In July 2020, we shared a collection of stories that showcased WWF’s ongoing commitment to inclusive conservation.

On the following pages, you will find stories from the past year that highlight WWF’s collaborative approach to conservation, which is grounded in the benefits nature provides to people and the role of communities as stewards of their own land and water.

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Thirty years ago, my first job in conservation was marking the boundaries of a modest wetland system in the southern Berkshires. I was deploying traditional tools of conservation: mapping species, negotiating land deals, and fundraising from communities and governments to make it all work. A simple, durable formula that worked for small-scale conservation.

Whether bringing in crops with farmers, sitting in barns listening to landowners, or sorting land-use conflicts, the work rested on working with people to keep intact a place that defined their lives and their community. Relationships mattered more than anything, and I spent untold hours just listening.

When I joined WWF 17 years ago, it was clear I had entered a whole new world of conservation—profoundly complex and global, with diverse local leaders from 100 countries striving to accomplish conservation at a different scale, from the entirety of the Northern Great Plains, to the length of the Mekong River, to the sweep of coral reefs in the southern Pacific. It required deploying a far more complex array of tools to keep vast ecosystems intact, and it included addressing climate change, the design of infrastructure, the production of food, the financing of nations, and more.

The scope was mind-boggling. Early in my tenure, I helped develop one phase of the largest conservation project in the world, the Amazon...
While we’ve made progress on some fronts, we need to evolve our work and up our game to stem the loss of nature and the acceleration of climate change.

3. GOVERNMENT STILL MATTERS—A LOT

The environmental movement exploded in the 1960s with a bang of sweeping regulations on water, air, species, and pollution. But over the past three decades, that movement has increasingly focused on markets, corporate initiatives, technological innovation, and philanthropy—essentially the whole world of “non-state actors”—to drive cultural and market-based change.

But it is becoming abundantly clear that community- and market-based solutions can thrive and endure only in the context of well-informed government regulations and programs—and that we will not protect the rights and territories of people and incentivize market-based solutions to reach the scale we need.

Increasingly we are seeing civil society, funders, and corporations stand up and call on governments to enact and enforce regulations that create clear, consistent rules of the road. Those rules must insist on sustainability—whether they’re regulations banning the destruction of nature, establishing a price on carbon, guaranteeing the rig. In communities to clean water, or shutting down the illegal trade in wildlife that continues to give rise to global pandemics like COVID-19.

I believe that, more and more, we will build integrated strategies that combine our corporate and community partnerships with more powerful government programs—to scale up our work, to establish solutions, and to protect and support initiatives so they can endure over the very long term.

5. INNOVATE CONSTANTLY

Ongoing success demands that we remain nimble and aggressive in applying innovation to our work. We’ve already seen the difference that infrared technologies and drones can make in reducing the illegal trade in species. We know that cellular handheld devices and apps can help connect communities to markets. We’ve seen how the thoughtful analysis of big data can map the interactions and share information and solutions across countries, and how blockchain and long-term contracts can translate corporate commitments into real shifts in bringing genuinely sustainable products to market.

Fostering a culture of innovation and experimentation also requires embracing the importance of failure. We must fail fast and often if we are to realize real change at a level that matters.

THIRTY YEARS LATER, I could not be more motivated and excited about what the next 10 years will bring. I cannot think of a field more significant to the future of our world. This vision of an inclusive, people-centered form of conservation requires us to be clear-minded about what the world really needs, and to move forward on all five fronts.

What could be more important than that?
Chela Umire, Zenaida Teteye, and Israel Fajardo, members of La Chorrera Indigenous community, conduct ecosystem service assessments of the forest surrounding the Predio Putumayo Indigenous Reserve in the Colombian Amazon.

Indigenous peoples and local communities play a crucial role in protecting biodiversity and keeping forests intact. Only by acknowledging and respecting their traditional roles, territories, and rights can we thwart biodiversity loss and address the climate crisis.

Story by Teresa Duran

Around the world, Indigenous peoples and local communities are the custodians of huge swaths of intact habitats—forests and fens, marshes and mangroves—that harbor an estimated 80% of the world’s biodiversity and store about a quarter of above-ground carbon.

But like natural areas everywhere, these lands and waters are under threat, as is the traditional knowledge that has guided generations in maintaining their integrity. Roads and logging trucks, natural gas pipelines and mines gnaw at the fringes of ancestral territories and carve scars through ancient woods and grasslands, decimating native plants and animals and endangering the cultures of native peoples. At the same time, the communities themselves put pressure on natural resources as they attempt to meet basic needs and better their lives, particularly in places where other livelihoods are scarce or nonexistent. Where opportunities lack, young people, in particular, often leave.

And more often than not, the peoples’ rights to determine the future of their own territories are in jeopardy.


If WWF supports communities as they defend their rights and interests, pursue sustainable livelihoods and
development, and continue to effectively steward their own territories, she says, “then they would be strengthened in playing their fundamental role in safeguarding the world’s natural heritage.”

**COMMUNITY OWNERSHIP**

The importance of Indigenous and community conservation is nowhere more evident than in efforts to stem deforestation. Indigenous peoples alone are custodians of a quarter of the Earth’s land surface, including well over a third of remaining intact forests. That also makes them crucial champions for climate solutions, says WWF-US vice president and deputy director for forests Josefina Braña Varela.

“Without directly engaging the people who live in the forests, those who are making the decisions that keep forests standing, we’re never going to be effective in conservation efforts,” says Braña Varela. The ability of those communities to keep their forests standing often hinges on the concept of community ownership. In some places, Indigenous peoples and local communities are able to secure tenure—legal recognition of their rights to ancestral lands. But in many other places, they are not. Fewer than half of all countries have legal frameworks in place to enable Indigenous or community ownership, and even where frameworks exist, communities often struggle to navigate their sometimes extreme complexities. Helping to create those frameworks and supporting communities to make use of them by documenating their territories and claiming their rights are cornerstones of WWF’s work.

“The concept of community ownership can be understood as a continuum,” explains Althea Skinner, WWF-US lead specialist for socially inclusive conservation. “From formal to customary land tenure. But community ownership also means it has meaning, light of the state that communities have in their historical territories, ownership is about ensuring that they are in the lead—and have the resources and capacities they need—to sustainably manage the ecosystems on which they depend.”

Regardless of how formalized their tenure is, “the goal is to move communities along the spectrum from access and use to control and decision-making,” she says. “The more decision-making power communities have over land and resources, the better they are able to steward them.”

**A CONTINUUM OF SUPPORT**

Supporting Indigenous and local communities as they move along that ownership continuum means recognizing that conservation and development—helping communities to keep their forests standing, we’re never going to be effective in conservation efforts,” says Braña Varela. The ability of those communities to keep their forests standing often hinges on the concept of community ownership. In some places, Indigenous peoples and local communities are able to secure tenure—legal recognition of their rights to ancestral lands. But in many other places, they are not. Fewer than half of all countries have legal frameworks in place to enable Indigenous or community ownership, and even where frameworks exist, communities often struggle to navigate their sometimes extreme complexities. Helping to create those frameworks and supporting communities to make use of them by documenting their territories and claiming their rights are cornerstones of WWF’s work.

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**SOUTH AMERICA**

**THE PEOPLE** Bora, Muina, Ocaina, and Uitoto Indigenous peoples

**THE PLACE** Predio Putumayo Indigenous Reserve, Colombia

**WWF’S SUPPORT** Strengthening Indigenous decision-making and governance

Roughly 3,000 people live in and around La Chorrera, a town in Colombia’s Predio Putumayo Indigenous Reserve. When the leaders of the territory gather here, in the traditional longhouse meeting place known as a moloca, some must travel three days by boat. In this remote community, the Indigenous organization Azicatch and WWF are working together to catalog the territory’s forest-based resources and create an environmental management plan to safeguard them for the future.

Hunting and fishing provide sustenance here, with families also tending one or two traditional chogchos—small agricultural plots within the forest. “The fact that they live in their territory, and use it in the traditional ways, is what has kept these places healthy,” says WWF—Colombia’s Pía Escobar Gutiérrez, who manages WWF’s relationships with Indigenous organizations in the Amazon and leads the WWF team that works with Azicatch in La Chorrera. The over 14 million-acre territory is more than 90% intact. But Escobar Gutiérrez says threats to the forest are “just around the corner,” including large oil and mining projects and young people losing their culture’s traditional knowledge.

To survey the forest, Azicatch assembled a technical team made up of representatives from the Bora, Muina, Ocaina, and Uitoto peoples. The team included people trained in map reading and the use of GPS, particular attention was paid to the inclusion of elders and women. The team cataloged and analyzed key habitats, plants and animals, cultural sites, and “spaces of use,” says José Luis Zaffama Piñeira, a biologist representing the Uitoto people. “A space of use is a place where we go to collect or gather what we need. It could be a chagrá, a settlement, or the river itself.” Chela Umire, who represents the Muina people, says it’s important to “get to know the whole area of the Muina territory, to be able to preserve it and be able to say, ‘We are here.’ This is what we have. We haven’t destroyed it, and we have looked after it.”

Preserving traditional knowledge is at the heart of the effort. “If there was no forest, we would lose all that knowledge,” says Zaffama Piñeira. “It would disappear from the minds of our children. What will we tell them about if we don’t have these forests?”

**SOUTH AMERICA**

**THE PEOPLE** Indigenous women, youth, and elders

**THE PLACE** Brazlian, Colombian, Ecuadorian, and Peruvian Amazon

**WWF’S SUPPORT** Building capacity for Indigenous territorial governance

Women and young people represent nearly 70% of Indigenous Amazonians, yet historically they have been excluded from leadership. The Capacity Building Programme on Indigenous Territorial Governance aims to change that. Created by a group of Indigenous organizations, universities, and environmental organizations including WWF, the program provides practical leadership training to Indigenous community members in Brazil, Colombia, Ecuador, and Peru. Of the students nominated by each community, one must be a woman; one, a young person; one, an elder; and one, a community authority.

The combination is based on research and is designed to encourage balanced perspectives, says WWF—Colombia’s María Fernanda Jaramillo, who works to disseminate knowledge across Indigenous networks. “It works perfectly,” she says.

Over the course of a year, students gain practical tools to manage the problems facing their communities. The multidisciplinary curriculum includes Indigenous laws and legal frameworks, territorial and communal governance, financial administration, globalization, and climate change. During the pandemic, students have met virtually, creating a network of peers for in-person instruction every other month.

And, in the interim, returned home to apply and continue their training with an Indigenous mentor. The first cohort of students from 20 communities graduated in 2018, and so far the program has worked with more than 30 Indigenous groups.

**NORTH AMERICA**

**THE PEOPLE** Rosebud Sioux Tribe

**THE PLACE** Rosebud Reservation, South Dakota, United States

**WWF’S SUPPORT** Investing in Native American cultural and ecological restoration efforts

The Rosebud Economic Development Corporation, Rosebud Sioux Tribe, and The Land Enterprise have partnered with WWF and the US Department of the Interior to establish North America’s largest Native American owned and managed bison herd. At 30,000 acres, the Wolakota Buffalo Range will be populated with up to 1,500 animals from public conservation herds managed by the National Park Service and the US Fish and Wildlife Service. Bison, a keystone species of the Northern Great Plains, were nearly driven to extinction in the 1800s. The aim of returning bison to these tribally owned lands is to revitalize the community’s historic cultural relationship with the iconic species while at the same time regenerating the prairie, sequestering carbon, and creating economic opportunity, such as ecotourism.

“The Place is the basis of our existence as Indigenous peoples. In this program, we have studied many topics that strengthen us to be able to defend it against threats and protect it from harm.”

— Leyli Bahana Santa Cruz, a Guayllabamba woman and participant in the Capacity Building Programme on Indigenous Territorial Governance

“We are doing something that has never been done. It shows what is possible when we create initiatives supporting the environment, people, fiscal responsibility, and Native nation building.”

— Wilquan Little Elk, CEO of the Rosebud Economic Development Corporation
“Forming a conservancy will bring about development in our area. I feel good because I believe I’m making a difference for the environment and improving my livelihood.”

— Kachana Malutsa, a game guard for the Lake Lyambezi Emerging Conservancy in the Zambezi Region of Namibia

“Mobilize women of our community to integrate them in activities related to climate change. … All the women in my association have learned new agricultural production practices.”

— Victoine Balaka, president of Solo Ozwale, a women’s association working with WWF to improve sustainable agricultural practices

AFRICA

THE PEOPLE Rural communities

THE PLACE Namibia

WWF’S SUPPORT Supporting community conservancies

Following Namibia’s independence in 1990, new legislation overturned colonial precedent by allowing people to form community conservancies to manage wildlife, practice good governance, and address issues most relevant to their lives. In 1995, following the establishment of the Namibian Ministry of Environment and Tourism, Namibian communities received legal authority to establish conservancies. Following Namibia’s independence in 1990, new legislation overturned colonial precedent by allowing people to form community conservancies to manage wildlife, practice good governance, and address issues most relevant to their lives. In 1995, following the establishment of the Namibian Ministry of Environment and Tourism, Namibian communities received legal authority to establish conservancies.

The conservancies are credited with huge gains for wildlife. Elephants, for example, which numbered only around 7,500 in Namibia in 1995, saw their population grow to more than 24,000 by 2020. And nature-based tourism has fueled economic growth in areas where there are few other options.

WWF has been an instrumental supporter of the conservancies’ efforts since the beginning. Today, WWF is part of a network of organizations working with the Namibian Ministry of Environment and Tourism to help communities successfully establish conservancies, manage wildlife, practice good governance, and address issues such as human-wildlife conflict, and diversify income-generating options in the wake of COVID-19. WWF also helps women participate in natural resource management and share in its benefits; women now make up 35% of conservancy committee members.

AFRICA

THE PEOPLE Women, Indigenous peoples, and other marginalized groups in Central Africa

THE PLACE Itombwe, Lac Tumba, Salonga, and Virunga landscapes, Democratic Republic of the Congo (DRC)

WWF’S SUPPORT Supporting gender integration and social inclusion in Central Africa

In 2014, as part of a USAID-funded forest conservation project in Central Africa, WWF-DRC began work on a project to promote the rights of women, Indigenous peoples, and other marginalized groups in the communities neighboring WWF conservation program areas. The project, which concluded in 2018, serves as a model of gender and social inclusion across the WWF Network.

WWF-DRC worked to integrate gender at every level of decision-making—national, provincial, and local—and to enable marginalized groups to participate fully in decisions about natural resources. For example, in Monikoto, a village located in a corridor framed by Salonga National Park, the project educated local women about biodiversity and gender issues and established a literacy center that assisted 475 women in learning to read and write. Villagers later established the Monikoto Women’s Environmental Club, which played an active role in raising awareness about sustainable natural resource management in the area.

THE PEOPLE Nepal communities

THE PLACE Chitwan-Annapurna and Terai Arc landscapes, Nepal

WWF’S SUPPORT Supporting community-driven climate adaptation

Since 2011, WWF has worked in partnership with the government of Nepal, along with CARE and Nepali partner organizations, on USAID’s Haryo Ban Program, with the aim of aiding local communities and increasing their resilience in the face of climate change. The program, whose name derives from a proverb meaning “healthy green forests are the wealth of Nepal,” works across landscapes that cover 40% of the country.

In a society still marked by gender discrimination and the legacy of its outlawed caste system, Haryo Ban puts special focus on helping the most vulnerable members of a community, including women, marginalized people, and the poorest of the poor. At the heart of these efforts are community learning and action centers, which teach marginalized groups about how to participate meaningfully in, and benefit from, the project.

Haryo Ban partners spend years building trust with a community—working to help them assess their vulnerability to climate change and develop solutions tailored to their needs, whether that’s planting trees to stabilize slopes and improve water supplies, or diversifying crops and improving livelihoods through ecotourism enterprises and activities like beekeeping and growing greenhouse tomatoes. Key to the project are community-driven groups that manage and restore their forests and monitor for poaching and other illegal activities.

“Haryo Ban Program supported us in [creating] a coffee plantation that ... has helped 215 households earn more money, because coffee has a higher market value than other crops. The plantation has also helped reduce sedimentation in the lake caused by years of traditional farming.”

— Kaladhar Bhupan, chairperson of the Machhapuchre Uttam Coffee Cooperative

AFRICA

THE PEOPLE Nepal communities

THE PLACE Chitwan-Annapurna and Terai Arc landscapes, Nepal

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Asia

THE PEOPLE Nepal communities

THE PLACE Chitwan-Annapurna and Terai Arc landscapes, Nepal

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“Africa’s support may be needed in order to document cultural resources and the right to manage them,” she says. “But it needs to be the other way around. According to the ICCA Consortium, an international group of Indigenous community organizations and federations. Their view is that “it is the custodians ... the concerned Indigenous peoples and local communities who should decide whether and how to include others as supporters in their own conservation endeavors.”

Taking a back seat can be a challenge for an organization like WWF. But “there’s a mind shift happening,” says Ogletorpe. “Communities are the drivers. Decisions should be theirs. Our role is to support and help.”

What that support looks like depends on the local context and runs the gamut. Policy support, advocacy, and legal action can aid communities in claiming rights to their territories and having other concerns heard. Research and technical support may be needed in order to document cultural sites and traditional use cases or to monitor territories for poaching or the impacts of infrastructure development and resource extraction. Financing and capacity development help communities pursue sustainable development and create opportunities that can allow young people and others to stay on their lands. Communications support can amplify Indigenous voices in national and international forums.

For example, the only way to know what communities need is to ask. “We have to take all of their concerns and their ideas into the design of projects,” says Simonone. “We have to engage them from the time we’re first thinking about a project, through to the very end. That’s how you develop community ownership of a project or an approach.

“We are there to support what communities want and need in order for them to have access in perpetuity to both resources and the right to manage them,” she says. “But it needs to come from the community if we want it to be truly sustainable.”

“Our focus is on supporting them as they make decisions,” says Braña Varela. “We want to contribute what we can to their capacity to independently advocate for themselves.”

World Wildlife Magazine
Engaging productively with local people can be challenging, and WWF has made mistakes. Social benefits haven’t always been balanced with conservation outcomes, and attempts to involve communities in decision-making have sometimes underestimated the intricacies of their dynamics.

“These situations can be very complex,” says Braña Varela. “We have learned that transparency and consent are the only ways forward. Without the consent of the whole community—which requires transparency at every step—we cannot have authentic participation. And we can also create unintended problems that undermine our relationships, as well as the outcomes we are seeking.”

“If there isn’t meaningful participation of communities, then you’re not going to be successful,” says Emelin Gasparrini, a WWF communications specialist who has supported Indigenous peoples’ engagement in global conferences. “I think that’s one lesson that we have learned. So, some of our programs have focused on bringing voices into the processes that had previously been excluded … making sure that we listen better and that there’s space for them to engage fully and meaningfully.”

Conservation has to include the most vulnerable and marginalized members of a community—for example, those with low literacy skills and those who are the poorest, says Simonneau. “They’re often the ones who depend most on natural resources and lack the opportunities that wealthier or more educated community members have.” Women are often excluded as well.

“There are multiple layers to the work we do,” says Braña Varela. “First, there is a very comprehensive strategy of on-the-ground interventions involving the constituents in our partner communities. That work must be coupled with policy and advocacy at the regional, national, and international levels. And then we activate our network and relationships, and use our ability to facilitate conversations to get competing interests to talk to each other and reach a productive outcome.

“Using the breadth of WWF’s network, we have woven connective tissue across multiple levels of governance,” she says. “And that has earned us a lot of trust from Indigenous peoples, because they know that we’re not only investing in a project and leaving after the project ends. We are engaged for the long term, and we help them build the strength and skills to represent themselves.”

WWF-Colombia’s María Fernanda Jaramillo, who works to facilitate knowledge sharing among Indigenous groups in the Amazon, adds: “We put all our efforts and money into helping to connect local to national to international, and into including voices that are usually not there in those discussions, to give the local stakeholders the opportunity to be part of something bigger.”

Naturally, making and sustaining those connections take time—conservation is a long game. “Jumping at quick solutions doesn’t usually deliver long-term results. Working with communities can take more time and more effort—but it gets us closer to the goal,” says Gasparrini.

You can’t rush it,” says Skinner. “Relationships move ‘at the speed of trust.’”

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“We believe this forest is ancient, and that it is a family member of the Talang Mamak.”

— Fahmi, head of the Talang Mamak village Bukit Tigapuluh

“A5IA

THE PEOPLE Orang Rimba and Talang Mamak tribes

THE PLACE Bukit Tigapuluh landscape, island of Sumatra, Indonesia

WWF’S SUPPORT Working to protect and restore forests in customary tribal lands

The Indonesian island of Sumatra suffers one of the world’s highest rates of deforestation. Half of the natural forests that harbor tigers, rhinos, orangutans, and elephants have been lost in recent decades—a loss driven largely by the palm oil and pulp and paper industries. Facilitating these twin threats are weak governance and a history of land grabbing. Ancestral lands are often leased to agricultural and mining companies without regard to Indigenous communities’ rights to land tenure.

In the area known as Bukit Tigapuluh, or Thirty Hills, WWF and partners are working to protect and restore nearly 100,000 acres of former logging concessions neighboring a national park. By building trust and collaborating with the people of the Orang Rimba and Talang Mamak tribes, who live in Thirty Hills but lack legal ownership of their customary lands, WWF is helping them protect their cultural traditions and forest-dependent livelihoods. WWF experts are using participatory mapping efforts to set aside areas for community land uses, and partnering with local communities to expand alternative livelihoods based on non-timber forest products such as rattan and wild honey.

Quotes featured in this story are pulled from a variety of WWF and partner resources.
MEET THE PEOPLE BUILDING A MORE SUSTAINABLE & EQUITABLE CINCINNATI, TOGETHER

STORY BY MACKENZIE MANLEY
PHOTOGRAPHS BY ASA FEATHERSTONE, IV
America Is All In.

partners that has, in the wake of decades. When the US signed on to become one of the signatories to the Paris Agreement in 2017, Cranley announced its intent to withdraw from the agreement to deliver on its goals.

Cultivating a Movement

One such organization is Groundwork Ohio River Valley (Groundwork ORV), a nonprofit that centers on environmental justice work. Co-executive director Tanner Yess says it’s “sustainability work with a different angle, which is connecting to real-world quality of life issues, especially in neighborhoods that have been left behind by the environmental movement.”

“When we think about climate disruption, in many ways it’s a risk multiplier. It takes existing problems and makes them worse,” says sustainability coordinator Oliver Kroner, of Cincinnati’s Office of Environment and Sustainability (OES). “I think you could say the same thing about the pandemic. If you’re on the brink before catastrophe, you’re more likely to face hardship.”

“When you talk about resilience planning, and how we endure these changes ahead, I think some climate planners see [the pandemic] as an opportunity to learn about future stressors in our communities,” he says.

The Green Cincinnati Plan, an OES document adopted by the city council, includes recommendations for reducing greenhouse gas emissions by 80% by 2050. It also outlines an aim for the city government to run solely on renewable energy by 2035. And they’re on track: Twenty-eight orchards in Cincinnati so far. Sixteen more are planned by the end of 2021—and they’ll keep going until they reach 100.

One overcast, chilly afternoon, a group of students from a local public high school converges in Cincinnati’s Lower Price Hill neighborhood to install green infrastructure, beautify the community, and plant fruit trees and herbs. The tree planting is done by veterans in collaboration with the Port Authority/Greater Cincinnati Redevelopment Authority to reclaim vacant land as a community asset that provides nourishment and beauty. Studies have shown that vacant lots significantly affect the safety and the health, both physical and mental, of residents whose neighborhoods already lack in resources.

Chris Smyth, the program’s director, says they’ve planted 14 orchards in Cincinnati so far. Sixteen more are planned by the end of 2021—and they’ll keep going until they reach 100. “We can plant not only beautiful things, but also productive things, to add value to neighborhoods,” says Smyth. Instead of adding a home or a business, he says, perennial
agriculture can “fill some of the gaps in our midwestern Rust Belt cities.”

As the hole-digging nears completion, Smyth calls the group over for a lesson in planting young fruit trees.

Listening is 16-year-old Mohagany Wooten, who says she knew little about environmental justice before joining the Green Team. Through the program she has learned not only about broad issues like climate change but also how the environment relates to barriers faced by her own community.

“Lower Price Hill really doesn’t have a lot of open green space,” she says, “but we do have certain little patches.” Wooten says that she thought one space near the bus stop could be used as a community garden, but there were plans to put apartments there.

“It threw me off and put me in the environmental injustice spot, because instead of them trying to put vegetables or something healthy there, they just wanted to put a building there,” Wooten says.

“There’s a lot of abandoned buildings in Lower Price Hill, and I feel that they should probably try to fix them to be better instead of taking away the green spaces.”

Many kids in her school, Wooten said, get their work done, try to graduate, and either go to college or get a job—that’s the basic plan. But this program instills in students a desire to learn about their environment and apply that knowledge to changing their communities for the better.

One of the best parts of the program, Yess says, is seeing where students go after their time with Groundwork ORV. One Green Teamer, now in his early twenties, went on to run one of the organization’s Green Corps Young Adult workforce groups. Of course, not everyone goes on to an environment-adjacent career. But that’s not really the point,

ORV. One Green Teamer, now in his early twenties, went on to an environment-adjacent career. But that’s not really the point,

Groundwork ORV’s mitigation strategies, says Yess, include everything from planting trees “to more intensive green infrastructure policy work. ... We’re arming ourselves and citizens with the language that policy-makers use so that they can advocate for themselves.”

OES’s Kroner says that maps of temperature differences can be used to help inform tree-planting efforts. That’s where partnerships like the one with Groundwork ORV are crucial. Beyond “greening” spaces, OES is focused on connecting people with land and democratizing data—helping people better understand what’s happening in their own communities and the policies that affect them. OES also looks at energy burden. Because tenants often foot the utility bill, there’s no economic incentive for landlords to make energy improvements.

“We’re trying,” Kroner says, “to deliver energy efficiency to these households that are really paying exorbitant amounts of money just to heat their homes.”

He says approximately 60% of Cincinnati’s carbon emissions come from transportation and fuel, says Kroner, so OES also looks at electrifying transportation and improving transit choices.

The Greater Cincinnati Plan calls for increasing public transit ridership by 25% by 2035, and a recently passed 0.8% sales tax will help fund a more robust transit system. Cincinnati also aims to double the lane miles of bike trails, improve walkability and pedestrian safety, and encourage the transition to electric vehicles.

One October 2020 saw the unveiling of Cincinnati’s latest Metro bus transit hub, in Northside, the city’s second-busiest transfer location. Features include sheltered boarding stops, electronic signs with real-time updates on bus arrivals, and a park-and-ride lot with charging stations for electric vehicles.

The grassroots organization Better Bus Coalition, led by lifelong bus rider and Cincinnatian Cam Hardy, advocated for the hub. A resident of Northside, Hardy says he was “extremely happy” to see the hub come to fruition and is excited for other neighborhoods to open similar hubs.

“Why is this acceptable?” That led him to being invited on a bus ride with Metro’s then-CEO. After learning about policies affecting the bus system and joining forces with other riders, Hardy officially formed the all-volunteer coalition in 2017.
AS PART OF ITS GREEN PLAN, CINCINNATI AIMS TO:

- Decrease household energy burden by nearly 7.5 million metric tons of carbon dioxide equivalent by 2050
- Eliminate nearly 10% of waste to landfills by 2023
- Achieve 25% increase miles traveled by passengers on public transit by 2023
- Triple the acreage of urban food production by 2023
- Ensure all residential neighborhoods have 30% tree coverage by 2023
- Make all city facilities, fleets, and operations carbon neutral by 2035
“We looked at it as a way to take ownership and have some pride about our transportation system, because we weren’t seeing that from anywhere else,” Hardy says. Buses lacked investment because ridership was looked down on as a poverty issue, he says, but “it’s not just about moving poor people around. It’s for the greater good.”

The coalition is now advocating for adding cleaner, more fuel-efficient buses to Metro’s fleet. For Hardy, a stronger Metro is integral to a more sustainable Cincinnati, and he hopes that as the city recovers from COVID-19 it can give citizens a safer, more effective means of returning to work.

MORE FOOD, LESS WASTE

Rebuilding efforts after COVID-19 will reach beyond transportation. The pandemic has also highlighted and exacerbated existing stressors related to food.

According to the nonprofit Feeding America, despite as many as one in six Americans experiencing hunger, roughly 30% to 40% of food produced in the US is thrown away. To address this, Cincinnati-based supermarket retailer Kroger launched a social impact plan in 2017 to help create communities free of hunger and waste. The Kroger Co. Zero Hunger | Zero Waste Foundation is a supporter of WWF’s Food Waste Warriors school curriculum. In 2019, Food Waste Warriors audited plate waste in 46 school cafeterias in nine US cities, including Cincinnati. WWF’s Amanda Stone, director of engagement and communications for markets and food issues, notes that food waste is tied to climate change. All of the water, land, and resources that go into producing food are wasted when food is tossed, and all of the emissions embedded in our food as it travels from farm to plate are released for nothing. Most food waste currently winds up in landfills, where it produces methane, a greenhouse gas that contributes to climate change. All of the water, land, and resources that go into producing food are wasted when food is tossed, and all of the emissions embedded in our food as it travels from farm to plate are released for nothing. Most food waste currently winds up in landfills, where it produces methane, a greenhouse gas that contributes to climate change.

The pandemic has had an enormous impact on schools, and as districts move between in-person and remote schooling, Food Waste Warriors’ primary focus has been finding ways to support them.

“The most important part ... is getting nutritious school meals into the hands of students through a variety of constantly evolving strategies—from more packaged in-classroom meals to curbside pickup and bus-based delivery routes,” Stone says. “Our work has shifted to support teachers and education groups on the ground. We’ve found teachers are eager to help kids explore how food and nature are connected, and how the need to address waste is more important than ever, even from the space of their kitchens at home.”

Ryan Mooney-Bullock, the executive director of Green Umbrella, the regional sustainability alliance of Greater Cincinnati, says that the pandemic has increased a sense of urgency around addressing local food system security.

“People are seeing how important it is to have a diverse and flexible food supply chain that includes farms and processing operations of many scales,” Mooney-Bullock says. “In 2020, local farmers struggled to get their excess produce to the consumers who needed it most, while food banks struggled to meet increased demand for food. By working to solve disconnections in the food system, we can make sure our region is prepared for future disruptions, whether they are caused by pandemics, natural disasters, or the effects of climate change.”

And while there are programs that are attempting to make better use of the food available and get it to the plates of people who need it, it’s an area where the city is still learning. For example, Mooney-Bullock says one of Green Umbrella’s current projects—Community Voices for Food Movement—is aimed at incorporating the perspectives of the population that experiences food insecurity in designing solutions to food access and nutrition education.

“We are also looking at how we can create better access to local food, and just healthy food in general, in communities that are currently underserved by a full-service supermarket,” Mooney-Bullock says. “That might look like increased farmers markets in those places, or some way to effectively distribute fresh food to the corner store or other hubs where people could pick it up.”

IN THIS TOGETHER

From planting orchards to building better bus stops, it all adds up to Cincinnati striving to be a more sustainable, equitable city.

“One of my worst fears,” Yess says, “and what Groundwork ORV [addresses] so well, is that there’s a little Brown or Black child out there in some neighborhood who does not have access to parks, education, recreation—and they could have been the next great conservationist.”

Currently, Groundwork ORV has 12 staff, dozens of youth employees all over the tristate area, and many partnerships. Yess says the pandemic hasn’t slowed their work, which for the most part takes place outside, in small groups. On the contrary, it has exploded. “We’ve grown rapidly because the need is so great,” he says. The hope is to build the organization to 200 youth employees, or, as he puts it, “a small army of green workers across the city.”

Yess says the word that best evokes what Groundwork ORV does is restoration. “And I’m not talking about just land, right? It’s heart, mind, body, soul,” he says. “It’s the process of people and the land connecting. And if you have that connection, the climate change discussion is not an issue.”

Clockwise from top left: Cincinnati’s sustainability coordinator Oliver Kroener; Northside Transit Center; a downtown Metro bus; Cam Hardy at a bus terminal; Green Team members Brittany Brunk, Alicia Hildebrand, Mahogany Wooten, and Nevaeh Rice (left to right) at a tree planting site; gloved hands at work.
IN KAZA

EXPANSIVE LANDSCAPES, LIFE-GIVING RIVERS, PEOPLE, ELEPHANTS, WILDLIFE, LEARN WHAT WWF AND FIVE COUNTRIES ARE DOING TO PROTECT IT ALL.
Flow Lines

In southern Africa, a confluence of rivers and elephant migration patterns unites five nations around a shared vision for conservation, tourism, and sustainable development.

story by Dianne Tipping Woods
photographs by Patrick Bentley
“It’s thanks to the water that this area has some of Africa’s most remarkable natural attributes, from vast herds of elephants to World Heritage sites,” says Mike Knight, KAZA transboundary leader for WWF, which helped establish the conservation area in 2011. “It’s critically important to make sure that water in the system keeps flowing.”

Shared resources are at the heart of KAZA, which is collectively managed for conservation, tourism, and sustainable development by the governments of Angola, Botswana, Namibia, Zambia, and Zimbabwe. (See “Rapid Response,” page 30, for information on WWF’s direct support to communities who have lost tourism-based income due to COVID-19.) The vision is for conservation to become the region’s economic driver, resulting in thriving landscapes where wildlife and human communities coexist.

At 200,000 square miles—roughly the size of France—KAZA is the world’s largest transboundary terrestrial conservation area. Along with its chief rivers and their tributaries, it features more than a dozen national parks and a host of other conservation areas—including large tracts of communal conservancies and Indigenous peoples’ lands. It also contains rural and urban settlements that are home to 2.5 million people.

More than 220,000 African elephants—half the continent’s total population—are the giants of this diverse landscape. They range over thousands of miles and play a profound role in the ecosystem by dispersing seeds, cycling nutrients, and creating grazing areas for grassland species like buffalos and zebras. KAZA is designed to create space for elephants to move as the rivers do, across borders and between protected areas, and to allow other animals—herbivores like lechwe, roan, and sable antelopes and predators like lions, cheetahs, and African wild dogs—not only to survive but to thrive. “If you secure the environment for elephants, you secure it for other species too,” says Knight. He estimates that 30,000–60,000 elephants could move into the Angolan portion of the Kwando Wildlife Dispersal Area, which connects Botswana, Namibia, and Zambia to protected areas in Angola.

Historically, Angola was part of the natural range of southern Africa’s elephants, but due to decades of war and poaching, the country’s elephants have mostly disappeared. Infrastructure like roads and fences also deters elephants from moving north from Namibia and Botswana.

Although Angola committed to KAZA in 2006, it’s only in recent years that a stable political situation and a willing government have made southern Angola “a conservation opportunity that’s waiting to take place,” says Knight. He estimates that 30,000–60,000 elephants could move into the Angolan portion of the Kwando Wildlife Dispersal Area, which connects Botswana, Namibia, and Zambia to protected areas in Angola.

Data from collared elephants shows some are already using this corridor. The Kwando Wildlife Dispersal Area and other corridors in neighboring countries. One corridor in particular, on the west side of the Kwando River, is “heavily used by elephants and other species,” says Robin Naidoo, WWF’s lead wildlife scientist. This corridor is critical to the movement of elephants, and partly because of a lack of human settlement, it has been able to expand its range.

The vision for KAZA is an audacious one. “KAZA represents hope for Africa’s elephants,” says Knight, “and for all the communities—human, plant, and animal—that depend on healthy natural systems.”

A Conservation Opportunity

“Securing space for elephants is going to have a monumental impact on the opportunities that exist for people living in the region,” says Knight. But to flourish, elephants need more habitat than KAZA’s formally protected areas currently provide. They also need about 40 gallons of water a day to drink. “They’re quite simply running out of space, in part because of how humans have carved up and fragmented the land,” he says.

That’s why much of WWF’s work in KAZA focuses on wildlife dispersal areas. (See “Crossing Paths,” page 36.) Identified by the member countries, wildlife dispersal areas are strategically positioned tracts of land that connect protected areas so that elephants and other species can travel safely to expand their ranges. One of the most important for elephants is the Kwando Wildlife Dispersal Area, which connects Botswana, Namibia, and Zambia to protected areas in Angola.

“KAZA, having a huge impact on our conservation and potentially relieving pressure on northern Botswana, where elephant numbers are high. Angola is also home to the headwaters of the Kwando and Okavango rivers, meaning it is vital to the region’s water flows.”

“We’re not changing our focus from wildlife, but just realizing how key water is to that mission, both for people and the species in the landscape.”

—Sarah Davidson, WWF Director of Water Policy
The COVID-19 pandemic has been a huge setback to wildlife- and tourism-dependent communities in KAZA. After canceling stock of the situation or the ground. WWF has responded in meaningful ways.

HEALTH FIRST
The pandemic has had a negative impact on agriculture as well as tourism and hospitality industries in Zambia’s Sioana district, part of a vital elephant corridor. Due to these dwindling income streams, many communities couldn’t afford face masks or hand sanitizers. WWF Zambia and the Peace Parks Foundation responded by delivering 122.63 worth of personal protective equipment for communities and frontline health workers to the Ministry of Health in the Sioana Complex of Sesheke District in Western Zambia.

SHARP FOCUS
As tourism-related incomes faller and some are required to shelter in place, illegal trade in wildlife, a reported 30%, has reduced. So WWF Zambia and the Zimbabwe Parks and Wildlife Authority are implementing and upgrading an automated digital surveillance system in Hwange National Park to gather data from ranger patrols, analyze local poaching trends, and track law enforcement responses—all of which can help control wildlife crime. Additionally, GPS-enabled camera traps allow instant phototraps, which can help reduce wildlife crime.

In the dry season, animals move out of the protected areas and through the village and communal grazing lands to reach water. People generally cope by shifting their activities to the rivers in the dry season and during droughts, but animals respond in the same way. In the wet summer months, there are natural pans and streams for wildlife to drink from, but in the dry season rivers are the animals’ lifelines, too. Take elephants, says Naidoo: “Research clearly shows people become fewer and farther between.”

Not surprisingly, human-wildlife conflicts in KAZA often have a link to water. Jess Isden of WildCRU’s Trans-Kalahari Predator Programme, a conservation research unit associated with the University of Oxford, studies these conflicts in parts of KAZA. One village where she works in Botswana, for example, is surrounded by protected areas. In the dry season, animals move out of the protected areas and through the village and communal grazing lands to reach water.

Every village I have worked in has different approaches to and thoughts around wildlife conflict based on their culture and lived experience,” says Isden, a coexistence coordinator for WildCRU. “In Portuguese [this part of southeastern Angola] has been called o terro do fio do mundo, the land at the end of the Earth, “ says Antonio Chipita, who works for the Associação de Conservação do Ambiente e Desenvolvimento Integrado Rural, or ACADIR (the Association for Environmental Conservation and Integrated Rural Development), a WWF partner. Chipita describes the area as having some isolated villages, few clinics, fewer hospitals, and very few schools. Most of its residents are subsistence farmers, some of whom moved to the area to escape the worst of the 27-year conflict that began soon after Angola gained independence from Portugal in 1975. Crop failure is one of the lowest in Africa due to poor, sandy soils; most people grow just enough to survive. Based in the Angolan town of Menongue, Chipita sometimes travels for days on poor roads in this remote area to talk with villagers—many of whom live within Luengue-Luiana National Park—about their challenges, their needs, and their livelihoods.

“We are interested in helping people here have better lives,” says Chipita. How do they feel about thousands of elephants potentially moving through their landscape? The views are mixed, he says, adding that villagers have already had conflicts with several elephants, as well as crocodiles, baboons, buffalos, and some predators.

“We don’t know what the answers are yet, but we focus on people’s needs as a way to start talking about conservation,” says Chipita. “People care about healthcare and food security. Often people say, ‘The wildlife is nice, but we’re hungry.’ You can’t argue with that.”

Water for Elephants, Water for All
Water, too, is a fundamental concern. In Luengue-Luiana National Park, Chipita says, villagers rely on the Kwando River for water to drink and wash with, for needs to build with, and for fish to supplement their diets. “In Portuguese [this part of southeastern Angola] has been called o terro do fio do mundo, the land at the end of the Earth, “ says Antonio Chipita, who works for the Associação de Conservação do Ambiente e Desenvolvimento Integrado Rural, or ACADIR (the Association for Environmental Conservation and Integrated Rural Development), a WWF partner. Chipita describes the area as having some isolated villages, few clinics, fewer hospitals, and very few schools. Most of its residents are subsistence farmers, some of whom moved to the area to escape the worst of the 27-year conflict that began soon after Angola gained independence from Portugal in 1975. Crop failure is one of the lowest in Africa due to poor, sandy soils; most people grow just enough to survive. Based in the Angolan town of Menongue, Chipita sometimes travels for days on poor roads in this remote area to talk with villagers—many of whom live within Luengue-Luiana National Park—about their challenges, their needs, and their livelihoods.

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Water for Elephants, Water for All
Water, too, is a fundamental concern. In Luengue-Luiana National Park, Chipita says, villagers rely on the Kwando River for water to drink and wash with, for needs to build with, and for fish to supplement their diets. But as mighty as the Okavango, Kwando, and Zambezi rivers are, their flows vary in quantity and quality from year to year. Upstream events—droughts, new hydropower dams, pollution, increased extraction—have an impact on the people and wildlife downstream.

People generally cope by shifting their activities to the rivers in the dry season and during droughts, but animals respond in the same way. In the wet summer months, there are natural pans and streams for wildlife to drink from, but in the dry season rivers are the animals’ lifelines, too. Take elephants, says Naidoo: “Research clearly shows that water availability is one of the strongest variables for their distribution... and as human settlements increase along rivers, the points where wildlife can visit the rivers to drink without encountering people become fewer and farther between.”

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“Every village I have worked in has different approaches to and thoughts around wildlife conflict based on their culture and lived experience,” says Isden, a coexistence coordinator for WildCRU. “But water—and where it flows in relation to people and wildlife—can increase or decrease the potential for conflict. As climate change affects where and how people and wildlife access water, conflicts are likely to grow.”
A family of elephants leaves behind tracks in the thick mud of an island in the middle of the Zambezi River.
Climate change has other impacts as well. “The changing seasonality of rainfall is a big thing we’re seeing in all countries in KAZA,” says WWF’s Nihal Advani, who directs climate change projects in KAZA in collaboration with local organizations like ACADIR. He says that getting real data from people who are living with the consequences of a changing climate is critical, adding that in many cases “it’s simply devastating livelihoods.” (See “Climate Crowd,” page 38.) When communities are under this kind of pressure, he adds, their responses can harm biodiversity as they turn to poaching animals for bush-meat and deforesting areas for charcoal production.

“We need to help communities adapt, with a view to helping nature too,” says Advani. One way to do that is to increase water access for communities through innovative methods like rainwater harvesting.

**Flow On**

To keep water flowing for people and wildlife in KAZA will take action at every level, from the local to the national, says Sarah Davidson, WWF’s director of water policy. “We need everything from communities using water-saving farming techniques during droughts to neighboring countries collaborating on decisions about shared water resources.”

In collaboration with WWF-Zambia and their partners—including the Angolan government, the intergovernmental Zambezi Watercourse Commission, USAID, and the US Department of State—Davidson is looking specifically at the Kwando River. It’s one of the least-studied rivers in one of the most strategic areas of KAZA, with not only the potential for elephants to move north along its course into southeastern Angola but also, and perhaps even more important, the vital function of moving water south. As a first step, Davidson and WWF-Zambia are helping local and regional stakeholders develop a “report card” on the health of the Kwando River Basin; it’s an approach that’s been successful elsewhere in planning for the wise use of water. She is optimistic that the report card will serve as an informed and inclusive starting point for conversations about the river’s future.

“Often, our collective understanding of water centers on drinking water and sanitation, but these cannot be separated from rivers and biodiversity,” says Davidson. “We’re not changing our focus from wildlife, but just realizing how key water is to that mission, both for people and the species in the landscape.”

Davidson emphasizes that the communities living in southeastern Angola are small. “It’s not their activities that are threatening the river. It’s the larger upstream decisions about how the river is managed that will affect its health.”

Perhaps the largest threats are hydropower dams: Angola’s hydropower potential is among the highest in Africa. WWF’s Evan Freund, who focuses on the impacts of infrastructure on freshwater systems, says that hydropower development in the Angolan headwaters would “absolutely” change the dynamics of the Kwando River, not to mention the Okavango and Zambezi rivers.

He says that to protect biodiversity, to allow people to benefit and coexist in a permeable landscape, and to minimize the human footprint through smart regional planning, stakeholders need to manage KAZA’s water as its most fundamental asset.

**Wise Development**

“The thing to appreciate is that the governments [in KAZA] are trying to figure out how to support an economic growth agenda,” says Freund. “If we are going to promote our conservation strategies, we have to think about infrastructure as part of that. Infrastructure is a conservation issue, front and center.”

With WWF’s support, the Angolan government and the KAZA-TFCA Secretariat are working with small and medium-sized Angolan businesses to look at bankable projects in the tourism, energy, agriculture, and fisheries sectors that will deliver services and support livelihoods without jeopardizing conservation.

In the Kwando Wildlife Dispersal Area, for example, this means making smart decisions about smaller-scale projects linked to zoning and land use. Questions that need to be answered, suggests Freund, include these: Are there better places to plant crops? Can fisheries help offset food insecurity? How do people access markets if the roads are bad? If you must build something, can you make it sustainable and compatible with conservation outcomes?

**Solutions**

Solutions that answer questions like these aren’t always obvious, says KAZA-TFCA Secretariat executive director Nyambe Nyambe. But he believes “there cannot be conservation success and impact without other sectors, like commerce, fisheries, agriculture, and public health, because only then can we have true ecosystem health.”

“That’s what makes working on KAZA so exciting,” says Neville Isdell, former chair and CEO of The Coca-Cola Company. The longtime WWF supporter and Board member, and former Board chair, invests in people’s health in KAZA through the Isdell Flowers Cross Border Malaria Initiative, while helping to rewild conservation areas. “KAZA is designed to care for people, for wildlife, and for habitat. National boundaries do not stop animals, or water, or diseases. We’ve got to address the issue of human well-being and how that’s linked to climate change, and how that in turn is linked to food security and all these other issues in the region.”

“Conservation comes through wise development,” says WWF’s Knight. “For a wildlife economy to work in KAZA, an intact, functioning ecosystem is key.”
Crossing Paths

As seasonal waters ebb and flow, the movements of elephants and other wildlife follow. When water sources are more abundant, for example, ranges may expand, but when water is scarce, wildlife can come into conflict with humans and each other. WWF is working hard to understand these movements, to support the continuation of natural systems, to strengthen communities, and to ensure that these vital migrations—across vast areas where people and wildlife must coexist—continue.

WILDLIFE DISPERsal AREAs

To facilitate wildlife movement across the region, the five KAZA countries have defined six “wildlife dispersal areas” based on existing and historical animal migration routes. These WDAs are key corridors for allowing wildlife such as elephants to move more freely across the landscape, spurring healthy species population growth and distributing wildlife-dependent economic benefits to more people.

1. KHAUDUM-NGAMILAND
Wildlife moves throughout northeastern Namibia with extensions into Angola and Botswana.

2. KWANDO RIVER
Movements follow the Kwando River through portions of four countries.

3. ZAMBEZI-MOSI-OGA-TUR VA
Defined by world famous Victoria Falls. Provides a small but important corridor between Zambia and Zimbabwe.

4. HWANGE-KAZA-MO CHA-CHOBE
Follows wildlife corridors from northwest to southeast, hugging the Botswana and Zimbabwe borders.

5. HWANGE-MAKGADIKGADI-NXAI PAN
Links major wildlife and tourism areas in Botswana with upriver habitat in Zimbabwe.

6. ELEPHANT MOVEMENT PATTERNS
A gap in the Namibia-Botswana border fence allows movements of elephants and other species from northern Botswana into Namibia and southern Angola on the west side of the Kwando River.

In the wet season, elephants move out of Hwange National Park in Zimbabwe and across an unfenced border into northern Botswana.

In the dry season, elephants move out of Hwange National Park in Zimbabwe and cross the Kafue-Lualena border fence, entering northern Botswana.

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A long-time conservationist, Hewat says she realized very quickly that working with WWF to collect data on how people living around Victoria Falls in Zimbabwe, clearly remembers the last big thunderstorm he experienced. It was 11 years ago, and it caused flooding. Now, he says, there is less rain each year, it falls later than before, and the weather seems hotter.

“We no longer practice rainmaking ceremonies. Survival is uncertain. Some of us have even stopped farming altogether,” he observes.

His home in Zimbabwe’s Matabeleland North Province lies within the Kavango-Zambezi Transfrontier Conservation Area (KAZA), the five-country expanse that’s been formed to protect biodiversity while supporting people who live in the landscape. It is not far from the Zambezi River, but despite the volume of water that flows over Victoria Falls and through the gorge below, it is a water-scarce area, and there is no direct access to the Zambezi River, which lies across the gorge.

“Around Victoria Falls, people walk between three and 12 miles for water. Sometimes, they encounter elephants on the way. We lost three people in our community last year due to conflict with elephants,” says Charlene Hewat, director of the nonprofit organization Greenline Africa Trust. Hewat has been working with WWF to collect data on how people living around Victoria Falls experience climate change. As part of WWF’s Climate Crowd program, the effort informs pilot projects to help rural communities adapt, while reducing pressure on biodiversity.

According to Nikhil Advani, WWF’s director for climate, communities and wildlife, while we know that most of Southern Africa experiences a single rainfall season between October and April, there is a lack of good weather data on Africa in general, and this in turn influences our ability to develop suitable climate projections. However, it’s considered very likely that Africa will continue to warm during the 21st century, and there is some confidence in projections suggesting reduced rainfall during Southern Africa’s winter months.

Perhaps of greater importance are observed weather patterns we are already seeing,” he says. “As is the case through much of sub-Saharan Africa, seasonality of rainfall is shifting considerably, and this, along with climate extremes such as drought, is likely to have the most significant impact on communities in the KAZA region, including around Victoria Falls.”

From the 44 interviews (25 women, 19 men) Greenline Africa Trust conducted, access to water and human-wildlife conflict emerged as two big challenges. Two-thirds of respondents said there was less freshwater, while 60% experienced more frequent conflicts with wildlife, which compete with livestock for water and enter farms and villages in search of food. Insufficient water combined with an increase in the prevalence of pests (reported by 57% of respondents) contributed to crop failure, and many farmers reported selling off livestock they could no longer feed.

As peoples’ livelihoods become more vulnerable, they turn to natural resources. A little over a third of those interviewed noted that such coping strategies were negatively affecting the environment. Brick-making, for example, requires large quantities of firewood during the firing process, so it drives deforestation; in turn, the removal of trees contributes to silting and land degradation along the riverbanks.

“It really is all connected, so trying to reduce all the stressors is important, because we can’t control the rainfall. We just have to hope it comes,” says Advani.

He’s excited by the results of pilot projects implemented with farmers around Victoria Falls to improve crop yields using conservation agriculture and drip irrigation. Other interventions like reforestation and fuel-efficient cookstoves have shown promise in reducing pressure on natural ecosystems. The Manyika family farm, on a small piece of land about 15 miles from Victoria Falls, suggests what successful adaptation looks like. The family is part of the Inchelela Farmers Network, which, supported by WWF, began supplying hotels and lodges in Victoria Falls with fresh produce this year. In March 2020, when COVID-19 abruptly halted sales, the farmers bartered tomatoes for maize, sorghum, and millet—a practical innovation in a cash-poor economy like Zimbabwe. Stanley Manyika and his wife plan to sell the extra grains later in the year, “when people start running out of food.”

According to Hewat, more farmers are starting to think long term and are investing in their own land and water provisioning to improve their yields.

A long-time conservationist, Hewat says she realized very early on that “if we don’t involve communities in conservation in a meaningful way, there is no hope for conservation.” And, she says, “access to water is fundamental.”
In September 2020, in the midst of the COVID-19 pandemic, WWF worked with Indigenous leaders and photographer Jason Houston to gather stories from Pine Ridge Reservation in South Dakota. Here, four members of the Oglala Lakota Nation share, through their own words and images, stories from their lives.

MONICA TERKILDSEN
WWF Native Nations liaison and a member of the Oglala Lakota Nation. Monica facilitates Indigenous conservation efforts and works to bring the will of her people to the management of their land.

I am of the grass, plants, and trees, the root nation that sways in the winds of the prairie of the Northern Great Plains, storing carbon and returning oxygen to the world above. I am of the soil, that holds the very footprints and knowledge of my ancestors and provides life and vision for me. I am Oglala Lakota, Indigenous to this land, to this space, and I want to share with you the story of this place.

Today, the land base of the Oglala Lakota Nation is roughly 2.7 million acres of pristine grasslands in southwestern South Dakota. Pine Ridge Reservation’s land base is the result of the broken promise that broke and forced together small pieces of Unci Maka, our Grandmother Earth. This is the place of the Wounded Knee Massacre, an attempt to end a way of life and annihilate our circle, our connections, and our homelands.

But look at the lands, the beauty, the colors, and perspectives we share with you through the camera’s lens, to uplift our truths in the time of the pandemic. We, as a nation, stand strong and hold tight to our beliefs, protecting our people amidst new policies, shutdowns, virtual connections with inadequate infrastructure, sheltering in place, permitting, confusion, hunger, fear, loss with an inability to mourn, and movement stilled. Hope remains. Despite the circumstances, we share our story.

I want to tell you about the Stronghold Unit, which many call the South Unit, 133,300 acres of tribally owned land within the boundaries of the Pine Ridge Reservation. You might know it as part of the Badlands National Park.

This land was originally small allotments given to tribal members, generally 160 acres for a head of household and 80 acres for a single member. Of course, there was no justice in this land distribution process; how can one own and divide their grandmother? Then came WWII; there was no justice in this land distribution process; how can one own and divide their grandmother? Then came WWII; how can we hold and 80 acres for a single member. Of course, there was no justice in this land distribution process; how can we hold and 80 acres for a single member.

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The majority of the South Unit is in my district on Pine Ridge Reservation. A lot of tribal members drive by and through it daily to go into the city. Makosica is what it’s called—Badlands. A lot of this area is culturally and historically significant due to the relationship we have with the land as local Indigenous people. Everybody has a piece of history connected to this area, and it gets passed down generationally in our storytelling. This was my first time visiting a lot of those places. The area is being re-reviewed for the reintroduction of buffalo and community use. It symbolizes our reintroduction to a species that we hold so high in our culture and in our life ways. The buffalo provided everything for us, generationally. When we talk about food and food systems, the buffalo is the all-encompassing food system that we are looking at reintegrating back into our Indigenous homelands. For me, it was special to experience that personally, but also to share that with my son. It was a different landscape from where we actually live, just 10 miles down the road. At four years old, kids are sponges, so they absorb a lot. Every time we drive past the Badlands, it’s always stuff like, “Hey, do you remember being over there? I remember going to Badlands.”

“When we talk about food and food systems, the buffalo is the all-encompassing food system.”
ANDREA TWO BULLS

A self-taught painter, photographer, and artist advocate whose work sells across the country. Andrea worked at Singing Horse Trading Post until the pandemic closed down the tourist industry.

I’m always just looking for beautiful things. When I was younger, I was everywhere. I’ve hiked every bit of this land, all back up in those hills. If I’m not hunting, then I’m hunting rocks.

Because we grew up here and we’ve always lived out here, it baffles me why so many people pay money to come and see it. As you get older, you realize that it is ruggedly beautiful and it’s unique. It’s our backyard, but it’s beautiful. We need to protect it. We need to protect it for our kids, our grandkids.

We would like it left wild. This is where we hunt. This is where we live. We don’t want people coming here. Just leave this untouched. Leave it alone.

The Park Service wanted to bring in a heritage center to these lands, to the Red Shirt Table area where I live. They wanted to bring more people. But we said, “No. This is where we hunt, where we live.”

They wanted an equestrian center—there were all these ideas. We just said, “No. Don’t bring it here. Take it somewhere else. This is where we live.”

It’s not the money that matters. It’s never going to be the money. It’s about the area, the wildness of it. You start bringing people in, there go the animal populations next.

“It’s our backyard, but it’s beautiful. We need to protect it.”

Clockwise from top left: Galloping horses in the field beside Andrea Two Bulls’ home on Red Shirt Table; thunderheads against the sunset on the way to Singing Horse Trading Post; Andrea’s mother Cecelia “Lovey” Two Bulls and nephew Tyler Two Bulls hiking on Sheep Mountain; horses in the snow on the way to the Badlands; rocks and a cicada wing.

Photographs by Andrea Two Bulls
BAMM BREWER

Private buffalo rancher and founder of a company that processes bison and other wild game. He also founded the Native American Honor Ride, which commemorates cultural history, Crazy Horse, and all US veterans.

I’m not the best historian—there are people amongst our tribe who are better—but I do my best with what I know anyway. The youth are the future of our nation. We try to teach them things that our ancestors would teach.

These are five buffalo skulls that we use at our Sundance (Editor’s note: Sundance is a traditional Lakota summer ceremony that the US government had outlawed until the 1970s). Sundance is very important to us: We didn’t do it this year because of the pandemic, but I pulled them out as a reflection of prayer, of a year away from our normal ways.

But then I see our buffalo herd with a full moon coming up and it was just a nice purple sky. It was just making it through the winter. When you’re able to look out on your own landscape and see buffalo there? It makes you feel like you’re doing something. It’s something that not all tribal members get to do. We’re really lucky to be able to have that scene at the house.

I wish herd management was not as rugged—I wish the buffalo were a little more gentle. But it is what it is. Buffalo are wild, and we got to do what we got to do to get them. We’re always improving every year. I’m hoping that one day we’ll look back and say, “We used to do it that way, and now we have a gentler way.”

I’m glad to be a part of this way of life. I hope our ancestors are proud of us.

“I’m glad to be a part of this way of life. I hope our ancestors are proud of us.”

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Clockwise from top left: Burned-cedar signs that Bamm Brewer makes and displays around his ranch and community; Oglala Sioux Tribe Parks and Recreation Authority gathers buffalo for veterinary work and herd management; buffalo skulls being prepared at Holy Buffalo Society Sundance; Bamm’s herd of reintroduced buffalo grazes outside his house on the Pine Ridge Reservation. Photographs by Bamm Brewer