The Nature Conservancy

KENTUCKY FIELD NOTES

SPRING/SUMMER 2018

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Planting the Seeds

Last fall, my Director's Message spoke to the "long and slow" nature of our work, and how, after many years of effort, we were finally celebrating some truly monumental conservation wins. As I write this spring's letter, I am struck that, on many fronts, we are back to that long and slow work. To use another analogy, 2017 was a banner harvest for the Conservancy, and we are back to planting seeds in the first half of 2018.

While it is perhaps easier to celebrate concrete successes than the work that makes them possible, the Conservancy, like any good farmer, knows the importance of planting.

Some of our planting is, quite literally, exactly that. On page six you'll read about our restoration work along the Green River—work that has included planting more than 100,000 trees. While small saplings now, these trees will eventually grow into a mature riparian forest. This forest will provide habitat for migratory birds, bats, salamanders, and other wildlife; stabilize river banks; and trap nutrients and sediment before they enter the Green. Many of these benefits will not be fully realized for years, but planting samplings is where it all starts.

In the coming 12 months, we also expect to start planting thousands of trees in Louisville for the Green Heart project. While the research demands that we plant large trees to jumpstart the project, this work is also a long-term investment that will benefit neighborhoods in south Louisville for decades.

Some of our planting is more abstract. On page seven you will read about our hiring of Will Bowling. Will's main task is to direct our Working Woodlands program, which gives us a real opportunity to conserve thousands of acres of globally important forests in the Central Appalachian region. Will's first months have centered on discussions with numerous forest landowners, conversations that are intended to plant the idea of Working Woodlands as a viable and attractive path towards improved forest management and increased financial returns. I expect many of these seeds to take root, and I look forward to sharing those stories in coming issues of *Field Notes*.

By the time you read this issue, we'll all be busy planting gardens and getting ready for summer. I wish you the best of luck with both your planting and your harvests. Thank you for your steadfast support of the Conservancy on both fronts.

See you outside.

David Phemister, State Director

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COVER The Lampkin family enjoys an afternoon in Louisville's Wyandotte Park, an area within The Nature Conservancy's Green Heart project. © *Mike Wilkinson;* THIS PAGE LEFT TO RIGHT Volunteers plant trees in Louisville. © *The Nature Conservancy (Devan King);* Kentucky State Director David Phemister © *Mike Wilkinson*

Report Provides Insights After GREEN RIVER DAM REMOVAL

The Kentucky State Nature Preserves Commission recently completed a preliminary study of the Green and Nolin rivers, gathering data one year after Green River Lock and Dam #6 was removed. This data and future reports will provide valuable information in the coming years as the rivers adjust to the free-flowing conditions created by the dam's removal. Even this initial report, however, shows some positive changes.

"There are already solid indications that the free-flowing sections are livelier than the impounded sections, especially with regard to invertebrates and fish," says the Conservancy's Green River project director Mike Hensley. "The report also makes a good case for how that situation would improve even further with the removal of Lock and Dam #5."

The removal of Lock and Dam #6 restored more free-flowing conditions to nine miles of the Green River, two miles of the Nolin River, and to subterranean waters in Mammoth Cave National Park. Lock and Dam #5 is so large, however, that the effect of its pool extends upstream of the former site of #6. "Removal of #5 and eventually Barren River #1 is essential to maximizing ecological and economic benefits for the river," says Hensley. Indeed, removal of those two additional locks and dams will restore 230 miles of connected and free-flowing waters to the Green River and its tributaries for the first time in more than a century.

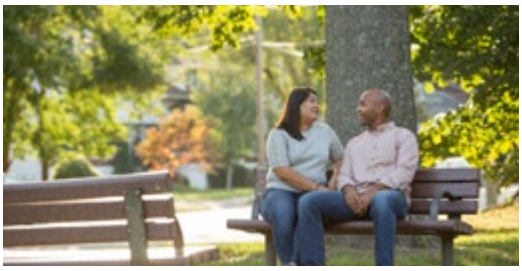
"The data collected in this report already show that fish diversity is best in the flowing reaches of the river," says Lee Andrews, field supervisor for the U.S. Fish and Wildlife Service's southeast region. "This equates to greater numbers of forage fish, which will mean better and more healthy populations of game fish like smallmouth bass and catfish. Although the river will look different for several years as the sediment on the banks and woody debris move through the river, the end result will be a healthier and more accessible Green River for all to enjoy."

Soil and Water: A Farmer's Perspective

The health of our rivers and streams is inextricably connected to the health of nearby soils. Perhaps nobody understands this better than Kentucky's farmers. Jerry Peery, a mainstay in west Kentucky farming since the 1960s, was one of the first farmers in the region to embrace the practices of no-till farming and cover-cropping. These practices promote soil health and reduce erosion, preventing sediments and nutrients such as nitrogen and phosphorus from draining into the Mississippi River basin, which can pollute the water from Kentucky all the way to the Gulf of Mexico.

"We have good, productive soil here, but it's highly erodible," Peery explains. "There's already too much of our soil in the Gulf; these are practices we should all be doing."

THIS PAGE FROM TOP Paddlers can now cross the former site of Green River Lock and Dam #6. © *Mike Wilkinson;* Green River Lock and Dam #5 is slated next for removal. © *Mike Wilkinson;* Jerry Peery checks one of his soybean fields. © *Kim Peery*



PROJECT REPORT: GREEN HEART

The first-of-its-kind Green Heart project launched in late 2017 after two years of planning and preparation. With funding from the Environmental Protection Agency and the National Institutes of Health, the five-year study seeks to measure the health benefits of increased urban greening. An October launch event brought together project partners, local residents, and community organizations to learn more about the project and to formally mark its beginning.

"We brought together more than 300 people for an entire day to celebrate the extraordinary partnerships that it takes to do this work," says Chris Chandler, the chapter's urban conservation program director. "I think it was a wonderful opportunity to share the story of the project."

The project brings together five main partners—The Nature Conservancy, the University of Louisville, the Institute for Healthy Air, Water, and Soil, Hyphae Design Laboratory, and Washington University in St. Louis—to conduct a scientific study in four south Louisville neighborhoods. Seven hundred project area residents will be recruited to join in the health study, which will monitor their health throughout the study period. Thousands of trees will be planted in the study area, and any health changes and other factors such as community cohesion will be studied over time. Community liaisons are engaging the project area's residents, and several community events are planned to share information and answer questions.

BOTH PAGES CLOCKWISE FROM TOP LEFT The Lampkin family enjoys Wyandotte Park in the Green Heart project area. © *Mike Wilkinson;* Conservancy donor Christy Brown speaks at the project launch event. © *Sawyer Smith;* Dr. Aruni Bhatnagar works in his lab. © *The University of Louisville;* Community members listen to speakers at the project launch event. © *Sawyer Smith;* Green Heart project area residents Melanie and Solomon Parker enjoy their neighborhood. © *Mike Wilkinson*

"We had a good turnout from the community at the launch, and people have continued to support us since the event and are asking how they can help," Chandler says. "The message has been well-received and the community has expressed excitement about this endeavor."

Air Monitoring Begins

The first year of the Green Heart project includes two major endeavors: Enrolling individuals in the health study, and measuring air quality in the project area. Air quality monitoring has now begun, with Dr. Jay Turner of Washington University in St. Louis coordinating a team that is implementing a multifaceted strategy.

"First we are deploying passive samplers—think of these as fancy sponges that absorb air pollution," says Turner. "We hang these on utility poles in at least 60 sites around the study area for a two-week period." The samplers will then be brought back to a lab to analyze the gathered data, and the process will be repeated several times. The second part of the strategy involves mobile air monitoring, during which an electric vehicle will be driven on prescribed routes around the study neighborhoods at different times of day and during different seasons.

"If we do that enough times and perform the right statistics, we can learn block-by-block how air pollution works across the neighborhoods," Turner says. "We'll get much more data than we will with the passive samplers, but the passive samplers are important to validate these results."

"The design and execution must be good, to create a study that can rigorously and unambiguously give us an answer. – Dr. Aruni Bhatnagar

Finally, there will be a fixed site for air quality monitoring. This equipment will measure how air pollution travels into Louisville, allowing Turner's team to adjust their mobile data to reflect what is happening locally and regionally. Data from the fixed site will be available in real time for the public to observe online. In addition to supporting the Green Heart project, Turner expects his team's findings to add knowledge to the air quality and pollution research field.

"Our primary goal for the air quality study is to provide exposure estimates both before and after greening that can be used by health scientists," Turner says. "Our secondary goal is to also be able to advance the field on the efficacy of vegetation to remove different types of air pollutants under different kinds of conditions."

Following the Science

Dr. Aruni Bhatnagar of the University of Louisville is leading the health study portion of the Green Heart project. Bhatnagar pioneered the study of environmental cardiology. To him, there was something missing in the way scientists approached the study of heart disease.

"There was a focus, even an obsession, that heart disease was caused by individual choices and lifestyle—this idea has been drilled down into us," Bhatnagar says. "That may not be entirely true, though. So that's how I got into environment as an important factor."

Bhatnagar's research goes beyond air pollution. While many studies have shown a correlation between greener areas and better human health, none have proven that urban greenness causes these positive health outcomes.

"The environment is more than just pollutants," Bhatnagar says. "It's trees, seasons, daylight, social environment, educational levels, socioeconomic levels, and personal environments. We need to systematically unravel each of these instead of obsessing over the interpersonal faults of people."

While he hopes the study will positively influence policy in Louisville and beyond, Bhatnagar is quick to point out that a reliable scientific study shouldn't get ahead of itself.

"Our goal is not to prove that trees improve health, but rather to set up the best study we can," he says. "The design and execution must be good, to create a study that can rigorously and unambiguously give us an answer."

Protecting the GREEN RIVER

MULTI-YEAR PROJECT WRAPS UP

The Nature Conservancy recently concluded a multi-year conservation project in the upper Green River watershed. The Conservancy and its partners planted more than 100,000 trees, conserved 219 acres of land, and protected three and a half miles of river and stream frontage. The project also supported the creation of a 16-acre pollinator demonstration site, rye cover crop plantings to promote soil health, and a half-mile of livestock exclusion fencing to protect the river.

"The project was possible thanks to a number of different funding sources" says the Conservancy's Green River project director Mike Hensley. "It took private landowners donating conservation easements, grant funding, and a large private donation. This was a big public-private partnership."

Grants from the National Fish and Wildlife Foundation (NFWF) and Partners for Fish and Wildlife, a program administered through the U.S. Fish and Wildlife Service, created an opportunity for the Conservancy to leverage public funding with private investment. The Conservancy matched these grants thanks to the support of members, donors, and landowners, resulting in an investment of approximately $700,000 in the upper Green River region. A key part of the project involved conservation easements and tree plantings on land owned by Dr. Jim Middleton.

"I'm particularly proud of the partnership we have with Dr. Middleton," Hensley says. "He has decades of experience and taught me a lot about what works and what doesn't work with bottomland tree-planting. And thanks to him and the other partners on this project, more than two hundred acres will be restored to and remain wildlife habitat."

By the NUMBERS

100,000
trees planted to control soil erosion and create wildlife habitat

219
acres conserved in the upper Green River watershed

3.5
miles of river and stream frontage protected along the Green River

16
acres of pollinator habitat installed as a demonstration site

$700,000
conservation investment

This project was completed, in part, thanks to a grant from the U.S. Fish and Wildlife Service.

THIS PAGE FROM TOP Workers plant trees in the upper Green River region. © *TNC (Mike Hensley)*; Dr. Jim Middleton donated conservation easements and planted trees as part of the project. © *TNC (Mike Hensley)*

New Faces: Kim Barton

Kim Barton split time growing up between Knox County, Kentucky, and Michigan's lower peninsula, where her family farmed corn, soybeans, chickens, and turkeys. As part of her undergraduate degree in anthropology, she became interested in sustainability and how people connect to the environment. Barton recently became the Kentucky chapter's new agriculture program specialist.

"Working with The Nature Conservancy has actually been my goal since I graduated college," Barton said. "I'm really interested in seeing how the Conservancy's sustainable agriculture program is going to grow, not just in Kentucky but nationwide."

Donor Spotlight: Dick and Susan Richards

When Dick and Susan Richards moved to Kentucky in 1961, they couldn't have imagined the life they would create for themselves here. "We had no money at all, and no connections," remembers Susan. "We rented a cottage on a horse farm with a field full of yearling fillies."

Dick got a job as a groom and the couple found themselves in the Thoroughbred business, eventually buying two farms. They have been annual donors to The Nature Conservancy since the 1970s, and have now included the Conservancy in their estate plans. "We've been interested in The Nature Conservancy's mission for a long time," Dick says.

The couple also donated a conservation easement on their beloved land. "We are so hopeful and relieved to know that the land will be protected in perpetuity," Susan says.

New Faces: Will Bowling

Eastern Kentucky native Will Bowling recently became the Kentucky Chapter's first-ever Central Appalachians project director. Bowling will lead the chapter's new Working Woodlands program, which will help landowners enter the voluntary forest carbon markets in exchange for protecting their forests.

"It's great on several levels," Bowling said. "Of course, there is the conservation side of it. And to be able to work on a regional scale—the entire Central Appalachians—is very exciting. Then there are the local economic benefits of investing in sustainable forest management. This program has huge potential there."

THIS PAGE CLOCKWISE FROM TOP RIGHT Kim Barton © *Dustin Brondyke*; Will Bowling © *Maggie Bowling*; Dick and Susan Richards © *Barb Lawler*

The Nature Conservancy
Protecting nature. Preserving life.

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Kentucky Field Notes

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Exploring the Rockcastle River © Mike Wilkinson

Trustee Emeritus Tom Dupree, Sr., has issued a Spring Forward Match. Until June 30, Tom will generously match new unrestricted gifts of at least $1,000 to the Kentucky Chapter dollar-for-dollar, up to $60,000.

Double your impact today. Go to **nature.org/KentuckySpringMatch** or call (502) 742-4521.