in Kentucky history. The newly opened Cumberland Forest Wildlife Management Area (WMA) spans nearly 55,000 acres in Bell, Knox, and Leslie counties in eastern Kentucky, and is Kentucky’s portion of the larger 253,000-acre Cumberland Forest Project in the Appalachian Mountains of Kentucky, Tennessee, and Virginia.

On a beautiful spring day in April 2024, project partners, supporters, and elected officials came together on the property outside of Middlesboro, Kentucky to celebrate this historic conservation accomplishment.

“Witnessing the deep support for this project at the celebration event inspired me,” says Heather Jeffs, TNC Kentucky’s director of external affairs. “The project’s significance, the important history of the area, and the strong commitment to public lands in Kentucky were all on full display. The day left me encouraged about additional successes in the future.”

A big part of the day focused on appreciation of key elected officials for their support, including enabling legislation and a \$3.875 million investment from the Kentucky General Assembly. Senator Robin Webb and Representative Adam Bowling attended the event, and speakers recognized other champions, including Senator Brandon Smith and Senate President Robert Stivers. Kentucky Fish and Wildlife holds the easement and brought millions of dollars in funding to the deal from the Pittman-Robertson Wildlife Restoration Act. Another

key partner, the Rocky Mountain Elk Foundation, provided \$650,000 through a grant from the National Fish and Wildlife Foundation.

“The mood was festive, and all the speakers spoke passionately about what the project meant to them and their organization,” says Chris Garland, Central Appalachians project director for TNC Kentucky. “A highlight was when Kentucky Fish and Wildlife commissioner Rick Storm was speaking, an elk came out into the opening about 200 yards away. That was amazing. With a crowd of 70 supporters, an elk walked out.”

The multi-year journey to completing the easement on the Cumberland Forest WMA was not easy. Assembling the funding and addressing numerous technical and logistical barriers required persistence and creativity. It also required a bipartisan group of elected officials to champion conservation and public lands. Partner after partner reflected that tireless work from The Nature Conservancy ultimately held the partnership and deal together.

“The biggest win for me is that this land will be protected and open to the public forever,” Garland says. “Cumberland Forest WMA increases Kentucky Fish and Wildlife’s land holdings by more than 20 percent. That’s a huge win for nature and permanent public access.”

Jeffs stressed that this project is about much more than conservation. It is also about strengthening eastern Kentucky’s tourism and outdoor recreation economy. “When we can unite conservation with economic opportunities, everyone wins. We would love to have many projects like this in Kentucky.”



THIS PAGE TOP TO BOTTOM Cumberland Forest WMA; TNC Kentucky State Director David Phemister © Rocky Mountain Elk Foundation



# Green Heart Project Announces STUDY RESULTS

The groundbreaking Green Heart Louisville Project celebrated an exciting milestone in late August. Dr. Aruni Bhatnagar, director of the Christina Lee Brown Envirome Institute at the University of Louisville (Envirome Institute), and his research team published the first results from the project’s clinical study— and they are very positive. In short, researchers found that residents living in the neighborhoods where The Nature Conservancy led the planting of over 8,000 trees and shrubs had up to 20 percent lower levels of a blood marker for inflammation. This marker is highly associated with risk for cardiovascular disease, as well as diabetes, some cancers, and other ailments. Whether these results will translate to lower morbidity and mortality over time remains to be seen, but Dr. Bhatnagar has designed this longitudinal clinical trial to explore that and other questions and build on these incredibly encouraging early results.

The Envirome Institute, The Nature Conservancy, Washington University in St. Louis, and Hyphae Design Laboratory launched the Green Heart

Louisville Project almost seven years ago. The basic idea was that Hyphae would lead the design work, TNC would plant the trees, Washington University would measure air pollution, and the Envirome Institute would study health effects on nearly 750 community study participants. The Envirome Institute secured a \$3 million grant from The National Institute of Environmental Health Sciences for the health study, and The Nature Conservancy raised \$8.7 million for the greening “intervention,” project management, and associated project costs. By late in 2022, TNC-led planting efforts had doubled the number of trees and shrubs in

**“This work has not been easy, and it is beyond gratifying to see these results.”**

— David Phemister

target neighborhoods, and researchers continued gathering samples of several physical health markers. But that summary undersells the difficulty of the work and just how rewarding these early results are.

“Like many of the big, important projects we work on, Green Heart is a multi-partner, multi-year effort,” says David Phemister, TNC’s Kentucky state director. “This work has not been easy—whether planting the trees or conducting the health study—and it is beyond gratifying to see these results.”

“These results were unexpected,” says Dr. Bhatnagar. “We were very surprised to see these results so early. If you decrease levels of pollution, though, it doesn’t take years to see improvement. I remember my colleague doing the calculations; he was shaking, saying ‘I can’t believe what I’ve found.’”

What his colleague had found was a dramatic difference in inflammation levels between the target and control populations. “This is such a large, difficult study. To see all these things fall into place is just incredible,” says Dr. Bhatnagar.

“I am so grateful for the generous donors to this project and to our many partners, including Louisville Grows and numerous arborists and contractors,” Phemister says. “Most of all, I want to thank Dr. Bhatnagar and his colleagues at the Envirome Institute.

Their vision and hard work are huge reasons we are celebrating these results and looking forward to many more.”

Chris Chandler, TNC’s cities and strategic partnerships director for the Global Equitable Conservation Team, led The Nature Conservancy’s work on the Green Heart Louisville project for six and a half years and has continued to consult project leaders. Chandler remembers talking with Christy Brown prior to the project’s launch. Brown would later become a major donor for the project. Brown shared her vision for holistic health and how nature could play a critical role. She then introduced Chandler and Phemister to Dr. Bhatnagar.

“We just started talking,” says Chandler. “Dr. Bhatnagar shared the research he was doing in his lab, and why he thought taking nature to neighborhoods could bring new science to the world.”

The Nature Conservancy was the right partner for Brown and Bhatnagar’s vision. TNC could not only contribute funding and support – it also has a network of programs in more than 70 cities around the world. Many of these programs are interested in using Green Heart’s results to incentivize and guide tree plantings in their own communities.

“This has been a long but gratifying road. We tried not to lose sleep at night thinking, ‘What if the project doesn’t work?’” Chandler says. “At the end of the day, even if we had not seen the scientific results we hoped for, we knew we were making meaningful investments in these communities. But seeing these results is validating and has everyone smiling. TNC is proud of our partners and proud to be a key part of this project.”

THIS SPREAD LEFT TO RIGHT Before-and-after composites of Green Heart Project tree plantings (Wyandotte Park and the Watterson Expressway in Louisville) and Envirome Institute © Mike Wilkinson



# Green River Dam Removal BENEFITS MUSSELS

Green River Lock and Dam #6 failed in November 2016. River depths above the dam rapidly dropped. Thousands of mussels were stranded on the river's new shoals, including rare and endangered species. Monte McGregor, a mussel biologist with the Kentucky Department of Fish and Wildlife Resources, led a team of rescuers that moved the mussels back to safety.

"We found 33 species, including fan-shell and sheepsnose; we put a couple thousand individuals back in the water," McGregor says. "The dam was taken out the following spring, and we did measured mussel counts and diversity at three sites."

The Nature Conservancy played a key role in the partnership that removed the dam, the first of three removals

enabled by an act of Congress in 2016. The U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Mammoth Cave National Park, and other partners worked together for a successful removal and continuing restoration of the dam's former site.

"My team returned in 2022 and repeated our same mussel surveys at the site," McGregor says. "We are monitoring how mussel populations may be changing over time. There are a lot more mussels there now. We've seen the washboard, threeridge, mapleleaf, pink heelsplitter, yellow sandshell, and lots of other species."

Returning a previously dammed river to free-flowing conditions creates healthier conditions for mussels and other aquatic species. Although the river at

the former site of Lock and Dam #6 was still influenced by the presence of Lock and Dam #5 in 2022, the removal of #6 has yielded tremendous benefits.

"The river is changing; we have shallower water, new shoals, and new plants growing on the banks," McGregor says. "It is a little too early to make final determinations. However, we are seeing young sheepsnose mussels moving into the formerly impounded area. We'll start to see fanshells, and other mussels that don't typically live in deeper water pools."

McGregor says his team will continue monitoring the river, including at least one more quantitative study site between Lock and Dams #6 and #5. The team is looking for mussels less than five years old. Seeing these younger mussels would be a welcome indication that mussels are reproducing and repopulating these restored habitats.

After dams impounded miles of the river for more than a century, a more natural rhythm is returning to Kentucky's beloved Green River. As the true heart returns to the Green, residents and visitors alike can enjoy a healthier, safer, and more accessible river as well. A win for mussels is a win for people too.

## → STAY TUNED!

Stay tuned for big news on Green River Lock and Dam #5 in our upcoming 2024 Impact Report. The largest dam removal in Kentucky history, this project presented challenges to TNC and its partners. But good news is on the way!



Mussels sampled from the Green River Lock and Dam #5 area prior to removal efforts © Monte McGregor, Kentucky Department of Fish and Wildlife Resources

# More Solar Energy for EASTERN KENTUCKY

The Nature Conservancy recently supported a second community solar installation in eastern Kentucky. The Cumberland Forest Project Community Fund previously provided the largest grant for a solar installation on the Middlesboro Community Center. This time, the Leslie County Animal Shelter received funding for rooftop solar panels.

"We really want to reinvest in local communities, local governments, and community nonprofits," says Heather Jeffs, TNC Kentucky's director of external affairs. "Part of Cumberland Forest is located in Leslie County, and we wanted to get funding back to the community. And who doesn't love animals? It's such a feel-good story."

The Community Fund utilizes 100 percent of royalties the Cumberland Forest Project receives from mineral extraction to support local community projects in Virginia, Tennessee, and Kentucky. "The mineral rights are severed on Cumberland Forest, so we do not control the mining. Still, we wanted to invest all proceeds locally," says Jeffs. "Here in Kentucky, we have focused on rooftop solar to lower utility bills and reduce carbon emissions."

"Our preliminary numbers show that the animal shelter will save 40,000 kilowatt hours every year, amounting to an annual savings of \$5,600," says Josh Bills, senior energy analyst for Mountain Association, TNC's main partner in its Community Fund projects. "This is about 70 percent of the



shelter's energy bill. The animal shelter is at the end of the circuit line, and there are a lot of trees on the way there, so power outages are frequent. We installed battery storage for backup, just in case the power goes out."

**"We really want to reinvest in local communities."**

— Heather Jeffs

The project is also funded by the Appalachian Solar Finance Fund, General Motors Resiliency Fund, and the Leslie County government. The county will get most of its investment back from Inflation Reduction Act funding.

"These projects are benefiting people and nature," says Jeffs. "We are increasingly seeing the tie between the two and we want to be part of a solution. Being a trusted organization, having a tangible project people can associate with TNC, helps that."

The next community solar project for TNC and Mountain Association is Redbird Mission in Bell County. This installation will augment existing solar power at the organization's high school. The partners are at work identifying another project, likely in Knox County.

"It was exciting to couple TNC's support with other grant funds," Bills says. "There is the puppy factor, too. It's a good project with a good partner doing good work in Leslie County. We are thrilled with the results."

New solar installation at the Leslie County Animal Shelter © Mountain Association

# Kentucky Field Notes

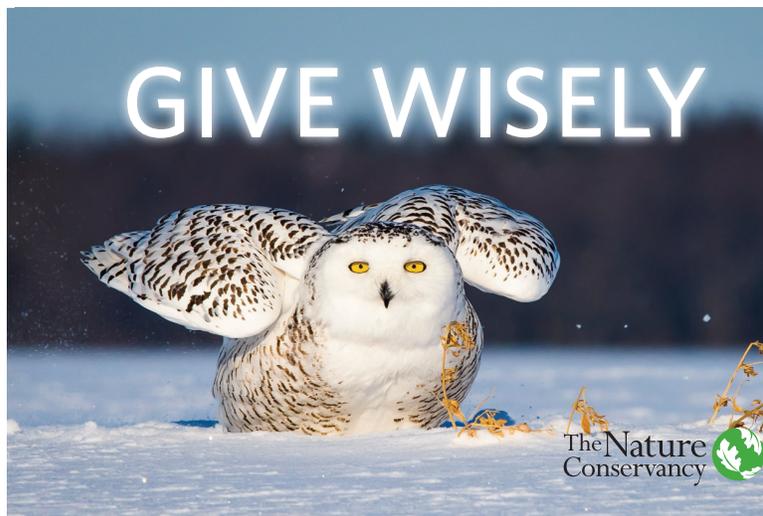
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Snowy owl. © Jocelyn Praud/TNC Photo Contest 2019

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Leslie County Animal Shelter solar installation © Mountain Association

## Leslie County Animal Shelter Solar Installation

The Nature Conservancy's Cumberland Forest Project Community Fund continues to invest in solar energy to benefit eastern Kentucky communities. Learn about this 253,000-acre conservation project and how the fund supports people and nature. Scan the QR code!

