



# BIODIVERSITY

## Action Guide

# TABLE OF CONTENTS

## 03 BIODIVERSITY ACTION GUIDE: INTRODUCTION

### Formalizing Rights for Indigenous and Local Communities

#### 05 STRATEGY OVERVIEW

06 AUSTRALIA \* Community Land and Water Stewardship

07 CANADA \* Thaidene Nënë National Park Reserve

08 KENYA \* Coastal Octopus Fisheries

### Financing for a Durable Future

#### 09 STRATEGY OVERVIEW

10 COSTA RICA \* Project Finance for Permanence

11 UNITED STATES \* Biodiversity Compensation

12 MEXICO \* Reef Insurance and Restoration

### Amplifying Community Leadership

#### 13 STRATEGY OVERVIEW

14 COLOMBIA \* Regenerative Ranching

15 KENYA \* Community Habitat Management

16 THAILAND \* Community Freshwater Protection

### Debt Relief and Restructuring

#### 17 STRATEGY OVERVIEW

18 SEYCHELLES \* Blue Bonds

### Spatial Planning and Management

#### 19 STRATEGY OVERVIEW

20 CHINA \* National Park System Development

21 MONGOLIA \* Planning and Partnership for Habitat Conservation

22 MONTENEGRO \* Freshwater Protection

23 UNITED STATES \* Solar Energy Siting

# Introduction



**Jeffrey Parrish**

*Global Managing Director,  
Protect Oceans, Lands  
and Waters*

**THIS IS IT.** This is the last decade we have to address the intertwined biodiversity and climate crises facing every citizen of this planet.

And we need

## **NATURE NOW.**

As conservationists, leaders and policymakers, we must embrace the fact that our lives and our economies depend fundamentally on the future of nature—and we must reckon with the dwindling sand in the hourglass.

We've already lost 68 percent of vertebrate populations since 1970—the year I was born. And that number rises to 83 percent if you look at freshwater biodiversity. Indeed, recently published science demonstrates that a full third of freshwater and marine species face extinction, ripping the threads from the tapestry which holds our fragile planet and its climate together. Climate change has further exacerbated the ecological and economic fallout of our historically flawed choices.

The UN Convention on Biological Diversity announced in the spring of 2021 that a goal of protecting 17 percent of terrestrial habitats was achieved over the prior decade. That's a tremendous accomplishment and should be celebrated.

But the science is clear: global biodiversity continues to decline at an alarming rate, and we must hit a milestone of 30 percent protection of nature in the coming decade or face disastrous consequences to our climate, our air, our food systems, our health and our wealth. In some places, even 30 percent may not be enough.

We cannot afford to fail. To meet the dual challenge of the biodiversity and climate crises, we need new solutions and radical collaborations. We must aim high—employing protection, management and restoration strategies in concert to achieve a nature-positive future for our planet. We must fight for a net gain of global biodiversity despite the many challenges that stand in the way of success.



**COSTA RICA** © ALEJANDRO VELASCO/TNC PHOTO CONTEST 2019

As leaders of governments worldwide prepare to set new global targets for biodiversity protection at the Convention on Biological Diversity's Conference of the Parties meeting in Kunming, China, we stand at the ready to help nations realize their bold ambitions, beginning with the following principles:

## **MORE, AND MORE DIVERSE PROTECTION IS NECESSARY.**

I'm heartened by the [Campaign for Nature](#)'s effort to raise ambitions, proposing that 30 percent of critical habitats be protected by 2030—a milestone on the journey toward a thriving planet. We must also remember that protection can take many forms—from China's new national parks system to Canadian efforts to return lands and waters to their rightful Indigenous owners for traditional forms of resource management and protection. Implementation of the CBD commitments should look at all the IUCN protected area categories—and include 'other effective area-based conservation measures' (OECMs) like working with Indigenous Peoples and local communities to better manage lands and waters. We must also reduce development pressure that increases threats to natural habitats (including protected areas), otherwise the 30 percent target will not help globally to halt biodiversity loss and move toward recovery.



**INCLUSIVE PROTECTION AND RESPECT FOR INDIGENOUS PEOPLES AND LOCAL COMMUNITIES IS CRITICAL.**

Together, we can meet ambitious goals by considering the full range of protection options and by working in authentic, respectful partnership with communities to manage lands and waters responsibly. Recent science proves what we've long known – that many Indigenous groups have managed their lands in harmony with nature for thousands of years. The most effective protection efforts work with communities to ensure that they are engaged, supportive and benefit from protection efforts.

**WATER MATTERS.**

That 30 percent must be representative of the diversity of life on Earth, across terrestrial, marine and freshwater biomes and the full diversity of ecosystems within them. Terrestrial protection is critical for meeting the dual global crises of climate change and biodiversity loss, but land alone cannot solve the world's problems. Freshwater, coastal and high seas environments are too often deprioritized by both policymakers and conservationists. I'm inspired by nations like Gabon who have publicly committed to protect 30 percent across the three realms of land, freshwater and marine habitats in the coming decade; and I am personally working to raise the prominence of freshwater and ocean protection at TNC and throughout the conservation community.

**CONSERVATION MUST BE DURABLE.**

While we race to protect more of our planet's ecosystems, we need to make sure those conservation actions are built and financed to last. Protection efforts must be durable over time – meaning that the [long-term sustainable financing to fill the nature gap and meet ongoing management needs](#) and that the right policies, legal structures and community support are all in place to ensure that a conservation area system can withstand economic downturns, political tumult or even the next pandemic. This is not solely the task of the conservation community. Protection of biodiversity must be mainstreamed across all sectors of our economy, with brave new partnerships making success feasible.

---

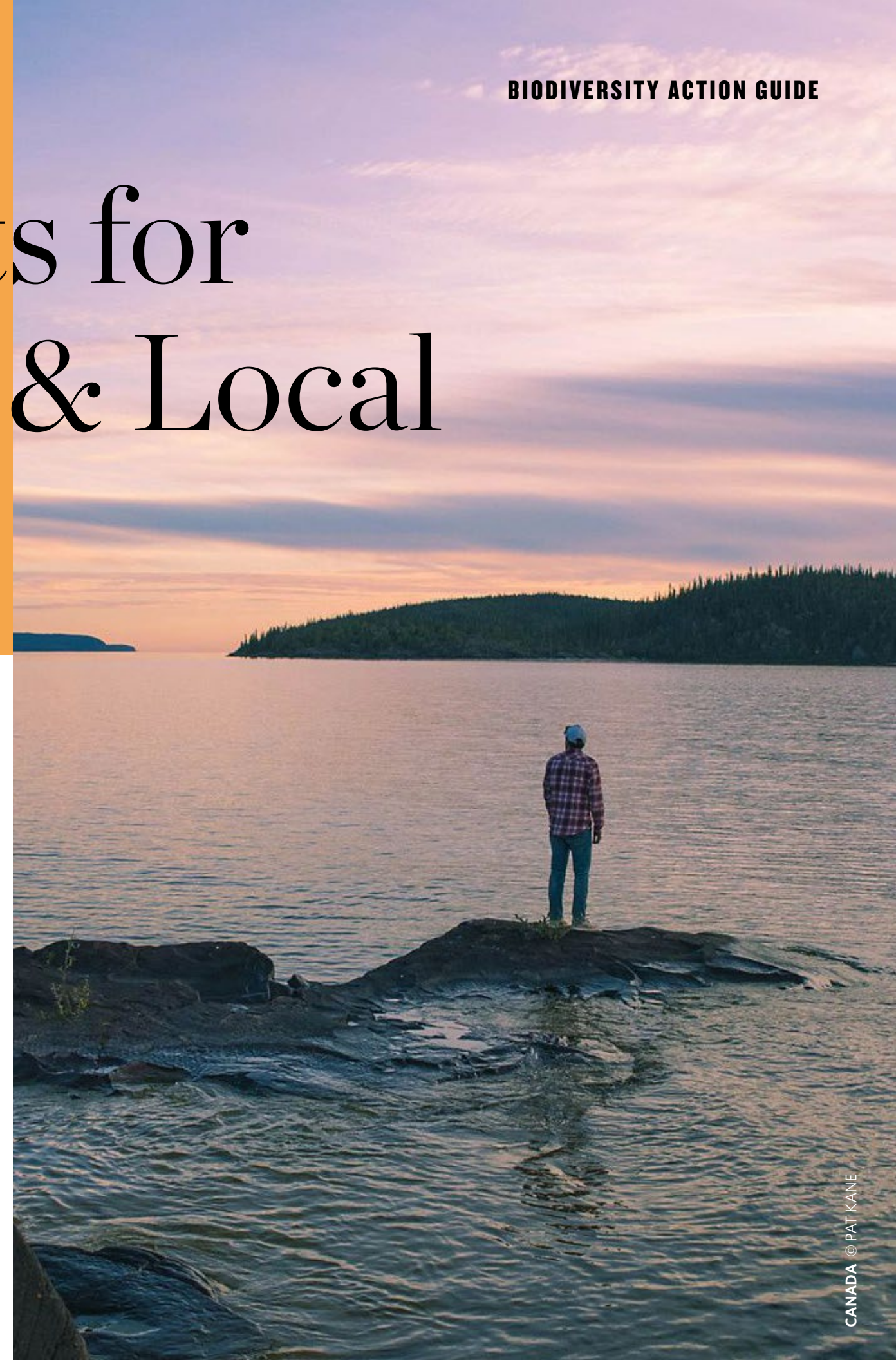
This document is a guide to some of the case studies, strategies and tools that can inspire action and ensure success for sovereign nations stepping up with bold commitments. Yet ambitions are not enough; implementation over the next decade is critical.

I am confident that with the public and private sector coming together to mutually support these ambitions, the coming years will bring the shift that we need. We can ensure a future for nature, based in the CBD principles of biodiversity protection, sustainable use and equitable sharing of resources.

I believe that we will be able to look back at the end of this decade and say we were there when things started to change for the better, when we proclaimed that it's time to champion Nature Now. •

# Formalizing Rights for Indigenous & Local Communities

**AROUND THE GLOBE,** Indigenous Peoples and local communities have long protected their lands and waters in reciprocity with nature, often guided by deep connections to place, culture and ways of knowing. These communities collectively manage at least one-quarter of the world's lands, 17 percent of all forest carbon, and vast stretches of freshwater and marine habitats. Their stewardship and management often achieve greater conservation results and sustain more biodiversity than government protected areas.



# AUSTRALIA

IN NEW SOUTH WALES, AUSTRALIA, the Nari Nari people stand on their traditional homeland in the Murray-Darling Basin and see freshwater swamps, river red gum tree stands and reviving endangered species. They also see bountiful cultural heritage in sacred canoe scar trees and ancient burial mounds.

When settlers took these lands 233 years ago, they first grazed the land and then created a grid of irrigation channels funneling natural water flows towards a booming agriculture industry. The colonial approach of division and disruption of ecological patterns contrasted the preceding 50,000 years of First Australians' natural stewardship. After the region's colonization, Nari Nari Traditional Custodians were forced to powerlessly watch as their homeland was carved into a checkerboard of agriculture.

But in 2013, the Australian and New South Wales governments bought back 880 square kilometers in the Lowbidgee floodplain that encompassed an area now named Gayini, aiming to restore the ecological and cultural values of these nationally important wetlands. Together, TNC, the Nari Nari Tribal Council and other partners put in a bid as part of an open tender process and in 2018, they were announced as

Gayini's new managers. The Nari Nari people were restored as the land's rightful owners in 2019.

Although Nari Nari Traditional Custodians have a long journey ahead to heal the land from intensive agriculture, Gayini is supported by a larger landscape of wetlands and floodplains that includes the Great Cumbung and Yanga National Park. Together with Gayini, these properties form a contiguous area of more than 1,800 square kilometers of Country that are now managed for conservation.

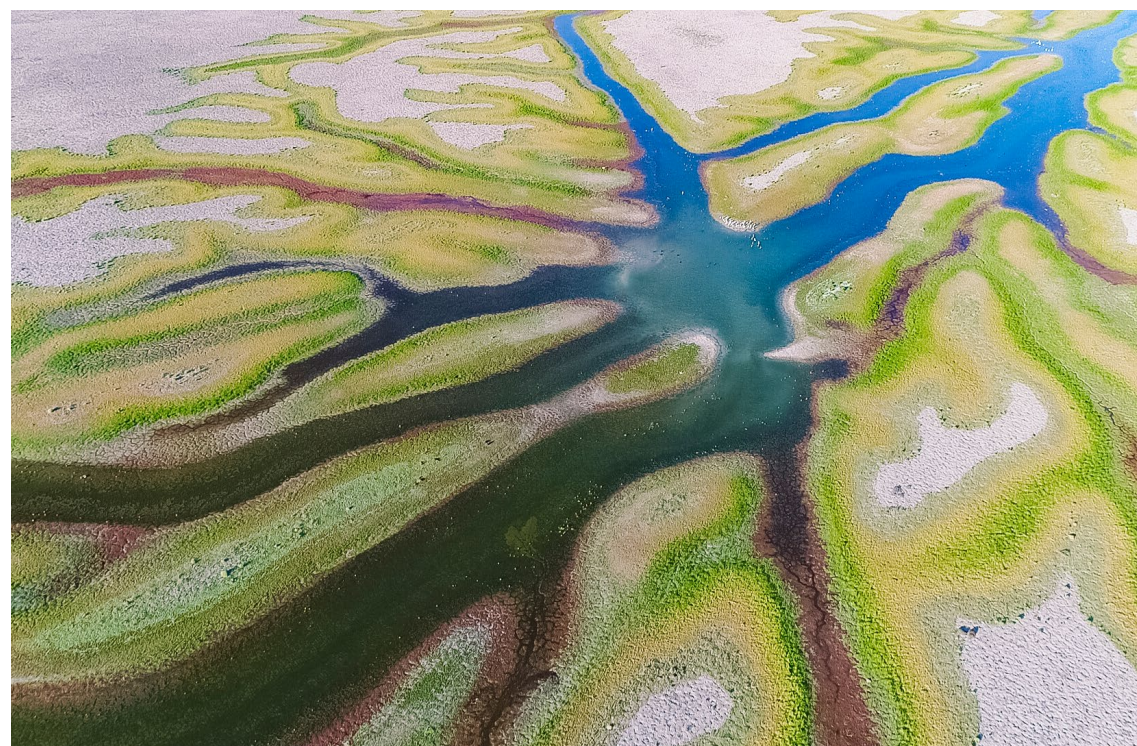
To revive Gayini's land and freshwater systems, the Nari Nari Tribal Council is using a combination of traditional and modern technologies to protect culture and heritage sites, remove large numbers of feral pests and restore the floodplain. With natural ebbs and flows restored, so too are the breeding grounds for endangered wildlife, including birds like the Australasian Bittern and the Plains-wanderer. After 150 years of dispossession, the Nari Nari people in Gayini are keeping their traditional knowledge and culture alive while tending to land and freshwater, restoring the health of both Country and culture.



© ANNETTE RUZICKA

**“ I sit out here and think what it would look like 50,000 years ago, close my eyes and go ‘man, how clear that water would have been.’ Freshwater mussels, abundance of native species, just see how people out here are caring for Country. I would love to go back and see this country like that.**

- RENE WOODS, Nari Nari, The Nature Conservancy



© ANNETTE RUZICKA

The Murray-Darling Basin is one of world's largest and most productive river basins. It contributes:

**US\$19B**

of agricultural output

**1/3**

of Australia's food supply



# CANADA

**THAIDENE NĒNÉ IS A VAST AREA OF TUNDRA**, boreal forest and rock cliffs in Canada’s Northwest Territories—habitat for caribou, grizzly bears and diverse bird life. For tens of thousands of years, the landscape has stored carbon, sustained biodiversity and provided for the Łutsël K’é Dene First Nation as the site of their traditional homelands. With a booming mining industry and other environmental threats at their doorstep, leaders of Łutsël K’é knew that the best way to protect their homeland and livelihoods was by formalizing the land as a protected area—but on their terms.

In a multi-decade effort, the Łutsël K’é Dene led the creation of Thaidene Nënë (“Land of the Ancestors” in Denesoline), a protected area encompassing 26,304 square kilometers (roughly the size of Rwanda) of undeveloped land that include biodiversity hotspots and Canada’s newest national park. The historic agreements signed in August 2019 established Thaidene Nënë as a protected area that will be co-managed by the Łutsël K’é Dene First Nation and Canadian territorial and federal governments in accordance with Indigenous traditions and values.

The new protected area is supported by an endowment called the Thaidene Nënë Fund, seeded with US\$15 million from TNC, that will support community stewardship and economic diversification and enable true Indigenous co-governance. Some of this endowment will go towards implementing the newly developed Ni Hat’Ni Dene Guardian Program, in which the people of Łutsël K’é Dene will work alongside their youth to steward the land and maintain Indigenous traditions.

Now and forever, Thaidene Nënë will protect sub-arctic forests and tundra; grizzly bears, wolves, fish and barren-ground caribou; carbon-storing old-growth boreal forests and some of the cleanest freshwater in the world; and the Łutsël K’é Dene’s cultural practices and homeland. The success of Thaidene Nënë demonstrates the impact of formalizing Indigenous peoples’ rights over their land and livelihoods. By protecting their traditional territory from industrial uses, the Łutsël K’é Dene bring a reciprocal relationship with the land that is exceptionally effective in protecting nature. Thaidene Nënë is a shining example of the way Indigenous leadership leads the charge in protecting the world’s biodiversity.

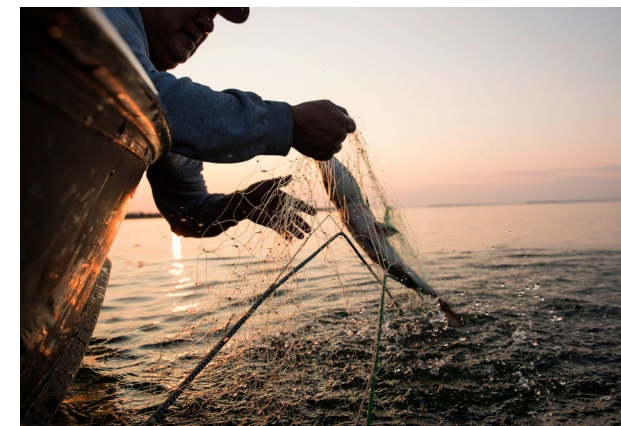


**My interest in being an advisory committee member was to protect Thaidene Nënë. Along with other committee members, we ensured the land, water, animals were protected. We wanted to make sure that our way of life wasn’t disrupted and that we could continue to live as we have since time immemorial.**

- ADELINE JONASSON, *Former Chief and Councillor of the Łutsël K’é Dene*



© PAT KANE

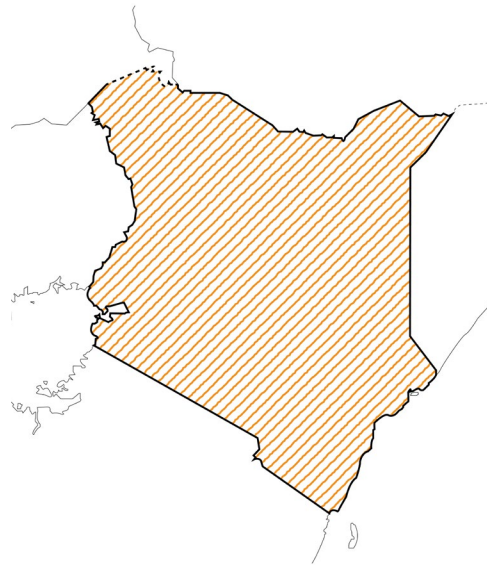


**6.5M**

The Thaidene Nënë protected area is 6.5 million acres that protects an ecosystem that spans more than 18 million acres.

**36 YEARS**

Together with other carbon-rich landscapes in the boreal, Thaidene Nënë’s forest holds the equivalent of up to 36 years’ worth of global industrial emissions.



KENYA

**SINCE SHE WAS A TEENAGER**, Amina Ahmed has walked to the beaches of Pate Island in Lamu County, Kenya, to fish octopus in shallow waters. After hours of fishing, Amina sells her catch at the market to feed her children. Amina is one of many women who rely on Lamu’s octopus fishery for income and sustenance. In recent years, Lamu’s fisherwomen noticed a decline in their yields; they were catching smaller and fewer octopus and selling them at unsustainably low prices. The octopus fishery was struggling with over-fishing, habitat loss and increased demand, all without octopus-specific legislated management practices.

The Pate Marine Community Conservancy (PMCC) needed to take decisive action to preserve the fishery. A 2018 learning exchange with the Andavadoaka village in southwest Madagascar introduced an innovative idea: temporarily closing the fishery could allow octopus populations to rebound and maximize income for fishers. Chaired by Amina, a women’s association was inaugurated to lead the project and in January 2019, the Beach Management Units from three villages within the PMCC joined the efforts and agreed to close one square kilometer of the fishing area. They communally determined rules of the closure, including establishing punitive measures for infractions.

The closure was risky – it required many women to give up months of income from one of their octopus fishing grounds without a guaranteed payoff – but after countless community meetings they took the leap of faith and closed the fishery. Following a series of five brief closures, octopus fishing trends exhibited better yields, bigger octopus and better prices at the market; Amina now plans to expand her side business with her profits.

The project was a collaboration with the Lamu County Government, the Pate Marine Community Conservancy, the Northern Rangelands Trust, Blue Ventures, Fauna and Flora International, the Kenya Wildlife Service, the Kenya Fisheries Service, USAID and the Royal Danish Embassy.

The closure model is scalable, with the nearby Kiunga Community Wildlife Association replicating the model for their own marine resource management. Lamu’s women-led temporary octopus closures are equipping communities to better manage their fisheries and restore their larger coastal ecosystem while offering a model that can inspire behavioral change, catalyze fisheries co-management and mainstream gender into coastal and marine conservation worldwide.



**After 4 months, we got a large harvest of octopuses. The first benefit is the octopuses were bigger and heavier. The second benefit is they are plentiful. The third benefit is we get a good price. This will help our community and my family. I have plans to expand my small business with the profits from the octopus closure.**

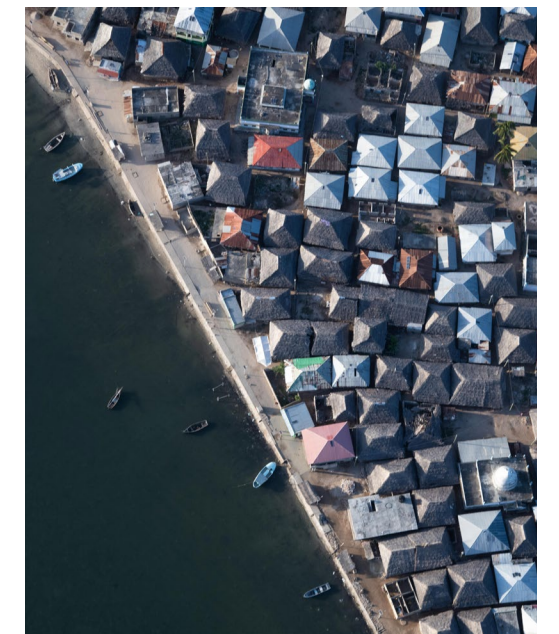
- AMINA AHMED, Octopus fisherwoman and chairlady of the women’s association group

868kg

After a 4-month closure, a total of 868 kilograms (1,913 pounds) of octopus were caught in four days by seventy fisherwomen, up from the 186 kilograms (410 pounds) of mostly smaller octopuses prior to the closure.



© ROSHNI LODHIA





# Financing for a Durable Future

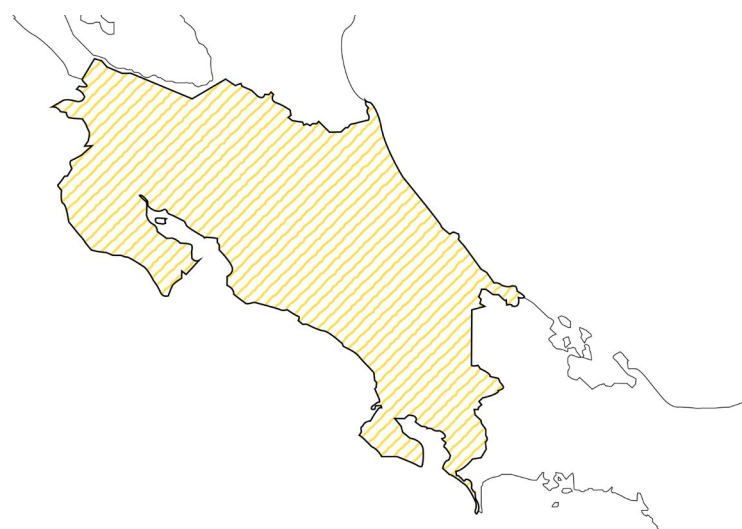
**DURABLE PROTECTION THAT CAN STAND** the test of time with community support and reliable funding is necessary to meet global biodiversity protection goals. A 2019 paper quantified the need at an additional US\$598 to \$824 billion in spending annually to reverse the biodiversity crisis by 2030—but much of that money can be found by changing existing spending flows.

# COSTA RICA

COSTA RICA IS ONE OF THE MOST biodiverse nations in the world. Although less than 0.01 percent of Earth’s landmass, it is home to five percent of all terrestrial species and 3.5 percent of all marine species, including sea turtles, jaguars, and toucans. Costa Rica’s protected areas (PAs) bear countless societal benefits, generating US\$1.5 billion per year in ecotourism and ecological services – but illegal logging and poaching threaten the biodiversity they contain.

In 2007, then-President Oscar Arias invited philanthropic partners to help build an endowment to protect Costa Rica’s nature. In order to do so, Costa Rica needed an estimated additional \$57 million. Fundraising on this scale would likely not be possible using the piecemeal approach standard in conservation endeavors. Instead, project partners agreed to organize an ambitious Wall Street-inspired financial strategy called Project Finance for Permanence (PFP), an approach that obtains major pledges from multiple stakeholders in a single closing to ensure PAs are well-managed, sustainably financed and benefit the communities who depend on them in perpetuity.

PFPs have proven to be more successful in funding large-scale conservation projects, with committed funds only being released once set milestones are reached that lay the foundation for successful long-term protection. After a three-year consultative process working closely with the Government of Costa Rica, Forever Costa Rica partners achieved their \$57 million goal and secured long-term financing, formulated a conservation and climate adaptation plan for the country’s PAs, and prepared for the project’s implementation.



With these milestones reached in 2010, a national NGO called the Forever Costa Rica Association was established as trustee. By 2015, the Forever Costa Rica project had implemented management plans for 70 percent of all Costa Rica’s PAs, and by 2020 it had partnered with the government to nearly triple the size of the nation’s marine protected areas. In total, Costa Rica has permanently protected 12,950 square kilometers of terrestrial habitat and 11,650 square kilometers of marine habitat in part due to the innovative approach of the PFP. Other PFP initiatives are protecting biodiversity in Peru, Bhutan and Canada, proving that fundraising together can promise bigger and more durable conservation outcomes worldwide.

Costa Rica occupies less than

**0.01%** of Earth’s landmass, but the nation is home to:

**5%**  
of all terrestrial species and

**3.5%**  
of all marine species



© JEFFREY MUNOZ /TNC PHOTO CONTEST 2019



© KEVIN WELLS/TNC PHOTO CONTEST 2019

“ This is very exciting. We identified, brick by brick, what needs to happen and helped build a solid foundation [to meet Costa Rica’s biodiversity protection goals]. And now that the government can put up the walls, we are ready to come in and put on a roof.

- ZDENKA PISKULICH, Managing Director of Enduring Earth

# UNITED STATES

WALKING AMONG THE STANDS OF LONGLEAF PINES and thriving marshes of the Disney Wilderness Preserve (DWP) in Central Florida, it's difficult to imagine the land differently. But in the 1980s, the wetland area was targeted to be developed into rows of houses and stretches of golf turf. Development promised the loss of the property's degraded yet restorable wetlands and the destruction of habitat imperative for endangered plants and wildlife.

Just 24 kilometers from the United States' most iconic theme parks, the DWP is poised at the headwaters of the Everglades ecosystem and at the southernmost edge of the nation's remaining five percent of longleaf pine flatwoods ecosystem. Through a deliberate process and the commitment of partners to intervene before development could forever alter the landscape, TNC, the Walt Disney Company ("Disney") and the State of Florida worked together to create a large-scale nature preserve to offset expansions at Walt Disney World.

Disney's original acquisition included 34 square kilometers of land to mitigate development impacts and in 1995, the Greater Orlando Aviation Authority added an additional 12.5 square

kilometers to offset its airport expansion. The DWP now spans across 46.5 square kilometers. Disney transferred ownership of the property to TNC in 1992 with a commitment to fund land management and work with TNC through 2012 to restore the property, build an education and research center, and provide an endowment for operation expenses.

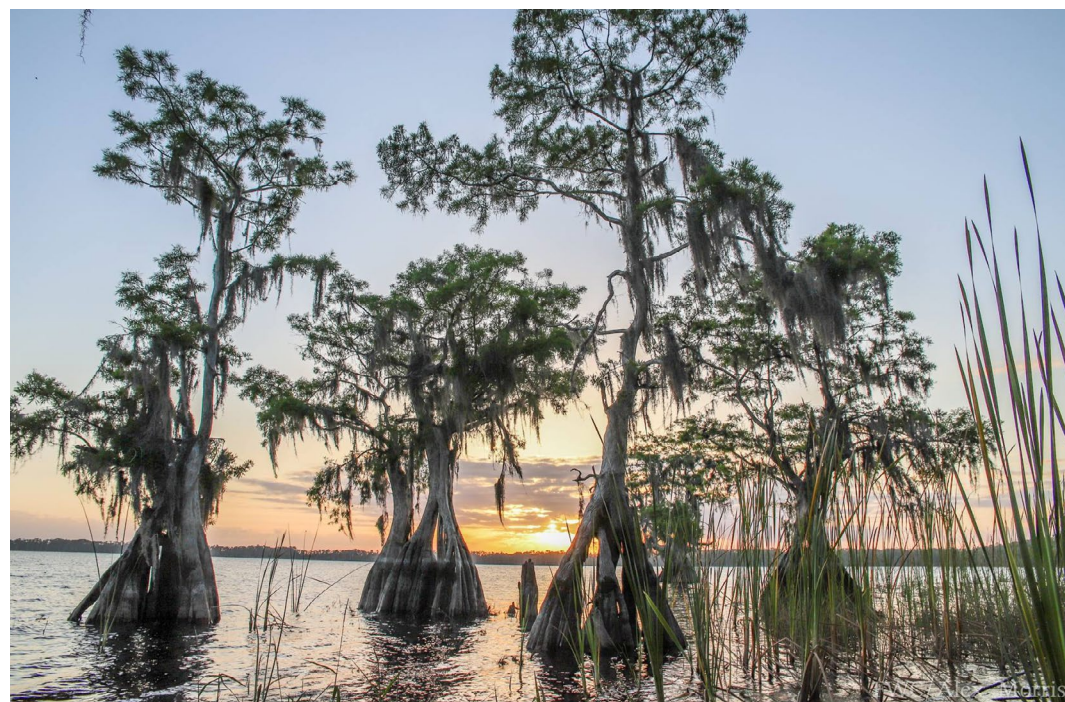
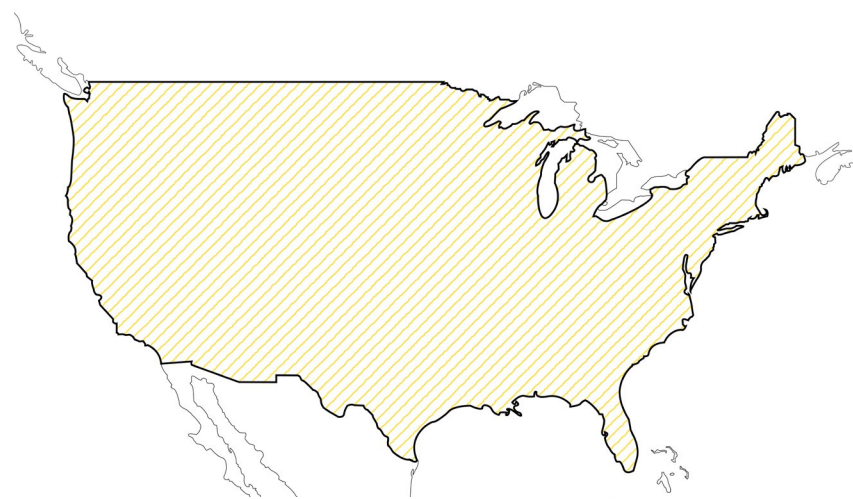
Disney's endowment funds habitat management and monitoring, invasive species removal, fieldwork including filling agriculture ditches to restore natural water flow, and a prescribed burn program to restore the land's resilience and biodiversity. Today, the DWP encompasses 18 overlapping habitat types that include a variety of coastal, freshwater and terrestrial ecosystems. The preserve is now home to over 1,000 species of plants and animals, including 56 species of butterflies and over 200 species of bird such as the endangered Florida Scrub Jay and Wood Stork. The flourishing wildlife within the DWP are testaments to how big-picture planning and biodiversity compensation can result in thriving and biodiverse landscapes.



© CARLTON WARD JR.

**“ If this iconic Florida landscape hadn't been protected and restored through an innovative conservation partnership and years of land management efforts, we wouldn't be looking at beautiful pine trees and biodiverse and healthy natural systems here—we'd see pavement and hundreds of houses.**

- DANIEL COLE, *Disney Wilderness Preserve Coordinator, The Nature Conservancy*



© ALEXANDRA MORRISON

**46.5 km<sup>2</sup>**

The preserve encompasses 46.5 km<sup>2</sup> representing 18 overlapping habitat types, ranging from cypress and hardwood swamps to wiregrass fields.

**1,000+**

The preserve is home to over 1,000 species of plants and animals, including 56 species of butterflies and over 200 species of bird such as the endangered Florida Scrub Jay and Wood Stork.



# MEXICO

**IN THE WAKE OF HURRICANE DELTA IN 2020**, dozens of local volunteers, collectively called the Reef Brigades, gathered on the beaches of Quintana Roo, Mexico, to repair coral reefs pivotal to the coastline’s survival. In a region frequently visited by destructive hurricanes, reefs provide services that strengthen the Yucatán Peninsula’s resilience against storm damage and daily erosion — including diminishing up to 97 percent of a wave’s impact before it hits shore. Quintana Roo’s coral reefs also attract more than twelve million visitors annually to the Peninsula’s shores and are pivotal to the state’s US\$10 billion tourist industry.

When reefs are damaged, the community is left to pick up the pieces: storms can close businesses, erode beaches and cause billion-dollar repairs. It is imperative that these invaluable habitats are protected. In 2018 Quintana Roo’s State Government, the National Parks Commission, joined with local stakeholders and TNC to pilot a threefold conservation strategy consisting of a trust fund, the Reef Brigades and the world’s first coral reef insurance policy.

In 2019 the trust fund, known as the Coastal Zone Management Trust, purchased the coral reef insurance that covered 160 kilometers of coastline across six municipalities. If hurricanes track into a predetermined geographical area and register wind speeds of 100 knots or more, a payout is automatically generated. The strategy has already proved effective: Hurricane Delta triggered an insurance payout of \$850,000 in 2020. The Reef Brigades were also deployed and stabilized more than 2,100 coral colonies and reattached more than 13,500 coral fragments.

The groundbreaking reef insurance helps protect the reef, which in turn protects the Yucatán Peninsula’s economy and ecology by simultaneously safeguarding beaches, tourist infrastructure and critical habitats. The insurance’s success has enormous implications for the roughly 840 million people on coastlines worldwide, and TNC is working to replicate the model with prospective projects in the Caribbean, Asia and the United States.



**We have demonstrated that building a Post Storm Response Capacity, encompassing human capacity to repair the reef and a financial mechanism, including reef insurance, is critical to help protect the coral from devastating storms.**

- FERNANDO SECAIRA, Coastal Risk and Resilience Program Lead, The Nature Conservancy Mexico



© JENNIFER ADLER



**97%**

A healthy coral reef can reduce up to 97 percent of a wave’s energy before it hits the shore.

**US\$10BN**

The post storm response capacity will help protect the region’s US\$10 billion tourism industry, encourage the conservation of a valuable natural asset and create a scalable new market for the insurance industry—a model which could be applied to other regions and ecosystems.

# Amplifying Community Leadership

## LASTING CONSERVATION MUST ACTIVELY INVOLVE PEOPLE

and partners linked to the natural systems we seek to protect, and their voices must be at the center of what we do. For generations, profound and painful challenges such as colonialism, forced resettlement, strong external development pressures and exclusion from natural resource decisions have undermined Indigenous Peoples' agency and ability to manage their lands and waters. When the legacy of these challenges is addressed, Indigenous Peoples and local communities can lead us to a world where people and nature thrive together—as they have done for millennia. Increasingly, data proves that effective area-based conservation measures led by local communities can reinforce more formal ecosystem protections, making it possible to reach ambitious global goals.



# COLOMBIA

WITH ITS ROLLING MOUNTAINS, lush jungles, and shining beaches, Colombia places second in the world for biodiversity. After years of conflict causing widespread poverty, Colombia is harnessing its gorgeous landscapes for growing agriculture and cattle industries, which promise to feed the nation's people and boost the economy—but at the cost of the nation's biodiversity. Traditional cattle ranching is Colombia's leading cause of deforestation and has claimed more than one third of Colombia's land area.

TNC and the World Bank believe that it's possible to increase food production without losing habitat, and for the past six years, they have collaborated with thousands of Colombian farmers to make sustainable ranching the norm for Colombia's cattle industry. With field trips, trainings, and peer-to-peer exchanges at demonstration farms, TNC and partners have reached over 25,000 ranchers from more than 86 municipalities to teach the Regenerative Ranching and Agriculture approach. By utilizing nature-based strategies, Colombian farmers are protecting nature while simultaneously increasing their farms' production, profits, and resilience.

Rancher Guillermo Vargas has been ranching for more than 50 years and recently received technical training in sustainable ranching. By planting trees and feeding his cattle native grasses, Vargas reports, *"Before, we got 7-8 liters of milk per cow per day, but now, with better nutrition and conditions, we are getting about 18-20 liters. We have transformed the way we do ranching."* Collectively, participating ranchers have already transitioned 425 square kilometers of farm to sustainable use and have planted nearly one million native trees. By using conservation strategies, ranchers report a reduced need for fertilizers and pesticides, more productive soils, and an average 17 percent increase in milk and meat production.

Together, these changes reduce one million tons of greenhouse gas emissions, equivalent to taking 214,000 cars off the road for one year! With expanded outreach efforts, the impact of these trainings on Colombia's economy, families, and nature could be revolutionary. By reaching the rest of Colombia's 630,000 ranchers, countless others could undergo the same journey as Vargas: transforming their relationship to farming, enjoying the radical benefits of regenerative ranching, and looking forward to a secure future.



Regenerative agriculture has transformed

**425 km<sup>2</sup>**

to sustainable practices and protected

**150 km<sup>2</sup>**

through conservation agreements with landowners.

### Participating ranchers report:

- reduced need of fertilizers and pesticides
- more productive soils
- increased loads (animals/hectare)
- an average 17% increase in milk and/or meat production
- a reduction of 1 million tons of GHG emissions, comparable to taking 214K cars off the road for one year.



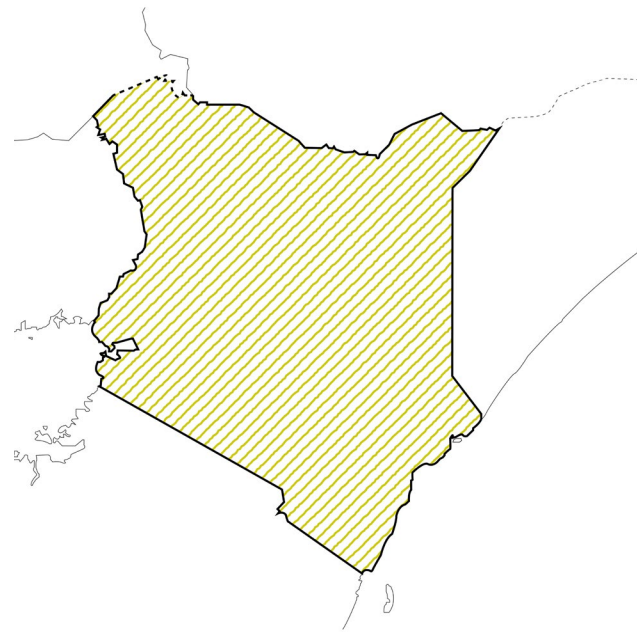
**I used to have more cows, but they gave less milk...I feel much better now because I have acquired a lot of knowledge. I am a very happy sustainable livestock farmer!**

- MERCEDES MURILLO, Rancher in rural lowlands of Andean foothills



© JUAN ARREDONDO

# KENYA



**IN THE SPAN OF A GENERATION,** Kenya’s biodiversity has decreased by nearly 70 percent. Only 40 years ago, “you could hardly even walk a kilometer without seeing an elephant and even a lion,” says Johnson Soit, chairman of the Pardamat Conservation Area Board, an area just outside Kenya’s famed Maasai Mara National Reserve (MMNR). Grasslands where animals once roamed are now divided by fences as land is privatized and longer droughts increase resource competition. This land fragmentation blocks wildlife migratory routes and decreases animals’ access to food, water and grounds, problems exacerbated by habitat loss and poaching.

To protect their native wildlife, Kenya has implemented innovative community-led conservation initiatives (such as community conservancies) to secure land for wildlife protection and other sustainable land uses that can lead to improved livelihoods. More than 100 community conservancies range across more than 60,000 square kilometers of varying habitat in Kenya, some of which include sanctuaries for endangered black rhinos, hirolas, giraffes and orphaned elephants.

But conservancies don’t stop at ecological benefits—they are also models of various strategies to amplify

community economic growth and improve livelihoods. In some areas such as the MMNR, land owners who lease their land parcels to conservancies or tourism operators receive monthly payments that total millions of dollars annually. Other conservancies employ community members as wildlife guards to prevent poaching and other illegal activities on protected land. Benefits from initiatives such as these are fed directly back into community development, including increasing access to education through new schools and scholarships; amplifying access to healthcare; and growing leadership opportunities for women.

Kenya is a world leader in community-led conservation and more communities are eager for support to establish conservancies so that they can enjoy improved livelihoods and ensure that the next generation receives the same benefits from wildlife that they have now. With fewer fences and improved communities, Soit is happy to see animals not seen for decades, such as wild dogs and giraffes, returning to call community lands home. Kenya’s example is proof to the rest of the world: coexisting with wildlife is not only possible, but necessary.

“**We are slowly de-fencing. And now, we are starting to see some wild animals that were seen a long time ago...One example is wild dogs, and we have the migration of giraffes—they are all over.**”

- **JOHNSON SOIT**, Head Teacher at a primary school, Chairman of the Pardamat Conservation Area Board, and Landowner Representative



© ROSHNI LODHIA



**65%**

of Kenya’s wildlife live outside of government-protected areas, so conservancies provide critical habitat and connectivity for species at the heart of the tourism industry.



© ROSHNI LODHIA

**100+**

There are currently more than 100 community conservancies across 60,700 square kilometers of varying ecosystems, some of which are sanctuaries for endangered black rhinos, hirolas, giraffes, and orphaned elephants.

# THAILAND

AMONG THE SWATHS OF TEAK FORESTS and rice fields of northern Thailand is the Ngao River, a tributary of the Salween River that is central to the livelihoods of neighboring villages. Without refrigeration and with regular seasons of resource scarcity, many families travel to the riverbanks every day to fish. But in the early 1990s, communities of P Gagayaw, or Karen, indigenous peoples noticed a decline in fish, partly due to people from outside their communities using illegal fishing methods to overharvest. With the help of a local NGO, P Gagayaw communities met to discuss grassroots conservation solutions.

In 1993, one village established a no-take fish reserve, marked by colorful flags and riverbanks scattered with hand-painted signs warning of fishing penalties. The idea has spread, and today there are over 50 community freshwater reserves connecting fisheries across the Ngao River watershed. These reserves rely on local enforcement for their success and communal agreements to respect the freshwater reserves' requirements, with the most effective reserves found closest to villages.

Aaron Koning, a postdoctoral researcher from the Global Water Center at the University of Nevada, Reno, studied 23 of these

reserves across 80.5 kilometers of the Ngao River. Although the fish reserves only protect two percent of the river area, this study revealed that they are invaluable refuges from the overfishing that has affected fish abundance and diversity.

Koning's study concludes that compared to adjacent fished areas, the reserves harbor 27 percent more fish species, 124 percent higher fish density and 2,247 percent higher average biomass. These results were amplified in the most central reserves, indicating that interconnection between protected areas leads to greater ecological benefits. This is a potentially scalable model that could protect fish biodiversity and offset the consequences of overfishing in other freshwater systems, and could significantly contribute to the protections of the remarkable Amazon, Congo, and Mekong Rivers.

The success of the Ngao River valley reserves is apparent with only a glance. Overlooks hang above the river basin where community members can witness the shoals of fish, proof that their grassroots conservation strategies are transformative for their livelihoods and lands.



© ADISAK MITRPRAYOON/ISTOCK

Compared to similar fished areas, the reserves harbored:

27%

more fish species

124%

higher fish density

2,247%

higher average biomass



© AARON A. KONING

“ Freshwaters are under-represented among the world’s protected areas, and our findings suggest that networks of small, community-based reserves offer a generalizable model for protecting biodiversity and augmenting fisheries as the world’s rivers face unprecedented pressures.

- AARON KONING, Postgraduate researcher at University of Nevada, Reno



# Debt Relief and Restructuring

**WHILE PHILANTHROPY AND PUBLIC FUNDING** have long been essential to conserving our natural resources, the massive scale of today's environmental challenges requires additional sources of financing. The restructure of debt can turn economic crisis into conservation opportunity and provide a means of directly funding conversation work over time, while supporting nature-based industries that provide economic opportunity in the long term.

## SEYCHELLES

## Blue Bonds for Ocean Conservation

AS A NATION THAT IS 99 PERCENT WATER, Seychelles can be described as a large oceanic state highly dependent on the health of the ocean. Concerns about the sustainability of the Seychelles' marine resources have been growing as dwindling fish populations and climate change threaten the fishing and tourism sectors which are fundamental to the economy.

In 2012, the Republic of Seychelles committed to protect 30 percent of their oceans and collaborated with TNC to design an innovative solution to finance this goal. Using loans and grants, Seychelles and TNC initiated the world's first "Blue Bonds for Ocean Conservation," a strategy to unlock funds for long-term marine conservation. In 2016, a Conservation Trust Fund was created locally and US\$21.6 million of Seychelles' debt was bought back from creditors. The government repays the debt to the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) at a lower interest rate over a longer time. Each year, about \$400,000 goes to a Blue Grants Fund for marine conservation, research, fisheries sustainability, climate adaptation and protected areas implementation, and the remaining is paid to an endowment fund that will mature in 20 years.

An essential component for success is the Seychelles Marine Spatial Plan (SMSP) to expand protections to 30 percent, address climate change and advance the Blue Economy. From 2012 to 2019 more than 200 stakeholders from at least 12 marine sectors attended 210 consultations to identify new areas for protections and plan for uses. In March 2020, the Seychelles government hit the 30 percent protection goal; thanks to debt restructuring and the SMSP, Seychelles has reached its commitment to protect 410,000 square kilometers of ocean — an area larger than Germany. The SMSP will increase protection for coral reefs, endangered turtles, sharks, dugongs and cetaceans, and improve ocean management across 1.35 million square kilometers. TNC estimates that Blue Bonds for Ocean Conservation can work in many other countries, opening the door to more resilient oceans, sustainable economies and thriving ecosystems worldwide. •

“

**I'm telling you, fishermen are very special. They are the ones who know the place and the time to do fishing, which means we need to get the information from them directly—especially the old fishermen...Protecting the marine area is protecting for the future. Especially for my kids to see the species that are still available at some point.**

- FRANK VOLCERE, Green Islands Foundation (a recipient of a SeyCCAT grant to work with artisanal fishermen to study species in decline)



© JASON HOUSTON

## Seychelles' Sovereign Blue Bond

ONLY THREE YEARS AFTER THE REPUBLIC OF SEYCHELLES made history with the world's first debt restructuring for marine protection, Seychelles made waves again with the first sovereign blue bond. TNC's debt conversion in 2015 helped Seychelles to develop a Marine Spatial Plan and institute the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT), responsible for administering funds for conservation goals.

In 2018, the government of Seychelles, the World Bank and the Global Environment Facility built upon this progress by establishing the first government-issued blue bond in order to gain more funding for SeyCCAT and marine conservation. The fund was seeded by a US\$5 million grant from the World Bank and a \$5 million concessional loan from the Global Environment Facility. The concessional loan partially subsidizes Seychelles' payments of bond coupons, reducing the interest rate for Seychelles from 6.5 percent to 2.8 percent. The proceeds from this bond are used for a Blue Grants Fund (approximately \$3 million) that SeyCCAT uses to administer grants and a Blue Investment Fund (approximately \$12 million) that the Development Bank of Seychelles uses to administer loans. This government-issued bond and TNC's debt conversion are two innovative financial instruments helping Seychelles direct more funding towards projects that improve climate resilience, local livelihoods and the sustainability of the Seychellois economy.

**348K km<sup>2</sup>**

As of 2020, the Seychelles government has protected 86 million acres of ocean (exceeding the 30% goal).

**US\$430K**

Blue Bonds generates up to US\$430,000 per year for marine conservation and climate adaptation.

# Spatial Planning and Management

**SUCCESS AT HABITAT PLANNING** depends on knowing where our efforts can have the greatest potential impact. Investments in spatial planning and science – to inform the locations of both protected areas and development projects – are a critical strategy. We believe that global protection goals can be met with an integrated approach: Protecting those natural systems that are functioning well, restoring natural systems that are damaged, and directing new infrastructure to areas that are already developed whenever possible, while providing for compensation and mitigation efforts when transformation of natural areas cannot be avoided.



# CHINA

CHINA'S ECONOMY HAS SPIKED over the past 40 years and spurred rapid urban development across the nation. To preserve its natural spaces, China has dedicated 18 percent of its land for conservation, encompassing forests with Amur tigers, rainforests with Asian elephants and grasslands with snow leopards. But historically, the nation's protected areas have fallen under 11 different classifications without a unified management system, hindering their ability to effectively protect interconnected ecosystems and species.

In 2015, China committed to piloting a national park model that unites locally managed protected areas and reforms the nation's conservation system. Currently, ten pilot national parks spanning twelve provinces are successfully streamlining conservation management, revitalizing rural economies and protecting habitat and building wildlife corridors. Collectively, these pilot parks already cover over two thirds the land area of the U.S. national park system. One such park is the new Giant Panda National Park, an amalgamation of 82 smaller protected areas originally under eight different classifications and managed by three levels of government. In 2019 alone, China reported restored land

in the Wuyi Mountain National Park, 25 new wildlife corridors constructed in the Shennongjia National Park and 144 mines removed from the Qilian Mountains National Park.

Also integral to the national parks system is the promotion of "eco-civilization," sustainably balancing economy and environment while engaging citizens with habitat restoration. The parks intend to bring expanded community ecotourism opportunities and new conservation jobs to under-resourced communities living within park boundaries. Various economic initiatives are arising within protected areas, such as in the Angsai National Park, where park authorities have hired one member of each household in the region to work as a park ranger. Thousands of local rangers are now trained and compensated to manage diverse habitats and monitor wildlife. Beyond the park system's environmental and economic advancements, the parks deepen China's interconnection with nature and pave the way for future conservation of the nation's extraordinary biodiversity. Although development slowed due to COVID-19, China's first batch of national parks are estimated to be officially established by the end of 2021.



© ZHANG BIN



© LKUNL/iSTOCK

## 2/3

These pilot parks already cover two-thirds the size of the U.S. national park system.

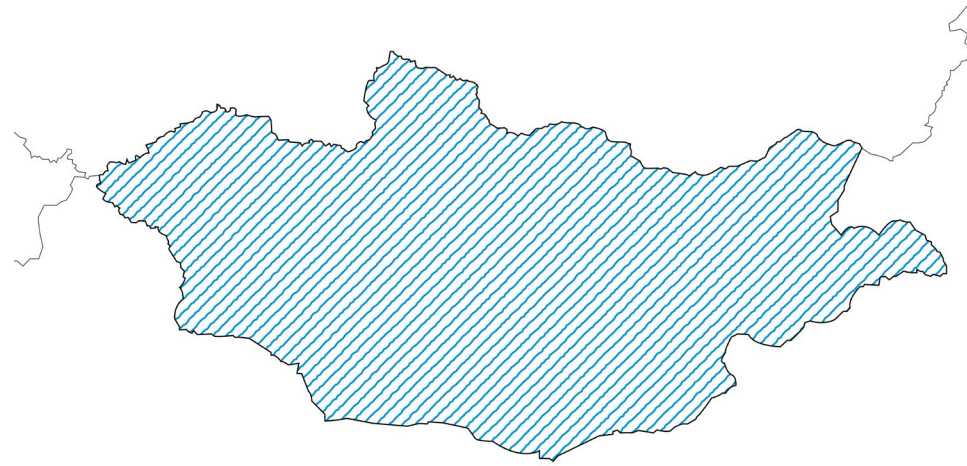
## US\$3BN

Many of the people living in existing Chinese nature reserves work in ecotourism—a US\$3 billion industry that serves 128 million visitors per year.



**Whether or not your protection efforts are effective doesn't depend on how well a nature reserve of national park is created, but on whether the livelihoods of the locals have changed. When the common people can have good income and lives, that's when protection efforts will be effective in conserving nature.**

- LI XINRUI, who helps to manage a community cooperative within the Guanba Community Nature Reserve



73 Community Based Organizations that represent 1,506 herding families; aided the government in passing a law requiring companies to avoid, minimize or offset development impacts; and supported the formation of new protected areas.

Between 2019 and 2020, Mongolia's parliament added 33 NPAs totaling 49,966 square kilometers, bringing the protected-area network to approximately 328,913 square kilometers. These protected areas span a range of ecosystems that guard Mongolia's biodiversity without sacrificing the livelihoods of its people: Mongolia's NPAs remain open-access for traditional herding communities so that herders may freely travel and graze their animals in the nation's boundless plains. Mongolia now protects 21 percent of its land in NPAs, bringing the nation two-thirds of the way to protecting 30 percent of its land by 2030 and demonstrating how protection can balance economy, wildlife and people.

80%

Mongolia's grasslands span 80 percent of the country and generate livelihoods for 200,000 families of nomadic herders.

# MONGOLIA

WITH DIVERSE HABITATS SUCH AS GRASSLANDS, deserts, mountain peaks and boreal forest, Mongolia boasts vast landscapes of international ecological importance that support more than fifteen rare species, including snow leopards, Saiga antelope and Przewalski's horses. In recent decades, Mongolia has had to reckon with challenges caused by changing political and ecological contexts. The transition to a market economy in the 1990s led to the privatization of livestock and overgrazing and soon after, mining companies spread across Mongolia in pursuit of mineral resources. These shifts challenged the nation's close connection to the land and local herding communities' conservation heritage.

Since 2008, TNC has collaborated with the Mongolian government to address these arising problems with solutions that balance the protection of the nation's unique landscapes with economic growth. From 2009 to 2017, TNC conducted ecological assessments of Mongolia's landscapes to identify regions needing critical biodiversity protection. In the process, TNC collaborated with 105 local partners to create a Conservation Portfolio of Protected Areas aimed at eventually achieving long-term protection for 30 percent of Mongolia's land. These assessments were blueprints that then helped the Mongolian government develop its first 102 national protected areas (NPAs), encompassing 17.87 percent of Mongolia's land area. TNC has also trained hundreds of managers and herders to improve local land management; helped establish



**Mongolians have a long history of conservation ethics. They are dependent on the natural resources directly. Almost 20% of the population are nomadic herders and their livelihood directly depends on nature. On the quality of the grasslands, on the quality of fresh water they drink, and their livestock. So it's tightly connected.**

- GALA DAVAA, Director, TNC Mongolia



© NICK HALL

© TED WOOD

# MONTENEGRO

WITH 60 PERCENT OF ITS RIVERS DEGRADED, Europe's last free-flowing rivers are an endangered species. Pollution, climate change and mounting hydropower demands all threaten rivers' countless ecological and socio-economic benefits, necessitating their urgent protection. Even when terrestrial protections do benefit freshwater biodiversity, they often lack durability, as evidenced by the globally widespread development of dams in protected areas. The Zeta River ("Zeta") in Montenegro is one site where the burgeoning freshwater protection movement has achieved victory.

A biodiversity hotspot, Zeta's clear waters are home to unique species of endangered mollusks and freshwater fish, such as the Zeta softmouth trout. The 65-kilometer river supports more than 20 percent each of Montenegro's bird and plant species. Despite Zeta's abundant nature, until recently water pollution, poaching and unplanned urbanization threatened the river's biodiversity. Left unchecked, these problems would threaten Zeta's wildlife and hinder the river's ability to provide diverse habitats, mitigate climate and erosion impacts, and offer opportunities for recreation, tourism and research. These invaluable benefits inspired local campaigns to call for the river's protection.

In early 2019, the Podgorica and Danilovgrad municipalities collaborated with a local NGO coalition to launch an initiative to protect the Zeta River's lower course. By year's end, TNC had co-hosted the first International Conference on River Protection in Podgorica and the Montenegrin government had launched the River Zeta Nature Park. Resultant progress flowed rapidly and in only ten months Zeta was designated a Category V protected area. The park signifies a major milestone for freshwater conservation in the Balkans and serves as a model for policymakers to integrate freshwater protections into development and conservation planning.

While the Balkans need to pursue sustainable development to protect nature and people from climate change, development should avoid unnecessary damages to freshwater habitats such as Zeta. The River Zeta Nature Park illustrates how conservation can simultaneously reduce negative development impacts, give back to human livelihoods, and safeguard biodiversity and ecological services. Because of responsible planning, Zeta's boundless biodiversity and cultural heritage are protected from development and its waters will continue to flow freely for generations to come.



© CHIP CARROON/TNC

60%

More than 60% of Europe's rivers are in bad health, and the Balkans region is a sanctuary for some of the last remaining free-flowing rivers.

20%

of Montenegro's total number of bird and plant species are present in the Zeta River region.



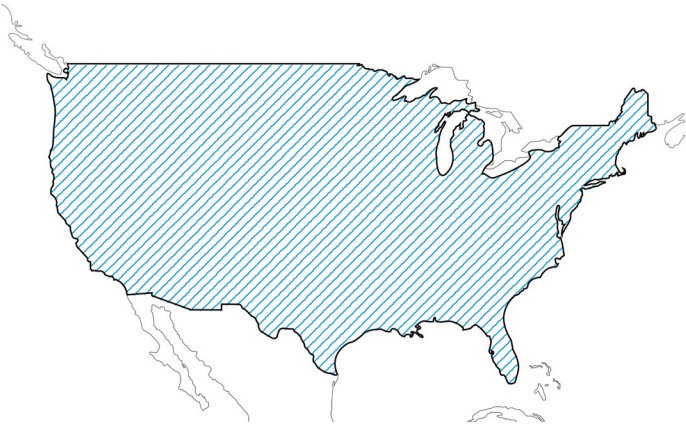
© CHIP CARROON/TNC



**The initiatives to protect the Zeta show the need for cooperation between the non-governmental sector and local authorities in order to achieve common goals. Protecting the Zeta River is of national importance and can be an example of good practice that can be successfully applied in other countries in the region.**

- MILIJA ČABARKAPA, Project Officer at WWF Adria

SPATIAL PLANNING AND MANAGEMENT



UNITED STATES

THE WORLD MUST INCREASE RENEWABLE ENERGY PRODUCTION NINEFOLD to reach its Paris Agreement goals—but with renewable energy’s large land footprint, we must carefully plan where we build clean energy infrastructure in order to reach our goals without harming nature. Accelerating renewable development with a business-as-usual approach could threaten important wildlife areas, potentially erasing habitat the cumulative size of Iceland and undermining climate progress by eliminating forests and other carbon stores.

Globally, there are currently more than six million square kilometers of converted lands suitable for renewable development. The United States is taking advantage of these converted lands by using them as sites for clean energy infrastructure, diverting development away from intact ecosystems and containing impacts to where they are least harmful. The conservation community is developing numerous tools to help identify converted lands suitable for renewables, and these tools are being used by wind and solar energy developers to avoid habitats across the U.S.

In West Virginia and Wyoming, where the shift from coal to clean energy is causing economic challenges, there are new opportunities to deploy renewable energy on over a thousand square kilometers of closed and abandoned mine lands. TNC is working in these and other states to create demonstration projects and new policies to encourage the redevelopment of degraded lands, with help from an unlikely coalition of conservationists, mining interests and rural landowners. In Virginia, TNC identified previously-mined lands suitable for solar projects on the Cumberland Forest property it recently acquired. Two companies have leased these sites, promising over 150 megawatts of solar power developed over the next two to three years.

These planning tools can be adapted for use in other countries to avoid and minimize potential conflicts as renewable energy expands rapidly across the world, such as TNC’s SiteRight tool in India. Strategic energy planning that incorporates low-impact siting is an elusive win-win-win for conservation, energy development and economic revitalization.

9x

Globally, we need to increase our renewable energy production 9 times to meet Paris Agreement goals.

17x

The current amount of previously-developed land meets the Paris Agreement goals 17 times over.

6M km<sup>2</sup>

Globally, there are currently more than 6 million square kilometers of converted lands suitable for renewable development.

“

We can do things that are good for nature and people. A mission of conservation and economic recovery can be compatible. These two things don’t have to be mutually exclusive.

- BRAD KREPS, director of TNC’s Clinch Valley Program in Abingdon, VA



© STEVEN DAVID JOHNSON



© POWER OF FOREVER PHOTOGRAPHY



**Conserving the lands and waters  
on which all life depends.**

To learn more about the Conservancy's the latest in-depth thinking and real-world solutions to some of the most complex challenges facing people and the planet today visit [nature.org/insights](https://www.nature.org/insights).