

WORLD WILDLIFE

For People, For Nature, Forever



EXCERPTS FROM WORLD WILDLIFE MAGAZINE
2014 - 2020



CONSERVATION THROUGH COMMUNITY

AS I WRITE THIS, the world is in the midst of a pandemic. Our office, like so many others, is closed. But when we are finally able to open our doors, visitors to our headquarters in Washington, DC, will be able to walk into our conference center and see a life-size photograph of our founder and chair emeritus, Russell E. Train. And behind him, a wall of profiles celebrating just a handful of the more than 2,700 recipients of a conservation leadership scholarship WWF created in his name. Because Russ Train believed strongly that the most important thing that could be done for conservation worldwide was to invest in the training of men and women to manage their own natural resources.

He understood instinctively that the conservation of the world's most important places would only be possible if the communities who lived on—and from—those lands were involved every step of the way. And while the prevailing thinking of the time advised that natural areas should be cordoned off to be protected, Train had a more forward-looking approach: In 1961, in addition to helping found WWF, he helped create the African Wildlife Leadership Foundation to help build the capacity of Africans to steward their own natural resources.

Over the years, Train's conservation ethos has guided us toward a deeper understanding of what landscapes are—that they are more than beautiful vistas teeming with wildlife. These places are the landscapes of people's lives, and we have learned to value nature for what it means to people's livelihoods, cultures, and hearts. We have also come to understand that conservation will not last without the engine of local communities—the people who benefit most directly from these places in providing for their families and their future.

Several years ago I found myself in western Namibia. Awakening before dawn, I sat on a rocky escarpment with Chris Weaver and surveyed the early morning signs of life in a remote valley. For decades, Chris helped Namibia create a national system of community conservancies that became a catalyst for both conservation and improved livelihoods for people. As we watched a string of ghostly desert elephants make their

way through a distant scrap of green, I asked him where the people were. He gestured toward the left and said, “The people live over there.” But then he spread his arms wide and said, “But this—this is their wealth.”

More recently, I've seen our work in the Northern Great Plains come alive as South Dakota ranchers pioneer the most ingenious forms of sustainable rotation agriculture and ranching. And I've seen Native American tribes restore their prairie and the bison that occupy a special role deep in the heart of their traditional culture.

Just this year, we were privileged to support the Rosebud Sioux as they committed 28,000 acres of their territory for native grassland and a new herd of 1,500 plains bison. Once completed, their Wolakota Buffalo Range will be home to North America's largest Native American-owned and managed bison herd, and should continue to provide economic and cultural benefits for years to come.

When it comes to conservation, communities—particularly those in countries that support the rights of communities to manage local natural resources—are as resilient as some of the prairie grasses found on the Northern Great Plains. They may experience the destruction of periodic fires, be they political, economic, environmental, or otherwise. But after the fires sweep through, they have a tremendous ability to renew themselves, sending out shoots of new growth and ensuring the continuity of their landscapes and their people over time.

Which is why it is essential to make sure communities have a seat at the table when decisions are made, and play a leading role in executing and evaluating conservation programs. Successful conservation rests on ensuring that the rights of communities are respected, and that they have the ability not just to manage their own landscapes but also to *benefit from* those landscapes.

Fully understanding this has been a journey for me personally, and for WWF as an organization. Having worked in this field for 30 years, learning from my elders' and from my mistakes, I've seen how conservation projects can falter when governments change or when short-term philanthropic funding dissipates. I've learned that the work we do with communities, if done right, is the form of conservation most likely to endure.

We will know we have been successful when we are no longer needed in places like Nepal and Namibia and Colombia. We will know we are closer to achieving our mission when the will of the people to manage and benefit from their resources is enshrined in every national constitution and made real throughout the land. Until then, we will listen to communities, help them build a more sustainable future, and step by step deliver on Russell Train's vision of a future in which people and nature both thrive.

📍 Congo Basin

A weaving demonstration put on by women in Mpelu, a village in the Democratic Republic of the Congo. Helping people maximize nature-based economic opportunities and secure legal rights to manage their natural resources is central to WWF's approach to conservation. Projects like basket-weaving and conservation travel can be useful economic tools to support people as they protect the lands they call home.



CARTER ROBERTS

President and CEO



PEOPLE. NATURE. TOGETHER.

For nearly 60 years, WWF has worked in some of the most remarkable places in the world. Places where humanity lives immersed in the most magnificent and productive ecosystems on Earth. Where natural resources have been used in traditional and thoughtful ways by the people who call those landscapes home. Too often, that natural wealth has been exploited and plundered by outside forces. Too often, internal conflicts have torn those countries and regions apart. At WWF we stand side by side with the people who call the world's most incredible natural places home. We work, together, to ensure that nature can continue to provide for us all.

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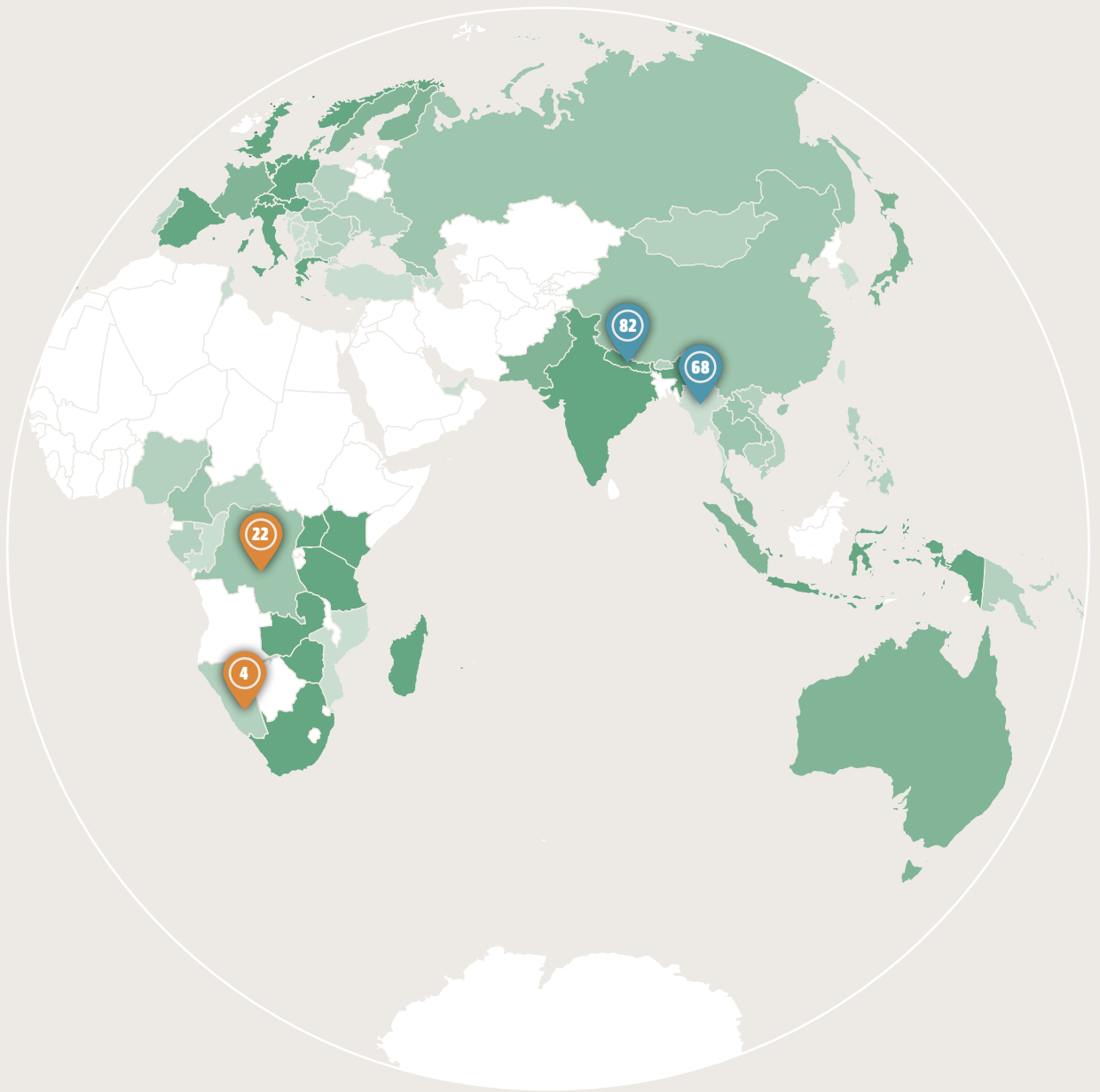
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“IN NAMIBIA, DEMOCRACY AT THE GRASSROOTS LEVEL IS CRITICALLY IMPORTANT FOR THE WORK WE DO WITH COMMUNITIES. IT IS ENSHRINED IN THE NATION’S CONSTITUTION. BECAUSE ULTIMATELY IT IS THE INDIVIDUALS THAT MATTER WHEN IT COMES TO CONSERVATION, NOT JUST COMMITTEES OR LEADERSHIP OFFICES.”

·) PATRICIA SKYER

Project Team Leader/Field Programs, WWF-Namibia

It's important to me that the world understands what rural communities that live with wildlife are willing to sacrifice, not just to benefit themselves, but for all of us. ■ After more than 25 years of working in Namibia and other southern African countries, I understand the challenges and benefits of community-based natural resource management quite well. But it's the people living in these communities who understand it best. By protecting lions, elephants, and cheetahs, they are managing a global resource. They carry a global responsibility. These are not easy animals to live with, and yet communities shoulder this commitment willingly. ■ I see my job as helping the people of Namibia do that. Often that simply means being a good listener and communicator and encouraging partnerships within and between communities, nonprofit groups, the government, and the private sector. Following this path, I have seen real transformation in people's lives: community members becoming parliamentarians, women assuming more leadership roles in conservation, and populations of threatened species thriving—not because WWF thinks they are important, but because the people of Namibia value them. ■ That's because the benefits of conservation extend well beyond just preserving biodiversity and increasing people's material wealth. They also build and support equality. ■ I am proud of what Namibia as a country has achieved since we emerged from a long independence battle and enshrined community rights in our constitution. Granting rights to communities really changes the relationship between people and conservation. It's not without challenges. Sometimes individual farmers and community members pay the price for the collective gains of conservation when they come into conflict with wildlife. We need to find ways to support them and honor their sacrifices. Our work, as you'll read in the two stories that follow, must always keep people at the center of what we do. We must make conservation less about us, and more about them. Together, we can build on the gains we've made, to the benefit of all.

Patricia Skyer started working in community-based natural resource management in her home country of Namibia in 1996. Since WWF began working in Namibia shortly after the country gained independence, more than 80 community-led conservancies have been recognized by the national government, granting legal status to numerous communities and directly involving more than 227,802 people in the management of more than 64,000 square miles. Patricia is grateful to have played a small part in a shared movement where conservation gains hinge on people's success.




Safe Journeys

In a vast African landscape where many people wish travelers “safe journeys” instead of “goodbye,” a burgeoning cross-pollination of ideas, people, and wildlife is making the future of the world’s largest terrestrial protected area bright

by **Rachel Murchison**

photographs by **Gareth Bentley and Patrick Bentley**



IT IS STILL DARK OUTSIDE, with a sliver of a moon hanging in the enormous African sky, when Nelson Sabata starts for work. It’s a short 10-minute walk from his small house to Camp Chobe, an elegant but rustic tented lodge nestled along a turn in the Chobe River, where the northeastern corner of Namibia hugs the border with Botswana. Sabata works at the lodge as a guide, introducing well-heeled tourists to the raw splendor of wild giraffes, hippos, lions, zebras, and other creatures that travel the area’s generous floodplains.

But this morning he has a problem: His house is surrounded by elephants. It’s too dangerous for him to try to make his way past the unyielding visitors on foot; last year his grandfather was killed by an elephant near their village. He calls the lodge, and soon the manager is in route in a truck to collect him.

Sabata appears unfazed by the momentary hitch. “I’m used to it,” he says with an easy smile. “Elephants often stop by.”

Sabata lives within Salambala Conservancy, one of Namibia’s first communal conservancies—areas run by communities to sustain wildlife and create steady income for residents through nature-based activities like ecotourism, hunting, and locally made crafts. It’s a model that is clearly benefitting him; at 25, he says he loves his job and makes a good living. His tidy tin-roofed house is adorned with a solar-powered satellite dish that streams 200 TV channels to his small living room.

Living in close proximity to elephants may sound exciting, even enviable, to those of us whose daily exposure to the



A GRAND PARADE

At dusk, hundreds of elephants move through the brush near the Kwando River's famous "horseshoe" bend in eastern Namibia.



wild seldom extends beyond the odd neighborhood squirrel. But there are real risks. Predators like hyenas and lions attack cattle in the night. Grazing hippos and elephants, known for their voracious appetites, lay waste to farms. Less frequently, people like Sabata's grandfather are killed. Communities have reasons to fear and resent wild animals. They also have reasons to poach them. Rising demand for illegal ivory and rhino horn—much of it coming from newly affluent consumers in Asia—makes it extremely profitable. A kilogram of ivory fetches a local poacher about US\$500, a sizable amount in a country like Namibia, where roughly one in three people earns less than \$1.25 a day.

In many ways, Sabata's remote village, while seemingly at the edge of the world, is at the center of a global conversation—one that has profound consequences for the future of wildlife. Regardless of how many well-intentioned conservation strategies are developed or global treaties signed, if the people who live among wild animals do not value them, animals will continue to disappear. Given the alarming pace of species loss and rapid human population growth in the regions that shelter most of the world's remaining biodiversity, communities like Sabata's are on the front lines.



ROUGHLY 40 MILES DOWN the road from Salambala, Morris Mtsambiwa greets the morning from his new office in Kasane, Botswana. Kasane lies directly across the Chobe River from Namibia and only a dozen miles from the borders with Zambia and Zimbabwe, earning the area the name “four corners.”

Mtsambiwa has a friendly, optimistic demeanor—important qualities for the job before him. Earlier this year, after a stint as the director-general of the Zimbabwe Parks and Wildlife Management Authority, Mtsambiwa became the executive director of KAZA, the Kavango Zambezi Transfrontier Conservation Area. Formally created in 2011, KAZA is the world's largest transboundary conservation area, covering an area roughly the size of France and spanning territory across five southern African countries: Angola, Botswana, Namibia, Zambia, and Zimbabwe. The vision of KAZA is ambitious: to unite the five countries in a shared effort to protect wildlife, promote tourism, and support the socioeconomic well-being of local communities.

As with many big ideas, KAZA is moving incrementally toward realization. Aided by funding principally from the German development bank KfW, the five partner nations, WWF, Peace Parks Foundation, and nonprofit organizations such as Integrated Rural Development and Nature Conservation (IRDNC), the countries have created integrated development plans, delineated existing and future wildlife corridors, built initial infrastructure, and identified new tourism offerings.

Mtsambiwa admits that despite strong political support, bringing together five different countries with distinct laws, interests, and ways of doing business is not easy. “A huge part of my job is to find common ground between the governments.” He seemed pleased with a recent KAZA golf tournament that brought players from three of the five countries together in

shared frustration over their mediocre golf strokes. “They’re getting along much better now,” he says with a chuckle.

What KAZA may lack thus far in formal infrastructure, it makes up for in biological richness. Advertising itself as a “Noah’s ark” for almost 200 different species of mammals and over 600 species of birds, KAZA is endowed with extraordinary natural beauty. The region’s sandy woodlands, wetlands, and grasslands host the world’s largest population of elephants, along with buffalos, rhinos, lions, cheetahs, African wild dogs, and dozens of species of antelope.

Mtsambiwa dreams of seeing KAZA become a well-known tourist destination, enticing visitors to see the marvel of Victoria Falls in Zimbabwe, the wildlife-rich Okavango Delta in Botswana, the rustic beauty of Bwabwata National Park in Namibia, and the largely undeveloped wilderness of places like Zambia’s Sioma Ngwezi National Park or Angola’s Luiana National Park.

Most important, he wants to see local communities actively engaged in the process and reaping the benefits from tourism development. He wants more people like Nelson Sabata to start new careers and take leadership in decisions about the region’s future. “This emphasis on bottom-up involvement is what makes KAZA so unique,” Mtsambiwa says. “Ultimately our success depends on the communities who live here.”



KAZA IS NOT JUST AN ECONOMIC DREAM; it has deep conservation aspirations as well. Wildlife such as elephants, zebras, and lions are freewheeling creatures, oblivious to national borders as they traverse large areas in search of food, water, cover, and mating opportunities. Creating optimum conditions for their survival requires managing entire landscapes, not just individual parks. When one country makes a decision—to dam a river or cut down a forest—it affects wildlife across the region.

On paper, KAZA forms a contiguous landscape, linking together more than 20 national parks and numerous reserves and other protected areas—including Salambala Conservancy in Namibia—so that animals can pass safely between countries.

But the reality is that wildlife faces many roadblocks. For the past nine years, WWF lead wildlife scientist Dr. Robin Naidoo has been studying the migration patterns of zebras, buffalos, and other wildlife in the area. His data shows the impact of fences and other linear boundaries on wildlife movements. For instance, there is a 125-mile veterinary fence erected by Botswana’s government in 1996 to prevent the transmission of livestock disease along the Botswana-Namibia border. The fence obstructs one of the most important wildlife corridors in KAZA. WWF has been a strong advocate for removing portions of the fence, but before this can happen, Namibia must meet certain criteria related to cattle disease control.

Wildlife movements are also constrained by uneven levels of security in KAZA’s five countries. “There is an overabundance of elephants in northern Botswana and Bwabwata National Park in Namibia because elephants are not traveling in large numbers into Angola and Zambia. They hesitate out of fear of poachers,” explains WWF-Namibia director Chris Weaver.



NATURAL LEADER

Conservation agriculture techniques help farmer Sipalo Mubita's corn thrive despite a drought, providing income for him, his family, and more than 40 farm staff.





EVEN BEFORE YOU SEE an elephant in Bwabwata National Park, the prodigious amount of trampled and gnawed up vegetation makes it clear that they are everywhere. Hardly an acacia tree in the park stands intact.

“Elephants are catholic feeders,” explains WWF-Namibia transboundary conservation advisor Russell Taylor. “They will eat almost anything. Bwabwata is a good example of what happens when you have a local overabundance of elephants. Research in which I’ve been involved suggests that when elephant density exceeds a certain tipping point, the total number of bird species in an area can decline by 50%.”

For nearby communities, too many elephants also means more frequent crop raids and risky human-wildlife encounters. “For people living on the front lines, the benefits they get from tourism don’t always keep pace with the challenges of increasing wildlife populations,” Taylor adds.

KAZA, therefore, is a needed solution; it offers corridors that elephants and other animals can use to travel from high-density population pockets to less crowded habitat. The KAZA Master Integrated Development Plan, created by working in close partnership with stakeholders including communities and conservation groups, delineates six “wildlife dispersal areas” based on existing animal migration routes. It is a practical way to break up the larger KAZA landscape into smaller, more manageable areas of focus, each of which contains critical habitat and strong income-generating potential for local people.

One of those six areas is the Kwando River Wildlife Dispersal Area, which connects Bwabwata National Park and surrounding communal conservancies in Namibia to more sparsely populated parks in Angola and Zambia, including Zambia’s Sioma Ngwezi National Park.

In contrast to Bwabwata’s well-kept roads, worn down by a steady passage of tourist vehicles, Sioma Ngwezi is wild. The park’s sometimes sandy, sometimes muddy and rutted roads are lined with thickets of thorny acacia that grate the sides of the rare vehicle that passes through. There are no elephants in sight, nor are there any tourists. But the landscape is beautiful and rich; its woodlands are auburn as winter nears and replete with bands of skittish impala, sable, wildebeest, and roan.

The habitat is ample, and primed to take on wildlife from Bwabwata; it could easily become an alluring, rugged destination for tourists interested in straying from the beaten path. But the animals here are skittish for a reason: In the middle of the park, circling vultures indicate that there is a fresh carcass a short distance from the road. Simasiku Sitali, a ranger with the Zambia Wildlife Authority, surveys the landscape attentively. He is suddenly on alert; there may be poachers nearby.



POACHING, OF COURSE, is an ever-present threat, and KAZA’s success will depend in part on whether governments can keep it under control. Upwards of 20,000 African elephants are illegally killed for their ivory each year, feeding hungry black markets in





Asia and other parts of the world. It is a vicious, sophisticated business—on par with international drug cartels—raking in up to \$10 billion a year.

Sharing intelligence across borders is critical for catching criminals, and there are clear signs that the five KAZA governments are increasingly joining forces. Gryton Kasamu, senior warden of the Western Region for the Zambian Wildlife Authority, remarks that he is now working more closely with his counterparts in Angola and Namibia to apprehend poachers. In Zimbabwe, Zambezi National Park area manager Edmore Ngosi attributes successful arrests and convictions of wildlife criminals to improved cross-border information sharing and better collaboration with the police. The penalties in Zimbabwe have been

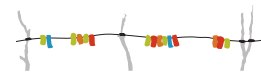
upped as well, to a minimum of nine years in prison.

And it's not just officials who are talking to each other. At the village level, community transboundary forums, some of which have been in place for over a decade, bring local leaders from adjacent countries together to discuss issues of common concern such as wildfires, human-wildlife conflict, poaching, and the formation and maintenance of wildlife corridors. One of KAZA's goals is to strengthen and multiply these local structures across the region. The Kwandu-Imusho

transboundary forum, for example, has a radio that connects the village of Imusho in Zambia with the Kwandu Conservancy in Namibia. Residents use the radio to share news and, as a result, cattle thefts and poaching have decreased noticeably.

"Conservation issues always span national borders, particularly in Africa, where migrating wildlife often travels through multiple countries," says Neville Isdell, former chairman and CEO of The Coca-Cola Company. "My wife Pamela and I both grew up in Zambia, and we care deeply about protecting the region for future generations. That is why we are such strong supporters of community transboundary forums, which bring people together to manage shared natural resources, grow the local economy, and fight poaching. These forums are the building blocks necessary for large-scale conservation in KAZA."

And beyond the crucial contributions made by forums, eliminating poaching in the region also requires addressing fundamental economic and social realities. "Poaching levels fluctuate here from year to year," Gryton Kasamu says from his post in southwest Zambia. "This year the entire region had very poor rainfall, and people are hungry. And when people are hungry, they're more likely to poach."



HUNGER AND POVERTY are a constant refrain. In a region where a single elephant intrusion can easily destroy a family's farm



NATURE IN ALL THINGS

Clockwise from top left: A makeshift elephant fence strung with soda cans on the Salambala Conservancy; carved hippos for sale at Mashi Crafts center, which returns profits to the community; game guard Humphrey Mwanga describes efforts to mitigate human-wildlife conflict in Wuparo Conservancy; Anastasia Sabata heats water over a fire in Katounyana village near Camp Chobe; a wildlife monitoring book in Wuparo; Nelson Sabata, a guide at Camp Chobe, outside his home in Katounyana.







BRIDGED DIVIDES

Victoria Falls forms part of the border between Zimbabwe and Zambia, with tourist attractions on both sides. The falls are on the Zambezi River, which provides water for all five KAZA countries before reaching the sea in Mozambique.



ORGANIC REMEDY

Imbamba Felicitas searches for devil's claw, a plant sold as a treatment for rheumatism in Europe. In Namibia, Khwe women earn money by sustainably harvesting the roots.

and disrupt their already tenuous food supply, there must be economic incentives for living among wildlife. Otherwise, local communities bear the costs of proximity, while visiting tourists and private operators reap the gains.

Namibia has pioneered a model of community-based conservation that has become a laudable success story. Since 1998, Namibia has created 82 communal conservancies covering nearly 20% of the country. Formed and run by local people, the conservancies offer protected space for wildlife and have embraced wildlife as a livelihood strategy. In fact, wildlife has generated more than \$54 million in benefits for communities through tourism and trophy hunting over the past 18 years. All of the benefits go directly to the conservancies, which use them to fund local development initiatives and improve rural livelihoods.

The model has produced impressive gains for wildlife: The black rhino, once nearly extinct, has rebounded, with Namibia's conservancies hosting the largest free-roaming rhino population in the world. Desert lions, reduced to fewer than 25 individuals by the mid-1990s, now number over 150 and roam vast areas of Namibia's arid northwest. Elephant populations too have grown, from just 7,600 individuals in 1995 to over 20,000 today.

WWF and local Namibian nonprofits like IRDNC have played a central role in the growth of the conservancies. Working in tandem with Namibia's Ministry of Environment and Tourism, the organizations have helped communities to reintroduce wildlife, create strong governance and financial management structures, and develop relationships with the private sector.

"Prior to the creation of conservancies, local people were living among wildlife but not getting any benefit," says IRDNC program director Karine Nuulimba. "The mindset at the time of Namibia's independence in 1990 was that tourism was largely a white person's industry and that wildlife was a nuisance. That has since changed. People are now growing up in communities that value wildlife and view tourism as a great economic engine."

Mayuni Conservancy, which sits in Namibia's panhandle in the heart of KAZA, was one of the first conservancies created, thanks in part to a prescient traditional authority, Chief Mayuni, who saw the opportunity ahead.

"As a leader, you can't ever know when you start something whether it's going to be a good idea. But I knew that I had to find a way to help my community. I had to try this idea because of the potential it held—for both people and wildlife," Chief Mayuni explains.

The gray-haired, bright-eyed chief is a study in contrasts: His two cell phones lie face up on his modern desk, but he rests his hands on a *namaya*—a traditional power stick made of black eland hair and ivory, which has been handed down over generations. And while he is a powerful authority in this area—in keeping with tradition, no one can approach him without first kneeling and clapping—he is at the same time heir to forces beyond his control. At this moment, he is desperate to get water for his community after moving the village away from prime river habitat, ceding the land to wildlife. To recognize the chief for this sacrifice, the KAZA Secretariat has committed to install boreholes at their new location, but so far nothing has happened.

"I am the chief and I have no water," Mayuni says. "I have to

go down to the river and fetch it in buckets in my car. Imagine what the rest of my community is dealing with."



DESPITE THE CURRENT WATER SHORTAGE, Chief Mayuni has much working in his favor. A strategic businessman, he is assisting his conservancy in partnering with private companies to develop new tourism opportunities. This includes the creation of joint-venture lodges that split revenue between the community and private owners. Mayuni Conservancy's newest addition is Nambwa Lodge, which with its palatial canopy tents and candlelit dinners overlooking stunning plains, makes for a seductive African experience. (Camp Chobe, where Sabata works, is also a joint venture lodge.)

One of Nambwa Lodge's shareholders, Juan Marx, is a native of South Africa and has been in the joint-venture business in Namibia for more than 12 years. He says one of the most satisfying parts of his job is getting to build long-term relationships with community members, many of whom work at the lodges.

"I've worked with some of the staff here at Nambwa for over a decade. Our chef, Lusken, for example, started at a sister lodge as a carpenter, then moved into the kitchen, and then slowly evolved into a role as a cook. Now, he's the head chef. It's been amazing to watch that growth happen. We sometimes sit together and watch BBC Food in the afternoons as he plans his next meal."

Joint-venture partnerships are not without their challenges. Reuben Mafati, who works as a tourism coordinator for IRDNC, explains that the organization "often helps facilitate conversations between the private sector and communities. There can be a huge power differential when the groups sit down at the table. Community representatives may only have an elementary-level education; they may not know what a percentage is. We join the conversation to help ensure that it is balanced."

WWF business specialist Richard Diggle—a former London banker who fell in love with Africa on his first trip to Kenya in 1992 and has lived in Namibia for the past 17 years—is quick to point out that the power dynamic can go both ways. "Conservancy leaders and traditional authorities are critically important business partners for lodge operators—they can make or break a lodge's success."



NAMIBIA'S CONSERVANCY model is not perfect; there are instances of corruption and financial mismanagement. In one such case, a conservancy chairman allegedly withdrew \$1,500 to purchase rifles that never materialized. But overall the program is producing significant results that are attracting the attention of Namibia's neighbors.

Across the border in Imusho, Zambia, Bornfree Kumara, the chairperson of a local village action group, wants to emulate Namibia's success. "We've seen our friends on the other side of the border fight to get where they are, and the benefits they are receiving are inspiring to us. We feel we could do something similar here if the government revised its policy to allow it."

Kumara says this with fire, adding: “We have very little else we can do here. This year the rains were bad, and people are starving.”

As KAZA evolves, it is building up structures that stimulate the cross-pollination of ideas and cooperation across borders. Kumara, who actively participates in the Kwandu-Imusho transboundary forum, remarked that he has learned a lot about communal conservation from visiting his Namibian neighbors. His chief, Gerard Mayema, wants to create a similar partnership between Imusho and a community in Angola to the west to form a large connected area between the three nations. His goal is to work together to protect their shared resources and grow the local economy through tourism.

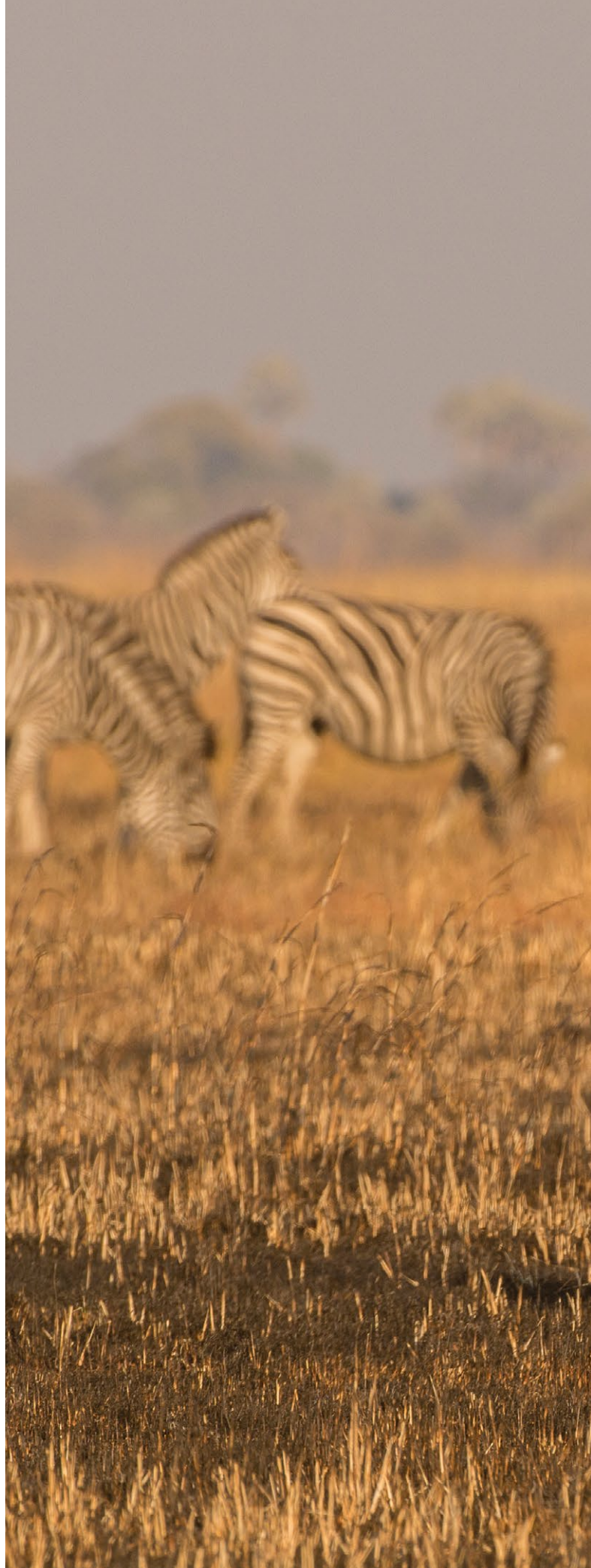


SHARING RESOURCES IS A central theme at KAZA’s biannual transboundary forum in July 2015—a three-day, two-night affair, held under a sweeping mahogany tree at an enchanting spot above the floodplain within Salambala Conservancy—just a few miles down a dirt road from Nelson Sabata’s post at Camp Chobe. Here, Bornfree Kumara joins more than 60 other community members, NGO staffers, and government officials from four of the five KAZA countries—Angola, Botswana, Namibia, and Zambia—as well as representatives visiting from Tanzania, to share stories, successes, frustrations, and ideas. Nearby, a lone elephant grazes alongside the riverbank. As people arrive, greet each other with warm hugs, and unpack their camping gear, it feels like a family reunion.

Geraldo Mayira Moyo, who works with the nonprofit Association of Conservation and Integrated Rural Development, or ACADIR, in Angola, is attending the forum for the second time. Conservation has not taken a firm hold in Angola yet, and the portion of Angola that sits within KAZA may still have some land mines from prior conflicts, slowing efforts even further. Even Mayira Moyo admits that Angola is short on tourists and high on poachers. But he sees the example of Namibia as a beacon, and he was so heartened by what he learned at the last forum that he has returned—this time with a community leader and a representative from Angola’s Ministry of the Environment in tow.

As participants take their seats in plastic chairs and the dialogue begins, it becomes clear that this small, vibrant group of people—coming together to make conservation work in their shared landscape—is also taking part in a much bigger story. The world is in the midst of what *New Yorker* writer Elizabeth Kolbert aptly calls “the 6th extinction”—the rapid loss of animal and plant species due to human activity. In less than two human generations, populations of mammals, birds, reptiles, amphibians, and fish have dropped by half. Now human decisions, including those made by the people who live among vulnerable wildlife, will either further abet collapse or carry life forward to safer ground.

This afternoon, though, the gathering at Salambala Conservancy bears no signs of such gloominess. The air is buoyant. In the distance, zebras, once largely absent from the area, kick up dust clouds from the arid soil. The landscape is alive, the day is not yet over, and the outstretched plains invite the imagination toward unformed possibility. 🌍

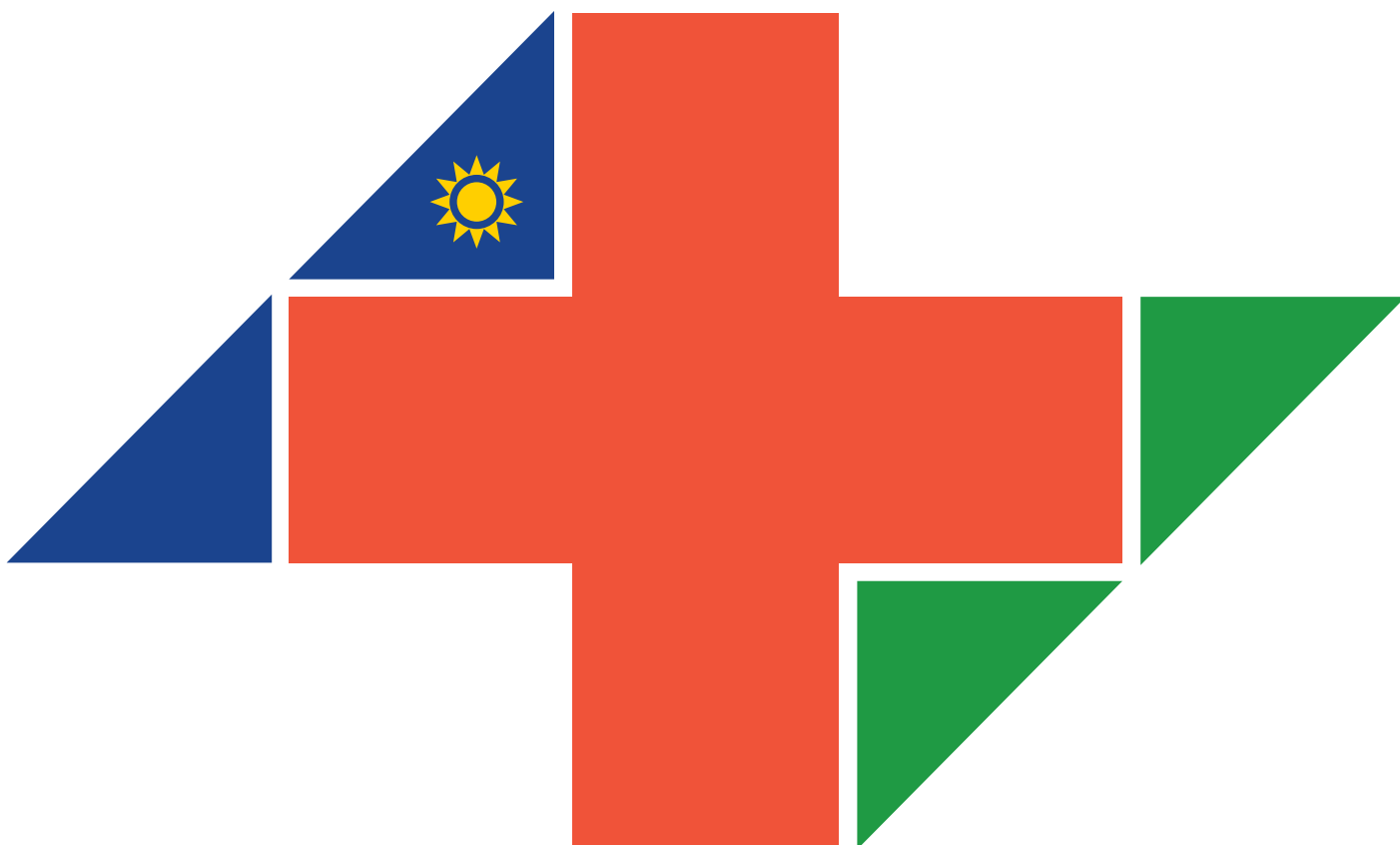




FERTILE FLOODPLAINS

On Salambala Conservancy land, a herd of zebras hundreds strong pauses in the morning light to rest. Their return to Salambala is proof that community-based conservation works.



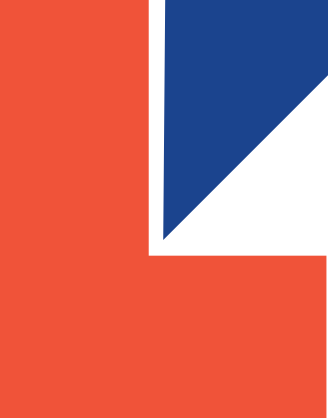


HEALTH SERVICE

*How statistics helped uncover a hidden benefit of
Namibia's communal conservancies*

by **Sarah Wade**





ATE ONE AFTERNOON in November 2013, by a quiet water hole in Namibia's Mudumu National Park, Robin Naidoo snagged an impromptu lesson in wildlife tracking. Naidoo, a senior conservation scientist at WWF, was there to tag members of several wildlife species whose movements he'd been studying. The park ranger accompanying him, a man named Matambo Singwangwa, is a member of the San (or Bushmen), an indige-

nous group famous for their ability to follow even the subtlest animal trails.

"I asked him for a little lesson," Naidoo says. "So we wandered around the water hole and looked at all the different tracks. The stories he could [tell] about what the wildlife were doing, simply based on some marks in the ground, were just outstanding."

Naidoo, a friendly Canadian with dark curly hair and a PhD in conservation biology and environmental economics, specializes in a different sort of tracking. He uses quantitative analyses to evaluate a wide range of conservation issues, and for the past five years he's focused more and more of those analyses on one environmental initiative in Namibia. It was his ability to uncover new ways of seeing—like the lesson at the water hole—that led him to an important discovery about the health implications of the communal conservancy program there.

A Proven Model

Namibia's communal conservancy program is a national initiative that aims to conserve the country's valuable natural capital while reducing poverty among its largely rural population. At the program's core are communal conservancies—customary landholdings that local communities have agreed to manage sustainably. In return, Naidoo explains, the communities "benefit from wildlife and other natural resources on their lands in a variety of ways."

That wildlife includes some of the continent's most iconic species. The ochre- and rust-colored deserts and savannas characterizing the bulk of Namibia's lands, along with a swath of wetter, more tropical veld and woodlands in the northeast, are home to cheetahs, black rhinos, lions, Hartmann's mountain zebras, oryx, elephants and black-faced impalas.

When Namibia won independence from South Africa in 1990, many of those species were close to disappearing. Rampant poaching, fueled by drought, human-wildlife conflict and several other factors, had ravaged animal populations throughout the country. To reverse that decline, the new government mandated environmental conservation in its constitution—the first country in Africa to do so—and several years later, it passed legislation establishing the conservancy program.

"We started with just four conservancies [in 1998]," Maxi Pia Louis says. Louis is the director and secretariat coordinator of the Namibian Association of Community Based Natural Resource Management Support Organizations, or NACSO—a coalition of local nongovernmental organizations, like WWF in Namibia, the University of Namibia and individual partners that support the conservancies in every facet of their work. She has a warm, high-pitched voice and a no-nonsense manner.

Initially the program drew little interest, Louis says. But that changed once income started flowing into the first conservancies through ecotourism lodges, sustainable hunting ventures, craft marketing and other activities. By December 2003, 25 additional communities had registered as communal conservancies; at the end of 2013, the total had jumped to 79, encompassing more than 230,000 people and covering almost 20% of the country.

In tandem with the program's growth, animal populations surged throughout Namibia, and some species began fanning across regions where they'd long been absent. (Lions, for example, have returned to the beaches of Skeleton Coast National Park, where they're known to feast on scavenged whales and seals.)

Today the program's main challenge is keeping up with its own success, Louis says with a laugh. "Everybody wants to have a conservancy now."

A Health Connection

Most of the benefits documented for conservancy members have been monetary. But financial hardship is only one of multiple barriers to well-being in their communities: a major problem has been Human Immunodeficiency Virus (HIV) and the chronic, life-threatening condition it can lead to, Acquired Immunodeficiency Syndrome, or AIDS.

Namibia has one of the highest HIV prevalence rates in the world; as of 2011, 13.1% of the country's adults were HIV-positive. That percentage runs higher in many rural regions, where access to resources for preventing or treating the disease is more limited than in urban areas. And though the spread of the epidemic seems to have slowed, its terrible cost to human life continues to strain every social and economic structure in the country.

NACSO's staff knew that Namibia's Ministry of Health and Social Services was running several HIV/AIDS outreach and education programs; they were also aware that the ministry couldn't reach some of the more remote regions where the conservancy program worked regularly with community members. So the two agencies began discussing ways to collaborate and eventually settled on a plan to mainstream, or integrate, an HIV/AIDS program into the existing structures and activities of 31 conservancies.

From 2003 to 2007, the program, which received funding from USAID and the US President's Emergency Plan for AIDS Relief, sought to lower some of the risk factors associated with the disease, which included having multiple sexual partners and unprotected sex. Tactics ranged from radio broadcasts and traditional song and dance to trained peer educators and community support groups. Though those activities looked different from village to village, at each site they took place within broader, conservation-based initiatives conservancy members had already invested in.

Louis says the peer educators, support groups and other local leaders proved instrumental in helping people move beyond stigmas surrounding the disease and begin to address it together.

"Slowly it started opening up," she says. "People realized that, you know what, this is part of our lives [and] we need to do something about it."

The Data Revelation

When Naidoo first began working in Namibia in 2007, however, the mainstreamed HIV/AIDS program was slowing to a

standstill. Funding had stopped. While Louis and many others felt the program was working, there was no mechanism to measure its impacts and no apparent change in the behaviors linked to the disease.

Sensing a research opportunity, Naidoo started casting around for every database he could find on people living in Namibia. He remembered one he'd seen called the DHS, or Demographic and Health Surveys, a project run by US-based consulting firm ICF International.

"As I was going through it I realized it was a gold mine," Naidoo says. The DHS covered numerous areas both in and outside conservancies across Namibia. Better still, two of the most recent surveys had been conducted in 2000 and 2006/2007, offering data from just before and at the end of the mainstreamed program.

It was an unwieldy gold mine, though. The DHS surveys were launched about 30 years ago to collect data on population fertility, child mortality, and their determinants in developing countries. Over the decades, however, they have added broader health and population statistics to the surveys—and as they've grown more comprehensive, they've also grown denser and increasingly tricky to navigate.

Fortunately, a colleague of Naidoo's knew Kiersten Johnson, a researcher with a doctorate in sociology and expertise in DHS and HIV/AIDS research. Over the past few years Johnson had developed a deep interest in studies that probe connections between human well-being and the environment. When Naidoo contacted her about the program, she was intrigued.

"In Namibia, they've got lots of [HIV/AIDS] behavior-change communication programs that are implemented all over the country, so what was it that made these programs [on the conservancies] different?" Johnson says. "For me that was the big question."

They decided to focus on the risk factor of having multiple sexual partners, which is the biggest behavioral driver of HIV infection in sub-Saharan Africa. With Johnson's input, Naidoo created a data set for men and women living on conservancies. He then compiled sets for three comparison groups: one consisting of men and women living outside the conservancies throughout the country, another of men and women in villages outside but geographically close to the conservancies, and a third of non-conservancy men and women who matched conservancy members across a range of other socioeconomic variables—among them age, marital status, education level, wealth, religious affiliation, and distance from the nearest health clinic.

Picking apart the statistics, they found a striking change among conservancy men: the average number of sexual partners those men reported having over the last year fell by about 60% between 2000 and 2006/2007, in contrast to roughly a 10% decrease among men in the best-matched comparison group. "Looking at a related risk factor, the percentage of men

with multiple partners," Naidoo says, they again saw a "sharp, dramatic drop in the conservancy residents relative to the comparison group."

The number of partners reported by women, already very low to begin with, did not change significantly—a result Naidoo and Johnson think reflects women's tendency to have fewer partners than men in Namibia, along with a higher likelihood of women underreporting having multiple partners.

In essence, the report concluded that the mainstreamed initiative had indeed made a difference in conservancy members' ability to combat HIV/AIDS—proving, Naidoo adds, "that this program, which previously had been viewed as a failure, was actually quite successful."

Small Actions with Big Implications

That turnaround in the mainstreamed program's perceived value has a number of implications, Naidoo says. One is the possibility of scaling up the program beyond Namibia. There's a great deal of communal land elsewhere in Africa, he explains, and the program's methods might be useful to other communities where the disease is still widespread.

Louis, for her part, sees an opportunity not just to revive the program on the conservancies but also to broaden its focus.

"We've realized, if you just address HIV and AIDS [on the conservancies], it's not enough," she says. "There are other health issues faced by the communities we work with. In the northeast of the country people die more from malaria than AIDS."

Regardless of how its scale and scope may shift if the program does start back up, what won't change is its heavy reliance on local partners for success. Naidoo stressed that WWF's partnership with the conservancies is ultimately a supportive one. "The drivers," he says, "are really the Namibian government and the local communities there."

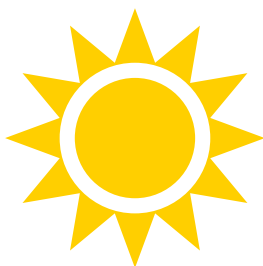
Some of those communities are still running activities from the mainstreamed program even without government support. In one of the conservancy villages, Louis says, she met a woman who had been trained as a peer educator. Today, several years after the funding dried up, the woman continues making her daily rounds among the village women to check the statuses and needs of conservancy members living with HIV/AIDS. She told Louis that many other peer

educators were doing the same.

"It was integrated at levels we'd never thought of," Louis says. She adds that the program had required some peer educators to track the actual number of people with the disease on their conservancies.

"And [that woman] was religiously still going [out and] collecting those figures," Louis says, clearly impressed. "And I asked, 'Where do you forward this information?'"

In response, the woman explained that she mails it to the Ministry of Health and Social Services in Windhoek, the way she always has. 📧



"Slowly it started opening up. People realized that, you know what, [HIV] is part of our lives and we need to do something about it."

MAXI PIA LOUIS, director and secretariat coordinator of the Namibian Association of Community Based Natural Resource Management Support Organizations



📍 Congo Basin

**“WOMEN INTERACT WITH NATURE
ALL THE TIME. THEY KNOW HOW
TO PROTECT IT, BUT SOMETIMES
THEY DON'T HAVE LAND TENURE OR
RIGHTS. THEY DON'T HAVE A VOICE.
WE MUST EMPOWER ALL THE PEOPLE
WHO ARE THE REAL STEWARDS OF
OUR NATURAL RESOURCES.”**

·) ALICE RUHWEZA

Regional Director, WWF-Africa

My father, who led the Uganda Wildlife Service when I was growing up, had a saying that “wildlife and people must be friends.” He said this because we are not separate from wildlife and should not think of ourselves as something apart from nature. ■ It’s something I’ve never forgotten. And even though he is gone, the truth of his message is still relevant. ■ Nobody knows that more than the Indigenous people of central Africa, whose livelihoods depend on natural resources. I am very much aware, as someone who’s been working in the region for the last 20 years, that these places are difficult to work in. They are fragile states. And while my father’s words still ring true, the context of conservation work has changed dramatically in recent decades. Just look at the pages that follow and see the gains we’ve helped women make in the Democratic Republic of the Congo. ■ Rather than being discouraged by the difficulties of doing conservation work in countries like the Central African Republic, the Democratic Republic of the Congo, and others, I’ve embraced the challenge of establishing a new, inclusive conservation model for the region, much like what you’ll read about in our story on Dzanga-Sangha. Part of this approach involves tapping into the knowledge and the cultures of Indigenous people so we can change the way we work because of what we learn from them. ■ It’s a process of continuous listening. I don’t have all the answers, but I do know that conservationists today need to understand that their role extends beyond biology to include things like food security, access to healthcare, girls’ education, and the empowerment of women. ■ So the question I always ask myself is how do we expand conservation to include everybody and all these things in a meaningful way? ■ Central African countries can be a challenge because they don’t all have tourism economies. They don’t always have strong governance or the capacity to effectively ensure human rights. So at WWF, we must make sure we first understand the challenges faced by the people we work with—and work together with them to ensure human rights are respected, protected, and fulfilled. Then we must work with communities, governments, and human rights-focused partners to make those rights central to every aspect of conservation, and to every project we take on.

Alice Ruhweza joined WWF as regional director for Africa in July 2019, building on her extensive Africa-wide experience with Conservation International and the United Nations Development Program. She has spent more than 20 years working at the nexus of conservation and development, connecting people and planet in ways that promote human well-being and drive sustainable opportunity for all.



VOICES CARRY

STORY BY
Alison Henry

PHOTOGRAPHS BY
Karine Aigner

NOTCHING
WINS AND
MAKING GAINS,
WOMEN IN THE
DEMOCRATIC
REPUBLIC OF
THE CONGO ARE
IMPROVING
THEIR LIVES
WHILE
PROTECTING
NATURE



WITHIN THE WESTERN REACHES of the Democratic Republic of the Congo, where well-trodden footpaths supplant roads and native dialects still ring through the forest, women shoulder the burdens of daily life. As the sun rises, they ready food for their husbands and children and set out for the fields bordering their villages. There, they turn the soil they've nurtured, plant the land they've prepared, and harvest the crops they've grown to feed and clothe the people who depend on them. They use breaks in the day to fish, make soap, or weave mats. Then, as the sun sinks, they fix another meal.

Here, women are at the center of the household and the heart of local livelihoods, yet they are often excluded from community-level decision-making about the natural resources on which they rely.



“Women have a wealth of knowledge that we need to tap into, because they play a major role as protectors of the natural resources,” says Nathalie Simoneau, senior gender and social inclusion specialist for WWF, who focuses on mainstreaming gender and social issues into WWF programs. “They have to have a greater voice. They have to be involved in making decisions about how the land is used.”

With longstanding and critical funding from USAID and other partners, WWF is working with communities throughout the Congo to empower women by teaching them sustainable farming techniques and fire prevention and management; offering them literacy classes; building their leadership and entrepreneurial skills; and ensuring their representation in decision-making bodies. Women are eager to develop leadership expertise for the betterment of their families and communities—and to create a more secure future for their children.

Working with women and their communities is a critical part of protecting the forests and wildlife in this part of the country. Here, the overharvesting of wood for fuel, conversion of wild spaces to agricultural land, overfishing, and excessive hunting of bushmeat (to eat and to sell) are all on the rise to meet the demands of a growing population. Nearby protected areas such as Tumba Lediima Natural Reserve and Salonga National Park harbor an array of wildlife—including endangered forest elephants and bonobos—and uncontrolled deforestation and poaching could harm their already struggling populations. Better land and natural resource management helps take the pressure off fragile ecosystems, reduce reliance on bushmeat and fish, and conserve nature’s bounty.

Until recently, most local development committees governing community farmland, land use, and natural resources consisted only of men. WWF has been instrumental in instituting a new policy that requires these committees to be at least 30% female. Women receive training in integrated agricultural and conservation practices so they can make meaningful contributions to household livelihoods and related decision-making.

One new practice is agroforestry—a technique that incorporates the cultivation and conservation of trees among crops or pastureland for more productive and sustainable land use. The idea is to keep the soil rich and healthy so the land can continue to produce long term, and to avoid the harmful yet common yearly practice of slashing and burning forests to create more agricultural fields.

In recent years, WWF has also supported Congolese women’s fight for land rights, culminating in the summer of 2016 when the government issued a statement reinforcing the law that stipulates women have to be engaged at all levels of decision-making in community forest concessions. Of course, permanently shifting the balance for women both culturally and legally will take time. But a handful of women in these villages have already adopted new leadership roles and agroforestry techniques with gusto. Through their work—and their success—women and men alike are beginning to see the economic, social, and environmental value in cultivating a community of equals.



VICTORINE BALAKO

As the mist of a late afternoon rain shower dissipates over the village of Mbanzi, a group of local women parade down a red dirt path toward their fields, engaged in a call-and-response song they all know by heart. They rest their machetes and hoes on their shoulders or let them swing beside their ankles—gritty implements contrasting with the vibrant patterns of their skirts.

At the helm of this legion walks Victorine Balako, a sinewy, serious figure with a crop of curly black hair framing her face like an aura. When she speaks—proudly, authoritatively—her cohort listens.

“Whenever I have an idea, I tell them,” Balako says. “I’m also the first one to implement it. And when they see it, they are interested and come do it, too.”

Balako is the president of *Sala Ozwa*, a women’s association formed in 2015 that’s working with WWF to better use shared farmland through sustainable

◀ A woman from Sala Ozwa, a women’s association, helps cultivate a shared field in the village of Mbanzi.



agricultural practices. The name translates to “do, so that you get”—a fitting mantra for those aiming to advance both economically and culturally.

WWF is helping Sala Ozwa learn how to plant multiple crops in one field to keep the soil fertile year after year and realize larger harvests and profits. The practice is an alternative to the slash-and-burn method traditionally employed to create new fields out of nearby forests—a damaging practice that results in the loss of old-growth forests and can accidentally burn out of control and destroy existing fields.

The women are currently raising rows of fast-growing hardwood trees, acacia, and cassava all in the same plot of land. Peanuts and other small crops grow among the larger plants, helping to maximize the yields from the field with limited environmental impact, and provide the community with nutritious, high-value food they can sell for income or feed to their families. And many of these trees and crops fix nitrogen in the soil, too, helping to enrich it.

“Whenever I have an idea, I tell them. I’m also the first one to implement it. And when [other members of Sala Ozwa] see it, they are interested and come do it, too.”

“It’s a harsh life for women in this village,” Balako says. Ashen skeletons of trees once burned to create more open land still dot the landscape. Around her, women bend low and swing their tools into the soil, still singing off and on. A handful of their young daughters wander between crop rows. “When we come to work, we are able to share with one another and spend the day singing to create some joy for ourselves. We work as a community to help each individual succeed.”

The women of Sala Ozwa are also gaining equal footing with men in making decisions about natural resources—and in general. The previously all-male local development committee now includes six women, with Balako serving as vice president.

Women are benefiting financially, too. Part of their harvest goes to market, meaning that for the first time, women are generating their own incomes. They say they want profits to go to school fees and toward sewing machines that they can learn to use.

Balako, for one, knows exactly what she wants to do with her new income: send her children—both her son and her daughter—to school.



MARTHE LOBOTA

Marthe Lobota stands in the shade of dozens of acacia trees planted in well-kept rows. Across her forehead, she wears a stroke of earthy red paint dotted with specks of white—a traditional adornment worn during special occasions by the indigenous women in the village of Oshwe, near Salonga National Park. Above, the sky threatens rain, but for now thousands of leaves just crinkle in a breeze.

“This piece of land and these trees are ours forever,” Lobota says, surveying the space around her. “We and our children and our grandchildren will benefit.”

Remarkably, 2016 was the first year she could say that. Lobota is president of the Association des Femmes Pygmées de Lokala, a women’s group that focuses on sustainable agriculture and livelihoods. Founded in 2010, the group consists of Batwa, an indigenous group that has historically been marginalized by the dominant Bantu. The women did not legally own the land they worked, despite having paid for it years before. A lack of legal documents signed and stamped by the government meant that a member of the family from which the association had purchased the land could come back at any time to lay claim.

WWF worked with the community and local authorities to redress this inequity, ultimately securing the official land title after months of advocating.



Marguerite Nzuzi (seated, center), a gender officer with WWF-DRC, has been instrumental in raising the profile of women’s associations in the Democratic Republic of the Congo.





This achievement dovetails with efforts to introduce the Batwa to agroforestry practices—like those used by Sala Ozwa—that will allow them to make their existing fields more productive and sustainable. Fields with fast-growing trees like acacia can provide wood for cooking fuel and furniture. Plants like cassava—a diet staple from root to leaf—can share space with the taller trees and with groundcover crops.

Lobota's group recently harvested and sold peanuts, earning 150,000 Congolese francs (CF)—about US\$95 and an excellent return for women in this region. They decided to reinvest 100,000 CF from their profits into the association, and then distribute the remaining 50,000 CF among the 35 women and two men who care for the land.

Some women are involved in other income-generating activities in addition to farming. Lobota makes soap from scratch to sell in Oshwe, and her Batwa community also owns equipment—which they both use and rent to others—to make palm oil from palm fruit harvested in the vicinity.

“With this association, we are able to bring some money, and the men are able to bring some money, and we can put it together,” Lobota says. “Now we have a say in family affairs.”



MAYALA NGABO

A flurry of buckets disrupts the opaque waters of a stream making its way through a low point in the savanna near the village of Mpelu. About a dozen women have built makeshift dams of mud and sticks on either end of a 10-yard stretch of water, temporarily sequestering the pint-sized fish within. Some hack chunks of earth out of the bank with machetes and use them to further secure the dams, while others scoop pails of water from between the barriers and pour them through a basket. After about 25

“There’s been a big change since women have been allowed in the [development] committee. There’s a hope that things will get better for us and that we’ll be received as autonomous people.”

Women work together to flex and soften, dry out, and finally weave a native plant into mats that they later use or sell at markets.

minutes, the once knee-deep water has been drained to reveal the sludgy stream bed. The women bend at the waist to explore the thick mud with their fingers. One by one, they pop back up with surprisingly colorful fish dancing in their hands.

Their fishing practices are a sight to behold and represent a new opportunity for women to earn additional income and therefore better provide for their families. Mayala Ngabo, president of the local Women’s Association for Development, and other women in the community are working with WWF to develop sustainable fishing practices and other activities, such as weaving and traditional dancing, that could serve as attractions for ecotourists along with once-in-a-lifetime opportunities to view nearby groups of habituated bonobos.

“It’s a way to put our kids through school, to feed them, and to pay for their medical bills,” Ngabo says in her native Bateke language.

Like other associations working with WWF, the women of Mpelu also practice agroforestry. They have grown wenge trees for hardwood and to attract the caterpillars they like to eat, and they have planted cassava in between. Already, the 10 women in the association are using harvest profits to purchase clothes for themselves and their children—a necessity once funded by men. And women now have the right to participate in the local development committee, too. Recently they persuaded the committee to allow women to join the men in selling products at local markets.

“There’s been a big change since women have been allowed in the committee,” Ngabo says. “There’s a hope that things will get better for us and that we’ll be received as autonomous people.”

Ngabo sees herself as a disseminator of ideas and information, even inviting women who are not formally a part of the association to meetings so they can discuss household issues and support one another in ensuring the village’s children are safe and healthy.

As the community continues to evolve, the women plan to move forward with their fishing and farming techniques—and be prepared to take advantage of ecotourism opportunities in years to come.





SAFE

**For people
as well as
elephants
and gorillas,
a haven
in the heart
of Africa**

Story and photographs
by Andy Isaacson



Z O N E

YOU CAN HEAR the *bai* before you arrive: an orchestra of low rumbles and trumpets reverberating through the dense trees. The clearing, known as Dzanga Bai, is crowded. Forest elephants, smaller in stature than their cousins roaming Africa's savannas, wander in and out. An adult female strides in with two young offspring in tow. A lone, tusky bull greets a family he knows. Young males thwack their trunks together in mock battle.

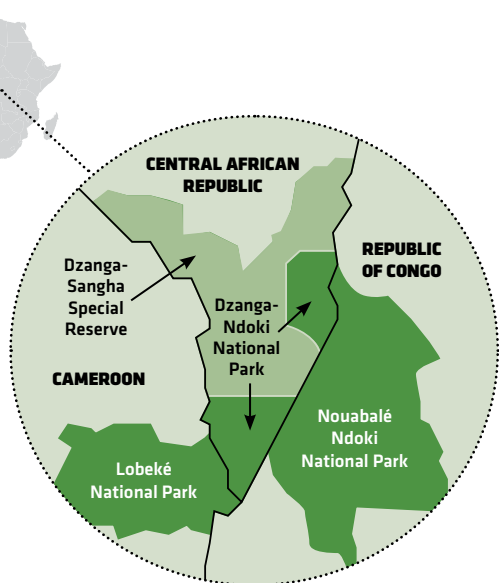
WWF's Luis Arranz took on the job of leading Dzanga-Sangha three years ago, in a unique partnership between the organization and the government of CAR. After nearly four decades on the continent and stints running national parks in Equatorial Guinea, Chad, and the Democratic Republic of the Congo, the 63-year-old Spaniard says he has come to regard Dzanga-Sangha as Africa's "best forest park." On his first visit to Dzanga Bai, he recalls counting 170 forest elephants. "I saw more elephants here in one hour than during my entire 15 years in Equatorial Guinea," he says.

Equally distinct, says Arranz, are the local Ba'Aka people and their unrivaled knowledge of the region's flora and fauna—traditional wisdom that is being lost in too many places in Africa. "They know absolutely everything," Arranz says. And he, like the other directors who preceded him, is determined to learn what they have to teach.

For more than 30 years, WWF has worked in Dzanga-Sangha, partnering closely with the government of CAR. Driving conservation here is the ethos that nature and people thrive together. Today, thanks to an approach based on long-term community engagement, Dzanga-Sangha stands as a model of enduring conservation in a region fraught with conflict.

CULTIVATING KNOWLEDGE

Memba Henriette, a Ba'Aka elder, is a member of the Ndimba-Kali Association, which comprises local Ba'Aka people living around the Dzanga-Sangha Special Reserve. Henriette is flanked by trainees Prisca Bougoe (left) and Congo (right). The group offers an official forum for elders like Henriette to teach the youth traditional forest culture.



Bais are a unique feature of Africa's Congo Basin, and no other bai attracts such large numbers of forest elephants. They come for the mud, which they suck out of holes in the ground with their trunks before depositing the mineral-rich elixir in their mouths. That's one of the secrets of the bai—these minerals are otherwise hard to find. The congregation serves a social purpose, too, offering a chance to reconnect with relatives. At the margins, buffalo, spiral-horned bongo antelope, and forest pigs munch on grasses.

Some 500 yards long and half as wide, Dzanga Bai lies at the geographic center of the continent, in the southwestern corner of the Central African Republic (CAR), within a protected area called Dzanga-Sangha.

In 2012, the United Nations Educational, Scientific and Cultural Organization named Dzanga-Sangha and the surrounding area—called Sangha Trinational—a World Heritage site, noting its role in "the continuation of ecological and evolutionary processes on a huge scale."

OPPORTUNITY AND STRIFE

The Congo Basin makes up one of the most important wilderness areas left on Earth. It is the world's second-largest tropical forest after the Amazon and is twice the size of Alaska. Spanning six countries—from Equatorial Guinea on the Atlantic coast to the Democratic Republic of the Congo, at the border with Uganda—it encompasses 1.3 million square miles. One-third of its roughly 10,000 species of tropical plants are found nowhere else. It harbors not just iconic and endangered wildlife but also nearly 150 distinct ethnic groups, whose lives and well-being are linked intimately with the forest.

In recent decades, conflict, poverty, and government neglect have exacted a heavy toll on the region. Rather than wholesale destruction, the Congo faces death by a thousand cuts: Activities like logging and wildlife poaching remove the diversity of trees and animals that are integral to the overall health and maintenance of the forest. Through their dung, for example,

Dzanga-Sangha stands as a model of enduring conservation in a region fraught with conflict.



**STAMPING
GROUND**

Dzanga Bai, a clearing in the dense forests of Dzanga-Sangha, hosts large groups of elephants nearly every day. Drawn to the rich minerals in the soil, elephants can be found here at almost any time of day or night.









SURVIVAL SKILLS

Guemo, a young Ba'Aka woman from the village of Mossapoula in the Dzanga-Sangha region, demonstrates the preparation of a hunting net. A youth member of the Ndima-Kali Association, she is part of a concerted effort to create jobs and sustain traditional skills for her community.

gorillas and elephants play a significant role in dispersing the seeds of tropical fruit trees.

In the CAR, the population of elephants roaming its northern savanna—as high as 35,000 in the late '70s—has been reduced by poachers to nearly zero. Only small numbers of African buffalo, giant eland, roan antelope, and highly endangered Kordofan giraffes remain.

A coup d'état in 2013 and ensuing civil conflict have left much of the country destabilized and in the throes of a humanitarian crisis. Most of its territory remains unpoliced and controlled by armed groups; a quarter of the population is displaced. Outside the capital of Bangui, health and education facilities are scarce or nonexistent. Of the 189 countries on the UN's 2019 Human Development Index, CAR ranked 188th.

Dzanga-Sangha is one of the only stable regions of the country.

A POLE OF STABILITY

Doli Lodge sits on the wooded banks of the Sangha River, close to the Dzanga-Sangha park headquarters. In 2019, its four two-bedroom bungalows and terraced restaurant were upgraded with solar-heated showers and imported furnishings. Perched on stilts made of sapele mahogany confiscated from illegal logging, the buildings look out over the Sangha, a tributary of the Congo River. The waterway is blissfully quiet, save for the chatter of young men steering pirogues laden with jerrycans filled with palm tree sap fermented into wine.

Lucy Tamlyn, United States ambassador to CAR, visited Doli Lodge shortly after assuming her post in 2019. She had asked to be brought to Dzanga-Sangha, having heard there was a place in the country that had, at its peak, welcomed more than 1,000 tourists a year. "I was just blown away," she recalls. "I said, that's not the CAR people have been describing to me."

"Places like Dzanga-Sangha," the ambassador adds, "act as poles of stability, particularly in countries like CAR, which has been unstable for years, and where many areas are essentially ungoverned." She notes that the creation of sustainable, well-managed areas like Dzanga-Sangha and a few other parks establish stable, peaceful zones where economic opportunity grows. "That exerts a strong influence on neighboring areas," she adds, "and that's particularly important in CAR."

Justice for All

Founded with help from WWF, the Centre des Droits de l'Homme (or Human Rights Center) is run by the independent human rights organization Maison de l'Enfant et de la Femme Pygmées. The center, with financial support from WWF, provides multiple community services under a single banner. They work to ensure the Ba'Aka have equal rights, provide education to help them secure increasing respect and stature in the community, and provide a safe, clear, and reliable system for raising grievances and addressing conflict at every level. While most cases have been resolved within the community, the center has also supported prosecution in a criminal case related to a Dzanga-Sangha employee—a step that engendered significant community trust.

THREE PILLARS OF THE HUMAN RIGHTS CENTER'S WORK



Securing and Defending Rights

Ensuring that all members of the larger Dzanga-Sangha community have access to equal rights and opportunities is a significant part of the center's work. The staff encourages and helps new parents to complete and submit birth certificates, then delivers them to municipal authorities and pays the necessary fees. Birth certificates legitimize people in the eyes of the law and guarantee the right to basic government services and the right to vote.



Education

Education and training are central to the center's mission. Trainings are for community members, with a focus on clarifying individual rights and encouraging advocacy, and park staff (including ecoguards), with a focus on embedding human rights best practices into all park activities.



Addressing Conflict

Conflicts can be raised, reviewed, and elevated through the Human Rights Center as well. Typically, issues are first raised to a local village monitor, though sometimes they are brought directly to the center itself. Most disputes are domestic or interpersonal in nature and often involve payments—or lack thereof—for services such as hunting or physical work. These conflicts are generally resolved via conversations between the village monitor and the aggrieved parties. However, when a situation involves violence or other legal matters, the case is immediately referred to the center, where the program director (a lawyer) can advocate for legal action and shepherd the complaint through CAR's legal system.

And while creating a “pole of stability” might not have been top of mind when WWF helped establish the protected area in 1990, they did nonetheless institute a unique model of collaborative comanagement.

At the heart of the protected area is the Dzanga-Ndoki National Park, which is dedicated entirely to the protection of nature, including the elephants, gorillas, and other species that thrive there. That core is surrounded by areas designated for rural development, sustainable forestry, and other uses—especially traditional hunting and the collection of forest products by the local community, including the Indigenous Ba'Aka.

And from the very beginning, WWF set out not only to protect natural resources but also to improve the lives of local people. Dzanga-Sangha currently employs more than 250 people, almost a third from the local Ba'Aka and Sangha-Sangha Indigenous populations, and has paid its staff continuously since 1989, even during times of political upheaval. In fact, 40% of park entry fees directly support local development initiatives, and the park's team of 114 ecoguards (11 of whom are Ba'Aka) are drawn from the local community, meaning their salaries radiate outward to the families—often extended—they support.

FULL-SPECTRUM CONSERVATION

WWF also supports local NGOs, including the Ndima-Kali Association, whose activities involve educating Ba'Aka about their rights, working with Ba'Aka elders to teach their youth about medicinal plants and other aspects of traditional forest culture, and reaching out to the larger community to tell their story.

The independent Maison de l'Enfant et de la Femme Pygmées, a Ba'Aka organization that runs Dzanga-Sangha's WWF-funded Human Rights Center, helps further balance out this equation. The group's lawyer, community representative, and village moderators help address conflicts, represent Ba'Aka and other community members in legal proceedings, educate park guards on citizens' rights, and secure birth certificates for Ba'Aka children—necessary legal recognition for a people historically without legal rights (see sidebar).

That committed, hard-fought integration of community and park also extends to WWF's investment in public benefits like health care. The organization finances the local hospital in Bayanga as well as a mobile physician who administers basic medicines and treatments in Ba'Aka villages surrounding the park.

That mobile health unit (essentially a truck filled with medicines, driven by a doctor funded by WWF) is a lifeline in many ways. Visiting each of Dzanga-Sangha's 24 Ba'Aka communities twice a month, the doctor provides everything from antibiotics, to antiparasitic and malarial treatments, to education about diseases like Ebola and tuberculosis, to a sympathetic ear. And while most Ba'Aka—somewhat recently transitioned from a nomadic lifestyle to farming—remain unconvinced of the benefits of modern medicine, the mobile health service helps bridge that gap and offers a safe, trusted place to keep individuals and the community strong.

BOUNDARY WATERS

Three men pilot a low, carved pirogue, or canoe, on the Sangha River, likely to gather palm wine. The river, which gave the area its name, helps define the park's boundaries and connects it to other forest conservation projects downstream.





It's all part of a concerted, multipronged approach to serving conservation priorities by serving the needs of the people whose lives are most closely embedded with the health of the ecosystem.

A NEW HOPE

A juvenile western lowland gorilla rests in the dappled light of the deep forest near Bai Hoku, a gorilla monitoring and research center about an hour's ride from the park headquarters and Doli Lodge. WWF has facilitated a gorilla monitoring and habituation program—to understand and protect the gorillas and to provide income for local monitors and trackers—for nearly 30 years.

It's all part of a concerted, multipronged approach to serving conservation priorities by addressing the needs of the people whose lives are most closely embedded with the health of the ecosystem. "We can't protect the park without making lives better for the people," says Allard Blom, WWF's managing director for the Congo Basin. "We never could."

That feeling of mutual opportunity goes two ways. As Idriss Amit, CAR's minister of water and forests, says, WWF's unwavering commitment throughout decades of political uncertainty has earned an uncommon degree of goodwill. "Without the partnership of WWF," he says, "Dzanga-Sangha wouldn't prosper."

A PRICELESS CHORUS

And so despite the ever-present threats of deforestation and poaching, Dzanga-Sangha's park staff, community advocates, doctors, rangers, educators, and researchers—and its famous elephants and gorillas—are doing well.

The larger Congo Basin is still faring better than the planet's other major tropical forests, too. In southeastern Asia, for example, oil palm plantations and commercial logging have reduced the rich lowland forests of Malaysia and Indonesia to scattered patches. The Amazon, as is widely known, is burning.

Sadly, all of this increases the stakes for protecting the Congo. "There's no way to reach the goals we've set under the Paris Agreement without conserving a significant proportion of this intact forest in the Congo Basin," says Kerry Cesareo, senior vice president for forests at WWF-US. And we must remain prepared for the threats—whether increased

forestry, mining, or poachers targeting the forest's elephants, gorillas, and other wildlife—that remain.

To offset that risk, Arranz hopes for a return to the 1,000 or so tourists Dzanga-Sangha used to see annually, back before civil violence gripped the country. In 2018, numbers were up to 415; but in 2019 there was a dip to 293, which Arranz attributes to construction on the lodge. He says bookings at the lodge had far surpassed 2019 numbers as of March, and he'd estimated the park would see 1,000 visitors again this year. Then the COVID-19 pandemic struck. Now, he acknowledges, "nobody knows."

Still, tourism at Dzanga-Sangha holds out rich opportunity. The park offers ample wildlife to see, of course, but also the unique chance to spend a rustic night in the forest with a Ba'Aka family, learning their traditional ways. And the park runs one of the world's few programs for viewing habituated groups of western lowland gorillas, which are tracked year-round by Ba'Aka guides.

In 2018, a similar program in Rwanda drew 1.7 million visitors who paid \$1,500 an hour to view the gorillas. In Dzanga-Sangha, the experience costs only \$330 an hour. "This place has more to offer than any place in Rwanda," says Blom, who spearheaded Dzanga-Sangha's gorilla habituation program nearly 30 years ago and directs WWF-US work in the basin to this day. "It could be one of the top tourist attractions in the world."

All of it—shared opportunities and challenges, engaged community leadership, thriving elephant and gorilla populations, and an almost prehistoric-feeling forest—warrant that estimation. Dzanga-Sangha is a truly magical place.

As Ambassador Tamlyn says, "Dzanga-Sangha provides employment for Indigenous and local peoples in a broader setting where few such economic opportunities exist. It provides employment; it funnels revenues back to the local community. That's why it's a success. Because that model of community dialogue and discussion—of finding out what the communities that protect the forest really want, and embedding that in forest and wildlife protection efforts—is almost unique here in the Central African Republic."

Like the sounds of the elephants in their well-protected bai, it's a powerful and beautiful orchestra, in tune. 🦋



**“I FIRMLY BELIEVE THAT INDIGENOUS
PEOPLES, WHO ARE THE ONES
WHO LIVE IN THESE SPACES, WHO
BENEFIT FROM NATURE AND THE
CONSERVATION OF THE AMAZON, ARE
THE ONES WHO SHOULD PARTICIPATE
IN DECISION-MAKING ABOUT WHAT IS
DONE IN THESE SPACES.”**

») CINTHIA MONAYLARDI

Director of Forests and Indigenous Affairs, WWF-Peru

I studied to be a lawyer, but what I can tell you is that when it comes to community-based conservation, the law is only one tool. You also need to build relationships with people, and to understand their relationships with nature. ■ When working with people who live deep in the Amazon—people whose very lives depend on the forest—those relationships need to be transparent and authentic. Indigenous communities were marginalized and ignored in decision-making about their world in the past—even, sometimes, by conservation organizations. I am happy to say that this continues to change. ■ In my role at WWF, I work with between 250 and 300 Indigenous communities and 25 ethnic groups through 17 Indigenous organizations at the local and regional level, and two Indigenous organizations at the national level. A community can be 10 people or 100, each one with its customs, its traditions, and often its own language. Community interests are not all the same, but their members are all affected by the laws that are made in the centers of power, far from where they hunt, gather, and fish to sustain themselves. ■ For these Indigenous people, the forest is their home, their holy place, their classroom, and their hospital. We can learn so much from them about sustaining it because for them it is everything. ■ Early in my career, I saw for myself how development plans for the Peruvian Amazon were written at desks in the city—far from the people, trees, rivers, and wildlife they affected. Policy-makers didn't consider what Indigenous peoples wanted, needed, or thought. ■ But over the last several decades, those policy-makers—and conservation groups like WWF, as you'll see on the following pages—have learned to listen better. We didn't always get it right—not all conservation decisions protected or benefited the most vulnerable in the past—but we learned to listen to them. We knew we had to do better. Because it is the right thing to do. ■ This means that now the people who use and protect natural resources have a growing say in how those resources are managed. And as we build trust with Indigenous communities, we move closer to our goal of having their worldview be central to laws about the development of the Amazon. Sometimes this involves trying to reconcile very differing ideologies. But at the end of the day, the people of the Amazon don't need additional rights. They just need recognition of the rights that, no matter the upheaval or politics of the time, should never have been compromised to begin with.

With a background in law, Cinthia Mongylardi has spent the last two decades working on rights for Indigenous populations. From within the framework of forest conservation processes, she has strengthened environmental governance policies and supported the development of economic activities that provide reliable, long-term opportunity for people and are compatible with a healthy environment.

It Takes a Village

Indigenous communities, government agencies, nonprofits and businesses take a stand against deforestation in Peru

by **Julian Smith**

with additional reporting by **Jill Schwartz**

photography by **Nicolas Villaume**



TO REACH THE INDIGENOUS village of Puerto Luz in the Amazon rain forest of southern Peru, the first step is to get to the city of Puerto Maldonado, capital of the province of Madre de Dios. The next step is a three-hour drive on the Interoceanic Highway to the banks of the latte-colored Tambopata River.

Then comes a ride in a long, narrow water taxi, followed by a two-hour drive that includes a fording of the Rio Pukiri that leaves the vehicle's footwells wet. In the apocalyptic mining town of Delta 1, motorcycle taxis wait to cover



Tucked against the river, a remote, rain-drenched village illustrates how closely tied natural resources are to people's everyday lives.





At the edge of the Intercoceanic Highway, slash-and-burn agriculture fractures forest ecosystems and eats away at their ability to provide.

the final 30-minute leg through the jungle. The trail leads over ramshackle boardwalks; near the end, it winds through a virtual motocross course of house-sized mounds of dirt and rocks left behind by illegal gold mines.

In Puerto Luz, homes built of bare boards cluster in the midst of leafy, standing forest. Village president Andrés Moqui sits on a plastic chair and tells how the community's 600 residents, members of the Harakmbut ethnic group, are finding themselves on the front lines of climate change.

The sun is much stronger than it was 20 years ago, he says. "Now it burns our skin, we get headaches at night, get sick." The forest is different, too. Fruits are ripening and rotting faster, and the animals the villagers hunt in the surrounding Amarakaeri Communal Reserve are often full of worms. "Everything is smaller—fishes, birds," says Moqui, who attributes the alterations to climate change. "It affects us greatly."

A GREEN STRONGHOLD

Peru holds the 10th-most-forested area of any country in the world; over half the country—some 260,000 square miles—is covered in trees. Only Brazil holds a larger area of Amazonian tropical forest. This helps make Peru one of the 10 most biodiverse countries in the world, with over 330,000 people who depend directly on the country's forests for their livelihoods, and countless more who depend on the numerous products and ecosystem services those forests provide.

At the same time, the Amazon has just been listed by WWF as a top deforestation front—one of the 11 regions expected to have more deforestation and forest degradation than anywhere else by 2030. In the Peruvian Amazon, the main culprits of deforestation are small-scale agriculture, commercial mining and related road construction; forest degradation is caused primarily by illegal logging. Roughly 1,100 square miles of Peru's forests are cut down every year—around 80% of them illegally. This forest loss hurts much more than the trees and Peru's amazing wildlife; it also accounts for nearly half of the country's greenhouse gas emissions. (Worldwide, deforestation and degradation are the largest source of CO₂, after burning fossil fuels.)

The situation could be worse; many countries have higher rates of forest loss. But, ironically, that could change as Peru enters a second decade of relative prosperity and political stability. In Madre de Dios, for example, the Interoceanic Highway—a \$2.8 billion, 1,600-mile paved road from the coast of Peru to Brazil—was completed in 2011 and has opened access to once-isolated forest regions. People are streaming down from impoverished Andean provinces, and other areas in Peru, in search of work. Many end up mining gold, which can pay up to five times as much as farm labor but often leaves behind a barren moonscape in place of thriving forests.

In economies centered on natural resource extraction, such boom times often mean growing environmental threats. But the finances provided by that development can also open up greater conservation opportunities. That's absolutely the case in Peru.

"When it comes to forests and their effect on global climate," says Patricia León-Melgar, who leads both WWF's Peru office and the WWF Network's forests and climate initiative, "the question is how to ride the wave in a sustainable way—how to enjoy the economic benefits without sacrificing social and ecological values." From remote villages to businesses to the highest levels of government, efforts are underway to do just that.

HOME AND HEARTH

At ground level, indigenous communities throughout the Madre de Dios region and the rest of the Amazon are taking a customized approach to a global initiative called "Reducing Emissions from Deforestation and Forest Degradation," or REDD+. The "+" expands the program's scope to include conservation and sustainable management of forests, as well as an increase in the forests' carbon storage capacity.

Fermín Chimatani Tayori, the Puerto Luz resident who is leading his community's REDD+ effort and serves as president of the Amarakaeri reserve, sits on a porch as rain pounds on the corrugated metal roofs of the village. Residents of the village were concerned about some elements of the standard REDD+ approach, he says, even as they agreed with its overall goal. So, in a joint effort with indigenous groups throughout the Amazon, they designed and proposed a new twist on it called Amazon Indigenous REDD+.

All REDD+ programs require the monitoring and measuring of carbon emissions from changes in the forest, in part so that progress can be compensated financially, but also to learn what conservation strategies are most effective. Indigenous communities in the Amazon take this one step further, as they also want to monitor and measure what is most important to them—things like changes in biodiversity and the spiritual elements of nature. Their approach to doing so is spelled out in a "life plan," which provides conservation planning (as is required by REDD+) and more, such as how to manage tourism and the logging undertaken for subsistence reasons.

Their REDD+ activities also place particular emphasis on securing land rights and tenure. It's a necessary addition: land rights, or the lack thereof, is a pervasive issue in the Peruvian Amazon, where the management and ownership of large swaths of territory are unclear at best. In Peru, indigenous communities have the legal right to manage approximately 27 million acres, which represents almost 16% of the country's forested land. But they are managing another 24 million acres of forest land, too, even though it is technically unclear if they have the right to do so. They have formally asked the Peruvian

"The sun is much stronger than it was 20 years ago. Now it burns our skin, we get headaches at night, get sick. Everything is smaller—fishes, birds."

ANDRÉS MOQUI
Village President, Puerto Luz

government for legal authority to manage that land and are awaiting a response.

Most forest land in Peru is owned by the national government, which grants permission—often in the form of concessions—to applicants for the temporary harvest of certain tracts of land. But indigenous communities, like the one where Tayori lives, want the land to be recognized as their own, permanently, in acknowledgment of their long-term use and stewardship.

“It’s our own proposal to show that we indigenous people are preserving the land,” Tayori says as the downpour grows stronger. “It’s not just carbon-related. It includes preserving clean water, wildlife, everything that lives in the forest. It also makes it clear to the world that we, this community, own this land.”

He explains that his village and other indigenous communities are motivated to do everything they can to keep their trees standing and their forests thriving. The World Bank’s Forest Investment Program has dedicated US\$50 million to Peru’s indigenous communities, and the funding they receive for reducing carbon emissions is used to create and implement those life plans. WWF, a longtime advocate for indigenous rights, is responsible for administering these grants.

RESPONSIBILITY FIRST

At a lumber mill near Puerto Maldonado, saws the size of kiddie pools fill the air with sawdust and the sour tang of fresh-cut wood. Clawed tractors stack tree trunks cut from the surrounding forests into huge piles.

The mill is owned by the Maderacre Group, which manages nearly 850 square miles of tropical forest, the largest such concession in Peru. Last year, these blades chewed through 40,000 cubic meters of wood from six species of trees. Counterintuitively, this is a good thing.

Maderacre’s focus is the responsible use of forest resources, says industrial manager Andrea del Pozo, and the company was the first in Peru to participate in a REDD+ project.

“When I first saw REDD+ as a concept 10 years ago, I said: ‘That is it.’ It used to be that I didn’t think responsible forest management would be feasible in the long run.” With REDD+, he says, he believes that combining healthy forests with a healthy business model can work over the long haul.

Maderacre already had a head start on the environmental aspects of REDD+: the business has been committed to responsible forestry through the Global Forest & Trade Network (GFTN) since 2008. And WWF helped the company earn Forest Stewardship Council (FSC) certification, which is given only to companies that meet global standards for managing their forests responsibly. This was a big step toward meeting the safeguards expected under REDD+. Meeting those standards also requires Maderacre to maintain good relations with the residents of the 600-square-mile buffer zone around the forest

concession, del Pozo says, because social responsibility is an important component of responsible forestry.

Maderacre offers its employees full labor rights as well as insurance, room and board, and productivity bonuses. In fact, del Pozo says, Madre de Dios as a whole is known for having the best working conditions in Peru’s forestry industry. This draws labor from as far as Iquitos, 700 miles north.

The long-range view reflects the company’s policy toward forest management, says Abraham Cardozo, who founded Maderacre with his brother in 2002. When they were looking to sell the company in 2011, they didn’t simply go with the highest offer. “We weren’t just selling Maderacre the business,” he says. Instead they went with a buyer who understood the local and global importance of keeping healthy forest ecosystems intact.

This was a particularly significant choice on their part; unfortunately, illegal logs are usually less expensive to buy (and

produce) than are legally harvested logs. The global illegal timber trade, which is valued by the United Nations at between \$30 billion and \$100 billion annually, lowers the market price of timber, creating an uneven playing field for companies that follow the law. In the US, for example, the wood products industry loses as much as \$1 billion annually to illegal logging. That pervasive problem is why WWF is working to make clear to consumers, producers, loggers and local communities that while these lower prices seem good in the short term, the long-term impact is negative, both for the environment and for the economic life of communities.

In the future, Maderacre hopes to sell more to the international market, which will offer access to a growing pool of buyers that seek

legal and responsible wood.

“Of course the goal is to be profitable,” del Pozo says. “But being sustainable makes us profitable.”

ON THE RISE

In an office in Lima, far from the forests and mills of Madre de Dios, Gustavo Suárez de Freitas directs the forest conservation and climate change programs of Peru’s Ministry of the Environment. He points to a graph on the wall showing acres of trees cut in Peru per year. “The fact is that deforestation is increasing,” he says. And indeed, the columns representing deforestation rates rise steadily from left to right. “Right now we have a lot of regulations that are totally impossible to fulfill.”

Part of the reason is that the ministry itself was only created in 2009. Another is the high rate of turnover in government positions at all levels—local, regional and national. Like Tayori, Suárez de Freitas says that the lack of land tenure also is a major stumbling block. “In parts of the country we have areas with no authority and no ownership. And if land is [effectively] free, small-scale agriculture operations pop up almost overnight.”

THE LANGUAGE OF FOREST LOSS

DEFORESTATION

Conversion of forest to another land use or the significant long-term reduction of tree canopy cover. This includes conversion of natural forest to tree plantations, agriculture, pasture, water reservoirs and urban areas; it excludes logging areas where the forest is managed to regenerate naturally or with the aid of silvicultural measures.

FOREST DEGRADATION

Changes within forests that negatively affect the structure or function of the stand or site over many decades, and thereby lower forest capacity to supply products and/or ecosystem services.



Jorge Tayori Kendero, vice president of the Puerto Luz community, wears a traditional headdress for his meeting with WWF.







At Maderacre's mill a few hours' drive outside of Puerto Maldonado, workers process sustainably harvested wood.



Victor Zambrano
González points
out one of the 120
species of trees he
nurtures on his land.



It starts as “lots of small dots,” Suárez de Freitas says, even in isolated places like Madre de Dios. “But then, over time, more dots appear and then they connect.” Farmers move in, cut down trees, plant crops like coffee or cacao, and then move on when the soil is depleted.

Still, a lot of progress has been made on the forest conservation front. Some of Peru’s most biologically and economically important protected areas have been created in the last 15 years, and a new national forest law was approved in 2011. And significant progress has been made toward creating the regulations needed to enforce the law. But there’s still more work to be done and, with WWF’s support, the national government is working hard on several new initiatives.

One is the National Pact for Legal Wood, signed in December 2014 by five Peruvian government agencies and several indigenous federations, private-sector companies and nonprofits, including WWF. Signatories have agreed to create a plan to promote legal timber and eradicate illegal logging in Peru by 2021.

“This type of cooperation across government agencies and with the private sector has not happened before in Peru,” says Fabiola Muñoz-Dodero, director of the national forest agency, known as SERFOR. “But the political will is there now and we need to strike while the iron is hot—and before the next change of government in 2016.” To help bring the pact to life, WWF has directed money from its innovation fund to support the process, including clearly defining specific commitments and targets for each of the pact’s signatories.

Also new is an initiative to create a fund that can be used to secure the country’s protected areas in perpetuity. This initiative—led by the Peruvian park service with support from WWF and the Gordon and Betty Moore Foundation—is modeled after the successful ARPA for Life project in neighboring Brazil.

Finally, Suárez de Freitas’ ministry is working on a national strategy for forests and climate change. That effort, galvanized in part by Peru’s role hosting the last global climate change conference in Lima, will focus primarily on reducing greenhouse gas emissions from deforestation and forest degradation. It also will clarify who has the right to manage what land, especially within indigenous communities like Puerto Luz. To do this, the ministry’s plan is to develop maps that designate land ownership, engage regional governments more actively in mapping the land within their jurisdiction, and more quickly review and approve proposals from indigenous communities to manage that land (currently, there are proposals that, if approved, would grant them rights to manage another 12 million acres).

“We agree that we need to reduce by at least 50% the land area without rights by 2020,” offers Suárez de Freitas. He then admits, “it is a huge task.”

A FAMILY AFFAIR

Back east, just outside Puerto Maldonado, recent downpours have left the Tambopata River swollen and surging in the sunshine. Entire trees sweep past the riverbank where Victor Zambrano Gonzáles describes how he created K’erenda Homet, a 40-acre private nature reserve on the outskirts of the city.

After 24 years with the Peruvian Navy (including a stint in the Special Forces), Zambrano returned to his family’s land in 1986 to find it almost unrecognizable. Illegal cattle ranching had turned what was once primary forest into acidic, compacted soil covered with invasive grasses. “What I’d left behind no longer existed,” he says.

At a wiry 76 years old, Zambrano still practically vibrates with energy, which makes what he describes next easier to imagine. “I took the land by storm,” he says as he strides down a narrow path through dense tropical vegetation as a light shower begins to fall. Applying the mindset he learned in the Peruvian Special Forces to restoring the property, he uprooted all the grass and planted legumes to add nitrogen to the soil. Then came pioneer plant species, and eventually trees: Zambrano claims his land has 20,000 of them in all, representing 120 species. The soil slowly recovered and wildlife started to return.

Inside the refuge office, he proudly shows a framed certificate that the minister of the environment presented to him in 2010. It recognizes K’erenda Homet as the first private conservation area in Madre de Dios. Over a dozen other reserves have followed, including three more just along this stretch of the river; today, they draw a steady trickle of visitors—and the income such tourism provides.

Climate change has definitely had an effect over the past decade, Zambrano says: extreme temperature swings; plants fruiting for six months instead of two. “We have to start doing things differently than how we’ve always been doing them,” he adds. He believes the government wants to encourage private conservation areas but doesn’t yet have the resources, so they leave it up to people like him.

Zambrano acknowledges that not everyone shares his vigor and determination. That’s why adults have to transfer their experience and knowledge to succeeding generations along with the land itself, he says.

In his case, that involves welcoming visitors to the reserve—and naming it after his daughter, who has helped him with the project since she was old enough to walk. When she turned 16, he transferred full ownership of the reserve to her.

“I am optimistic,” Zambrano says. “One hundred percent optimistic. I say proudly: ‘I am a conservationist, an environmentalist, but with my feet firmly planted on the ground.’”

“It used to be that I didn’t think responsible forest management would be feasible in the long run. With REDD+, [I believe] that combining healthy forests with a healthy business model could work in the long haul.”

ANDREA DEL POZO
Industrial Manager, Maderacre



Colombia

**“INDIGENOUS COMMUNITIES RELY ON
NATURE, SO WHEN WE WORK WITH
THEM, WE CONSERVE BIODIVERSITY.
IN FACT, WE HAVE LEARNED SO
MUCH FROM THOSE COMMUNITIES
ABOUT BOTH ANCESTRAL,
TRADITIONAL PRACTICES AND
THEIR CURRENT, COMPREHENSIVE
UNDERSTANDING OF THEIR LANDS.”**

») CARMEN CANDELO

Governance & Livelihood Advisor, WWF-Colombia

In Colombia, biodiversity and people's well-being are as tangled together as the vines in the forest. ■ In nature there is food, there is wisdom, there is everything. But nature is also a site of one of our greatest sources of conflict: access to land. As Colombia emerges from decades of fighting, we continue to face great inequities. In the past, economic activity was heavily based on extracting, burning, and destroying resources. Now our economy is supplemented by tourism, the cultivation of blackberries and other forest products, and the raising of domestic animals. And it is only by managing this complex transition that we'll find a path to lasting peace. ■ Here, WWF has played an important and supportive role. While WWF has contributed to the implementation of the peace agreement signed between the Revolutionary Armed Forces of Colombia (FARC) and the government (described in "Heritage Colombia" on the following pages), there is still a long road ahead. In some regions we have to move very carefully, because there are still flare-ups of conflict. We try to act within the possibilities, getting people to talk to each other and helping identify the interests at play. ■ Mostly, people want the landscapes they love to exist and people to thrive, but they disagree on how to achieve these goals. So we've learned to start with what they have in common—and what we have in common with them. And we always aim to strengthen governance and Indigenous rights, especially around how Indigenous peoples are consulted, and their right to free, prior, and informed consent. ■ Too often, people's rights have been sacrificed to the conflict, but we're committed to empowering communities so their views inform decisions about resource or land use that may impact them. Despite the many challenges of working in this context, we're building trust. The changes I see in how communities exercise their rights motivate me. I am from a marginalized community myself, and I understand their struggles. ■ I also understand the harmony between Indigenous peoples and the resources they rely on. By helping to develop approaches that respect their identities as custodians of nature, I know we're protecting so much more than just biodiversity.

Carmen Candelo has 22 years of experience working to build capacity with Indigenous, Afro-Colombian, and rural communities in Colombia. She supports their efforts to effectively take part in, and influence, local government decision-making—to make sure their voices are heard. Her work involves promoting conflict resolution by supporting human rights and biodiversity conservation through dialogue and collective action.





HERITAGE COLOMBIA

After a decades-long civil war, Colombia sets its sights on a peaceful future based on its rich natural and cultural heritage

By **Jill Schwartz**
Photography by **Day's Edge Productions**
Illustration by **Federica Bordoni**



NELSON BARRAGÁN IS BAREFOOT, burly, and bronzed. He walks into the open-air dining area of his riverside lodge as his new guests are taking the final bites of dessert. They arrived a few hours earlier, and he is here to welcome them.

He turns on an LCD projector at the head of the dining table. A photo of an owl appears on the screen behind him. Then a caiman. A capybara and an anaconda (the largest rodent and the largest boa in the world, respectively). A puma, a jaguar, a heron, a wild pig. Dozens of other wildlife photos follow.

Barragán (pictured, with his brother Julio) has seen all these creatures on the 42,000 acres his family owns in the Orinoco River basin of eastern Colombia, which his guests

have come to explore. He and his seven siblings grew up here, on a savanna where two family businesses—cattle ranching and tourism—coexist with nature.

Next Barragán strums a few tunes inspired by the sounds of this place: cattle running across dry earth and rain pounding on the roof during a fierce summer storm; birds singing at sunrise and wind rustling the leaves in the trees.

Then he rests a small guitar, a *cuatro*, on his hip and begins to sing songs he has written. In one, a man is taken to court by a stork, who charges him with killing wildlife and doing harm to the planet. The man's attorney, a dog, explains that the wildlife was a threat to the man, who, without claws, couldn't defend himself against attack. But the judge, an owl, doesn't buy it; the man, he says, has a brain and should know how to use it better. The owl rules that the man is guilty.

Barragán ends the night by showing the guests a few of his paintings, including one that depicts the courtroom scene from the song.

To the guests, he has put on a show. But to him, it's simply his truth. Barragán is a *llanero*—a cowboy from this region of Colombia. Music, art, and stories about nature are at the heart of his culture. A harp is just as familiar to a *llanero* as a lasso or a cattle brand.

"To be a *llanero*, you have to know how to ride horses and raise livestock," the 53-year-old says in his soft, calm voice. "But you also need to have respect for the land and the wild species that live on it ... and you need to use music and stories to share the culture so it lives on."



BARRAGÁN'S RESPECT for the land is so deep that asking him to dig up memories from one specific period of his life leaves him almost speechless. It was in the 1990s. The guerrillas of the Revolutionary Armed Forces of Colombia, or FARC, and other rebel groups were rapidly taking hold of the country, particularly rural areas like the Orinoco River basin. To the FARC, the land was a source of revenue from the sale of timber, oil, gas, palm oil, rice, coca, and other crops.

Like so many, Barragán's family fled the region. More than 7 million people were displaced during the country's 52-year civil war. They escaped to places like the Colombian Amazon, and when those forests became ground zero for FARC-led drug trafficking and other illegal activities, they fled again. And again. More than 220,000 people were killed.

"It was a difficult time," is all he says about the period when

he and his family relocated to the capital city, Bogotá.

Without the *llaneros* and other natives of the region, the Orinoco basin suffered. There and across the country, natural resources were degraded and destroyed by forest fires used to clear the land for crops, toxic spills from coca cultivation and illegal mining, and other illegal or unsustainable activities carried out by the rebels.

After a few years, when fighting in the Orinoco died down, the Barragáns returned to their ranch. But the armed conflict continued to smolder and flare, especially in the Amazon.



A HISTORIC PEACE AGREEMENT, signed in late November 2016 between the government of Colombia and the FARC, is designed

to put an end, finally, to the conflict. The agreement includes the requirement—met in June 2017—that the FARC hand over its weapons. It also includes a less common measure for achieving peace.

Colombia's President Juan Manuel Santos, along with donor countries supporting the peace process, believes that finding answers to who manages the country's natural resources and how these resources can be used is integral to the peace process.

Disputes over natural resources were often at the center of the conflict. A lack of clarity about land tenure—who owned the forests, grasslands, and other natural resources, and how they could be used—allowed the FARC and other guerilla groups, like the National Lib-

eration Army, to exploit the land. They cleared trees to grow coca plants and blocked access to rivers so they could transport illegal crops to the ocean, where they were shipped to other countries.

Colombia's protected areas—national parks, regional parks, and private reserves—were hit especially hard. Nearly 70% of the 60 million-acre system of protected areas was in conflict zones. Illegal activities went undetected in remote areas that were hard to get to by land and so thick with trees that it was hard to spot such activities from the air.

With the peace agreement comes the opportunity to restore the health of the country's protected areas and prevent damage or loss to the many wild wonders that still exist. One of the main approaches to this opportunity is Project Finance for Permanence (PFP), an innovative means for permanently and fully funding protected areas. Through a new PFP

"Heritage Colombia has the potential to become a groundbreaking model that not only ensures the long-term management of protected areas and their ecosystem services, but also promotes the inclusion of social benefits and the governance systems necessary to make the initiative sustainable across a diverse set of landscapes. The Moore Foundation is honored to work with the government and its partners in designing this initiative."

PAULINA G. ARROYO

Program Officer, Andes Amazon Initiative
Gordon and Betty Moore Foundation

A photograph of three Kogi children in a stream. Two girls in white dresses and red necklaces are crouching in the shallow water, reaching for something on the sandy bottom. A third child is partially visible behind them. The stream is surrounded by lush green foliage and large rocks. The water is clear, showing the sandy bottom and some debris like leaves and twigs.

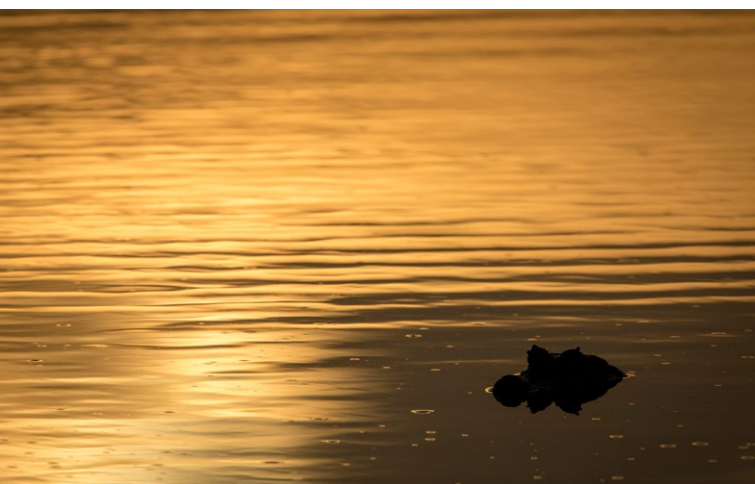
HOME TURF

Indigenous communities live in and around many protected areas, and are trusted stewards of the land. Here, Kogi children explore a stream in Tayrona National Park.



A NATURAL MOSAIC

Clockwise from top left:
ducks in flight; an iguana;
a hawk in the *llanos*, or
savanna; coral in Tayrona
National Park; a specta-
cled caiman; capybaras.





called Heritage Colombia, a fund will be created to increase the amount of land in the protected areas system, to ensure the proper management of select places within that system, and to ensure the proper management and governance of select areas both within and adjacent to protected areas. This includes land in the Amazon, the Andes, the Orinoco River basin, and on the Pacific and Caribbean coasts.

The initiative is being led by National Parks of Colombia, with support from WWF, the Gordon and Betty Moore Foundation, the Protected Areas and Biodiversity Fund, the Wildlife Conservation Society, and Conservation International.

WWF was a key partner in a PFP in Brazil that resulted in the long-term protection of 150 million acres of the Amazon. And we are a key partner in a PFP in Peru that seeks to protect another 41 million acres of the Amazon. Adding Heritage Colombia to the mix will help ensure that 14% of the Amazon biome is permanently protected.

“I like to think of Heritage Colombia as ‘parks for peace and peace for parks,’” says Sandra Valenzuela, director of planning and development for WWF-Colombia. “Not only will better management and governance of the parks help bring peace to the country, but peace in the country will also help ensure that our parks are healthy for generations to come.”



HERITAGE COLOMBIA differs from other PFP initiatives in two important ways. The first is the inclusion of land adjacent to—not just within—protected areas. By focusing on multiple types of land (including national and regional protected areas, Afro-Colombian and indigenous territories, and forest reserves), Heritage Colombia recognizes that natural resources, as well as the clean water and other services they provide, do not stop at the borders of protected areas. They are part of a larger landscape that needs to be managed as one.

The second is the emphasis on governance—specifically, rules and policies related to who owns the land and how the land can be used. Governance is not always clear in Colombia, yet it is an important issue to address because many communities in the country rely on the land inside and adjacent to protected areas for their sustenance. Without clarity on governance, not only do tensions arise, but better land management is nearly impossible. And without better land management, the long-term health of protected areas is in jeopardy.

Utria National Park, on the Pacific Coast, provides an example of the benefits of both good governance and looking beyond the park boundaries. Utria lies at the end of an hour-long boat ride that is at the end of a 30-minute bumpy drive that is at the end of a two-hour flight from Bogotá.

At more than 150,000 acres, Utria’s landscapes and seascapes range from coral reefs to mangroves to rain forests. And the variety of the park’s ecosystems is matched by the complexity of governing who lives in, owns, manages, and uses the land.

Three groups of indigenous people live in the park. Three Afro-Colombian communities live just outside the park. The indigenous people and Afro-Colombians have the right to use

land and water within the park, as long as they do so in accordance with the guidelines they developed with the parks agency and others—and they have this right even if they do not own the land. In Utria, the indigenous communities own land within the park (they were there long before the park was created in the 1980s) but the Afro-Colombians do not.

Yet despite this level of complexity, Utria is one of the best-managed protected areas in Colombia. That's because the communities and park agency have worked together—and with other entities, such as WWF and USAID—to develop and implement a strategy that clearly outlines who owns what and how natural resources can be used.

Gregorio Urrutia Cáceres benefits from that clarity. He and others in his predominantly Afro-Colombian community, which lies just outside the park boundaries, have the right to use the park. He knows exactly which land and waterways he can use. He also knows what practices he must follow—like respecting no-go fishing zones—to ensure his fishing business doesn't harm Utria's coral reefs or damage mangroves that the parks agency has been working to restore. And he knows that protecting the park also protects his livelihood.

Cáceres has fished almost every day since his father taught him how some 40 years ago, catching albacore, pompano, and black tuna, which he sells and uses to feed his family. For the most part, he says he has always followed good fishing practices. But with the help of the parks agency, WWF, and others, he now uses fishing lines instead of large nets with small holes, which have the unintended consequence of trapping other fish as bycatch.

Cáceres has also developed a small tourism business—mainly offering whale watching trips—in accordance with the mutually agreed-upon guidelines about resource use. Humpbacks travel through this area in the summer, and the number of tourists coming to this remote part of Colombia to see them increased as word got out that Utria was safe, relative to other areas of the country, during the conflict years.

"I am so grateful to the park for helping us," says Cáceres. "Because of their help, we know what we can do and where we can do it. We are now on the right track."

"Managing parks in Colombia can be hard, given all the people who have rights to the land," says Utria park manager Henry Pinzón Benavides. "But there are so many benefits to working with them because they are such good stewards of the land. They need to be just as much a part of the parks as the park rangers need to be part of the community."

Benavides hopes Utria is the poster child for good governance, especially as Heritage Colombia takes shape.

"I am excited about Heritage Colombia because it is a good

way to show how important it is to work together," he says. "We can show that this model works and, therefore, that it should be scaled up."



SCALING UP THAT MODEL in order to strengthen Colombia's system of protected areas is not only a key component of the country's strategy for peace and for protecting its natural resources, but also for addressing climate change and other issues. Funders of Heritage Colombia also see it as a means for meeting global goals, including the UN Sustainable Development Goals and the climate goals in the Paris Agreement.

"Colombia has made a promise at the international level to do things like stopping deforestation within our borders," says Colombia National Parks Agency Director Julia Miranda Londoño. "The only way we will achieve this is if we work with local communities through initiatives like Heritage Colombia and if we work with partners like WWF, which

has been in solidarity with us and has pushed us to develop good sustainable development and environment strategies."

And with the civil war coming to an end, the country faces new challenges. Industries such as palm oil and natural gas are quickly expanding on land in or near protected areas that had been considered unsafe. People, especially those displaced by the conflict, are also settling in these areas.

"We potentially have a new type of conflict now," says WWF's Valenzuela. "It's a conflict related to how we want to grow."

As for Nelson Barragán and his family, future growth in the Orinoco River basin means continuing the llanero tradition of respecting the land and its creatures, and passing on its stories. Barragán's family land is part of a larger landscape, where WWF and others hope jaguars and other wildlife will soon be able to roam freely through a corridor of connected private reserves and public protected areas that stretches from eastern Colombia to western Venezuela. In 2008, WWF helped the Barragán family achieve private reserve designation for their land. Through Heritage Colombia, WWF is working with the Barragáns and others to get the remaining land in the corridor designated as protected and properly managed.

"Our land is not an island. I've always felt like our land is part of something larger—something that belongs to everybody," Barragán says. "And I believe we have an obligation to protect it, not to transform it into something it's not supposed to be. We don't need something else. We already have our prize—birds, jaguars, nature. It's why I wake up in the morning." 🐾

"I like to think of Heritage Colombia as 'parks for peace and peace for parks.' Not only will better management and governance of the parks help bring peace to the country, but peace in the country will also help ensure that our parks are healthy for generations to come."

SANDRA VALENZUELA

Director of Planning and Development, WWF-Colombia



AT WORK

Gregorio Cáceres, a fisherman from Bahía Solano on Colombia's Pacific coast, depends on the bounty of healthy waters at sea, in the bay, and in the mangrove forests that ring the coast.



NONSTOP

Why Colombia's Sandra Valenzuela never gives up on fighting for peace and protecting the land

ON NOVEMBER 30, 2016, Sandra Valenzuela was home watching television with her mother, but she wasn't tuned in to a sitcom or movie. She was watching the local news, anxiously waiting to find out if the congressional leaders in her homeland, Colombia, would say yes to a peace agreement with the rebels who were at the center of the country's 52-year civil war.

She had been in front of the same television set nearly two months earlier, waiting for the results from a similar referendum that had been put before the general public. She was crushed when she learned that night that the referendum was rejected. It was one of several times in her life that a peace agreement was within reach, but then failed.

The vote before Congress that night felt like the last flicker of hope. When the newscaster announced at 11 p.m. that Congress had approved the referendum, she was in shock.

"I didn't think it could happen," says Valenzuela, 43, who had lived her entire life in a country embroiled in conflict.

She toasted the victory, then she and her mother called her sisters in the US to rejoice. The festivities continued for several days, as parades and impromptu parties in the street took over Bogotá, where she lives. She was in the thick of it all—much as she has been in the thick of the conflict for many years.

Valenzuela has spent almost half her life dedicated to a more peaceful Colombia, and particularly to how conservation can help the country achieve that peace. She has done so wearing several hats—the first being with the Colombia National Parks Agency. During her first five years there, she put her law degree to work by helping create policies related to who owns land in Colombia and how they can use it, especially in and around protected areas—an issue at the core of the conflict.

Her next path within the agency took her as far away from a desk as possible. In 1998, the petite 20-something ended up in the Amazon, ground zero for the conflict, where she worked as the agency's director of protected areas for the Amazon and Orinoco regions. Her task? To help negotiate agreements with local communities and the national parks agency.

For three years, she traveled throughout the Amazon, sleeping in tents, cabins, and hammocks at night, and meeting with small farming communities, indigenous groups, and others

during the day. They mainly met in the Macarena region of the Amazon, which the Colombian president had designated as a neutral zone. It was, in theory, a safe area where the government and rebels could go to negotiate a peace agreement. The parks agency usually convened these meetings because it was considered to be the most neutral entity around.

"We were not judgmental," says Valenzuela. "We knew people at the meetings were growing illicit crops and affiliated with the rebel groups. It was just a fact, and we did not judge them for that. We just listened and then we provided alternatives, like sustainable livelihood opportunities that did not involve illicit crops. And we helped find new places for those displaced by the conflict to live. All of this helped us to build trust."

But that was not enough. Three years of discussions, but no peace agreement to show for it in the end.

"We made progress," she recalls. "We just could not get into the meat of things—the root causes of the conflict. It's because there was not a sense of urgency."


She eventually came out of the forest, left the agency, and completed two master's degrees, one in international affairs and rural development, the other in science and conservation.

"I was so sad to leave the field. I was crying when I left, because I felt like I was betraying the people I had met and leaving them in the middle of the conflict."

In reality, she never left the conflict behind. One of her theses related to financial mechanisms for the proper management of protected areas—the areas that were most affected by the conflict and, in many cases, were the source of the conflict.

And, fresh out of graduate school, she was back in the peace process again—this time as a member of WWF's Colombia team. When she started working for WWF in 2004, she coordinated the office's strategic planning and monitoring.

Now, with the peace agreement signed, she leads the WWF team that is helping bring to life what is seen as one of the best strategies for implementing the agreement: Heritage Colombia.

"I finally have faith that we can start creating what we have wanted for so long—using our natural heritage to promote peace. Our parks are an opportunity to make peace real and provide tangible benefits to all of us." 



**“THE ANCIENT FORESTS OF MYANMAR
ARE A GLOBAL TREASURE WHICH
WE ALL HAVE A RESPONSIBILITY
TO PROTECT. I AM SO GRATEFUL TO
THE KAREN PEOPLE FOR LETTING
US PLAY A SMALL PART IN MAKING
THEIR HOME A SUSTAINABLE
TREASURE FOR US ALL.”**

”) CHRISTY WILLIAMS

Regional Director, Asia Pacific

The unbroken canopy of the Dawna Tenasserim forest extends as far as the eye can see, from Myanmar into Thailand, covering almost 70,000 square miles. The forest is home to tigers, elephants, gaur, leopards, and over 500 bird species. ■ It's also home to the Karen, an Indigenous community that lives in this forest at the heart of Southeast Asia, in the world's most populous region. ■ This forested expanse is a national, cultural, and geographic crossroads, where the traditions of Indigenous communities intersect with the demands of a rapidly changing world. ■ When WWF opened an office in Myanmar in 2014, it was with a deep understanding of the many challenges and opportunities ahead. The Karen, for example, still manage their land, forests, and rivers in the traditional way. But for how long? Across Myanmar, development is altering people's ways of life. In many ways, that change is for the better; in others it is less so: Deforestation, poaching, and river pollution threaten traditional lifestyles and Myanmar's long-held approach to living in balance with nature. ■ Supporting Karen communities as they protect their forest is essential but challenging, not least because of the area's history of conflict. There is lingering mistrust among the various people tasked with deciding how to manage this forest for the future. ■ After months of meetings and hours of travel deep within the Dawna Tenasserim to meet local authorities and Karen communities, we at WWF were able to build the trust needed to support inclusive planning for the region's biodiversity. And by consistently listening to the communities, we've been able to work alongside them as partners. ■ I can honestly say that signing an agreement with the Karen community was one of the proudest moments of my career. Three years on, we're still listening and still learning. Our work in the Dawna Tenasserim region spans biodiversity monitoring, enterprise and livelihood development, and renewable energy. ■ The story you are about to read—"Night Bright"—touches on that last point and is one small example of the power of such partnerships to solve some of the world's most intractable problems.

Christy Williams has over two decades of experience working with diverse teams of WWF staff, partner groups, government officials, and donors across 15 countries. His work has involved identifying nontraditional opportunities to further conservation, negotiating tricky and complex political situations in conflict zones, and protecting Indigenous peoples' right to manage their own resources.

NIGHT BRIGHT

Empowering women and villages in rural Myanmar

story by **Kassia Wordley**
photographs by **Hkun Lat**

NIGHT MARKET

Thanks to a WWF project, a home shop in Kayin Taun Pyauk village is illuminated with solar light for the first time.







TECH SUPPORT

Ma San Maw sets up a solar panel at Daw Mya Swe's house in a village near Dawei, Myanmar. Maw is one of the five solar engineers who returned home after completing a 6-month solar power training program in India.



As the sun sets over the Western Hemisphere, the Earth's surface begins to glow. At night, huge, shimmering clusters of man-made light transform the electrified world.

On the other side of the planet, something very different is happening.

Myanmar and its vast, forested wilderness slip into darkness, and the landscape comes alive with a symphony of sounds. Insects, birds, the low steady rumble of a bull Asian elephant in the distance.

In a small clearing, a woman steps up onto a rattan stool. With a concentrated expression and screwdriver in hand, she tightens the final bolt securing a plastic box to the bamboo wall of her home. Stepping down, she reaches for a small switch and presses it.

"It works," she says in Burmese with a humble smile.

She is Naw Yoe Lay, a mother of two from Hin Ka Pi, a rural village nestled deep in the mountainous region that straddles the border between Myanmar and Thailand. Naw Yoe Lay has just installed her village's first solar-powered light, and subsequently marked the beginning of a new era of opportunity for her family and community.

THE ENERGY ISSUE

Across the globe, more than 1 billion people are living without access to electricity. In Myanmar that's 62% of the population, most of whom live rurally. Extending power grids to these areas is an expensive and complicated business, but energy is an essential tool. Without it Myanmar's

rural communities will be left behind as the rest of the country leaps forward into an unprecedented phase of rapid development.

"Education, small businesses, medicine. Electricity makes it all happen," says Shoon So Oo, energy manager for WWF-Myanmar. Shoon joined WWF-Myanmar in 2015. His job is to develop a plan for renewable power across the country, as well as to establish community models for rural areas. The idea is this: Give Myanmar's entire population access to renewable energy and in doing so avoid the continued degradation of Myanmar's natural resources.

To deliver on this ambition, WWF is taking action at both a national level and on the ground.

A JOURNEY WORTH MAKING

At the beginning of 2017, five women from three villages in rural Myanmar boarded a plane for the very first time. They were heading to Barefoot College in India, where they would meet other women from all over the world and together train to become solar engineers. They learned to set up, install, maintain, and repair solar home systems using the universal languages of color coding, illustrated instructions, and repetition.

They were heading to Barefoot College in India, where they would meet other women from all over the world and together train to become solar engineers. They learned to set up, install, maintain, and repair solar home systems.

"We learned about all kinds of circuits and machines, but also about health and how to build useful things like stoves. I have never been away from my husband for more than one day in the past so I missed him dearly, but it is worth it to bring electricity to my home," says Ma San Maw, another of the women who studied at Barefoot College.

"We have always had to worry about things like snakes when the light goes out. Now we can cook and sew without being scared."

(continued on page 80)



OPEN SESAME

Upon receipt of a shipment of the electronic equipment trainees worked on at Barefoot College, volunteers unpack solar panel components in Hin Ka Pi village.



STEP BY STEP

The Barefoot College program trains women to work as solar power technicians, bringing a renewable and much needed power source to communities sometimes far off the conventional energy grid. How? Read on.

1

HANDS-ON TRAINING

Focusing on practice instead of theory, the program teaches women how to build various solar electrification systems including LED lamps, charge controllers, home lighting systems, and solar lanterns. This hands-on practical approach opens the opportunity to trainees without prior educational qualifications; in addition, Barefoot solar engineers learn by seeing and doing, without need for translation, other than the English names of essential parts.

2

HOME INSTALLATIONS

The equipment the women build is then shipped to their villages. Once it is in hand, the newly trained engineers work with community volunteers to install the equipment and provide electricity to the homes in their community. Villages pay the engineer for her labor and expertise, and call on her to troubleshoot when something goes wrong.

3

ONGOING MAINTENANCE

While at Barefoot College, the women also learn how to set up a Rural Electronic Workshop in their villages—a place to safely store the components and equipment needed for the repair and maintenance of the solar units.



NIGHT TIME

(right) Workers cut betel nut by solar light in Kayin Taun Pyauk village. Safely extending work hours benefits individual families and the community as a whole.

THE GRADUATE

(left) Naw Pho Doe, 32, poses for a portrait after returning home from India. "I feel really proud of myself. I've been somewhere completely new and learned new skills that will benefit my family and community."





NIGHT LIGHT

(left) Fish are a staple food for many rural residents in Myanmar. Solar powered lanterns allow people to fish at night.

LIFELONG LEARNING

(right) Naw Yi Aye, 52, one of the solar engineers who completed the six-month International Solar Training Program in India, works at a solar workshop in Kyit Hpee Lan village.



(continued from page 73)

Finally in October 2017, after six long months thousands of miles from home (“and strange food,” says Ma San Maw, giggling), the women return. The reunification is warm—embraces, smiles, and tears in equal measure.

“We missed Mum a lot, but Dad cried more. Every day he hiked to the top of the mountain, where there is phone reception, to call her. I think he’s very happy she has come back,” says the eldest daughter of Naw Yoe Lay.

“My wife has finally returned, and she brings electricity for the whole community. I am very proud of her,” adds Naw Yoe Lay’s husband.

LIFE BEFORE LIGHT

Early the next morning Naw Yoe Lay is sitting cross-legged on the floor with two of the other women. WWF’s energy team has just delivered stacks of boxes filled with home solar systems and solar lanterns. They line the walls of the women’s newly constructed workshop, paid for with money pooled by the community. This money also covers a salary for each of the women, but would once have been spent on expensive, inefficient diesel for the shared generator. Morning sun streaks through the wooden slats and nimble fingers strip plastic coating from cables as the women talk.

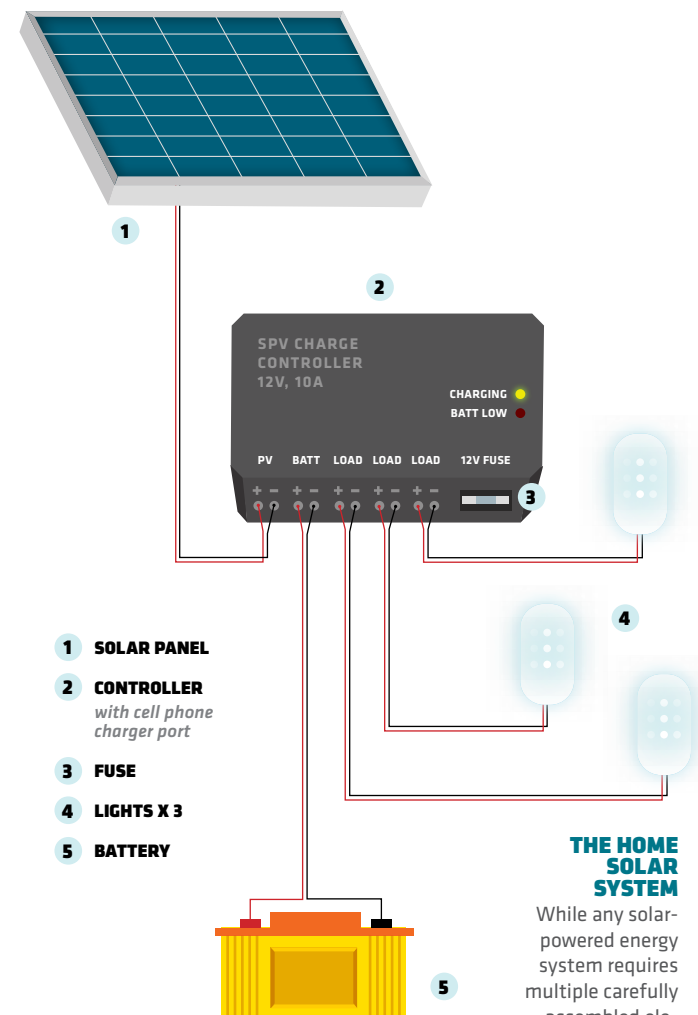
“We have had a lot of difficulties living here. The kids can’t study at night because the candles are always blowing out. Cooking, sewing, everything is just difficult,” says Ma San Maw.

“And if you have an emergency,” adds one of the other affectionately named “solar mamas,” Naw Pho Doe, “it’s really bad news. We have to use a lighter to go to the health officer’s house, but there are dangerous animals out there like venomous snakes.”

“The kids’ safety and education are what we are most concerned about. We want them to have the opportunities we did not,” says Naw Yoe Lay.

COMPLEX PROBLEM, SIMPLE ANSWER

Myanmar is a land of astonishing natural beauty. Its lush forests are home to rare and endangered species. Its rivers flow freely and feed the nation. Its mountains are steeped in cultural and historical significance. But all of this faces imminent threats, and in the rush for development poor choices could impact the landscape for generations to come. Myanmar has a chance to avoid the energy mistakes of its neighbors by using a clean, green technology that will safeguard the country’s natural



THE HOME SOLAR SYSTEM

While any solar-powered energy system requires multiple carefully assembled elements, the equipment provided by Barefoot College and managed by its graduates is designed to be as simple and inexpensive as possible.

wonders and biodiversity. The women from villages such as Hin Ka Pi are illuminating a sustainable, inclusive path for the rest of the country to follow, proving that we can be set free from dependence on destructive fossil fuels.

This year 235 houses have been electrified by WWF and Barefoot College.

“And we have 1,000 more planned for 2018,” says WWF’s Shoon, “and I wish tens of thousands to follow in 2019. Knowing this effort to provide electricity is sustainable is the best satisfaction we can have. I see a bright future, pun intended,” he adds with a broad smile.

As the night falls over Hin Ka Pi, the final solar panel has just been installed at the village leader’s house. One by one, each household flicks a switch, and the dusty streets are illuminated. A group of children take position for a game; others venture inside to watch their first film on a portable DVD player. A few young men and women prepare nets, heading out to fish for dinner in a nearby stream. Naw Yoe Lay and her friends stand back for a brief moment, watching.

“Things will get easier now,” she says. 



SHARED VALUE

In Kayin Taun Pyauk, a man and his daughter turn on the newly installed solar-powered light as Ma San Maw, who installed it herself, looks on.



**“ONCE YOU’VE SEEN PEOPLE’S
RESILIENCE AND THEIR DEDICATION
TO BETTERING THEIR LIVES AND THE
HEALTH AND PRODUCTIVITY OF THE
PLACES THEY LIVE, YOU SEE THAT
THERE IS NOTHING MORE POWERFUL
THAN DOING CONSERVATION IN
PARTNERSHIP WITH COMMUNITIES.”**

Dr. GHANA GURUNG

Country Representative, WWF-Nepal

A snow leopard cannot change its spots, but we can change how we protect them. The seed of this lesson is rooted in my childhood in a village in Nepal. ■ Born a Buddhist, I learned about the interdependence and interconnectedness of all life at an early age. As a young boy following the mountain paths, guarding my flock from snow leopards, I developed strong legs and a passion for conservation. Those legs have taken me all over the world to study and learn more about this topic. Ultimately though, I've circled back to where I began. Except now, my job goes beyond protecting my flock, to respecting, appreciating, and helping to protect all life in Nepal—a kind of interconnectedness that runs through the climate- and community-focused story you'll read here. ■ My empathy for my people, the people of Nepal, is like muscle memory. It allows me to walk difficult paths in their shoes. And at the same time, I understand the value of the snow leopards I used to fear. That balance grew out of my nearly 25-year conservation career. ■ WWF's work in Nepal began in the Chitwan Valley in 1967. In those early days, there was often heavy-handed conservation rhetoric, and traditional community needs were sometimes ignored. But just as our country has grown through civil unrest, changing governments, and sometimes violent uprisings, our approach to conservation has evolved. Now, we listen and consult. We learn from community values, which are so intricately linked with nature, and we integrate them into the work we do. We know, as you'll see on the following pages, that conservation works only if it is truly inclusive of all the people affected by it. It works only when we place local knowledge and values on equal footing with international conventions and conservation needs. ■ For me, listening is the beginning of trust. I try to listen with an open mind and a humble heart. I can do the work I do, in the way I do it, only because of the boy I was.

For over 25 years, Ghana Gurung has used a people-centric natural resource management approach to protect Nepal's natural resources and biodiversity. He is one of the early architects of both the community-based and landscape-level conservation approaches in Nepal, making the role of holistic, inclusive conservation a centerpiece of his work.





WATER WAYS

Meena Gurung drinks from a local fountain in Kerunge Khola, a village in the flatter lands far downstream from the Himalayas.

Circulatory Systems

In one of the most climate-vulnerable countries on Earth, an unprecedented development project is building a model for adapting to climate change on a massive scale—by working with one village at a time.

by **Abby Seiff**
photography by **Karine Aigner**
illustrations by **Muti**



AS HE PICKS HIS WAY THROUGH the thick underbrush and flat, leafy fronds of cardamom in the Bhakarjung Community Forest, Basanta Raj Poudel gestures toward the brown terraced fields unfolding below.

“Ten to 15 years ago, when we walked through here, this whole area was covered in mist,” Poudel says. “It used to snow here, too, but that stopped a decade ago.” He pauses to peer at the fields below. Some are studded with green, but it becomes clear that the green is just stunted weeds growing on soil so dry that it is split by a thousand cracks.

Poudel’s village, Dhikurpokhari, sits just below Nepal’s High Mountains within the Seti sub-river basin—one of seven in the sprawling Gandaki river basin. To the south lies India. To the north, the Himalayas, which include some of the tallest peaks in the world. The massive Kali Gandaki gorge—said to be the world’s deepest—cuts through the high mountain range, dividing the eastern and western Himalayas.

From up in those looming mountains, snow and glacier melt flows downstream, mixing with rainwater and connecting with underground water sources to reach thousands of springs, streams, and rivers—the source of water for millions of people, animals, and plants. Yet in Poudel’s village, at what should be the start of the rainy season, the fields are dry.

Dhikurpokhari is not alone in its predicament. Climate change has hit Nepal hard, and it has hit fast. It is causing greater variations in weather patterns and more extreme weather events, like the drought that contributed to the exceptional number of wildfires that raged across Nepal during 2016’s pre-monsoon season. But the fires are just one small piece of the shifting climate-change picture. The rains, too, have become less predictable, making it more difficult to decide which crops to grow and when to plant them. More hailstorms and stronger snows in some areas are affecting agriculture as well.

“Nepal is a mountainous country with low incomes and diverse landscapes,” says the Director General of the Department of Forests in the Ministry of Forests and Soil Conservation, Krishna P. Acharya. “It is one of the most climate-vulnerable countries in the world.”

Healthy and Green

That’s why, in August 2011, WWF began work on one of the largest, most complex conservation,

LANDSCAPE TO LOCAL
Nepal’s Gandaki River Basin sets the boundaries of the Chitwan-Annapurna Landscape, where Hariyo Ban partners support many priority areas and thousands of partner communities spread across the region’s mountains, steep hills, and flat plains.

..... Chitwan-Annapurna Landscape Boundary
— Elevation Regions
— Rivers

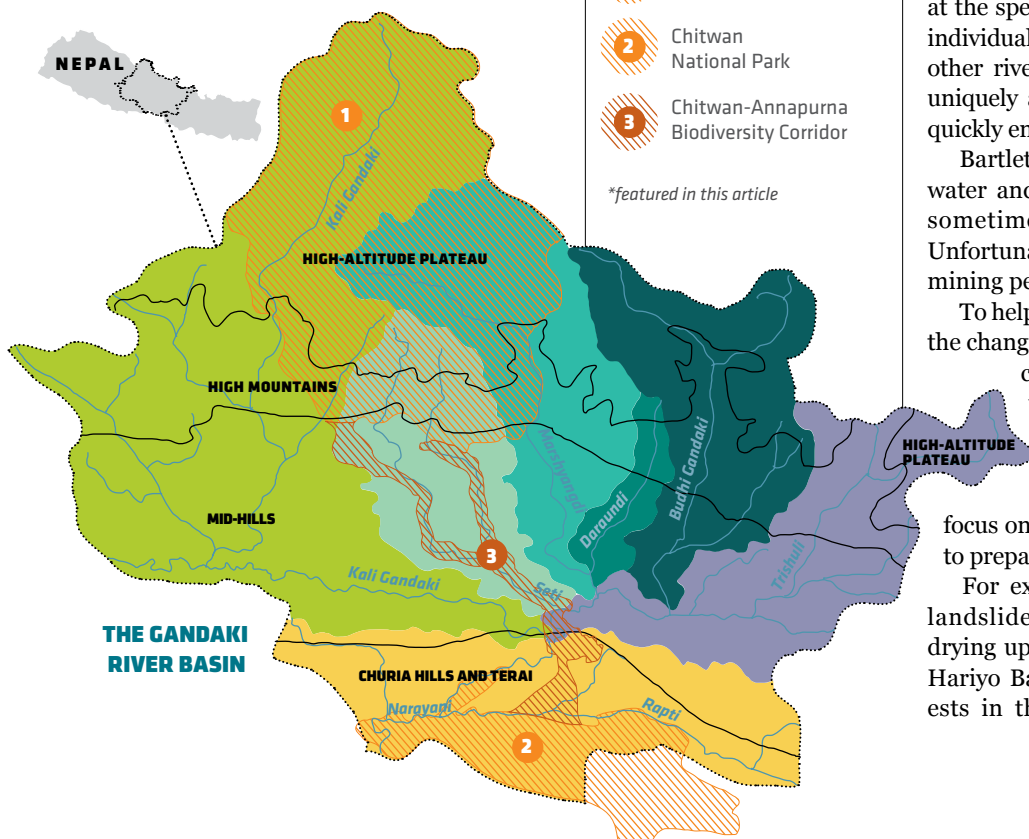
SUB-RIVER BASINS

- Rapti-Narayani
- Kali Gandaki
- Seti
- Marshyangdi
- Daraundi
- Budhi Gandaki
- Trishuli

PROTECTED AREAS AND BIODIVERSITY CORRIDORS*

- 1 Annapurna Conservation Area
- 2 Chitwan National Park
- 3 Chitwan-Annapurna Biodiversity Corridor

*featured in this article



development, and climate change projects ever launched in Nepal. The program was dubbed Hariyo Ban, short for a Nepali saying that means “Healthy green forests are the wealth of Nepal.”

The five-year, nearly \$40 million USAID-funded program brought together WWF, the international development organization CARE, the Federation of Community Forestry Users Nepal, and the National Trust for Nature Conservation. Together, the groups have worked to forge a new model for a landscape-level, community-driven approach to conserving biodiversity that also helps people adapt to climate change and mitigate greenhouse gas emissions by storing carbon.

“Hariyo Ban works across two major landscapes: the Chitwan-Annapurna Landscape and the Terai Arc Landscape, which together cover 40% of the country,” says outgoing Hariyo Ban chief of party Judy Oglethorpe. “As climate change advances, we know it’s going to have serious impacts on ecosystems and people, including entire river basins and their freshwater resources. By working at different scales, we can work with upstream and downstream water users at the same time.”

The entire Chitwan-Annapurna landscape, says Ryan Bartlett, WWF’s senior specialist for climate resilience, is vulnerable to climate change. Prior to the launch of Hariyo Ban, researchers at WWF had already begun looking at the specifics of climate resilience, observing individual ecosystems within the Gandaki and other river basins, and studying how each is uniquely affected. A common theme—water—quickly emerged.

Bartlett says, “Sometimes there’s a lack of water and sometimes there’s too much. And sometimes it comes at unexpected times. Unfortunately, those new extremes are undermining people’s lives.”

To help people in the Gandaki basin adapt to the changing conditions, Hariyo Ban organized climate vulnerability assessments at various levels—from community to landscape—to identify situation-specific solutions for the people and the land. This led to a strong focus on people’s livelihoods and their ability to prepare for and recover from disasters.

For example, when people suffered from landslides, crop failures, or water sources drying up due to changes in rainfall patterns, Hariyo Ban supported the restoration of forests in their water catchments to stabilize



FOREST GUARDIAN

Lila Ditra Poudel checks in on the Dhikurpokhari Community Forest User Group's cardamom plantation, which anchors hillsides, supports biodiversity, and provides a source of income.



HIGH AND LOW

The altitude of Nepal's Himalayas is legendary; Even the country's mid-hills region is furrowed by undulating ranges, steep hillsides, and rivers vulnerable to erosion and fluctuating water flows.





UNDERSTANDING HARIYO BAN

Funded by USAID and implemented by WWF, CARE, the Federation of Community Forestry Users Nepal, and Nepal's National Trust for Nature Conservation, Hariyo Ban is an ambitious and expansive partnership designed to reduce the adverse impacts of climate change and threats to biodiversity. It is also a testing ground—of new ideas, deeply embedded community leadership, and the power of marrying landscape-level conservation with a granular, village-by-village approach.

Since 2011, the project has focused its work in Nepal's Chitwan-Annapurna Landscape and Terai Arc Landscape, identifying key climate adaptation and resilience needs, contributing to climate-mitigation efforts, and delivering unprecedented levels of integrated support for the region's people and wildlife.

All results represent work across both the Chitwan-Annapurna Landscape and the Terai Arc Landscape, and were accurate as of this issue's press date.

slopes and conserve water supplies. It provided greenhouses (called “plastic tunnels” in Nepal) to diversify crops and incomes. And it provided support to upgrade foot trails to improve local people's access to harvesting areas and schools, and to promote ecotourism.

“You can't do good conservation,” says Bartlett, “without learning from the people who live there and helping meet their needs.”

So Hariyo Ban partners spend months, or even years, getting to know the intricacies of each target community—working with people to assess how they and their ecosystems are vulnerable to climate change, helping them develop programs that address specific needs, and helping to secure funding and resources. The process has a special focus on including the voices and concerns of those who are most vulnerable—including women, those with disabilities, and the very poor.

Five years on, and against daunting odds, the program is a striking success. Across both landscapes, hundreds of thousands of people have benefited from Hariyo Ban, and more than 160,000 acres of degraded forest have been improved with the aid of hundreds of locally run user groups and protected area staff.

“The program also worked with thousands of local people and Nepal's government to mitigate climate change by reducing or sequestering an estimated 3.7 million tons of carbon emissions in Nepal's forests,” says Netra Sharma, Natural Resources Management and Climate Change Programs Specialist for USAID/Nepal.

Those living in project areas have reported economic improvements, increases in wild species, and the recovery of local forests.

And each community has its own story to tell.

Upstream and Downstream

A short but strenuous walk from Dhikurpokhari in the Bhakarjung Community Forest, Hariyo Ban's impact can be seen in emerald tufts poking up from the forest floor. The community has planted thousands of cardamom plants—an easy-to-grow cash crop that does double duty by providing a new source of income while anchoring the soil, helping to prevent erosion and landslides that silt up lakes and riverbeds downstream.

The crop is one element in an integrated system aimed at helping communities like this one adapt to climate change, carry out conservation, and gain a greater measure of economic resilience. With support from Hariyo Ban, farmers not only pursue cardamom

farming, but also proudly explain how they now tether their cows and goats in stalls inside the village rather than letting them graze in the forest as they once did—a traditional practice that strips anchoring plants from the soil and can lead to landslides. They talk about keeping bees, and growing tomatoes in simple “plastic tunnels” in order to diversify their incomes, making them less reliant on rainfed crops. And they have brought a water pipe directly into the community, cutting down on the time spent gathering water and freeing community members—particularly women and children—for education and social action. The community has also greatly benefited from the installation of a gabion—a mesh-and-rock barrier installed along the riverbank to prevent soil erosion and downstream sedimentation. The gabion also helps slow dangerous currents during the rainy season.

“We understand the importance of conserving [the water] because we use it as a drinking source. We know the health problems caused if we pollute, so we keep it clean. Not only for us, but for downstream in Pokhara,” says Baikuntha Poudel, pulling back fronds to show the budding cardamom plants.

Downstream in the lakeside town called Pokhara, dozens of families have gathered at Phewa Lake for a spot of sightseeing in the middle of the week. The lake draws hundreds of thousands of tourists each year who hire boats, stroll the grassy banks, host weddings, and pay their respects at the famed Tal Barahi Temple located on a small island just off the shoreline.

The lake’s watershed is part of the Seti sub-river basin and rich in biodiversity: More than 100 bird, 34 mammal, 16 fish, and 14 reptile species inhabit the area. Lila Jung Gurung, program officer for the Chitwan-Annapurna Landscape, says the area has 113 species of orchid alone. But because of forest conversion, landslides, and soil erosion from poorly constructed roads, the lake has shrunk considerably over the years. Climate change exacerbates the problem—more intense bursts of rainfall cause more rapid erosion, sending increased amounts of sediment downstream. Today Phewa Lake is about half its original size, and continues to fill in as sediment is deposited from upstream.

To tackle the problem, Gurung and his colleagues at the Hariyo Ban program have been working with locals both in Pokhara and upstream. Through a coordinated effort between the private sector and communities, villagers like those in Dhikurpokhari amend planting



HARIYO BAN COMMUNITIES IN CHARGE

Hariyo Ban supports a variety of self-guided community groups as they learn about and implement activities to benefit both people and forests.

COMMUNITY LEARNING AND ACTION CENTERS (CLACs)

CLACs offer education and empowerment to marginalized groups including women, the disabled, and the very poor, helping them claim a role in activities like climate vulnerability assessments and benefit from adaptation activities.

COMMUNITY FOREST USER GROUPS (CFUGs)

Located outside protected areas and buffer zones, CFUGs manage forests and their resources for the benefit of the people who depend on them. Activities include sustainable harvesting of forest products, monitoring for illegal activities, and restoring ecosystems.

BUFFER ZONE USER GROUPS (BZUGs)

Located in buffer zones near protected areas, BZUGs manage local forests and grasslands in close collaboration with the appropriate protected area authority.

COMMUNITY-BASED ANTIPOACHING UNITS (CBAPUs)

CBAPUs work with the government to monitor forests for illegal activities. In the Terai Arc Landscape, this has helped achieve zero poaching of rhinos in three of the past five years.

and grazing practices, while Pokhara hotel operators pay a fee to support important upstream work. The situation is beginning to improve.

“Some people upstream were not aware of the problem,” says Gurung, speaking as he walks beneath a copse of trees planted with Hariyo Ban’s support to help secure Phewa Lake’s banks.

“Now they know how their actions directly affect this lake,” he adds. “They know not only about the impact on this lake but that conservation of the forest also helps them. Many water sources are drying up because of deforestation and landslides. Now people in this area know about this issue and other principles of conservation.”

Guma Poudel, who took part in Hariyo Ban’s education initiatives for women and girls, and who now volunteers as a member of Bhakarjung’s Community Forest User Group (CFUG) and nine-person Community-Based Anti-poaching Unit (CBAPU), agrees.

“Before Hariyo Ban, the forest was very thin,” Poudel says. “After we started to take care of the forest, conservation improved, and the forest has become denser. Before, seeing animals in the wild was very rare,” she continues, explaining how the group now routinely sees wild pheasant and deer. Dev Raj Gautam, who leads CARE’s Hariyo Ban efforts, cautions that five years is too soon to quantify exact changes in forest quality and biodiversity, but agrees that “Hariyo Ban definitely has raised the activity level of local communities regarding forest and biodiversity conservation and climate change.”

Much of that evolution has come about through groups like the CFUGs, CBAPUs, and Community Learning and Action Centers (CLACs) at the heart of Hariyo Ban. These community-driven groups provide education on the importance of forest conservation, help empower women, protect wildlife, and allow the community’s most vulnerable members to take an active role in managing their forests and taking charge of their lives. Together, these programs have had significant cultural and social benefits, reducing caste and gender discrimination in many communities in Nepal.

Trial and Error

Further downstream in foothills far south of the Himalayan peaks, the Kerunge River in Nepal’s southern Nawalparasi district is in bad shape. As far as the eye can see downstream, the riverbed is covered in gravel and silt. Motorbikes bounce and jostle over the makeshift



Clockwise from top: Sitting left to right, WWF's Lila Jung Gurung and CARE's Manoj Pariyar join Bhakarjung leaders Prasad Poudel and Laxmi Poudel to discuss community self-assessment reports; feeding goats in stalls limits erosion to vulnerable hillsides; WWF COO Marcia Marsh (second from left) joins Meena Gurung (right), Bom Maya Sinjali (far left), and members of Kerunge Khola's Community Learning and Action Center for a walk; a female rhino in Chitwan National Park.





GREENER HOUSES

Kamala Poudel, who leads the Bhakarjung Community Learning and Action Center, collects tomatoes in her "plastic tunnel" greenhouse, which was built with the support of Hariyo Ban.

roadway; locals pick their way across the dusty expanse to cross from one side to the other.

People here say that just 15 or so feet under the riverbed the water still flows, but decades of landslides and soil erosion upstream have completely concealed the river in the dry season.

“The water used to be waist high,” says Saraswati Gurung, whose tidy home sits near the sandy bank.

Her neighbor, Meena Gurung, is chairperson of the local, women-led Community Forest User Group, and has played a major role in spearheading economic and environmental programs in the village. Walking across the gravelly riverbed, she explains how upstream behavior hurt their livelihoods downstream.

“Before, we had agricultural lands on both sides of the river, but a flood destroyed everything. That flood was caused by people clearing the forests upstream. There was a big river in the middle here, but the landslide filled it all.”

Without productive farmland, even more pressure was placed on local forests, while many in the community became laborers. So a group of community members used the skills Hariyo Ban taught them to identify and advocate for their needs. The community now makes money from goat and pig farming and a soap-making scheme. A small community forest plantation is being fostered nearby as well.

But keeping such projects running smoothly is no easy task. The community has tried to build embankments at the edge of the river to prevent further changes to the river’s course, only to see them washed away during monsoon season.

So in addition to local projects, the Hariyo Ban program looked upstream again, and is working with communities along many upstream rivers in the Gandaki basin to improve people’s livelihoods through economically valuable land-use activities like growing broom grass—a crop that anchors soils, encourages new forest growth, shelters wildlife, and reduces erosion.

Building Trust

The success of communities like these reflects the tenacious, grassroots work that is the cornerstone of Hariyo Ban.

Nepal is rich in ethnic, linguistic, and religious diversity. It is also a nation hampered by complex rules governing social standing. While the caste system has been officially outlawed for years, its legacy remains easily evident in Nepalese society. Every village, whether of 30



BY THE NUMBERS: HARIYO BAN

BIODIVERSITY CONSERVATION

61,244

PEOPLE BENEFITING FROM ECONOMIC ACTIVITIES

including skills training, agriculture, and green enterprises like beekeeping, growing broom grass, and cardamom plantations

201

COMMUNITY-BASED ANTIPOACHING UNITS es-

tablished and mobilized

32,727

MEMBERS OF COMMUNITY NATURAL RESOURCE MANAGEMENT GROUPS

engaged in biodiversity conservation

131.7

MILES OF ELECTRIC FENCING

erected to reduce human-wildlife conflict

485

COMMUNITY LEARNING AND ACTION CENTERS estab-

lished or strengthened to increase participation

18

KEY PLANT AND ANIMAL SPECIES

benefiting from increased research, monitoring, and conservation efforts

people or 200, is its own intricate microcosm.

So getting a village to buy in to the program requires no small effort. “The first three to six months we call ‘trust building,’” explains Anil Manandhar, country representative for WWF-Nepal. “You have to be open about your goals and listen to the people’s concerns and ideas.”

Once trust is established, he says, “communities are ready to do the work.” Across Hariyo Ban, thousands of community members have done just that. By participating in the various user groups and learning and action centers, as well as lending a hand informally, farmers, fishers, housewives, and students have become leaders in bettering their own lives—in part by protecting and restoring the natural systems around them.

But while some communities were able to quickly make the most of Hariyo Ban’s support, others have had a harder time finding their way. In Musahar Tole, a small community located in Amaltari and the buffer zone of the Chitwan National Park, there is much work to be done.

The Musahars are the poorest of the poor—part of the “untouchable” Dalit caste viewed with derision by many. The community has watched its already tenuous situation worsen in recent years as the government has cracked down on illegal fishing within the national park—once a mainstay of their livelihood.

And while nearby villages have made strides in recent years, with homestay programs, ecotourism initiatives, and even a community-run “vulture restaurant”—a feeding station for the endangered birds that draws tourists—Musahar Tole has struggled to gain such ground. At one of Hariyo Ban’s regular community forums, one community member after another stands up to discuss their need for more hands-on assistance.

“Many people raise [our] hopes, but we’re not getting anything,” Jit Bahadur Musahar Kawaseti tells the forum in a raised voice. “People are ready to do whatever is asked of them, but they don’t know what to do.”

Afterward, asked if he was taken aback by the outpouring, Shant Raj Jnawali, biodiversity coordinator and incoming chief of party for Hariyo Ban, admits that such heated conversations are a normal part of the ongoing process—and can even be seen as a good thing.

“The fact that the villagers—particularly the women—could be so outspoken,” he says, “is a positive sign that project interventions such as the CLACs have started to work.”

A Village Reinvented

Also in Amaltari and just a few miles downstream from Musahar Tole sits another village: Baghkor. Three years ago, the two villages looked much the same. Today, they couldn't be more different. In Baghkor, neatly organized houses line a well-kept road, small businesses dotting either side.

And while the village is not an official Hariyo Ban site, it shares many of the same methods applied by the program, especially the integrated upstream-downstream approach based in empowering resilient communities. There are learning and action centers and forest user groups. There are pig farms and communal fishponds established specifically to offer economic opportunity to former fishing families, a water tower, and a community center. The children appear healthy and well-fed.

In front of many of the houses are small signs bearing a cheerily painted number and, in English, the word "homestay." This has been the key to a remarkable success.

Over the past two years, 29,000 people have stayed overnight in Baghkor, where a homestay costs \$6 a night. Its location on the edge of Chitwan National Park has made the village an ideal, economical base for local and foreign tourists who have flocked to the area to see one-horned rhino, wild boar, peacock, and deer in a landscape that also shelters elephants and tigers. Rhino protection efforts in particular have been so successful that a visitor is almost guaranteed a sighting on a standard tour of the park or community forest.

To open a homestay, each homeowner had to take out nearly \$2,000 in loans. The program—developed by WWF—is run communally, with each owner contributing to a cooperative fund from which community members can take turns borrowing money. Every single one of the 22 original loans has already been paid back.

Homeowner and homestay host Krishna Mathow says he was stunned by the pace of change. As he bounces his baby grandson on his knee, he explains how, for the first time in his life, he has savings—\$300 in the past year alone. He says he will invest the windfall in a chicken farm so that homestay hosts cooking for guests can buy directly from him instead of from a nearby village.

"We used to go around looking for manual labor," he explains. "Now we no longer have to do that. Previously we were really poor, and everyone used to take advantage of that."



BY THE NUMBERS: HARIYO BAN

SUSTAINABLE LANDSCAPES

167,807

ACRES RESTORED

through improved wetland
and grassland manage-
ment, and fencing to
control livestock

7,136

**ACRES OF NEW
FOREST PLANTATIONS**

2

**PAYMENT FOR ECOSYSTEM
SERVICES PROJECTS**

implemented in the Phewa
and Marhyangdi water
catchments

10

POLICY DOCUMENTS

on forest management and
products, biodiversity, and
climate mitigation supported
by Hariyo Ban

147,375

**PEOPLE BENEFITING
FROM ALTERNATIVE
ENERGY SOURCES**

This includes:

18,929

IMPROVED COOKSTOVES

6,143

BIOGAS UNITS





HOSPITALITY

In Baghkhori, Amaltari, near Chitwan National Park, Min Kumari Gurau (left) and Rupani Devi Gurau deliver breakfast to guests at their family homestay, which is run by Min and her husband, Dahni Ram Gurau.

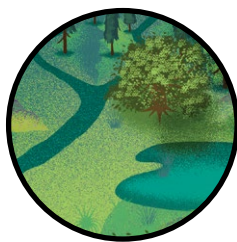






HOMEWARD BOUND

After a day's work monitoring the forest, Lila Ditra Poudel meets his granddaughter, who works in the terraced fields around Dhikurpokhari, to share the walk home.



BY THE NUMBERS: HARIYO BAN

CLIMATE CHANGE ADAPTATION

18,392

**PEOPLE TRAINED IN
CLIMATE CHANGE
ADAPTATION STRATEGIES**

421

**CLIMATE ADAPTATION
PLANS PREPARED** Activities
supported under these plans
include:

359

**DRINKING WATER SUPPLY
SYSTEMS**

installed and/or maintained

156

IRRIGATION SYSTEMS in-
stalled and/or maintained

85

MILES OF FOOT TRAILS
maintained

81

WILDLIFE WATERING HOLES
maintained

414

**CHECK DAMS, DYKES, AND
EMBANKMENTS** constructed

367,407

**PEOPLE WITH INCREASED
AWARENESS OF,
CAPACITY FOR, AND/
OR PARTICIPATION IN
ADAPTATION ACTIVITIES**

Now, he adds with a slight smile, “because our land is beautiful and the rhinos are here, people come visit. And they pay.”

Looking Ahead

Many of these efforts, unique and specific as they are, are designed to increase the ability of Nepal's people and ecosystems to build resilience and adapt to climate change at a massive scale.

Building climate resilience in Nepal means linking upstream communities like Bhakarjung with Pokhara and Phewa Lake downstream, to ensure that land use in one place doesn't impact freshwater sources in another. It means identifying the water flows that are needed to maintain ecosystem functions in the face of climate change, and working with hydropower and irrigation investors to find ways to do this. It means identifying crops—like cardamom and broom grass—that anchor soils, retain water, and provide much-needed sources of additional income. And it means working with people, from communities in remote villages to park rangers and government officials, to make sure that the rhinos drawing tourists to isolated places are safe, allowing more people to develop and benefit from increasingly diverse sources of income.

“For me,” says WWF Chief Operating Officer Marcia Marsh, “the highlight of this project was meeting with the women of the Community Learning and Action Centers. Watching a group of previously disenfranchised women boisterously cheering each other on as they shared their results was inspiring.

“Hariyo Ban,” she points out, “assessed climate vulnerability all the way from river basins to ecosystems to individual communities—and finally to the most marginalized members in each place. With our help, people have taken control of their forests and watersheds and built small businesses in the process. They have developed and executed action plans, contacting local government agencies to ensure that they received the services they were entitled to, and taking charge of their own futures. These women now have the expertise to adapt to even the toughest challenges. It's easy to imagine that many of them will be village leaders in the future—perhaps even a Parliamentarian or two.”

MODELING RESILIENCE

More than 4 million people call Nepal's Gandaki River Basin home. In the face of climate change, communities—high in the mountains and in the tropical lowlands downstream—are assessing their needs and taking action to make life better for themselves, their families, and the forests they depend on.



MID-HILLS

STALL-FED GOATS

Feeding goats in stalls keeps them off hillsides and out of forests, where their browsing can strip vegetation and cause erosion.

CARDAMOM

By planting soil-anchoring, economically valuable cardamom plants, villagers help reforestation efforts while creating a new income opportunity.

PLASTIC TUNNELS

These lightweight, low-cost greenhouses help extend the growing season, enabling households to increase incomes and improve nutrition.

GOOD GOVERNANCE

Work with local groups helps ensure that women, the poor, and other marginalized people are involved in decisions on managing their forests, and that forest resources are equitably shared.



CHURIA HILLS AND TERAI

HOMESTAYS

Nepalese homestays allow tourists to enjoy wild-life viewing and local food, and to learn about traditional ways of life while providing host families a vital source of income—particularly near protected areas.

COMMUNITY FORESTS

User groups plant trees and other native plants, and protect areas from grazing livestock, so natural forest regeneration can occur. Antipoaching units patrol forests to detect illegal activity.

FISHPONDS

In many communities, WWF supports the construction of fishponds that provide a critical source of sustenance and income, and also help reduce pressure on freshwater biodiversity along Nepal's rivers and near Chitwan National Park.





HIGH MOUNTAINS

SOLAR-POWERED FENCING

To mitigate human-wildlife conflict, communities use solar-powered electric fencing around villages, fields, and livestock to reduce conflict and increase food security.

EFFICIENT COOKSTOVES

Finding fuel for cooking and warmth is challenging in the mountains. Improved metallic cookstoves burn fuel more efficiently than regular fires, reducing pressure on forests.

REBUILDING FOOT TRAILS

Foot trails often offer the only access routes to remote communities, which rely on trekking tourists for important income. Post-earthquake, cash-for-work payments for trail reconstruction generated much-needed funds to help people restart their livelihoods.

PRAYER FLAG POLES

Buddhist prayer flags are strung in high places; their mantras are believed to spread compassion and goodwill.

By promoting metal poles instead of wooden ones (which must be replaced every few years) Hariyo Ban helps take pressure off forests.



MID-HILLS

BROOM GRASS

Clearing steep river-valley slopes for agriculture by felling and burning has caused soil erosion and landslides, but planting broom grass helps stabilize hill-sides. The flower heads are used to make brooms, which are sold for income.

BIODIVERSITY CORRIDORS

Many fish and bird species migrate along north-south corridors, following river valleys that cut through hill and mountain ranges. These corridors may become increasingly important as the climate changes, and restoring them will allow native species to seek cooler, damper habitat.

LANDSLIDES

Earthquakes, extreme climate change-driven storms, and resulting runoff can destabilize slopes, triggering landslides that impact communities, infrastructure, and forest cover. Hariyo Ban helps at-risk villages stabilize slopes and prepare for natural disasters.





BY THE NUMBERS: HARIYO BAN

GREEN RECOVERY AND RECONSTRUCTION

101,380

**DAYS OF "CASH-FOR-WORK"
EMPLOYMENT**

funded to provide post-earthquake income

22

WOMEN-LED HOUSEHOLDS

receiving economic or other benefits from recovery work

3,810

**SINGLE WOMEN AND
ADOLESCENT GIRLS**

benefiting from recovery work

17,401

**PEOPLE WITH INCREASED
ECONOMIC BENEFITS**

1,023

**PARTICIPANTS IN
GREEN RECOVERY AND
RECONSTRUCTION
TRAININGS**

3

**POST-DISASTER
ASSESSMENTS
AND POLICY DOCUMENTS
supported**

115

**MILES OF FOOT TRAILS
created, improved, or rebuilt**



LET THERE BE LIGHT

After the 2015 earthquake, Sunbir Ghale's mountain village of Simjung was without power. Today, most homes are powered by electricity from a "micro-hydro" system, which Hariyo Ban helped repair and that Ghale is paid by the community to maintain.



On Solid Ground



THE JEEVAN JYOTI Lower Secondary School's concrete floors and corrugated iron walls bounce sound from one classroom to another. Beside the school lies a pile of rubble; on either side of the valley where it sits, landslides cut jagged lines across the dark hillsides. Still, the students, parents, and teachers of Jeevan Jyoti are happy to have a building at all.

On April 25, 2015, a 7.8-magnitude earthquake struck Nepal. Two weeks later, a second one hit. Almost 9,000 people were killed and over 20,000 injured. More than 80% of Nepal's population lives in rural areas—most in homes made of stone, mud, and thatch. After the earthquake, many homes collapsed and millions of people were displaced. Livestock was killed. Landslides destroyed farmland and forests. Local economies were disrupted and personal finances battered.

In rural areas like Simjung, a Hariyo Ban community near the epicenter of the earthquake, the effects were stark.

On the side of the road that leads to Simjung clusters a settlement of tiny shelters made of tarps and corrugated iron; water comes from a rubber tube poking from the ground. The pump nearby stopped working after the earthquake, and has yet to be repaired.

"My house was damaged by the earthquake...and I didn't even have a temporary

shelter. I just moved in with my daughter," says 81-year-old Suka Maya Tamang. In the year following the earthquake, she says, no one in the makeshift village received any support.

"I'm fed by my daughter. I have nothing myself," she continues. "Before, my daughter had goats, but they were all killed in the earthquake. Now, she works as a laborer. From that the whole family is supported."

Their situation is hardly unique. Across the earthquake-affected area, pockets untouched by aid organizations have struggled to get by. Though the government promised roughly \$2,000 to each household for rebuilding, one year later, millions of families had yet to receive even a fraction of the funds.

Which makes the lively school, and the Simjung community members who live in villages clinging to the surrounding hills, an important example. Simjung has had access to international aid, and life has moved forward.

"It's totally different here," says Budhi Bahadur Tamang, a community leader in Simjung and chairman of the Mausulipakha Community Forest Users Group. "We're recovering much faster than the others," he says.

In his village of 900 houses, only a few remained standing after the earthquake. Today, however, the community is the picture of healthy recovery. The houses boast solar lights and are attached to a grid powered by micro-hydro—in essence, water piped from the nearby stream into a shed where it powers a generator. After the earthquake, Hariyo Ban helped the community rebuild it so that schoolchildren could again study in the evenings and adults could go about their work. Livestock and cash-for-work programs have allowed people to start generating income again, and irrigation canals and trail repairs have allowed agriculture to resume. In all instances, Hariyo Ban has guided the community toward eco-friendly rebuilding, to increase resilience and reduce the risk of future disasters.

Immediately after the earthquake hit, Hariyo Ban partners focused on urgent needs, bringing people tarpaulins, blankets, food, and other emergency supplies. They worked with the government to identify recovery needs for the forest and environment sector, and to develop a more detailed rapid environmental assessment that identified potential environmental risks from disaster recovery and reconstruction efforts—and offered ways to mitigate them. Hariyo Ban also helped communities, as well as the housing, water supply, and education sectors, adopt environmentally sound practices.

"Sometimes, the natural rush to build back what was there before is not always best for the community that we're trying to support," says Anita van Breda, senior director of environment and disaster management at WWF. "If we're rebuilding homes, you need timber, sand, gravel, and mortar. All of that has to come from someplace. If we rush in and extract it all at once, we're probably setting up a different kind of risk to nearby communities and the biodiversity that supports them. If we want to rebuild healthy and productive communities, the environment has to be a part of that."

Jugbahadar Gurung, a young man from Simjung, couldn't agree more. Students are going to school again; farmers are beginning to plant. Gurung has replaced his livestock, joined an antipoaching unit, and begun to take an active role in protecting the environment.

"We're rebuilding," says Gurung, "through the support of Hariyo Ban." 🌱

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TOGETHER, WE CAN DO IT.”

1) RUSSELL E. TRAIN (1920-2012)

Founder and Chairman Emeritus, World Wildlife Fund

