

The Nature
Conservancy



WINTER 2019

insidenature

The Path to Sustainability

*Where Economics
and Conservation Intersect*

Dear Last Great Places Society Member,



Maria Fisher

I believe we can reconcile a healthy planet with the ever-increasing needs of people. In this issue of *Inside Nature*, you'll see why I remain optimistic.

The Nature Conservancy is working with people and communities around the world to protect nature and find smarter ways to produce and harvest what we all need to lead healthy lives. We're testing new technology and new techniques on the ground and under water. We're leveraging what we learn to achieve greater impact through policy changes and partnerships with governments and industries. And we're elevating leaders in varied fields of study to discover how conservation can strengthen the economy, and vice versa.

It's easy to be overwhelmed by the devastating impacts of climate change, the looming reality of water shortages, the rapid loss of wildlife habitat. But I have confidence in the power of people—my TNC colleagues, our partners and you—to innovate, to demand change, to share our commitment with others.

Thank you for your faith in TNC. Your support gives us the freedom to experiment. Your trust pushes us to move faster. And your dedication inspires us to never give up. Together, we can continue to find solutions to help nature thrive.



Maria Fisher
Donor Stewardship Officer



Long Live Your Values

Together we can protect the world we love.

Plan today to pass on your values.

Many of our members choose to make a gift to The Nature Conservancy through their wills, trusts, retirement accounts or life insurance policies. Taking a few minutes to make a plan can have extraordinary benefits for you and our world.

📞 (877) 812-3698 ✉ legacy@tnc.org
👉 nature.org/bequest

THE NATURE CONSERVANCY CANNOT RENDER TAX OR LEGAL ADVICE. PLEASE CONSULT YOUR FINANCIAL ADVISOR BEFORE MAKING A GIFT.



Above: U.S. tuna purse seine vessel the Cape Elizabeth III; Craig Heberer holds a skipjack tuna aboard the Cape Elizabeth III during a research expedition last year © David Itano (both photos); Below: kirian/Shutterstock.com

How Many Fish Are in the Sea?

Sixty percent of the tuna consumed around the world comes from the western and central areas of the Pacific Ocean—a harvest valued at \$6 to \$7 billion a year. The potential for profit unfortunately leads to illegal, unreported and unregulated fishing, making it difficult for locals and scientists to plan for a sustainable future.

“We’re flying blind to measure impact and revenue,” says Craig Heberer, deputy director of The Nature Conservancy’s Indo-Pacific Tuna Program. Catch data from more than 3,000 longline boats—vessels that harvest higher-grade tuna used for sushi and other uses—is self-reported by boat captains, leaving room for error and corruption. Less than 3 percent of catch activity is directly monitored by official observers, meaning there is little to no data about the significant bycatch of at-risk species such as sea turtles and sharks.

That’s why TNC is working with government agencies and partners to begin electronically

monitoring tuna fishing, capturing data around the clock with GPS systems connected to video cameras. According to Craig, “We’ve used technology to better understand fishing practices in other parts of the world, so we know this kind of data is critical to maximize social and economic benefits, improve enforcement of regulations and help us advocate for fishing practices that lead to conservation gains.”

What’s next? The Conservancy’s goal is to have 100-percent monitoring accountability for tuna fishing in the region by working with technology partners to automate aspects of the video footage review.

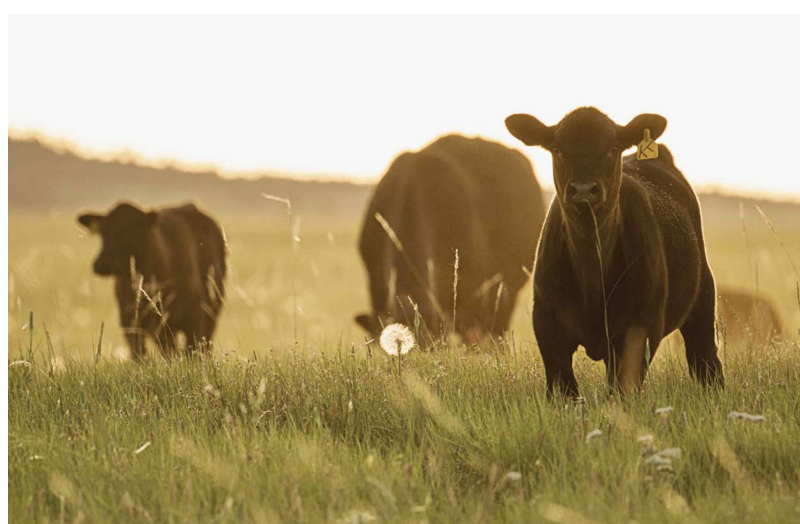
► DIVE DEEPER at [NATURE.ORG/TUNATECH](https://www.nature.org/tunatech).

Working with People and Nature— For People and Nature

Reality check: “The world’s population is expected to exceed 9 billion people by 2050, creating unprecedented demands for food, fiber, fuel and water,” says Michael Doane, The Nature Conservancy’s global managing director for agriculture and food systems. Considering that nearly 40 percent of Earth’s ice-free surface has already been cleared or converted for agriculture, keeping pace with our increasing needs while protecting the planet that sustains us can seem like an insurmountable challenge. Yet according to Michael, there is time to realize a healthy future for people and nature. “Sustainable land use and forestry can be good for business and good for the environment. We need to incentivize practices that are beneficial for both, and create a buzz around that way of thinking and working.”

The Conservancy is taking on that challenge by collaborating with people who directly depend on working lands to test new ways to grow food, raise livestock and harvest necessary materials. This approach provides financial returns and improved resilience for individuals and communities in prioritized geographies. Furthermore, TNC leverages localized results to compel broad, holistic change.

Discover how TNC is working with forest owners, farming communities and ranchers to make land more productive—for people and nature.



Top to bottom: Woman harvesting avocados © Jason Houston; Sustainable cattle ranching © Ami Vitale; Chestnut Mountain overlook © Terry Cook/The Nature Conservancy

GUATEMALA: Helping Women, Helping Water

In the small communities nestled among Guatemala's Central Highlands, women work long days growing produce to support their families. Crops like strawberries fetch a high price at the market, yet require large amounts of fertilizers and pesticides that compromise water quality—both locally and downstream in Guatemala City, the most populous metropolis in Central America. To address these issues without compromising livelihoods, TNC is partnering with local women to plant a different crop: avocado trees. "Part of a sustainable forest system that helps clean water, avocado trees also require less intensive work and fewer fertilizers and pesticides than other crops," says José David Díaz González, TNC's freshwater stewardship coordinator for Central America. "This gives women time to also create and sell beautiful crafts and clothing, allowing them to provide for their families while preserving a rich culture." Lessons learned here are informing other work in the region.

► READ MORE: [NATURE.ORG/GUATEMALAWATERFUND](https://www.nature.org/guatemalawaterfund)

COLORADO: Gains for Grasslands and Grazing

The cattle industry is the largest agricultural sector in Colorado: Every year, more than 12,000 beef producers bring in approximately \$3.4 billion. Cattle graze on millions of acres of sweeping grasslands across the state, but these grasslands—and the livelihoods of the ranchers who depend on them—are at risk from drought, climate change and other forces. According to William Burnidge, director of TNC's Sustainable Grazing Lands Program, "Many of our grazing lands offer untapped potential for people and nature." William and partners are taking a deep dive on four ranches, developing comprehensive plans and learning how strategies such as pasture rotation and prescribed fire can improve production and conservation outcomes on about 115,000 acres. Relationships with industry groups are creating momentum, and TNC is on track to influence at least half a million acres by 2020.

► READ MORE: [NATURE.ORG/COGRAZING](https://www.nature.org/cograzing)

TENNESSEE: Putting Woodlands to Work

Millions of acres of privately owned pine and hardwood forests spread across Tennessee, but many landowners are having a difficult time maintaining their property as ownership costs increase. "We wanted to harness the potential of smaller, family-owned forests," says Trisha Johnson, TNC's forest conservation director in Tennessee, "but until we discovered how to incentivize landowners, it was a tough sell." A new approach emerged from a TNC program in Pennsylvania. Working forest easements, carbon markets and Forest Stewardship Council® (FSC) C008922 timber certification are generating new income to help cover taxes and other expenses while providing wildlife habitat, maintaining water quality for communities and combating climate change. The Conservancy has brought these strategies to other places across the country, including 5,800 recently donated acres on Chestnut Mountain, which have become TNC's newest preserve in Tennessee.

► READ MORE: [NATURE.ORG/CHESTNUTMOUNTAIN](https://www.nature.org/chestnutmountain)

Q&A with Priya Shyamsundar: The Economics of Nature

What sparked your interest in environment and development economics?

My first job was at a small research organization; I was sent to a rural area in southern India to study how local women depended on forests. The price of a tree fruit the women had been selling suddenly increased, and others began selling the fruit without restrictions. This rapidly depleted the supply and left the women without that source of income. That experience opened my eyes to the interconnections among markets, natural resources and livelihoods, especially in marginalized communities.

How do those connections factor into The Nature Conservancy's work?

Everywhere we work, many people's incomes directly depend on land and other natural resources. Improving how those resources are managed can be a win-win for the Earth and for people, and in several cases the economic returns we see from environmental interventions are high.

How do you put a value on these interventions—and how do you know they're working?

This is the bread and butter of our work. There are always synergies and tradeoffs to be considered—but if you put a dollar value on your options, you can make apples-to-apples comparisons.

A good case in point is natural infrastructure (like wetlands and floodplains) versus built, gray



infrastructure (like dams and levees). We use economic analysis to value the short- and long-term costs and benefits of strategies to mitigate floods, reduce greenhouse gases, lower water treatment costs and so on. This can really inform our infrastructure choices while taking nature into account.

What are some projects your team is working on now?

As economists, we constantly think about why people do what they do, and we design systems with behavioral, economic and financial incentives in mind. In northern India, we're looking at reducing the air pollution caused when millions of farmers burn crop stubble to clear their fields. An agricultural tool prevents the need to burn, but getting people to change their ways isn't easy. We must make the business case to farmers, ensure the tool is easily accessible, and offer trainings and incentives. The end results could improve soil health and have an enormous impact on air pollution affecting tens of millions of people.

We also identify low-cost environmental solutions. For example, reforestation is a natural climate solution because of trees' ability to store carbon, but it may not be worth investing in everywhere. By looking at agricultural revenues in areas where forests are cleared to grow crops, we can identify countries where we can get the most carbon bang for our reforestation buck, so to speak.

Above: Priya Shyamsundar © The Nature Conservancy; Opposite: Frosted flora in Waterloo, Michigan © Theresa Thompson; Lou and Carol Matustik © Amy Welch/The Nature Conservancy

What role do you see economics playing in future conservation work?

Conservancy scientists are applying economics to projects around the globe: water funds that protect upstream lands to provide water downstream, cropland rentals that offer safe haven to migratory birds, the list goes on. Weighing both ecological and economic factors in our conservation strategies is critical to ensure that our actions are sustainable. This is why we share our results in peer-reviewed journals, on our website and directly with our partners. There is tremendous opportunity to scale up work to help nature and people thrive, and TNC is at the forefront.

Priya Shyamsundar, TNC's lead economist, has extensive experience in the field of environment and development economics and a Ph.D. in Environmental Economics from Duke University. She founded SANDEE, which seeks solutions to South Asia's environment-development challenges and supports research on the economics of climate change, poverty, natural resources and pollution management. She has also consulted extensively for the World Bank. Priya lives in the D.C.-metro area and loves to walk in nature, whether it's trudging around Acadia National Park, rambling with her yellow Lab in Arlington or trekking in the Himalayas.

► READ A BLOG SERIES about economics and conservation at [NATURE.ORG/ECONOMICS](https://www.nature.org/economics).

Are you 70½ or older?

You can make a tax-free distribution to The Nature Conservancy through your traditional IRA—it's a **smart and efficient way to give**.

With the new tax laws, this opportunity is even more powerful for donors who don't itemize charitable gifts, as it offers tax savings without requiring a charitable income tax deduction.

To learn more, contact our experts.

877-812-3698 | legacy@tnc.org

[nature.org/IRA](https://www.nature.org/IRA)

Please note that TNC cannot render tax or legal advice. We urge you to consult with a professional advisor before making a charitable gift.



"We've found one of the best things we can do to satisfy our tax collector and preserve and enrich the natural world is make a charitable distribution to TNC through our IRA. It's very simple and it works great."

LOU AND CAROL MATUSTIK



Above: People have long polluted and protected, channeled and cherished, plundered and profited from the Mississippi River and the network of tributaries that drain into the mighty waterway. Now, we must reimagine our complex and contradictory relationship with this vast and vital system. Mississippi River Delta © Bridget Besaw; Below: Bryan Piazza © The Nature Conservancy

You, Me and the Mississippi River

Odds are that you don't know Bryan Piazza, director of freshwater and marine science for The Nature Conservancy in Louisiana. But from his perspective, we're all connected—by the Mississippi River Basin. “No matter where you're from, we have something we share before we even meet each other,” says Bryan.



More than half of all the goods and services consumed in the United States are produced with water that flows through the Mississippi River Basin, which spans 1,245,000 square miles across 31 states and two Canadian provinces. Used as a transportation and shipping corridor for centuries, the basin drains 41 percent of the contiguous U.S. and carries more water than any other river in the country. Each year, the basin produces around \$54 billion in agricultural goods, accounting for 92 percent of the nation's agricultural exports.

The river system is inextricably woven through the economy of the U.S. and beyond, yet the conversion of its floodplains—land for waterways to naturally flow during high water events—into cropland and communities has created a disconnect. The basin's rivers and

streams are also manipulated by dams, routed by levees and dissected by roads. “Efforts to control the waterways for predictable access for navigation, flood control and other uses have left the main-stem river and its tributaries a highly engineered system of rigid boundaries,” says Bryan.

Altering this massive natural system has led to some serious trade-offs. A U.S. Army Corps of Engineers' report estimated that damage across seven states from Mississippi River flooding in 2011 totaled \$2.8 billion and affected more than 43,000 people.

The ripple effects of uncoordinated and unchecked land conversion are felt by people who live in the basin and have impacts on fisheries, tourism and other economic sectors. Floodplain loss means the plants and animals that filter and clean water are gone, too. This leads to more fertilizer and pesticides from communities and farms washing into waterways, increasing harmful algal blooms, fish die-offs, and water treatment costs. Perhaps the most well-known consequence of excess fertilizer is the annual dead zone it creates in the Gulf of Mexico.

Just how much floodplain has been lost so far? According to Bryan, “About 90 percent of floodplains and wetlands in the lower Mississippi basin are gone.” Despite this overwhelming destruction, Bryan is confident that conservation can make a difference—for the system and all who depend on it. That’s why TNC recently protected 5,000 acres of swampy cypress and tupelo forest in Louisiana, west of Baton Rouge near the Atchafalaya River. Restoration techniques such as mechanically shaving down the banks of canals and bayous will slow and clean water as it flows across more ground and through vegetation, and water quality monitoring will provide scientific feedback to evaluate restoration efforts. Community engagement will ensure that strategies match local needs and raise awareness of how to make the river healthier.

“We want to leverage our findings in the Atchafalaya and in other larger floodplain projects to expand this work over hundreds of thousands of acres of the Mississippi Basin,” says Bryan, “and the only way we can reach that goal is to inspire and empower municipalities, farmers, business owners and so many others.” Building from demonstration projects like the Atchafalaya, TNC and partners will launch an online database, called Floodplain Explorer, later this spring. Stakeholders will be able to explore ecological, economic and historical data to help prioritize investments in floodplain restoration.

For Bryan, it’s about the relationship we all have with the Mississippi. “I would love for the value of the waterways of the Mississippi Basin to be defined by their significance not just in dollars, but also for culture, for wildlife and for what we want to leave for future generations.”

► LEARN MORE at
FRESHWATERNETWORK.ORG



Above: Students from surrounding universities are working alongside Bryan Piazza and other partners and learning how to share their experiences to amplify investments in the basin. © The Nature Conservancy; The Conservancy’s work here will help retain connections to local culture, like improving habitat for crawfish, a mandatory ingredient in many traditional Creole dishes. © MOFOE/Creative Commons

Restoring a basin the size of the Mississippi River’s is no small feat—and it’s expensive. One solution may be to bring in new funding and partners. Private capital investors, for example, may be the key to aggregating numerous small tracts of farmland, allowing for floodplain restoration of thousands of contiguous acres. And the reinsurance industry and TNC are exploring ways to work together to restore floodplains that will benefit nature and prevent property damage in high-risk areas. These and other strategies may help scale up conservation across the basin.



Habitat fragmentation can be devastating for species such as threatened desert tortoises © U.S. Geological Survey

NEVADA || The sunny state of Nevada is well-positioned for solar energy development—but building large-scale facilities can harm wildlife habitats and corridors. One of Nevada’s oldest industries, mining, may offer a solution: closed mining lands. Former mines are often large, flat areas ideal for generating solar power, and using already-disturbed sites reduces land conversion and habitat fragmentation elsewhere.

It seems like a great strategy—so why isn’t it already being done? The Nature Conservancy worked with policy researchers from the University of Virginia School of Law to find out. One potential barrier involved the state’s administrative code, since it did not list “renewable energy development and storage” as a productive use of former mining sites. The Conservancy and the Nevada Mining Association jointly proposed adding the new language, which was formally approved in 2018, making it easier for companies to explore that option. Next steps include increasing financial incentives, addressing permitting issues and advancing a pilot project in the Mojave Desert. Building in the right places will encourage clean energy development and protect Nevada’s unique ecosystems.

► [NATURE.ORG/MOJAVE](https://www.nature.org/mojave)



A fall morning at Dolly Sods © Kent Mason

WEST VIRGINIA || A vital tract in the heart of West Virginia’s Canaan Valley-Dolly Sods landscape was recently purchased by The Nature Conservancy as part of a long-term strategy to secure a biological hot spot. The 1,143-acre parcel sits on the Allegheny Front along the eastern Appalachian migratory flyway. It’s an integral part of a resilient region that provides clean air and water for millions of people and is home to 26 rare and protected species such as the Cheat Mountain salamander and the snowshoe hare. The purchase added 500 acres to TNC’s adjacent Bear Rocks Preserve, which was already open for recreational use, to enhance tourism in a community where the outdoors is integral to the culture and the economy.

► [NATURE.ORG/DOLLYSODS](https://www.nature.org/dollysods)

Amy Boebel

Thankful for Today, for Nature



Amy Boebel © Courtesy of Amy Boebel

“Conservation is not about re-creating the past, but more about adapting and working with what we have,” says Amy Boebel. “The Nature Conservancy learns from the past and determines the best path forward.”

It’s easy to see why that approach resonates with Amy, a member of TNC’s Last Great Places Society and Legacy Club. Sixteen years ago, she beat aggressive breast cancer, and then found herself in the fortunate position of being able to move on. “It’s not like I all of sudden became another person—it was more like Amy 2.0,” she says. “I developed an appreciation for the fact that I was breathing.”

Amy didn’t stop at breathing. She fearlessly took on new challenges, including ice climbing. “Fear is misinterpreted excitement,” she says. “Once you get past it, it’s exhilarating to test yourself in nature.” Her pursuit of new adventures also led to leadership positions with the San Francisco Parks Trust, the Maryland Ballet and the Telluride Arts Council. She is a lifelong and celebrated artist, inspired by the swampy landscape

of her childhood in New Orleans and her travels around the world.

Amy brings her talents and experiences to her role as a trustee with TNC in Maryland/D.C. She is a champion for advocacy efforts and urban conservation. “The Conservancy is an organization I will always support because we’re driving the kinds of changes we need so that my grandchildren—all future generations—can enjoy the wonders of nature that thrill me every day.”

▶ You too can create a legacy for nature.
Get started at [NATURE.ORG/BEQUEST](https://www.nature.org/bequest).

“The Conservancy is an organization I will always support because we’re driving the kinds of changes we need so that my grandchildren—all future generations—can enjoy the wonders of nature that thrill me every day.”

AMY BOEBEL



The Conservancy is a BBB Wise Giving Alliance Accredited Charity—meaning that we meet all of the alliance's Standards for Charity Accountability.

Below: Skipjack tuna © David Itano

PHOVC190101NLGPXXX Winter 2019

Thriving Together

Protecting the planet and supporting economic growth are not mutually exclusive.

In fact, they are inextricably linked. Look inside to discover how The Nature Conservancy is using science, technology and collaboration to solve problems and ensure a sustainable future.

Find out more in this edition of *Inside Nature*.