





## **DISCOVER**

We use science to inform our strategy and measure the impact of our work.

## **PROTECT**

We protect the most important natural strongholds on land and at sea, and reduce key threats to wildlife and wild places.

## **INSPIRE**

We connect people to nature through our worldclass zoos, the New York Aquarium, and our education and outreach programs.

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"It has taken nature millions of years to produce the beautiful and wonderful varieties of animals which we are so rapidly exterminating...

Let us hope this destruction can be checked by the spread of an intelligent love of nature..."

**—WCS 1897 Annual Report** 

# LETTER FROM THE PRESIDENT/CEO AND CHAIR OF THE BOARD

This year marks the 125th anniversary of the founding of the Wildlife Conservation Society in 1895. It is also the year that the devastating Covid-19 pandemic galloped around the globe—revealing connections between the destruction of nature, the wildlife trade, and human health.

This has given us much cause for reflection on what has and has not changed in 125 years, the ongoing urgency of our mission, and reasons for hope.

Our original charter was to create a world-class zoo, advance wildlife conservation, and promote the study of zoology—goals that still form the core of WCS's mission.

Today we are on the frontlines of conservation in 60 countries, protecting wildlife and wild places with many partners, including Indigenous and local communities, and national and local governments. We do scientific research—publishing nearly 300 articles each year in peer-reviewed scientific journals—and help train the next generation of scientists, educators, and conservationists. We inspire millions of visitors from New York City and beyond through the New York Aquarium and four zoos: our flagship Bronx Zoo, the Central Park Zoo, Prospect Park Zoo, and Queens Zoo. And we embrace diversity as one of our core values, recognizing this makes us stronger as an organization.

For every one of our 125 years, we have relied on our generous donors and partners to help us make lasting change in the world. Without supporters like you, the mighty American buffalo would be extinct, and tigers would be on their way out. Thanks to you, we helped close domestic ivory markets in China, the US, and the UK, giving us hope for elephants surviving—and thriving. With your partnership, WCS has developed unmatched



expertise in wildlife health and wildlife trafficking, putting us in a unique position to help reduce the likelihood of future pandemics.

Our ability to build on this strong foundation of conservation results is critical—because the challenges we face today are as great or greater than those that spurred our founders to create WCS 125 years ago. Less than a quarter of the planet remains wild. One million species are at risk of extinction. Climate change is accelerating, impacting the lives of people and wildlife.

Nature is sending us a message. Are we listening? Can we find better, smarter ways to protect and rewild our planet's wildlife and wild places—and ourselves? How can we be part of the solutions that the world needs?

In the pages that follow, you will see some of our answers to these questions in stories about the work we are doing to promote <u>One World – One Health</u> solutions and combat the wildlife trade; protect endangered species and nature's strongholds across four continents; elevate nature-based solutions to climate change; and inspire love of nature through our zoos and aquarium.

Everything we have accomplished in the past year, and over the last 125 years—and the reason we have hope for the future—is because of the dedication of generations before us and your strong support for our mission. As we chart a path forward for the next decade with our 2030 strategy, we hope we can count on your partnership.

Thank you.

Alejandro Santo Domingo Chair of the Board

Cristián Samper President & CEO

Cristian Sampor

125 YEARS
OF SAVING
WILDLIFE AND
WILD PLACES





125 YEARS OF **SAVING WILDLIFE AND WILD PLACES** 

1894 Theodore Roosevelt, as Boone and Crockett Club president, appoints a committe to ask New York State to establish a zoological society in New York City.

1895 The New York Zoological Society (NYZS) is founded.

**1896** The New York Aguarium is established at Manhattan's Castle Clinton, in present-day Battery Park.



## 1890s

99 The Bronx Zoo (formally, the New York Zoological Park) officially opens under the leadership of founding Director

1897 A.I. Stone travels across the

Arctic for two years on behalf of

NYZS and the American Museum

native people and the geographic

of Natural History, to study

distribution of animals.

William Hornaday.



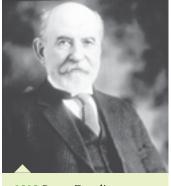
## 1900s

**1900** With the support of NYZS leadership, Congress passes the Lacey Act, prohibiting trade in wildlife, fish, and plants that have been illegally taken, possessed, transported, or sold.

1901 The Bronx Zoo establishes the first veterinary department at a US zoological park.

1902 NYZS takes over management of New York Aquarium under the direction o Charles Haskins Townsend.

> 1907 The American Bison Society begins transfer of Bronx Zoo bison to protected lands in the American West to restore decimated populations of this species.

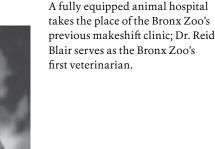


wildlife conservation.

913 Bronx Zoo director William Hornaday helps write language in the 1913 Tariff Act prohibiting mportation of bird plumage for use in hats.

## 1910s

**1911** The Fur Seal Treaty of 1916 Bronx Zoo Curator of Birds 1911—signed by the US, Great William Beebe opens a tropical Britain, Japan, and Russia, and research station in British Guiana promoted by William Hornaday's (now Guyana) and soon begins campaigns to protect the northern NYZS's Department of fur seal—becomes the first Tropical Research. international treaty to address



## 1920s

**1924** Congress passes new code of game laws for Alaska as a result of NYZS advocacy.

**1928** In an effort to save

2000s

2002 The Gabon government

establishes 13 national parks in

the wake of WCS scientist Mike

2003 The Bronx Zoo opens

Bronx Zoo exhibit to receive

Tiger Mountain, the 7th

the Association of Zoos

and Aquariums' award

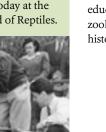
for exhibit excellence-

member zoo.

more than any other AZA

Fay's 1999 megatransect.

the Galápagos tortoise from extinction, Charles Townsend collects different species from Ecuador and transports them to zoos in the US, Australia, Bermuda, and Panama. Firstgeneration offspring of those tortoises survive today at the Bronx Zoo's World of Reptiles



**1929** NYZS passes a resolution to oppose introduction of non-native animals in US national parks and urges the National Park Service to prohibit all such introductions.

After more than 10 years of campaigning by William Hornaday and other NYZS officers, Congress passes the Migratory Bird Conservation Act.

The Bronx Zoo opens its first education department, teaching zoology, conservation, and natural history to visitors and students.

## 1930s

1930 NYZS officers head a campaign against misguided slaughter of thousands of hoofed mammals in Zululand, South Africa to eradicate the tsetse fly.

The NYZS Department of Tropical Research distinguishes itself through the inclusion of women Jocelyn Crane.

scientists such as zoologist

conservation work. 1934 Bronx Zoo Curator William Beebe completes a record-setting 3,028-foot dive in his Bathysphere off the Bermuda coast.

1931 NYZS analysis of whaling

lays the foundation for cetacean

logs illustrates the range and seasonal migrations of whales and

> 1948 The NYZS establishes the Conservation Foundation to handle its ever-expanding conservation program. The Foundation later fledges as a free-standing entity.

writes Our Plundered Planet

destruction by humankind.

calling attention to environmental

The Bronx Zoo Children's Zoo

2010s

world's largest tiger population.

**2012** WCS begins work to protect

the 25 most endangered turtle

propagation at the Bronx Zoo.

into their former Tanzania habitat

after going extinct in the wild.

**2013** WCS establishes the 96

Elephants campaign to stop the

WCS and partners successfully press

sharks and rays at meeting of CITES.

for protection of seven species of

elephant ivory.

and tortoise species through

A decade's work results in

benefiting U.S. Fish and

Conservation Funds.

1941 With the opening of

its African Plains exhibit, the

Bronx Zoo begins grouping

animals by landscape rather

than taxonomic order (big

cats, primates, etc.), with

prey and predator species

separated by protective moats.

1946 NYZS establishes the Jackson Hole Wildlife Park to conserve Rocky Mountain fauna. It becomes part of Grand Teton National Park in 1962.

1940s



NYZS president Fairfield Osborn

1952 NYZS supports research by Aldo Leopold and Frank Fraser Darling on wildlife conditions in Alaska, focusing on forest destruction, overgrazing, and protection of wolves.

1950s

1956 NYZS supports an expedition to the southern slope of Alaska's Brooks Range by Olaus and Margaret Murie, joined by a young researcher named George Schaller. They later successfully urge Congress to create Arctic National Wildlife Refuge.



1957 The New York Aquarium opens in Coney Island, moving from its original Manhattan location after a 16-year hiatus.

> 1959 NYZS marine scientist Carleton Ray helps establish the world's first land and sea park a Exuma Cays in the Bahamas.

Accompanied by his wife Kay and supported by NYZS George Schaller conducts the first ecological study of mountain gorillas.

## 1960s

1960 NYZS surveys and develops conservation proposals for James's flamingos, leading to establishment of Laguna Colorada Reserve in Bolivia



1966 NYZS's George Schaller conducts the first ecological and behavioral study of Serengeti lions.

NYZS establishes the Institute of Research in Animal Behavior at Rockefeller University, which professionalizes conservation work and gives a home to leading scientists in the field.

NYZS wildlife biologist Thomas Struhsaker begins a groundbreaking study of the

ban commercial whaling.

1972 The Bronx Zoo World of bird species are housed

Dian Fossey continues George Schaller's work on mountain gorillas with NYZS support.

primate community within

an association with wildlife

Uganda's Kibale Forest, launching

conservation and scholarship in

1967 NYZS supports Iain Douglas-

elephant populations in Tanzania's

Hamilton's ecological survey of

Manyara National Park.

1969 A decade of work in Argentina helps create six coastal reserves, including Punta Tombo

The Bronx Zoo opens World of Darkness, the first zoo exhibit to feature nocturnal animals on a reverse light cycle.

## 1970s

**1970** A recording of humpback whale communications by NYZS wildlife biologist Roger Payne generates a wave of public interest in these mammals and contributes to the movement to

Birds opens, revolutionizing how

and Península Valdés.

New York City's first nativeborn gorilla, Pattycake, is delivered at what will become NYZS's Central Park Zoo.

1973 NYZS studies of field ecology and animal behavior help guide management of Kenya's Amboseli protected area.

1977 The 43-acre Monorail and the Wild Asia exhibit open at the Bronx Zoo.

1979 With NYZS support, Amy Vedder and Bill Weber establish the world's first wild gorilla tourism program in Rwanda's Volcanoes National Park.

**1980** NYZS wildlife biologist George Schaller begins a long-term study of giant pandas in China's

1980s



**1987** NYZS design and animal Wolong Natural Reserve.

n 1993.

1984 NYZS helps create the world's first jaguar reserve in Belize's Cockscomb Basin.

1985 NYZS establishes the Wildlife Health Center. one of the first modern zoo hospitals, at the Bronx Zoo.



JungleWorld opens at the Bronx Zoo.

departments work on a master plan for the Kenya Wildlife Service's Nairobi Safari Walk.

1988 Under contract to the Department of Parks and Recreation, NYZS assumes management of (and redesigns) New York City zoos. Central Park Zoo becomes a NYZS wildlife park in 1988, followed by Queens Zoo

> 89 NYZS elephant research and advocacy contributes to an international ban on ivory trade.

in 1992 and Prospect Park Zoo

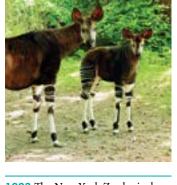
n the heart of Brazil's flooded forest, NYZS launches Mamirauá Lake Ecological Station, which becomes Brazil's first Sustainable Development Reserve.

NYZS initiates the first-ever zoo-

based field veterinary program.

## 1990s 992 NYZS staff help

establish the 5,300-squaremile Okapi Wildlife Reserve in what is now the Democratic Republic of Congo. The okapis at WCS's Bronx Zoo today help raise awareness of this unique endangered species.



1993 The New York Zoological Society changes its name to the Wildlife Conservation Society

**1995** WCS helps lead an effort to establish Madidi National Park and Kaa-lya del Gran Chaco National Park in Bolivia. The latter is the first such area in the Americas initiated by an Indigenous group.

1998 WCS becomes the first conservation group to work in Cambodia after the fall of the Khmer Rouge.

1999 WCS wildlife biologist Mike Fay begins a 1,200-mile megatransect walk across Congo Basin.

The Bronx Zoo's Congo Gorilla Forest exhibit opens, raising an average of more than \$750,000 in each successive year for Central African conservation.

WCS plays a pivotal role in documenting that West Nile Virus has spread to the Western Hemisphere.

2004 WCS establishes One World - One Health to prevent disease transmission at the interface of wildlife, livestock,

and human communities.

With land donated by Goldman Sachs & Co., WCS shepherds creation of the 1,160-square-mile Karukinka Reserve in Chile.

**2007** WCS-led conservation science helps define six-fold expansion of Canada's Nahanni National Park, protecting wilderness 3.5 times the size of Yellowstone.

Seima forest is declared a protected area, bringing the number of new protected areas created as a result of WCS's Cambodia work to four.

WCS surveys reveal that the world's 2nd largest annual land migration of wildlife survived decades of war in southern Sudan

**2008** WCS efforts lead to creation of the first federally designated US wildlife migration corridor, the Path of the Pronghorn, to protect the longest land migration in the lower 48 states

WCS identifies 125,000 western lowland gorillas, more than half of the world's population, in the Republic of Congo.

The Madagascar! exhibit opens in the Bronx Zoo's former Lion House.

WCS work in Patagonia leads to the creation of the Golfo San Jorge marine protected area, a key habitat for Magellanic penguins.

with the Tanzania Wildlife Research Institute to conduct a national survey of elephants and frame a national strategy for their conservation.

WCS launches a partnership

WCS conservationists Brian D. Smith, Rubaiyat Mansur Mowgli, Samantha Strindberg, and others identify nearly 6,000 Irrawaddy river dolphins, among one of the world's rarest species of marine mammal, in the freshwater

**2009** WCS helps establish Band-e-Amir, Afghanistan's first national park.

mangrove system of Bangladesh.

WCS's Center for Global Conservation, HQ for its field programs, opens at the Bronx Zoo. **2010** A 20-year conservation effort **2014** The Komodo Dragon and by WCS-India and local partners in Aldabra Tortoise exhibits open at the Malenad landscape secures the

**2015** WCS's New York Aquarium staff discover a nursery for sand Wildlife's Multinational Species Island's Great South Bay.

**2016** WCS advocacy is critical to 2,000 Kihansi spray toads bred at the the designation of the American the United States.

**2017** Animal Planet's television

tiger sharks in the waters of Long

Amur tigers are confirmed by WCS to be breeding in Russia's Primorskii Krai, one of the last strongholds for this species.

seasons follow.

Bronx and Toledo Zoos are released bison as the national mammal of

WCS partners with The Nature Conservancy and the National Center for Ecological Analysis and killing, trafficking, and demand for Synthesis to create the Science for Nature and People Partnership

docu-series THE ZOO premieres, taking visitors behind the scenes at the Bronx Zoo; four successful

Six purebred bison calves are born at the Bronx Zoo—offspring of a genetically pure herd WCS received as an historic gift from the Fort Peck Assiniboine and Sioux Tribes in Montana.

**2018** WCS Bolivia concludes its dentidad Madidi expedition adding 1,382 previously unknow plants and animals to Madidi National Park's species lists.

Colombia's Serranía de Chiribiquete becomes the world's largest tropical rainforest national park thanks to efforts by WCS

WCS's New York Aquarium opens Donald Zucker and Barbara Hrbek Zucker Ocean Wonders: Sharks!

intelligence to identify at-risk species in camera trap images more accurately, and reduces the time it takes to filter through thousands of images from more than six weeks to

**2019** WCS and partners launch

Wildlife Insights, a cutting-edge

platform that uses artificial

The Bronx Zoo constructs the Chelonian Propagation Center to breed critically endangered turtles for reintroduction.

WCS and partners create the Rhukanrhuka Municipal Protected Area in northwest Bolivia to advance wildlife conservation and sustainable development.

WCS works with the Belize

government to nearly triple the area of its strictly protected waters and more than double the size of its





# CONSERVATION SCIENCE AND SOLUTIONS

As the leading expert on diseases at the human-wildlife-livestock interface—and with the largest global presence of any conservation organization combatting wildlife trafficking—<u>WCS is uniquely placed to respond to the Covid-19 pandemic and help prevent future outbreaks.</u>

Science has been in our DNA throughout WCS's proud 125-year history—as has our commitment to solving real-world problems by using our findings. For example, our scientists have worked in Ebola hot zones in the Congo for 15 years: doing research aimed at understanding how Ebola spreads from animals to people, creating innovative point-of-care tests, and helping to reduce risks to local communities and great apes, which are also vulnerable to the deadly illness.

Like Ebola, Covid-19 is a zoonotic disease that jumped from animals to humans. Fieldwork by WCS experts and others has documented the growing threats from increasing human interaction with wildlife around the world—caused by the destruction of nature and the removal of wild animals from their native habitats, along with their transport for sale and consumption in urban centers.

WCS is also at the vanguard of the movement to <u>harness the power</u> of nature-based solutions to tackle two other looming threats: the biodiversity and climate crises. <u>Forests</u> are strongholds for two-thirds of land-based plants and animals; intact forests and oceans absorb fully half of every ton of carbon emitted. Our goal is to halt the loss of intact forests, grasslands, coral reefs, and other vital ecosystems that have not yet been significantly disturbed by human activities.

**LEFT** WCS led the largest-ever study of coral reefs in 2019. Our findings, published in the journal *Nature Ecology and Evolution*, show that although these living ecosystems are severely threatened by climate change, the majority still have coral species that can build large, complex reefs—and we can still recover these vital marine habitats.

# HOW CAN WE PREVENT THE NEXT PANDEMIC?

Seventy percent of emerging infectious diseases in humans originate from animals—an alarming statistic to consider in light of the Covid-19 pandemic's likely origin in a market where wildlife was sold for human consumption. This global public health crisis—which has killed and sickened millions, and caused unimaginable economic and personal hardship—has shone a harsh spotlight on the harmful commercial trade in wildlife.

Live animal markets facilitate the transmission of deadly viruses between species—and then to humans—by packing together wild and domestic animals that would never normally come into contact with one another, under stressful and unsanitary conditions. Recent WCS research on field

rats in Vietnam found that the percentage of animals infected with at least one of six different coronaviruses increases significantly as they are moved along the supply chain from the wild to markets to restaurants.

With the largest global presence of any conservation organization combatting wildlife trade and wildlife trafficking, and strong working relationships with governments around the world, WCS is uniquely qualified to help close these commercial markets selling wildlife for human consumption and end the associated trade in wildlife—both legal and illegal.

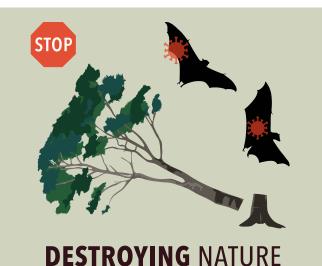
In February, <u>China announced a permanent</u> <u>ban</u> on hunting, trading, transporting, and consuming wildlife, whether captive-bred

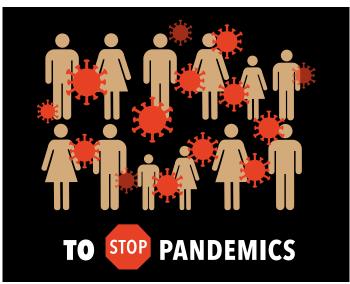
enforcement officer stands with one of the pangolins saved from illegal wildlife trade during a massive 2015 smuggling bust in Indonesia, when WCS assisted authorities in seizing \$1.8 million worth of pangolins and wildlife products.











or wild-caught, which we applaud. And in July, <u>Vietnam announced a directive</u> calling for heightened enforcement of its existing laws on illegal wildlife trade, including for the first time strict penalties to address corruption. While the new Vietnamese directive can pave the way for future legal reforms, the country has not yet banned the commercial trade and consumption of wildlife. This leaves potential loopholes for traders and traffickers to exploit, and significant disease risk.

Our teams are now working closely with China, Vietnam, and other governments to help strengthen their laws and regulations. WCS is also lending our scientific and policy expertise at the national and international levels and advocating for the global community to take strong action against the commercial trade and markets in wildlife for human consumption to help prevent a future viral spillover pandemic.

## LOOKING AHEAD $\rightarrow \rightarrow \rightarrow$

WCS seeks to prevent both future pandemics similar to Covid-19, and the devastation of the world's wildlife. In March 2020, we issued a forceful <u>new policy statement</u> that calls for a ban on all commercial trade in wildlife for human consumption and the closure of all related markets. Our recommendations do not pertain to subsistence hunting or the provision of food security for Indigenous Peoples and local communities. WCS's Wildlife Trade Action Plan aims to:

- Olose wildlife markets for human consumption through advocacy campaigns and legislative reform
- 2 Strengthen and expand pathogen surveillance at key points along wildlife supply chains
- 3 Stop wildlife trafficking through actionable intelligence

## STOPPING WILDLIFE CRIME

In addition to our work to stop the commercial trade of wildlife for human consumption, WCS leverages our scientific, technical, and policy expertise to push for stronger international regulations against illegal trade in the most at-risk species, enhance legislation and enforcement at the national level, and strengthen cooperation among governments along the trade chain. On the ground, our experts are helping disrupt criminal networks, bring poachers and traders to justice, and stop crime before it happens.

In the last year, WCS has ramped up our patrols, support for law enforcement and convictions, and other vital activities to counter wildlife trafficking.



**ABOVE** WCS staff provides training and support to Thailand's government rangers on the SMART patrol system, which uses real-time data to strengthen monitoring efforts.

## HIGHLIGHTS OF OUR COUNTER-TRAFFICKING SUCCESSES INCLUDE:



**ZERO ELEPHANTS POACHED:** Zero elephants have been poached in Mozambique's Niassa National Reserve since May 2018, thanks in great measure to WCS's guidance and help in strengthening the government's law enforcement and anti-poaching efforts. In recent years, our field teams have stepped up the frequency and intensity of foot, air, and boat patrols across the region, and helped install new check posts along known trade routes—preventing criminals from trafficking wildlife products across the reserve's border. Our efforts to close domestic ivory markets in many countries, including China, the US, and the UK, also provided the help our field programs need to stem the market for ivory.



WCS-SUPPORTED RANGER PATROLS: With WCS's assistance, ranger teams in Laos, Thailand, and Malaysia protected tigers, orangutans, Asian elephants, and other highly vulnerable species by patrolling more than 10,000 kilometers of protected areas over the last year. Intelligence from WCS and partners helped authorities make more than 100 arrests and remove 255 snares.



support for 15 counter wildlife trafficking operations throughout Indonesia that resulted in government authorities confiscating more than 3,000 wildlife specimens including more than 1,000 live birds, turtles, and monkeys. These actions serve as a major deterrent to other potential wildlife networks operating in Indonesia—one of the world's most biodiverse nations, with one of the largest illegal wildlife trafficking markets.



partners in Indonesia, we helped develop and provide training on the use of a new affordable, portable shark DNA test kit that will allow enforcement officials to rapidly identify protected species, prevent the sale of these animals, and help disrupt the work of traffickers.



## Aili Kang

**Director of WCS Asia** 

I support 1,000 WCS staff—nearly all from the 15 Asian countries where they work—in their efforts to protect animals, wilderness, and sustainable livelihoods.



## 66

## Q: What is a typical day for you?

AlLI: Since January 2020, when WCS called for the closure of wildlife markets in order to help stop future pandemics, I've been intensely focused on turning the world's attention to the serious dangers of the wildlife trade for both animals and people. China has now banned wildlife consumption and WCS is helping ensure that ban is rolled out effectively.

## Q: Your most memorable moment?

**AILI:** A decade ago, I was surveying antelope on the Tibetan Plateau with my colleague Joel Berger. On December 5, my birthday, we saw blue



sheep spooked and running. We looked through our scope to see who was chasing them and to my amazement, it was a snow leopard—the only one I've ever seen, the best gift I've ever received. I wouldn't have believed my eyes if Joel didn't confirm. We tracked it for hours, worrying Lunzhu, our Tibetan driver, who was afraid we'd been attacked by a bear but forgave us when he learned why we were late. When I first met Lunzhu, he didn't care about conservation. But after spending time with us, he became so skilled he could guide other researchers. And if he saw, say, a fence that might harm animals, he could talk with villagers far more effectively than outsiders like me. Seeing local people become ambassadors for wildlife is truly one of the greatest rewards of my work.

## Q: What are your hopes for the future?

AlLI: China can play a strong leadership role in conservation at the global level. I already see it happening: not just top-down change, but active efforts by grassroots civil society and the public. I want to amplify those voices because they encourage the government to go further, ensuring the survival of species within China including Tibetan antelope—and having a positive impact on biodiversity conservation even beyond the Chinese border, protecting snow leopards, tigers, Black-necked cranes, and equally rare animals in other countries.

14 WCS IMPACT REPORT 2020 CONSERVATION IMPACT

## **ONE WORLD, ONE HEALTH**

Human, animal, and environmental health are intrinsically connected and profoundly influenced by human activities, as the Covid-19 pandemic has made us all acutely aware. Indeed, the majority of emerging infectious diseases in humans are passed between animals and humans, and of these "zoonotic" diseases, over two-thirds originate from wildlife.

The public health, social, and economic impacts of the Covid-19 crisis have been staggering in 2020, grinding many parts of the world to a halt and inflicting unbearable loss of lives, jobs, and incomes. This in turn has threatened conservation and development gains in many of the world's most vulnerable countries.

For decades, WCS scientists have been breaking down traditional barriers separating the study of animal and human health, and leading pioneering research to find win-win solutions that improve the well-being of wildlife, livestock, plants, humans, and the environment. Below are just a few examples.



WEST NILE VIRUS: Our Bronx Zoobased veterinary pathologists helped identify the West Nile virus after it first infected North American birds in 1999; the samples we collected were also used to develop the animal vaccine for it.



**EBOLA:** Our scientists have worked in Ebola hot zones in Africa for over 15 years to identify disease reservoirs, create innovative point-of-care diagnostic tests, and reduce risks to local communities and great apes, which are also vulnerable to Ebola.



WILDLIFE TRADE: Our health experts have spent decades studying the drivers of emerging zoonotic diseases at highrisk wildlife hunting, farming, trade, and trafficking sites across Africa, Asia, and Latin America. We have

identified substantial human health risks from wildlife trade, and established that these risks rise significantly along the trade chain from the source (e.g. forest) to market (e.g. restaurant).



**2019 BERLIN PRINCIPLES ON ONE HEALTH:** WCS and German leaders brought together the world's top minds in public health and wildlife health from government, academia, and conservation in fall 2019—just months before the pandemic hit—to develop the Berlin Principles, aimed at unifying and strengthening global efforts to prevent the emergence or resurgence of diseases that threaten humans and animals.

"The health of our planet hinges on the symbiotic relationship between humans, animals, and the environment."

—CHRIS WALZER

Executive Director for Global WCS Health Program



#### WCS EBOLA RESEARCH SURVEILLANCE AND TRAINING

All human Ebola epidemics have originated from contact with an infected wild animal. WCS's study of Ebola in apes and fruit bats has led to a greater understanding of how the virus could spread, bringing the scientific community closer to predicting and curbing future outbreaks. WCS, together with local governments and public health scientists, developed the <a href="Ebola Early Warning System">Ebola Early Warning System</a>—a low-cost, educational outreach and surveillance program that has proven a vital resource for over a decade. We train teams across the Congo Basin to teach local people how to report infected and dead wildlife, while also protecting themselves, in order to break the cycle of human Ebola deaths. The monitoring network covers more than 30,000 km² of remote forest—home to more than 60 percent of the world's gorillas—and serves as an irreplaceable early warning system for Ebola.



WCS has the largest international team dedicated to disease surveillance, rapid response, local training, and wildlife health of any conservation organization. Our unparalleled health expertise at the wildlife-livestock-human interface, combined with the strength and reach of our global conservation policy, counter-trafficking efforts, field operations, and longstanding partnerships with international governments, uniquely position WCS to respond to this global crisis and help reduce the risk of future disease outbreaks.

#### NATURE AND OUR HEALTH

Destruction of nature is on the rise: for example, less than a quarter of the world's remaining forests can be defined as intact, and intact forests are disappearing at twice the rate of forests overall. This feeds the already grave biodiversity and climate crises, as forests' life-giving habitats shrink and their carbonabsorbing capacity dwindles.

The breakdown of Earth's systems, including forest fragmentation, increases the risks of diseases emerging from wildlife. Converting richly biodiverse forests for agricultural and industrial uses brings people into closer contact with wildlife, increasing the

odds of an emerging infectious disease "spillover" event. Conversely, preserving ecosystems has positive impacts on many aspects of human health, including reduced prevalence of disease and improved air quality, nutrition, and access to traditional medicines.

"Intact ecosystems are the vaccine against future pandemics."

—JOE WALSTON

Vice President for Global Conservation, WCS

## LOOKING AHEAD → → →

If the Covid-19 pandemic is nature's "warning shot"—building on many others we have seen on the climate front—we must seize this opportunity to halt the destruction of nature and get serious about preserving it. WCS seeks to advance a <u>robust new policy</u> to end the commercial trade in wildlife, particularly mammals and birds, for human consumption, while protecting the rights and food security of Indigenous Peoples and subsistence communities.

Across our field sites, we are ramping up efforts to counter pandemic-related upticks in wildlife poaching and bushmeat consumption, while winning stronger protections for intact wilderness areas. Emerging and re-emerging infectious diseases threaten not only humans and their security, food supplies, economies, and societies, but also the animal and plant building-blocks of life on our planet. Building on our 2019 advances in Berlin, we will help governments and societies put "One Health" strategies into action to protect the health of all species, economies, and security on a global scale.

## NATURE-BASED CLIMATE SOLUTIONS

#### ADDRESSING THE CLIMATE CRISIS & ADAPTING TO CHANGE

Climate change is no longer a future threat: people and wildlife around the world are suffering its effects now. Prolonged droughts, raging wildfires, warming and rising waters, and more unpredictable and severe weather patterns are altering ecosystems, making food scarce, and putting animals at risk, forcing them to seek out new habitats.

Nature is in peril—but it also holds immense power, and we must harness that power to fight the climate and biodiversity crises. Nature-based solutions, including the conservation of carbon-storing forests, can provide as much as a third of the action needed to achieve net zero emissions by 2050. This critical complement to other kinds of climate solutions is cost-effective—and it is available to us today.

**BELOW** WCS uses cutting-edge science to understand the impacts of climate change on nature and species. For example, <u>our scientists</u> <u>are monitoring walrus populations in Arctic</u> <u>Beringia</u> to investigate how they can best adapt to habitat shifts such as rapidly melting sea ice.



## THE EARTH'S FIVE GREAT FORESTS



WCS has boots on the ground in 9 of the 10 countries with the greatest geographic coverage of intact forests.

- 1. BRAZIL 🗸
- 2. RUSSIA 🗸
- 3. CANADA 🗸
- 4. DEMOCRATIC REPUBLIC OF CONGO ✓
- 5. PERU 🗸
- 6. UNITED STATES V
- 7. INDONESIA 🗸
- 8. COLOMBIA 🗸
- 9. VENEZUELA
- 10. BOLIVIA 🗸

## WHY PROTECT FORESTS?

Intact forests—those that have not been significantly disturbed by human activity—are massive carbon sinks for our planet, absorbing approximately one-quarter of annual carbon emissions globally. They store significantly more carbon than degraded forests—and when they are cut down, they emit a substantial percentage of this stored carbon. In fact, WCS research has revealed that the climate impact from tropical forest loss is 600 percent higher than previously understood—and just 40 percent of remaining forests have ecosystems with high integrity.

Healthy, intact forests serve as biodiversity strongholds for twothirds of all land-based plants and animals; provide vital water supplies, erosion control, and livelihoods for 1.6 billion people; and can help reduce the spread of infectious diseases.

Right now, however, less than a quarter of the world's remaining forests are intact, and they are being lost, along with their climate and biodiversity benefits, at twice the rate of forests overall due to industrial logging, agricultural expansion, and infrastructure development. If we do not take action now, we will lose half of what remains by 2100—accelerating climate change and biodiversity loss. (continued on page 21)





## THE SOLUTION:

Preserve the unique benefits of intact forests.



## FRESH WATER

Intact tropical forests generate significantly more rain than degraded areas, providing water to surrounding regions and reducing the risk of drought.



## CLIMATE CHANGE

Intact forests absorb nearly 25 percent of carbon dioxide emissions from human sources, greatly slowing the pace of



## INDIGENOUS PEOPLES

Many Indigenous groups live in intact forests and rely on forest resources to sustain their cultures and livelihoods. Honoring those values, they are active stewards of their ancestral lands.



## BIODIVERSITY

Eighty percent of land-based wildlife inhabit forests. Many of these species play a critical role in maintaining the health of ecosystems, which provide



#### HUMAN HEALTH

Forest loss and degradation compromise the supply of medically beneficial species on which millions of people rely. Forest degradation also brings humans into close contact with infectious diseases.

WCS is advancing a global initiative to mobilize conservation of the planet's 10 billion hectares of intact forests by 2030. At the same time, we are scaling up action on the ground to protect intact forest landscapes from intensifying threats. Recently, WCS secured major new victories for intact forest protection in Central Africa's Okapi Reserve, Canada's Peel Watershed, and Indonesia's Bukit Barisan Selatan National Park. WCS currently partners with national governments as well as over 142 Indigenous Peoples and hundreds of local communities to help manage and conserve nearly 400 protected and conserved areas. Together, these areas under government and community protection exceed 3.1 million square kilometers of intact forest and other ecosystems.

WCS is helping to build a strong coalition of forest champion countries: governments that include protection for intact forests in their national climate commitments, and are willing to invest financial and other resources to put these commitments into action.

#### LOOKING AHEAD → → →

We will advance protection for nature's most biodiverse and carbon-rich forest strongholds around the world—places that are also essential to food security, health, and traditional livelihoods. We are seeking commitments from an emerging group of forest champion countries, including Gabon, Costa Rica, Suriname, Guyana, and Myanmar, to safeguard the vast carbon stocks and ongoing sink function of intact forests.



## HELPING VULNERABLE SPECIES AND COMMUNITIES ADAPT

A changing climate is creating more acidic waters, with dire impacts on the ocean and marine life. These impacts, in turn, have consequences for local communities and global economies, human well-being, health, and survival. Coral reefs and nearby coastal areas harbor one-quarter of marine species, and serve as a natural defense against sea level rise and the devastating storms that are becoming more frequent with climate change. Half a billion people rely on coral reefs for food, livelihoods, and cultural heritage. Yet, within this century we could lose as much as 90 percent of these reefs and coastal areas. (continued on page 22)

**ABOVE** WCS is helping small island communities in Papua New Guinea gain better access to information on climate change and strengthen their food security through climate-adapted agricultural practices.

#### **W** CONSERVATION SCIENCE AND SOLUTIONS

In response, WCS has identified a portfolio of 50 coral reefs that are most likely to survive the increased heat stress on our planet in the coming years. We are now working with partners around the world to win protection for these vibrant, resilient reefs.

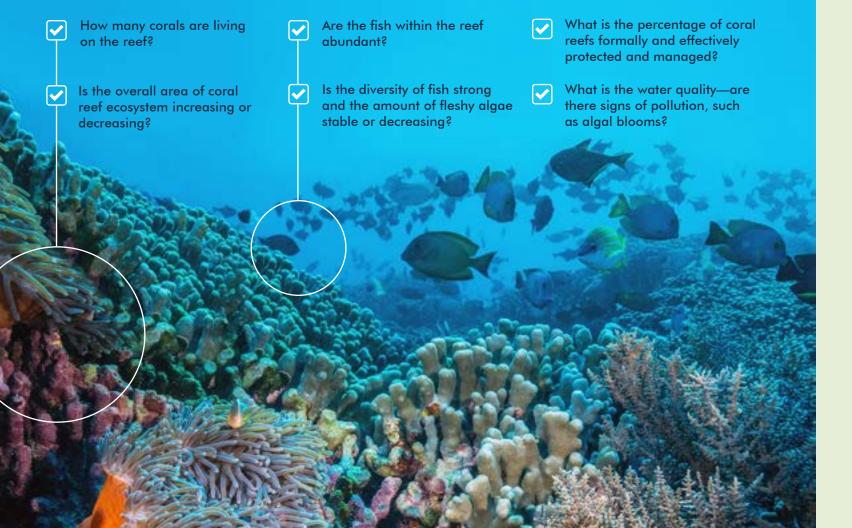
Around the world, WCS is helping people, ecosystems, and species adapt to the widespread, severe impacts of climate change. In the US, we have supported more than 100 projects to help species such as seabirds and walruses adapt to climate impacts, particularly as sea ice rapidly shrinks. WCS works side by side with coastal communities, Indigenous Peoples, and governments to reduce climate vulnerabilities and protect long-term livelihoods using conservation strategies that sustain local agriculture and fisheries.

## LOOKING AHEAD → → →

Today only 2.5 percent of coral reefs are protected. Pathbreaking WCS research has identified many of the world's most resilient coral reefs with the greatest ability to withstand the effects of climate change; in 2019, we launched with partners a global technology called MERMAID that enables scientists to collect, analyze, and share field-based coral reef surveys from any site. Building on this foundation, we seek to secure new commitments in key nations such as Indonesia, Fiji, and Mozambique to advance our global goal of protecting 30 percent of the ocean by 2030.

## WHAT MAKES A CORAL REEF RESILIENT?

WCS protects the most vibrant, resilient coral reefs—those that stand the greatest chance of surviving in the face of climate change and other threats. These are the kinds of questions our marine biologists and coral health experts ask to investigate whether a reef is healthy and resilient:



**MEET A WCS EXPERT** 

## **Stacy Jupiter**

2019 MacArthur Fellow and Genius Grant Recipient

As Regional Director for WCS Melanesia, home to the world's richest marine biodiversity, I work with local people in Fiji, Papua New Guinea, and the Solomon Islands to design conservation strategies and lead the science needed to protect reefs, fisheries, and forests.



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## Q: What is a typical day for you?

**STACY:** My work is wonderfully varied: one day I might dive to survey reef health and the next do one-on-one mentoring, or work with local artists on a comic book to teach kids how changes to the land threaten life in the streams and sea. I became a marine biologist to protect the ocean, but I soon saw how communities depend on healthy ecosystems: for their very survival, and to sustain cultural practices which are themselves often protective. As villagers in Fiji saw their catches dwindling, for instance, WCS helped develop science-based models to show how Fijians could adapt traditional practices—like closing a fishery for 100 days when a chief dies to build a big harvest for the funeral—to maximize the catch for the long term.



## Q: Your most memorable moment?

**STACY:** About 10 years ago, we worked with 10 villages to develop Fiji's first ecosystem-based management plan. One afternoon, we gathered to present the results of our science that showed how activities like logging had harmed downstream areas. I looked up and saw grown men crying. Indigenous Fijians own 87 percent of all land, so they understood that it was their decisions that had caused the harm; they felt a terrible sense of responsibility, guilt, and loss. They hadn't understood, but now they did and wanted to make different choices for their land.

## Q: What are your hopes for the future?

**STACY:** What keeps me going is knowing that we're conserving the environment for people. I hope we can make clear how vital protecting the environment is to public health. When people understand that fragmenting forests impacts fresh water and increases typhoid, they change their behavior. Protecting forests can also reduce the risk of pandemics by minimizing risks of human exposure to novel pathogens. I hope to help empower people to conserve their coral reefs and forests.





As many as 1 million species are now at risk of extinction, according to a 2019 United Nations report—a potential loss of biodiversity that also threatens human survival. The primary threats most species face are habitat loss, hunting, and poaching.

But there is hope, too. <u>WCS science published in the journal</u> *Nature* revealed that conserving the world's remaining
wilderness would cut extinction risk by half. It is our mission to
protect that wilderness and the animals it shelters—and every day
we are proving it can be done.

Read on to learn more about our impact—ranging from rewilding buffalo in the American West to turning the tide for apes and elephants across Africa and Asia, paving the way for big cat recovery on three continents, and winning new international protections for endangered sharks and rays.

**LEFT** A female tiger emerges from a forest in India, where WCS's long-term conservation efforts have helped protect and grow tiger populations—including an increase of 400 percent in the Western Ghats.

# BRINGING ELEPHANTS BACK FROM THE BRINK

Elephants inspire awe with their enormous size, long trunks, intelligence, and close-knit family groups. But their survival is in jeopardy as they face intensifying threats from poaching, habitat loss, and conflict with humans.

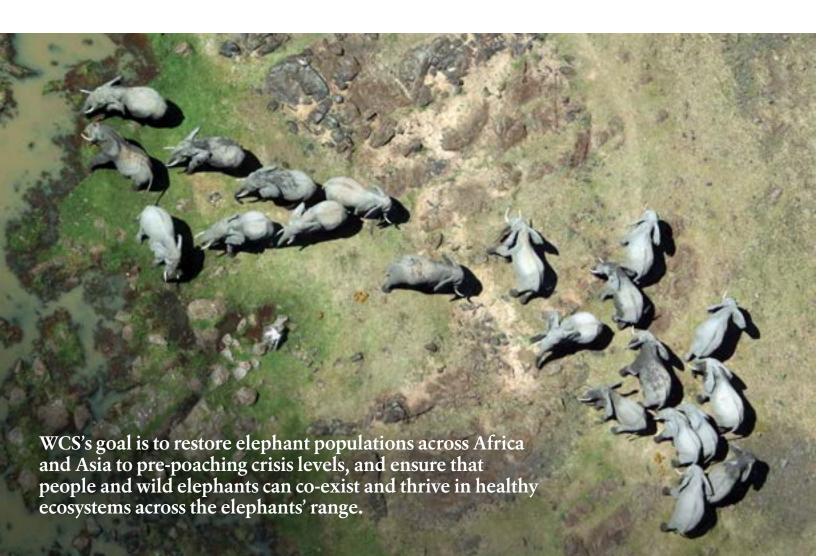
WCS has led efforts to save elephants and their habitats in Africa and Asia since the early 1960s, with a strong track record of innovative science and conservation success. But in 2013, WCS estimated that 96 African elephants were being killed each day, and our seminal study showed an alarming 62 percent decline of all African forest elephants over 10 years. This research spurred a global movement to protect elephants. Since then, WCS has successfully

The landscapes WCS protects contain more than 50 percent of African forest elephants and an estimated 50 percent of Asian elephants.

pushed to ban commercial ivory markets in the US, China, the UK, and Singapore.

Elephant populations have stabilized or increased in areas throughout Africa where WCS has ensured long-term, effective site management and the necessary resources, anti-poaching systems, and training. And in parts of Asia where human-elephant conflicts are the key threat, our strategies have reduced potential conflict by as much as 90 percent.

**BELOW** A large group of elephants travels through the grasslands of Ruaha National Park, Tanzania.



## WITHIN THE LAST YEAR, WCS HAS:



HELPED STOP THE DECLINE OF EAST AFRICA'S LARGEST ELEPHANT POPULATION ACROSS TANZANIA'S RUAHA-KATAVI LANDSCAPE. After training more than 500 rangers and community scouts, establishing three elite rapid reaction teams in key elephant areas, and building new patrol posts and management headquarters, we have stabilized the landscape's elephant numbers at approximately 20,000—and now see evidence of recovery.



HALTED POACHING OF NIGERIA'S LARGEST REMAINING ELEPHANT POPULATION IN YANKARI GAME RESERVE. With zero poaching incidents in the last five years, the elephant population is now holding steady and is expected to grow. We are working to replicate our success in Yankari in other vulnerable areas and develop action plans to conserve all of Nigeria's remaining elephants.

#### LOOKING AHEAD → → →

These wins prove that we can prevent poaching and safeguard elephants by helping governments and our other partners develop targeted, collaborative enforcement efforts—and by working with communities on low-tech crop guarding solutions to reduce humanelephant conflict. The stabilization and recovery of elephant populations is a long process; WCS will remain vigilant across all of our sites and work with local and international partners to hold on to—and build upon—our hard-won successes. As we ramp up law enforcement and monitoring efforts on the ground, we will help dismantle criminal networks. We will also intensify our advocacy to urge countries that still have legal domestic ivory markets, especially Japan and the European Union, to close their markets and the commercial ivory trade, and end the poaching it drives.

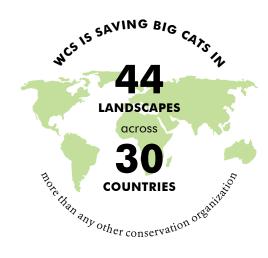
**BELOW** Rangers patrol the savanna of Nigeria's Yankari Game Reserve to save elephants and other at-risk species. WCS also protects the largest populations of African forest elephants in the Congo.



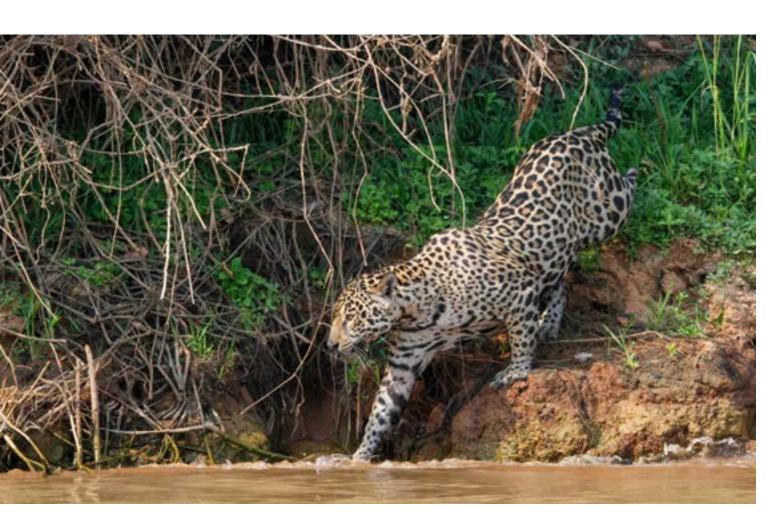
# CHARTING THE PATH FOR BIG CAT RECOVERY

Majestic tigers, powerful jaguars, elusive snow leopards: our world would not be the same without iconic big cats. But over the last few decades, their populations across the globe have plummeted because of illegal killing, the hunting of their prey, and habitat loss. Our assessments find all big cats in continuing decline across the majority of their range.

Yet tigers and jaguars are making a strong comeback at WCS's long-term sites. We have hundreds of experts on the ground in 30 countries who safeguard all big cat species and work closely with communities that live alongside the planet's most at-risk cat populations. WCS protects more than half the tigers in the wild, and we are conducting the largest-ever field survey of snow leopards on the Tibetan Plateau.



**BELOW** A female jaguar hunting in Brazil.





Our conservationists develop solutions that directly combat threats while strengthening local livelihoods. In Bolivia's Madidi National Park, for example, WCS has helped the Tacana people protect their forests from unsustainable development and agriculture; they now have legal rights to fully manage the natural resources on which they rely. As a result, the region's deforestation rates have dramatically declined, and its jaguar population has risen threefold since 2002.

At an international meeting in February 2020, WCS helped secure stronger formal protections for the jaguar across its vast range, which spans 18 countries. Our experts on the ground are now supporting communities and governments in enforcing these protections and rolling out a bold action plan to restore and reconnect forest habitats, prevent human-jaguar conflict, and ensure that agriculture and industrial developments in jaguar landscapes are sustainable through 2030 and beyond.



**TOP** A male lion in a typical savanna habitat. In many African landscapes, humans have become the primary cause of adult lion deaths—as opposed to natural causes.

**ABOVE** WCS released <u>camera trap footage</u> in 2020 of this group of tigers and a host of other species, including elephants and sun bears, <u>visiting a watering hole in Thailand's Huai Kha Khaeng Wildlife Sanctuary</u>. Tigers have bounced back in the region thanks to years of hard work by WCS and the Government of Thailand to reduce poaching and protect this tiger stronghold.

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**POACHING AND** 

TRAFFICKING

## CATS ARE CRITICAL



AND MAINTAIN



HEALTHY HABITATS

## **BUT AT RISK**



**REGULATE** 

HABITAT DESTRUCTION



PREY DEPLETION



HUMAN-CAT CONFLICT



Restore key big cat populations to their natural carrying capacity—and sustain them at that level—across the sites where we work.



REDUCE human-cat conflict by working with communities



PREVENT
illegal poaching and
deforestation



RESEARCH and MONITOR big cat populations

RESTORE and PROTECT key habitats



When WCS senior conservationist George Schaller conducted some of the world's earliest field studies of <u>lions</u>, tigers, jaguars, and snow leopards in the 1960s and 1970s, he set the stage for 50-plus years of innovations led by WCS. The strides we have made for big cats over the decades have stopped important populations from being decimated, now enabling these species to recover.



PIONEERING CAMERA TRAPS: Most big cats are highly elusive and notoriously difficult to study. WCS scientists in India pioneered the now widely adopted use of camera traps to reliably track and monitor big cat populations. Today, we and others in the scientific community rely on the robust data gathered from camera traps to monitor illegal activity and track the response of cat populations to our conservation efforts. Last year WCS and partners launched a new platform called Wildlife Insights, which uses artificial intelligence to more quickly and accurately sort through camera trap images in order to investigate whether big cats and other threatened species are recovering.



**INNOVATING SMART PATROLS:** We led the creation of the <u>SMART patrol system</u>, which integrates real-time data on illegal activity within protected areas with adaptive ranger patrolling. Today we train rangers and other law enforcement officials across the globe on how to use technology to target poaching hotspots and dismantle the illegal trade networks that drive big cat declines. In Indonesia, WCS intelligence has led to more than 500 government counter trafficking operations, and more than 650 poachers and traders have been arrested since 2003, with a 90 percent conviction rate.



**ACHIEVING ZERO RETALIATORY KILLINGS:** Our field teams have built robust cat-proof enclosures to protect livestock from attacks by big cats—which in turn helps prevent retaliatory killings of cats by farmers and ranchers. Working closely with communities, we have achieved zero retaliatory killings of tigers in Sumatra since 2012, and there have been no confirmed reports of retaliatory killings of snow leopards in Afghanistan since 2010.



**LEADING ZOO-BASED BREEDING PROGRAMS:** WCS has bolstered healthy captive big cat populations through our zoo-based breeding programs, and our support of cat reintroductions in places like the Russian Far East has helped recover the ecological health of once-degraded landscapes.

#### LOOKING AHEAD → → →

Africa's lions have declined by 43 percent over the last two decades. WCS seeks to turn the tide for these cats by replicating our successes for tigers in Asia and jaguars in the Americas. We protect some of the world's most endangered lion strongholds, including Nigeria's Yankari Game Reserve and Cameroon's Bouba Ndjida National Park. By helping create new protected areas, reducing conflict at the edges of protected areas, and using technology to guide patrols and prevent poaching, we can restore healthy and self-sustaining populations of lions and their prey. We aim to increase Africa's lion populations by 50 percent over the next 25 years, while sustaining tiger populations and bringing them to carrying capacity across our sites in Asia, so that these animals can fulfill their vital ecological and cultural roles for generations to come.



## **60 YEARS OF SAVING APES**

WCS has the largest ape conservation footprint of any organization, and our programs protect nearly 75 percent of the world's remaining ape species.

**LEFT** An orangutan in its forest habitat in Sarawak, Malaysian Borneo. For nearly two decades, WCS has been monitoring Bornean orangutans and helping protect them in the face of forest loss and illegal hunting.

**BELOW** A western lowland gorilla in the dense tropical rainforest of <u>Nouabalé-Ndoki National Park</u>, Republic of Congo.

Apes are our closest living relatives—yet sadly, we pose the greatest threat to these animals. As a result of poaching, habitat destruction, and infectious diseases, all but one of the 23 species of apes are Endangered or Critically Endangered. Like us, apes mature and reproduce slowly—which puts them at a greater risk of extinction. Without swift, targeted conservation interventions, we could lose these kindred species forever.

WCS's long-term work protecting the most important ape habitats across Africa and Asia have been a lifeline for these animals for more than 60 years. Today, we have the largest ape conservation footprint of any organization, and our programs protect nearly 75 percent of the world's remaining ape species.

Our experts on the ground in these field sites work with communities and government partners to research and monitor ape populations, stop illegal hunting and logging, and combat the illegal mining and unsustainable agricultural practices that destroy ape habitat. Over many decades, WCS has proven that strong science and unwavering dedication can reverse the decline of at-risk species.



## **60 YEARS OF SAVING APES**



## 1978

WCS's Amy Vedder and Bill Weber catalyze the recovery of mountain gorillas after discovering that a core area of their habitat is at risk of being converted into a cattle ranch. To save the animals, they spearhead a revolutionary ecotourism project. This enables the world's mountain gorilla populations to more than double by 2019, as confirmed by WCS research.



## 1999

Congo Gorilla Forest at WCS's Bronx Zoo becomes the first exhibit to give visitors a direct stake in saving the wildlife they observe; it has since raised more than \$14 million to help establish protected areas, train rangers, and support other field conservation efforts for apes in Africa.



## 2017

WCS leads a successful international campaign to stop the construction of a proposed 400-square-kilometer superhighway which would have destroyed vital forest habitat of the rare Cross River gorilla—the world's most endangered gorilla.



## 2020

WCS has worked to save Critically Endangered Cross River gorillas for two decades, and thanks to our long-term protection and monitoring efforts, we now have the <u>first-ever images</u> of a large group thriving with their babies. This is proof that these animals—once feared to be extinct—are reproducing and beginning to recover. Long term anti-poaching strategies by WCS's field team in Nigeria and our community partners have proven effective: no Cross River gorillas have been recorded or reported killed in the country since 2012.

WCS begins rolling out new, environmentally sustainable economic opportunities for 1,000 households surrounding Cross River National Park as part of a major EU initiative to protect Nigeria's remaining Cross River gorillas and their habitat. By promoting conservation-friendly cocoa farming and sustainable harvesting of non-timber forest products such as bush mango, we are empowering local people to strengthen their livelihoods while protecting the swaths of contiguous forest that these gorillas need to survive.

## 1959

Renowned field biologist and WCS senior conservationist <u>George</u> <u>Schaller</u> becomes the first person to study mountain gorillas in the wild, conducting groundbreaking field research in Africa's Albertine Rift.



## 1990

WCS conducts surveys of Bornean orangutans in Batang Ai National Park, Malaysian Borneo—a major stronghold for the species—and creates a conservation management plan for the region. Follow-up efforts by WCS and partners over many years have resulted in the Malaysian government expanding the Park and the adjoining Lanjak-Entimau Wildlife Sanctuary.

## 2008

WCS begins critical research on Ebola virus, which is believed to have killed as many as one-third of the world's gorillas. Our ongoing studies of Ebola are leading to greater understanding of how the virus spreads, and helping the scientific community better predict and mitigate future outbreaks in both apes and people.



## 2018-2019

WCS research confirms that while many ape populations are still declining, populations of gorillas and chimpanzees across Western Equatorial Africa are approximately one-third and one-tenth higher, respectively, than previously thought—and ape populations in WCS's field sites are holding steady.

## LOOKING AHEAD → → →

WCS aims to recover gorilla, orangutan, chimpanzee, bonobo, and gibbon populations to sustainable and thriving levels. To achieve this, we must ramp up our research on Ebola and other fatal viruses that threaten apes and people. We must also stave off habitat destruction and poaching by training more rangers and law enforcement experts, expanding patrols, and strengthening our intelligence-gathering networks throughout and beyond the ape landscapes where we work.

CONSERVATION IMPACT 35

# A LEGACY OF CONSERVATION: REWILDING BUFFALO IN NORTH AMERICA



#### SAVING AN AMERICAN ICON FROM EXTINCTION

Buffalo, or bison, form the heart of WCS's origin story. At one time, 30 million buffalo thundered across North America, making an indelible mark on American landscapes and cultures. But by the time WCS was founded in 1895, the vast herds had been slaughtered and fewer than 500 animals remained.

WCS rose to the challenge, forming the American Bison Society to reverse this unparalleled tragedy. Fifteen bison from WCS's Bronx Zoo left New York's Grand Central Station on a train bound for the Wichita Mountains in Oklahoma, and in a few short years we had established small herds across the country—beginning the process of rewilding bison in North America.

Thanks to this early work, today there are an estimated 30,000 wild buffalo in herds managed and protected by Indigenous Tribes, non-profits, and government agencies across North America—and nearly 200,000 buffalo on private ranches.

#### A VITAL SPECIES AT RISK

Buffalo play a critical role in creating and sustaining healthy grasslands. By grazing, tramping, and wallowing, these animals engineer their habitats, shift fire patterns, and create micro-ecosystems that support diverse species of grasses, mammals, birds, and insects.

While buffalo no longer hover on the brink of extinction, they have vanished from the vast majority of their historic range, and the remaining herds are small and isolated. Without these animals to forage and disperse seeds, grassland and plains ecosystems are in jeopardy. And if we do not successfully recover wild buffalo populations, we risk losing a core facet of North American culture and Indigenous identity.

"After nearly losing bison a century ago, we are committed to leading a vision for 2020 and beyond that brings Tribes, conservationists, ranchers, and states together around shared goals of supporting healthy wild bison herds, linking ecological and cultural restoration objectives, and honoring our national mammal."

#### **—BRENDAN MOYNAHAN**

Science Advisor, National Park Service Chair, US Department of the Interior Bison Working Group

#### WCS SCIENCE DRIVES U.S. INITIATIVE

WCS co-led a massive study completed in 2020 that resulted in the US Department of the Interior announcing a landmark 10-year initiative to preserve and restore this keystone species. The 2020 Bison Conservation Initiative will break down political, social, and cultural barriers—and unite Tribes, ranchers, state and federal agencies, and conservation organizations to achieve one shared goal: rewilding the iconic buffalo across the North American West.

Our scientists studied 16 federally managed herds in the US and 2 in Canada to better understand their long-term conservation needs. We found that, to ensure buffalo remain resilient to environmental changes and new disease outbreaks, we must increase the size of many of the existing herds, establish additional large herds, and carefully exchange individual buffalo between herds to strengthen their genetic diversity. With the Bison Conservation Initiative as a launching pad, WCS is working with community and government partners to turn our findings into effective conservation action.

## AN ENDURING COMMITMENT TO INDIGENOUS-LED CONSERVATION

WCS has forged longstanding, powerful partnerships with Indigenous Peoples, and these partnerships are key to protecting buffalo. Using the science from our study as a backdrop, in 2019 we brought together Indigenous community leaders, ranchers, conservationists, artists, and government representatives to determine the future of bison conservation. We co-hosted a groundbreaking American Bison Society Conference alongside the Pueblo of Pojoaque. By its close, all agreed: if we are to save buffalo over the long term, we must regard them as a free-ranging, wild species that needs vast habitat; recognize their deep cultural significance; and collaborate on managing buffalo herds across social and political barriers. The US Department of the Interior Bison Conservation Initiative was directly informed by discussions held at the conference.



**ABOVE** This photo of a person standing atop a massive pile of buffalo skulls was taken amid the slaughter of millions of buffalo across America in the late 19th century. Without intervention, the species would have faced inevitable extinction.



**ABOVE** In 1907, WCS's Bronx Zoo shipped 15 buffalo to Oklahoma to restore them to their natural habitat. Thanks to this work, the buffalo is no longer on the brink of extinction—and WCS is working with partners to restore and rewild herds across their historic range.

## LOOKING AHEAD → → →

WCS is working with our diverse partners to bring our shared vision to fruition: restoring the American bison across its historic, continental range. Building on the momentum of the 2020 Bison Conservation Initiative, WCS will expand our scientific analyses to include buffalo herds from across Canada and Mexico, in addition to the US. Our actions will establish a strong foundation for the ecological and cultural restoration of bison throughout North America. WCS's Bronx Zoo is establishing a large herd of bison for eventual introduction into North American landscapes, with nine calves born so far since 2016. These breeding efforts help build a genetically diverse, healthy population of bison to rewild the Great Plains.



## Leroy Little Bear and Amethyst First Rider

As members of the Blood Indian Tribe of the Blackfoot Confederacy, we have worked with WCS for more than a decade to achieve our shared goal of restoring buffalo across North America.



## Q: How did you come to work with Wildlife Conservation Society?

LEROY: Years ago, our elders began voicing concerns that our young people could no longer see buffalo on the land. This animal is at the center of our songs and stories and ceremonies. It is foundational to our entire culture. Without the buffalo, we are a little less Blackfoot; something is missing inside. They are a keystone species in the Plains ecology—and also our spiritual keystone. So, we began asking, 'Could we bring them back?' One of our students said, 'You must meet WCS's Keith Aune,' who has been working at this for many years. Keith came to Alberta [Canada], we met at a local restaurant, and for three hours, we talked buffalo nonstop.

AMETHYST: We'd been feeling alone, so it was good to meet WCS and discover our allies in conservation. We believe in working collectively. When we bring together our very different approaches to knowledge, we are stronger.

## Q: What are those different ways of knowing?

**LEROY:** Western science focuses on measurement. Indigenous science is about relationships. These approaches complement each other. With WCS support, we began holding public buffalo dialogues across the Blackfoot Confederacy. We shared

powerful stories, and by 2013, the elders saw that we were all of one mind, committed to bringing back the buffalo. But we recognized we needed the help of our brothers and sisters. So we drafted a treaty, which we used to sign among our Peoples long before we signed them with the US or Canada. I am proud of the accomplishment WCS helped us realize: over the past six years, the Buffalo Treaty has been signed by 30 First Nations and Tribes. Already, we have hooves on the ground: in Banff National Park, we introduced a small herd inside fences; now they've had their first born, claimed their territory, and roam free. And the US Government recently announced a 10-year buffalo restoration program, a mark of what we can achieve when we join both types of knowledge.

## Q: What are your hopes for the future?

BOTH: We hope to restore enough buffalo to bring back healthy grasslands, undoing the many years of damage done by agriculture. Grasslands have been altered more than any other habitat in North America, to such an extent that humans can't repair it alone. We need help from other beings, and the buffalo is the best environmentalist there is. We'll never again have millions but we can restore ecological balance: we can bring back the small mammals, birds, insects, and plants that disappeared; maybe reduce diseases like coronavirus and slow climate change. It is all interrelated.

## MEET WCS'S GOVERNMENT PARTNER

## **Marcel Ngangoue**

Nouabalé-Ndoki National Park Warden

My role is to put in place strategies for the protection of wildlife in and around <u>Nouabalé-Ndoki National Park in the Republic of Congo</u>.



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## Q: What is a typical day for you?

MARCEL: Beginning at dawn, I gather with Park ecoguards for the raising of the flag, and I usually say a few words to the troop. I then meet with my Park sector heads and visit the control room to scan updates from our rangers, review new mapping and intelligence data, and respond to poaching alerts. I then meet with our legal team; we're working to refine the training we provide on investigation and arrest procedures—as well as on indictment preparation, which is critical to avoid having poaching cases dismissed by the courts. We track cases as they go through the justice system in order to assess prosecution success rates and identify repeat offenders. Over the longer term, my team is working on strengthening wildlife crime legislation.

## Q: Your most memorable moment?

**MARCEL:** I love seeing the success of the Park as a school for developing local expertise and



leadership. We provide field training for village youth, including in GIS to help us monitor animals. We also provide scholarships for conservation-related graduate studies at universities in Africa, England, and the US. Today, many of those youth lead WCS programs or hold high positions in our national administration. Gaston Abea, for instance, was born in Bomassa, 30 kilometers from the Park. After training with us in data collection on forest elephants and western lowland gorillas, Gaston has now done research for WCS for two decades. His great-grandparents hunted gorillas for meat; his generation now protects them.

## Q: What are your hopes for the future?

MARCEL: Our Park is one of the world's few primary forests that has never been exploited—and it must be kept intact. That's why I'm delighted that our adaptive strategy and collaboration with WCS—and with the Cameroon and Central African Republic's governments—have been successful in strengthening protected areas. To take just one example, our elephant population has been stable since 2006. And these wins have benefited local people: creating hundreds of jobs and improving access to drinking water, health care, and schools.

However, illegal trade in African wildlife continues to fuel poaching of all species. With organized poachers armed with military weapons, we must continue modernizing and expanding our anti-poaching interventions. It's not easy to protect a Park with growing demand for land. We need to remain vigilant.

# SPEARHEADING A GLOBAL MOVEMENT TO SAVE SHARKS

Sharks may be the world's most feared and misunderstood animals. Many sharks are top predators and play an important role in ocean ecosystems—but they are also highly vulnerable to extinction from overfishing and other threats. About 100 million sharks are killed annually, and this crisis is amplified by sharks' slow maturation and low reproduction rates. Without sharks to maintain a healthy balance of fish populations, coral reefs will struggle to survive, and fisheries feeding some of the world's poorest communities will suffer.

WCS is spearheading a global movement to save sharks and rays. We have a new science-based strategy to protect these iconic species over the next decade focused on seascapes where high shark diversity overlaps with fishery hotspots—places these animals need us the most, and where we can make the greatest impact. For example, in Indonesia, which has the world's largest shark and ray fisheries, we have helped reduce manta ray killings by 75 percent since 2013, and have so far helped dismantle 30 percent of the country's illegal shark and ray trade network.

**RIGHT** As a large, slow-growing, and long-lived species, manta rays take time to reproduce, making them highly vulnerable to overfishing and poaching for their gill plates.

**BELOW** Thresher sharks are unique: they use their long tails as Indiana Jones-style whips when hunting prey. Threshers are also among the shark species most threatened by overfishing.





#### WE WORK IN THE WORLD'S MOST IMPORTANT SHARK HABITATS TO:



IMPROVE LAW ENFORCEMENT AND STOP ILLEGAL TRAFFICKING: Over the last year, WCS experts in Indonesia aided in the investigation, arrest, and prosecution of six high-profile traders who were trafficking significant quantities of whale shark, manta ray, and hammerhead shark products. In January 2020, following trainings by WCS, authorities in Hong Kong secured a recordshattering bust of 26 tons of illegally traded shark fins worth over \$1 million.



STRENGTHEN REGULATION OF THE SHARK
FIN TRADE: WCS led the push for stronger
international trade protections for 18 highly
vulnerable shark and ray species at the 2019 CITES
Conference, an international conservation forum.
Countries now have incentives to fully protect or
sustainably manage fisheries for these species, and
WCS is supporting these efforts so these animals
can recover.



**STRENGTHEN PROTECTED AREAS AND MANAGE FISHERIES SUSTAINABLY:** WCS's at-sea surveys informed the Bangladesh Government's creation of the Nijhum Dwip Marine Protected Area in the northern Bay of Bengal. We are helping enforce shark-specific management measures in this seascape, while ensuring this region's communities can catch the types and quantities of fish they need over the long term.

## LOOKING AHEAD → → →

We will scale up our work to establish strong shark and ray protections and sustainable fisheries measures, along with training for law enforcement to more effectively confiscate shark products in Gabon, Madagascar, India, and other major shark export countries. We will focus on the 10 seascapes that our science points to as the most critical for global-scale shark conservation, working toward our 10-year goal of stopping shark declines and improving the conservation outlook for 75 percent of all shark and ray species.





# PROTECTING NATURE'S STRONGHOLDS

The human footprint on the Earth is heavy: <u>WCS research</u> has found that 45 percent of ecosystems are on the brink of collapse and less than a quarter of our planet remains wild. WCS's mission is to preserve these life-giving wilderness areas for the countless species that depend on them, including our own.

Just 15 percent of the Earth's land surface and 7 percent of the oceans are designated as protected areas. This is a start, but not nearly enough. WCS is helping to rally the global community around the ambitious goal of protecting 30 percent of our planet by 2030—prioritizing intact places with the greatest biodiversity and resilience to climate change—and doing work on the ground to make those protections real.

In this section, we share highlights of our progress in protecting nature's strongholds in Africa, Asia, and South America. WCS's long-term presence on the frontlines in 60 countries, our relationships of trust with partners ranging from Indigenous communities to national governments, and our data-driven approach are just some of the reasons why our conservation strategies are having impact.

**LEFT** The Bateke Plateau spans three countries—Gabon, Republic of Congo, and Democratic Republic of Congo—and includes some 60,000 square kilometers of grass and wooded savanna, dense forest, and turquoise-blue river valleys. With support from WCS and local Congolese communities, in 2018 the Government of the Republic of Congo created the Ogoue-Leketi National Park, a haven for forest elephants, gorillas, mandrills, and more.

## WHAT IS A STRONGHOLD?

Nature's strongholds are the planet's remaining areas of protected wilderness on land and at sea. They are large and intact enough to sustain their full array of wild species; provide the water and carbon storage essential for national development and global survival; and sustain livelihoods.

Around the world, WCS is protecting, restoring, and rewilding the most critical strongholds for nature.

## **WCS STRONGHOLDS:**



#### **ARE LARGE**

(typically >5000 km²) and ecologically intact enough to maintain a wide range of species and produce strong ecosystem benefits, such as climate and disease regulation, as well as fresh water, food, and medicine.



## HAVE SIGNIFICANT POPULATIONS

of iconic and ecologically important species such as big cats, sharks, rays, great apes, and elephants.



## **CONTAIN MOSAICS**

of various protected areas, conserved and managed areas, and other mixed-use areas embedded in landscapes and seascapes such as intact forests, coral reefs, and coastal areas.

WCS SEEKS TO PROTECT A GLOBAL PORTFOLIO OF 50 STRONGHOLDS ACROSS LAND AND SEA WHICH TOGETHER SAFEGUARD HALF OF LIFE ON EARTH.

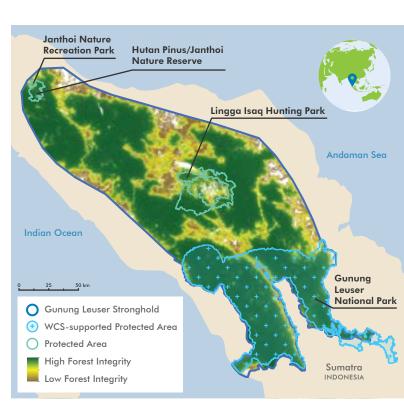
## **SECURING ASIA'S STRONGHOLDS**

Asia has the fastest growing economy of any region on Earth—and as the continent's middle class grows, so do the pressures on its wildlife and remaining wilderness areas. But Asia also has important opportunities to make conservation a priority.

WCS has teams of scientists and conservation experts stationed throughout Asia. Below is just one example of how our longstanding presence and relationships of trust with communities and governments across the continent are creating win-win outcomes for wildlife and people.

## PRESERVING THE INTACT FORESTS OF INDONESIA'S LEUSER ECOSYSTEM

The 26,000-square-kilometer Leuser Ecosystem on the island of Sumatra is the only place on Earth where rhinos, orangutans, elephants, and tigers still coexist. Over 4 million people directly depend on Leuser's natural resources, especially the clean water provided by its 43 watershed forests. WCS's actions to protect this stronghold including training and support of 17 elite ranger patrol teams covering the entire Leuser Ecosystem boundary—are bucking regional poaching and deforestation trends. Over the last 10 years, we have helped stabilize the Sumatran tiger population in eastern Leuser by working with communities on low-cost solutions to stop tigers preying on livestock, achieving zero retaliatory killings of tigers since 2012. We have helped reduce forest loss, the key threat to orangutans, by 27 percent, while assisting the government in reclaiming and restoring encroached forest. Our goal is to reduce both poaching and forest habitat loss across Leuser by at least 20 percent over the next five years.







## **DEFENDING MADIDI-TAMBOPATA**

Spanning Bolivia and Peru is the extraordinary Madidi-Tambopata landscape, a massive and diverse stronghold of glaciers, highland prairies, forested mountains, lowland savannas, and fertile Amazonian rainforest. At over 140,000 square kilometers—the size of New York State— Madidi-Tambopata is one of the last truly intact landscapes on Earth. It is a biodiversity haven for jaguars, Andean condors, giant otters, spider monkeys, military macaws, maned wolves, vicuñas, and more—and an important carbon sink that fortifies our natural defenses against climate change.

Madidi is found at the headwaters of the Madeira River, an Amazon tributary. Here and in other rivers of the region, migratory fish breed in key spawning areas—contributing to the landscape's biodiversity and its value as a sustainable fishery.

But the Madidi-Tambopata stronghold is at risk. Illegal logging and mining, unsustainable agriculture, poaching, illegal fishing, road development, hydroelectric projects, and oil exploration all threaten its survival. The Covid-19 pandemic is increasing these threats as it weakens local economies—and endangers the lives of the people who call Madidi home.

## AN EXTRAORDINARY STRONGHOLD



MASSIVE INTACT FORESTS



SIX AMAZONIAN INDIGENOUS GROUPS



12,000 PLANT SPECIES



300 MAMMAL AND 1,100 BIRD SPECIES

#### **MADIDI MILESTONES**

Working with governments and Indigenous communities, WCS has strengthened management within the landscape, helped reinforce resilient local economies, and built support for local conservation.



**NEW PROTECTED AREA:** In 2019, we helped form the Rhukanrhuka protected area, comparable in size to Yellowstone National Park. Rhukanrhuka is a haven for titi monkeys, river dolphins, and wattled curassows—and its sustainable agriculture projects support local communities.



Peru's creation of its first "agrobiodiversity zone," the <u>Andenes de Cuyocuyo</u>. This protects traditional agricultural terraces critical to the cultivation of heirloom crops that sustain genetic diversity. This region of Peru is also important for Andean bears and cats.



sustainable management of Andean peatlands via a partnership with Bolivian communities to sustainably harvest fleece from wild vicuña, a practice that also helps to avoid overgrazing and improve water management.



**TRAINING PARK RANGERS:** We are collaborating with the Bolivian government to train park rangers in the science of protected areas. Course topics include climate change, natural resource management, and surveillance to secure park lands.



WCS will work with Indigenous and local communities to create sustainable tourism, fisheries, and agricultural opportunities while expanding the conserved area of the Madidi-Tambopata landscape—the only home for many endangered plant and animal species and a critical intact forest region that helps provide nature-based solutions to climate change.

**BOTTOM LEFT** Indigenous fishermen in the Madidi region build a canoe for traditional fishing practices that are vital to their community's food security.

**BELOW** The blue-banded toucanet is one of 1,028 bird species that <u>WCS has recorded</u> within the <u>Madidi</u> protected area.





# SAVING CENTRAL AFRICA'S LUSH FOREST STRONGHOLD

Along the eastern border of the Democratic Republic of Congo (DRC) lies the Okapi-Kahuzi-Biega stronghold, a vast 50,000-square-kilometer mosaic of intact forests that are home to rare animals, including one of DRC's largest populations of forest elephants, more than half the world's remaining okapi—also known as forest giraffes—and Grauer's gorillas, which are found nowhere else on the planet. These forests are also an important buffer against the effects of climate change.

Yet rapidly escalating threats from illegal gold mining, poaching, and wildlife trafficking have caused drastic declines in this landscape's wildlife populations over the last two decades. The economic impact of Covid-19 has intensified these threats, as people are increasingly hunting wildlife in the struggle for food and income, and criminal actors are taking advantage of the crisis to poach and traffic endangered wildlife.

#### WCS IS:



**RAMPING UP SECURITY MEASURES** in the most at-risk sections of forests by strengthening and professionalizing the work of park rangers.



**ESTABLISHING NEW, STRONGER LEGAL MEASURES** to formally protect forests across this stronghold through public-private partnerships and more robust land tenure rights for community-managed lands.



**ADVANCING THE DEVELOPMENT OF SUSTAINABLE LIVELIHOODS**, and helping improve access to social services, common goods, and conservation-friendly jobs for the more than 500,000 local and Indigenous Peoples living in and around protected areas, thereby reducing dependencies on wildlife and habitats.

**BELOW** Okapi Wildlife Reserve, Democratic Republic of Congo



#### **OKAPI WILDLIFE RESERVE**

In 2019, WCS signed a 10-year public-private partnership agreement with the DRC government to co-manage the Okapi Wildlife Reserve so the region's unique wildlife can recover.

In the first half of 2020, WCS-trained expert ranger teams conducted nearly 230 patrols, resulting in 30 arrests including of 12 illegal gold miners—double the arrest rate from last year. Through these trainings and patrols, and by working directly with—and helping to improve security for—members of the local communities, we are helping to stamp out corruption, disrupt illegal gold mining operations, and tackle poaching.

#### **KAHUZI-BIEGA NATIONAL PARK**

WCS has helped safeguard the habitat in and around Kahuzi-Biega National Park—about 400 kilometers south of Okapi Wildlife Reserve—for more than 10 years, and as a result, it is one of the few areas where Grauer's gorilla populations have remained stable.



This year, we helped 10 local clans in the forests around Kahuzi-Biega secure land titles for three "community forest concessions." This means that only the local communities have access to these lands for hunting, timber, and other sustainable uses, enabling them to generate economic returns and sustain their livelihoods while legally securing the areas from outside exploitation or large-scale land-use conversion. These communities have identified additional forests as a potential Reserve that, when secured, will safeguard some of the highest densities of Grauer's gorillas.

We are now taking lessons learned from Okapi Wildlife Reserve and other key African strongholds to seek a public-private partnership for WCS's management of Kahuzi-Biega National Park, so that the gorilla populations can recover across the region.



#### LOOKING AHEAD → → →

WCS's vision for this vast, biodiverse stronghold is to secure a continuous forest mega-landscape, with protected areas interspersed with sustainable, community-managed forests. In the Okapi Wildlife Reserve, we must disrupt illegal gold mining and the poaching pressure this brings, in order to strengthen security for wildlife and local communities over the long term. As part of this work, we will elevate the role of Indigenous partners in decision-making around natural resources. In and around Kahuzi-Biega, we will work with park authorities, Indigenous groups, and other local communities on governance approaches to sustainably manage their forests, and in doing so, will help protect 60 percent of the world's remaining Grauer's gorillas.

## PROTECTING THE PATAGONIAN SEA

Imagine a vast, blue-grey ocean under a bright, clear sky. Dolphins launch into the air and dive back under the water, joining sharks and whales below. Massive flocks of blackbrowed albatross, cormorants, and penguins nest on rocky shores and islands.

## **KEY SPECIES**







**SEA BIRDS** 

**WHALES AND DOLPHINS** 

Off the shores of Chile and Argentina, you will find the Patagonian Sea, 4.6 million square kilometers of wild ocean and coastline. This vast wilderness, roughly the size of Alaska, is home to some of the world's largest colonies of marine mammals and birds. One of the most productive and pristine coastal regions on the planet, it shelters

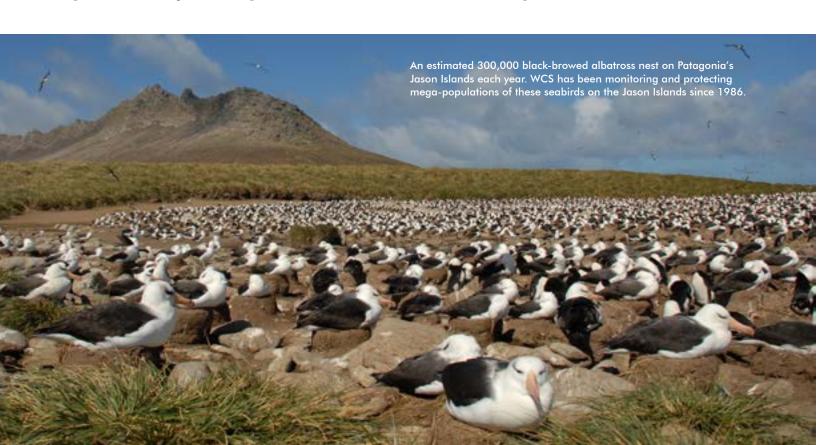
fur seals, elephant seals and sea lions, several species of dolphins and whales, sharks and rays, some of the largest colonies of seabird species, cold-water corals, and other species found nowhere else on the planet.

But the Patagonian Sea is threatened by overfishing, climate change, coastal development, and pollution; oil and gas exploration and extraction are also looming dangers. Through our long-term partnerships on the ground and unparalleled scientific expertise, WCS is securing the incredible biodiversity and mega-populations of animals that thrive in this remarkable seascape.

#### A MARINE CONSERVATION LEGACY

WCS's leadership in coastal Patagonia dates back to the 1970s, when we began advising the government of Argentina on protections for its seas. Since then, we have helped create numerous coastal reserves and national parks and the first marine protected areas (MPAs) offshore in the country's seas, including the Burdwood I, Burdwood II, and Yaganes Marine National Parks. WCS has also helped designate and manage multiple marine parks in Chile, including the Admiralty Sound marine protected area.

Additionally, since 2001, we have privately managed the Grand and Steeple Jason Islands, about 300 miles east



of South America's southern coasts and about 700 miles north of Antarctica, home to hundreds of thousands of marine birds. In 2004, we formed a public-private partnership to create Karukinka Natural Park, which supports Chile's only breeding colony of elephant seals, and helped leverage the creation of the Admiralty Sound MPA adjacent to its coast.



ABOVE Admiralty Sound, a vast fjord at the coast of Tierra del Fuego, provides critical habitat for leopard seals, elephant seals, Magellanic penguins, and other iconic species.

#### SECURING MARINE STRONGHOLDS GLOBALLY

The Patagonian Sea stronghold encompasses one of the most productive marine regions on the planet and includes marine protected areas and conserved places around the southern coastline of South America—as well as many atrisk areas that are not currently protected.

Winning strong protections for this seascape is part of WCS's strategy to create and strengthen MPAs in ecologically vital places around the world by providing guidance to governments on their marine conservation and management strategies. In 2016, we launched our MPA Fund, committing to assist 24 countries in establishing new MPAs, including Chile and Argentina.

As we continue this important work, we are calling on the global community to protect 30 percent of our ocean by 2030. Currently, only 6 percent of our world's oceans are under protection. WCS is identifying the most intact and resilient marine areas for protection, an important step toward significantly scaling up conservation commitments in the coming years.

The expansion of protected areas within the Patagonian Sea stronghold is key to hitting this target.



### **DEVELOPING DATA-DRIVEN STRATEGIES: We**

have been tagging and monitoring key marine wildlife in the region including seabirds, elephant seals, sea lions, sharks, and southern right whales to better understand their habitat requirements, migrations, and breeding patterns. The data we collect are essential for long-term conservation in the face of a changing climate, and for managing related endangered species; for example, our southern right whale data informs conservation strategies for the endangered northern right whale.



#### **EXPANDING PROTECTIONS IN ARGENTINA:**

In 2018, we helped build support for two new marine parks in the southwest Atlantic. Created by the government of Argentina, these parks added 85,000 square kilometers of protected area to the stronghold.



**NEW DISCOVERIES:** We discovered a new colony of Magellanic penguins on a remote Argentinian island in 2020, and are advancing our understanding of how animals are shifting their ranges in response to climate change. This new information will help us continue learning what wildlife in Patagonia need, respond to evolving threats, and advocate for stronger protections.

## LOOKING AHEAD → → →

WCS's goal is to create a network of protected areas across Chile and Argentina to scale up the size and strength of the Patagonian Sea stronghold. We will work closely with the Chilean and Argentinean governments to help build effective marine park systems and protected area networks, while advancing the creation of individual MPAs, such as the Blue Hole in Argentina, which would add about 50,000 square kilometers of protected sea in the country. Within wilderness areas like this, we strive to simultaneously conserve marine life and create sustainable fisheries that support local cultures and livelihoods. As we look to 2030, we aim to protect the Patagonian Sea from unsustainable development and climate change and restore this stronghold for generations of penguins, sea lions, and people to come.

## SUPPORTING INDIGENOUS PEOPLES' STEWARDSHIP OF THEIR LANDS AND WATERS

Over the last four decades, WCS has moved beyond working solely with government agencies to establish and manage national parks and reserves. Today, WCS also supports the efforts of 205 communities of Indigenous Peoples in 39 countries to secure and exercise their legitimate rights to govern their hereditary lands and retain their cultural identities. Indigenous Peoples have stewarded their lands and waters for millennia, with profound and overwhelmingly positive impacts on the planet's remaining ecologically intact ecosystems. Across the planet, WCS is proud to support Indigenous Peoples and local communities to achieve a shared vision for a more secure and resilient future, where wildlife remains a visible, thriving, and culturally valued part of the wild places where our partners live and we work.





## **AFRICA**

WCS helped 21 communities gain formal rights to manage their lands bordering the Ruaha National Park in Tanzania. In eastern Democratic Republic of Congo, WCS is supporting Efe, Lese, Mbuti, and Mbira peoples in exercising their territorial rights by establishing community forest concessions within the Ituri region; we also helped Batwa peoples secure their rights to use a vast intact forest on the western shore of Lake Tanganyika through the creation of the Kabobo Natural Reserve.

ABOVE Mbuti women in the Democratic Republic of Congo's Ituri Forest.

#### ASIA

In Fiji, the Solomon Islands, and Papua New Guinea, WCS has helped over 31,000 Indigenous People assert their customary rights to decide the rules they will apply within their Locally-Managed Marine Areas. In Cambodia, WCS is supporting the Bunong Indigenous Peoples' efforts to secure Indigenous Communal Title to their lands in the Seima forest. To date, seven communities have been formally granted legal title and WCS is helping four more communities to complete this process.

**ABOVE** Two village members on the shore of Papua New Guinea's Manus Island.



ABOVE Kelvin Moonias (center) and drummers from the Neskantaga First Nation community in Ontario, including (from left to right): Tim Beaver, Adam Sakanee, Kelvin Moonias, Derek Moonias, and Lawrence Sakanee.

#### **NORTH AMERICA**

In Alaska, WCS is supporting an Indigenous initiative that aims to minimize negative shipping impacts on marine mammals and food security. In the West, our decades-long partnership with the Blackfoot Confederacy seeks to advance the ecological and cultural restoration of Iinnii (buffalo) and rewild North America's Crown of the Continent. We are also actively supporting expansion of the Buffalo Treaty—the first inter-Tribal treaty in over 150 years—from the Northern Rockies to the Southern Rockies and beyond. In Canada, WCS is supporting the efforts of 11 First Nations and 3 Inuvialuit communities to exercise their constitutional rights through land-use planning, community-based research and monitoring, and the establishment of Indigenous Protected and Conserved Areas.



ABOVE Traditional fishermen catch arapaima fish on the Caquetá-Japurá River in Mamirauá. Brazilian Amazon.

## SOUTH AMERICA

In the mid-1980s, starting in the Brazilian Amazon, WCS helped local communities establish the first sustainable development reserves in Mamirauá and Amanã to protect the rights of traditional fishers and hunters and ensure that they had the formally recognized authority to decide who could access and use their natural resources. Establishing these community reserves helped launch similar equally significant efforts across South America—including those with the Tacana, Lecos, and T'simane peoples living in and near Madidi National Park and the Pilon Lajas Biosphere Reserve.





# CONNECTING PEOPLE TO NATURE

Just one visit to a zoo or aquarium has the power to spark a lifelong curiosity about animals and a passion for protecting them—and with five wildlife parks in New York City, WCS is uniquely positioned to kindle that spark. Every day we help thousands of visitors experience for the first time what it's like to see a giraffe, towering 16 feet above them, or a squad of penguins zooming around underwater, or lions lounging in the grass.

WCS combines on-the-ground field conservation programs in 60 countries with the world's largest network of urban wildlife parks: the Bronx Zoo, New York Aquarium, Central Park Zoo, Prospect Park Zoo, and Queens Zoo. Throughout the last century, our veterinarians and curators have collaborated with our field staff to help save and recover vulnerable species around the world that would otherwise be at risk of disappearing forever.

Through this powerful combination of zoo and fieldwork, WCS sets the standard worldwide for best-in-class animal care, innovative exhibits, and zoo-based conservation—and inspires millions of visitors each year. Our goal is to enable all visitors to find their own personal connection to nature through meaningful new experiences, and empower each person who enters our zoos and aquarium to leave as a champion for wildlife.

In this section, we share stories of caring for our parks' animals and creating virtual zoo experiences for the duration of the Covid-19 crisis; advancing the conservation of vulnerable species through breeding programs; and expanding career opportunities for local youth—the future stewards of our planet.

# PROVIDING BEST-IN-CLASS CARE AT OUR ZOOS AND AQUARIUM

During the Covid-19 pandemic, our five parks in New York City were closed to the public for several months. But we could not just shut our doors. During that time, hundreds of essential staff worked to provide expert daily care to each of our more than 17,000 animals.



**ABOVE** Nadia made international news when she developed Covid-19. Bronx Zoo experts helped her recover and shared learnings with the scientific community.

#### **BRONX ZOO TIGER AND LION COVID-19 CASES**

In March 2020, our 4-year-old Malayan tiger, Nadia, at WCS's Bronx Zoo tested positive for Covid-19. Nadia made national and international news as the first known wild animal to contract the virus from a person. Four other tigers and three lions at the Bronx Zoo also developed Covid-19. We learned that the source of infection was a zoo employee who was shedding the virus but was either asymptomatically infected or did not yet have symptoms. Fortunately, the cats never became very ill and all are now fully recovered. To prevent any further transmission at our four zoos, we initiated a series of enhanced precautions. We also shared information about what we learned with both animal and human health professionals in the US and abroad.

"The staff at our four zoos and aquarium worked tirelessly during the Covid-19 crisis to meet the responsibilities we have to the animals in our care."

\_JIM BREHENY

WCS Executive Vice President & General Director, Zoos and Aquarium, and Jonathan Little Cohen Director of the Bronx Zoo



#### HELPING NYC FIGHT COVID-19

We offered our Bronx Zoo parking lots as central staging grounds for emergency medical workers battling Covid-19. One lot served as a base for 250 ambulances that arrived from across the US to provide additional medical support for our local NYC communities, including those in the Bronx that were hit especially hard. We transformed a separate Bronx Zoo parking lot into a drive-through Covid-19 testing area.

#### LOOKING AHEAD → → →

WCS has a longstanding commitment to studying and helping to prevent zoonotic diseases that transfer from animals to humans. Our veterinarians are working with laboratory partners to develop a blood antibody test which will enable better zoo investigations of Covid-19 in wild cats. We aim to further contribute to the world's understanding of the novel coronavirus, especially as it relates to infection of big cats, so that others caring for these species can prevent new infections. Toward that goal, we are working on a number of scientific publications with our laboratory peers. Throughout the pandemic, as throughout our history, our priority has always been the safety of our staff and animals.





# BRINGING THE ZOO TO YOU DURING THE PANDEMIC—AND BEYOND

WCS parks are a vital education asset: our in-person education programs typically reach 150,000 schoolchildren each year, many from low-income communities with limited access to safe outdoor spaces and quality science education.

Following the closure of our parks and the New York City schools during the pandemic, our educators quickly pivoted to create innovative, engaging virtual learning experiences and resources for teachers, parents, and students—inside and outside New York City. Below are a few examples of how we helped "bring the zoo to you."



wildlife school online: WCS launched a suite of nine online programs for Pre-K through 8th grade to replace our in-person school programs. These virtual field trips were led by a trained educator with themed activities, animal videos, and lively interactive discussions. From April to June, we facilitated 250 online programs for school and family groups.



WCS CAMP ONLINE: We transitioned our popular summer camp at the Bronx Zoo to be entirely virtual in 2020. Our 11-week, highly interactive online camp program reached more than 1,200 participants across 30 states, a significant expansion from previous years in which the vast majority were from the local metropolitan area. Thanks to the switch from in-person to online engagement, we were also able to connect young learners with WCS scientists around the globe, and offer older age

groups the exciting opportunity to interview field conservationists.



**VIRTUAL ZOO:** We shared glimpses of daily life at the zoo and other activities to bring happiness and calm to an anxious public, including:

- Live camera feeds of our lemurs, sea lions, and little penguins at the Bronx Zoo, as well as otters and sharks at the New York Aquarium.
- Zoodles, or zoo doodles, which delighted families with instructions on how to draw a red panda, a shark, a bison, and more.
- Moments of zen and updates from our essential staff caring for the animals.



<u>VIRTUAL WILD ENCOUNTERS</u>: Our interactive video sessions enabled our animal experts to virtually introduce small groups to animals such as alpacas, cheetahs, and more—and invite families to ask questions.

#### LOOKING AHEAD → → →

Going forward, we aim to offer both in-person and virtual educational experiences and activities in order to reach the widest possible audience. Building on the digital engagement platforms we created in 2020, we seek to use rich video content and conferencing technology, social media, and other tools to connect people to nature and inspire them to protect wildlife and wild places in 2021 and beyond.

## **JOBS AT WCS PARKS LAUNCH LOCAL** YOUTH ON CAREER PATHWAYS

The Bronx Zoo is one of the largest employers of young adults in the Bronx—a vital community resource in the poorest congressional district in the US. Seasonal and full-time employment positions at the Bronx Zoo and WCS's other New York City parks provide transformative learning and livelihood opportunities to diverse youth, offering what is for many a first job that can become the launching pad for a future career. Unemployment in the Bronx during the Covid-19 crisis reached 25 percent, a level not seen since the Great Depression, making these opportunities more critical than ever.

WCS has the largest youth development program of any New York City cultural institution, and each year we support 1,400 young people from predominantly underresourced communities through paid work experiences, internships, and volunteerships. Many of the youth who have accessed skillbuilding opportunities through WCS's Career <u>Lattice program</u> have gone on to pursue careers in science, technology, engineering, and math, and more than 300 have received promotions at WCS since 2017.

For example, Megan Henriquez started with WCS in 2014 as an undergraduate intern in Project TRUE (Teens Researching Urban Ecology). Megan went on to be a founding member of the WCS Youth Employee Advisory Council and also led youth programming at the Bronx Zoo. She is now a PhD student at the CUNY Graduate Center studying primate behavior and ecology, and recently returned to WCS to share her research with other WCS youth.

Although the closure of our zoos and aquariums during the Covid-19 pandemic diminished the overall number of in-person



seasonal job and internship opportunities, WCS launched a virtual engagement program that supported over 500 internships for young people, and ensured that our Career Lattice participants remained engaged with continued access to career and science enrichment resources.

**ABOVE** Megan Henriquez went from an internship with WCS to becoming a PhD student studying primate behavior and ecology. She is now inspiring other WCS junior staff to pursue careers

## LOOKING AHEAD → → →

Over the next year and beyond, we will provide youth throughout our communities with innovative opportunities to contribute their skills through seasonal employment, internships, and volunteer experiences. We seek to expand our virtual engagement and networking programs through 2020 and beyond to help our local community rise above hardship and find meaningful employment pathways.



## **Yvonne Bennett**

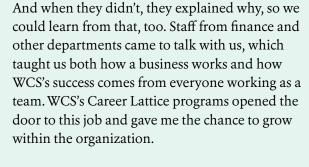
Registrar, WCS Bronx Zoo Education

As registrar for the Education Department at the Bronx Zoo, I enroll visitors in classroom programs, tours, summer camp, and special events.



## Q: This is your first full-time job; how did you land at WCS?

**YVONNE:** I grew up in the Bronx, so when I was in college and needed a summer job, my mom suggested I try the Bronx Zoo. I got hired in the gift shop, and loved interacting with customers. I also served on the Youth Employee Advisory Council, a WCS workforce development program which made me who I am today. A group of us from various departments met weekly to share feedback from visitors and our own ideas on how we could improve the zoo experience. Other colleagues asked me to share their thoughts too, so I felt like exciting when managers put my ideas into action.





**YVONNE:** Before I came to the Zoo, first with my mom when I was seven, I'd only seen wild animals on TV. It's so different to see them in real life. I'd never realized how tall and beautiful giraffes really gorillas, who act like humans. When they eat, they babies are so interactive; I'll put my hand up to the



people understand how important it is to save wild animals, for our own survival and because, what would we do without them? When kids see a real live animal, they build a connection with that animal, and from there it grows. If they love them when they're young, they'll talk to their parents and try to save them and teach their own kids to do the same. WCS's mission is to inspire and educate, and now that's my personal mission too.



WCS IMPACT REPORT 2020 CONSERVATION IMPACT

# FINDING HOPE BEHIND THE SCENES AT THE BRONX ZOO

Season four of <u>Animal Planet's THE ZOO</u> premiered in April 2020 in the midst of Covid-19 lockdowns. During this difficult period, millions of viewers found hope and inspiration by seeing WCS's expert staff provide care for some of the 17,000 animals at our Bronx Zoo and other New York City parks—and learning how our four zoos and aquarium help advance our work conserving species in the wild. Season five began filming in July 2020, and will premiere in 2021.







#### **CLOCKWISE FROM LEFT**

- 1 In late 2019, WCS's Queens Zoo began caring for puma cubs who were orphaned in the wild in Utah. Visitors will be able to see these two pumas on exhibit year-round.
- Velcro, our resident giant anteater at the Bronx Zoo's Children's Zoo, received a <u>one-of-a-kind enrichment</u> <u>experience</u> in which she had to use her long, flexible tongue to find food. This is just one of many examples of how the Bronx Zoo creates innovative activities that go beyond meeting our animals' physical needs and maximize their overall well-being.
- 3 Two little blue penguin chicks hatched at WCS's Bronx Zoo in Spring 2020, expanding our colony of the world's smallest penguin species to 16 birds.



## Casey Borkenhagen

Wild Animal Keeper

As an animal keeper in the Bronx Zoo's ornithology department, I take care of our 1,500 birds representing nearly 250 species.



## 66

## Q: What is a typical day for you?

**CASEY:** We begin with feeding, and as we make our rounds, we check that every animal is healthy and that new babies are getting everything they need. Then we give the birds enrichment that enhances their mental and physical well-being. For example, our Kea parrots are incredibly intelligent and mischievous. They are native to the snowy mountains of New Zealand, so whenever we get a snowstorm, we hide treats in the drifts for them to find. The Bronx Zoo raises bees for our bee-eaters (and offers the honey to our bears), and we give our eagles and storks food they love to hunt: fish and small lizards. My colleagues and I develop close bonds with the birds. One pair of trumpeter swans-Boris and Natasha-always come to greet me; they're the nicest swans I've ever worked with.



## Q: Your most memorable moment?

CASEY: On the days I have been able to see chicks hatch and thrive, and sometimes even get released into the wild, I feel really hopeful. I've had the privilege of helping raise trumpeter swans: one was released in Iowa in 2019, and another is slated for release in 2021. In 2019, after years of struggling, the Bronx Zoo became the fifth zoo in the US to ever successfully breed the Andean Cock-of-the-Rock. These fantastic birds have huge personalities, and are so inquisitive—they'll just follow you around. They sometimes land on keepers' heads: they build their nests out of coconut fibers, so they try to yank out long brown hair! We're even helping to breed and reintroduce species that were completely wiped out, like the Guam rail. As of last December, thanks to a cooperative Species Survival Plan program among the Bronx Zoo and other Association of Zoos and Aquariums facilities, they are no longer extinct in the wild.

## Q: What are your hopes for the future?

CASEY: What I most hope for, I already see happening: a huge shift toward education. The young zookeepers are as excited by the guests as they are by the birds; they love talking about the animals, sharing their videos and stories on social media. And the animals pitch in. We have a critically endangered blue-billed curacao; if deforestation continues, her species will soon be extinct. But she's a great ambassador, very social; I'll call her over and watch as a visitor has that powerful moment of connection, becoming her ally and ours.

# ADVANCING GAUR CONSERVATION AT THE BRONX ZOO AND IN THE FIELD

Gaur, sometimes referred to as Indian bison, are the largest wild cattle in the world, with males growing up to 11 feet long and weighing close to a ton. These animals help maintain healthy ecosystems across South and Southeast Asia: like elephants, their grazing behavior transforms habitats and helps other species thrive. Gaur numbers have declined greatly over the last several decades due to habitat loss, diseases spread by domestic cattle, and illegal hunting—and WCS is working throughout their habitat to help stop this decline.

The Bronx Zoo's unique gaur breeding program is vital to maintaining a healthy, viable, and sustainable population of this vulnerable species over the long term. Our herd has grown by seven calves since the addition of a new breeding male in 2018, including two born in 2020.

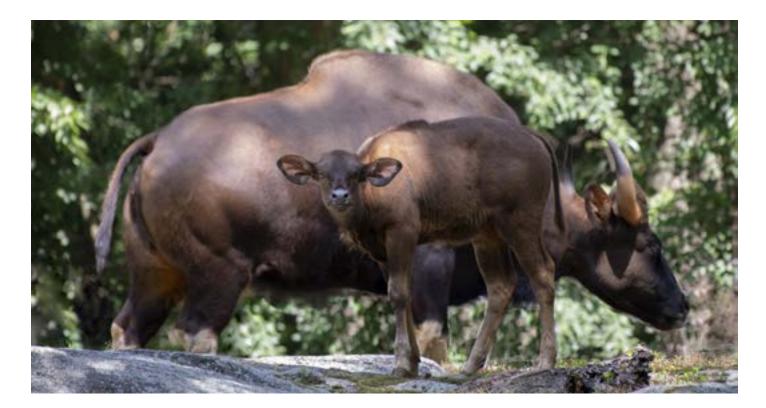
#### LOOKING AHEAD → → →

WCS is growing a genetically viable and demographically robust gaur herd that will inspire millions of zoo visitors to care about their survival in nature. We are also monitoring wild gaur populations in India, Thailand, and other gaur range countries. Using data from this research, we will work with governments in these countries to help secure stronger formal protections for their forest habitats.

AS THE WORLD'S LARGEST CATTLE SPECIES, GAUR ARE:



Their grazing behaviors help maintain healthy habitats for smaller species.





Asiatic wild dogs, or dholes, are social animals that share their forest habitats with tigers, snow leopards, bears, and wolves in forests throughout South and Southeast Asia. All are critically important predators that keep prey populations in check, helping to maintain healthy ecosystems. Dholes are threatened with extinction, with only an estimated 1,000 to 2,000 remaining in the wild. Unlike some better known animals, however, they are often overlooked as a species that urgently need protection as their habitats disappear.

WCS is bringing attention to these elusive wild dogs through a new Bronx Zoo exhibit that opened in 2019. As visitors observe the dholes' social behavior, the exhibit's eye-catching and interactive visuals educate them about the challenges dholes face in the wild and how WCS is taking action to save them.

Also in 2019, WCS and our partners published the results of a decade-long study on what is thought to be the world's largest dhole population in India's Western Ghats region. We found that the proportion of this landscape occupied by dholes declined from 62 to 54 percent between 2007 and 2015, and that loss of forest cover and livestock grazing pushed the dholes out of much of this area. Using these data, we identified the most important locations to create new protected areas or strengthen existing ones to

conserve dholes over the long term. We were instrumental in the creation of the Aghanashini Lion-tailed Macaque Conservation Reserve in the Western Ghats in mid-2019, and are now working to secure the neighboring Kaiga Wildlife Sanctuary and other key dhole habitats.

## LOOKING AHEAD → → →

WCS has been studying and protecting dholes and their habitats across Asia for more than three decades, and today our field programs help protect over 50 percent of the world's remaining dhole populations. Our goal is to enable this species to recover across its native range by securing protected areas and conducting vital research that informs conservation actions.

In addition to helping people forge personal connections to dholes while learning about the threats they face in nature, the Bronx Zoo—one of only five zoos accredited by the Association of Zoos and Aquariums to exhibit this species—is developing a dhole breeding program. We plan to bring a group of females from a partner zoo in Europe to join our all-male pack and strengthen the viability of captive dhole populations globally.

## THE NEW YORK AQUARIUM'S LEGACY OF INNOVATIVE OCEAN CONSERVATION

New York is a city of islands—and despite its residents' long history of tapping local waters for fishing, transport, and more, few New Yorkers today know that a watery world of whales, seals, deep-water corals, and other marine wildlife lies just off their shores. Even fewer people understand the threats they face.

As a beloved destination in Brooklyn and one of its top cultural attractions, WCS's New York Aquarium plays a critical educational role. Building on our strong legacy in our local community and the field, the Aquarium has recently become the locus of innovative new education programs, critical marine research, and broad outreach aimed at helping people understand and protect some of the most iconic and threatened species in the Atlantic Ocean, including sharks, whales, and rays.

We are also one of the few organizations in New York that conducts field conservation research across the New York seascape, which spans more than 16,000 square miles of coastal and ocean waters from Montauk, New York to Cape May, New Jersey. The Aquarium's conservation team addresses local pollution, ocean noise, shipping, and other threats to marine species and habitats within the New York seascape.

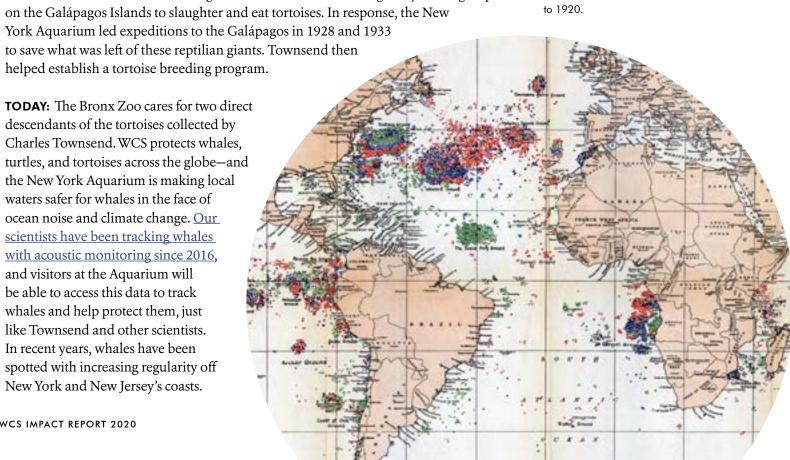
## THE NEW YORK AQUARIUM HAS HAD A LASTING CONSERVATION IMPACT FOR MORE THAN A CENTURY, BELOW ARE JUST A FEW EXAMPLES:



**SAVING WHALES AND TORTOISES—1920s:** The Aquarium's first director, Charles Townsend, conducted pioneering research—using information from the ship logs of commercial whalers who had all but wiped out whale populations around the world to better understand the animals' migration patterns and figure out how to save them. Townsend discovered another dangerous trend: whalers were regularly making stops on the Galápagos Islands to slaughter and eat tortoises. In response, the New York Aquarium led expeditions to the Galápagos in 1928 and 1933 to save what was left of these reptilian giants. Townsend then

**TODAY:** The Bronx Zoo cares for two direct descendants of the tortoises collected by Charles Townsend. WCS protects whales, turtles, and tortoises across the globe-and the New York Aquarium is making local waters safer for whales in the face of ocean noise and climate change. Our scientists have been tracking whales with acoustic monitoring since 2016, and visitors at the Aquarium will be able to access this data to track whales and help protect them, just like Townsend and other scientists. In recent years, whales have been spotted with increasing regularity off

**BELOW** By referencing old whaling-ship log books, the Aquarium's first director recorded and plotted the locations of more than 50,000 humpback, right, bowhead, and sperm whales. This map shows the distribution of the sperm whale, using the position where one or more whales were taken from 1761





#### PROTECTING OCEAN HABITAT—1930s: As

an early leader at WCS (then the New York Zoological Society), William Beebe was considered one of the greatest conservation advocates and explorers of the 20th century. Diving to previously unchartered depths in an underwater vessel called a **Bathysphere**, Beebe and his partner Otis Barton were the first biologists to observe deep-sea animals in their native environment, and Beebe set several successive records for the deepest dive ever performed by a human. Closer to home, he studied and protected the massive underwater Hudson Canyon, an ancient extension of the Hudson River.

**TODAY:** At the New York Aquarium, visitors can discover the incredible features of the Hudson Canyon, and learn why it is vital habitat for sharks, turtles, whales, and deep-water coral. The New York Aquarium has been working with the National Oceanic and Atmospheric Administration (NOAA) to establish stronger protections for the Canyonand we have engaged New Yorkers to help push for designating it as a National Marine Sanctuary.



**ABOVE** In 1934 Bronx Zoo Curator William Beebe completed a record-setting 3,028-foot dive in the Bathysphere—a spherical deep-sea underwater vessel—off Bermuda's coast.

**TOP RIGHT** In the Coral Tunnel, visitors are surrounded by blacktip reef sharks, zebra sharks, and butterfly fish. This is part of Ocean Wonders: Sharks!, our groundbreaking exhibit that helps visitors better understand how their actions affect sharks and other vulnerable ocean species.





## **CONNECTING PEOPLE TO THE OCEAN: WCS has** recently introduced new state-of-the-art exhibits and an expanded collection of aquatic wildlife. In

2018, we added an immersive experience to the New York Aquarium called Ocean Wonders: Sharks! that hosted more than 770,000 visitors in its first year. We will soon open two additional exhibits: the bilingual English-Spanish Playquarium exhibit for young learners, and **Spineless**, a journey through the weird and wonderful world of jellyfish, lobsters, crabs, and other marine invertebrates. Both feature up-close animal views and engaging learning experiences.

#### LOOKING AHEAD → → →

The New York Aquarium will educate families and students of all ages, and amplify our critical conservation message to inspire visitors to protect their local marine wildlife and seascape. Our conservation goals are to: restore healthy populations of key marine species; protect key offshore and nearshore habitats in the mid-Atlantic; and build a vocal constituency for local marine conservation. Our team will conduct scientific surveys, help establish policy protections for threatened species and habitats, push for smart solutions that benefit both animals and businesses, and advance field-based monitoring efforts to protect sharks and skates, whales, and fishes in the local seascape.

New York and New Jersey's coasts.

# ADVANCING CONSERVATION WITH PUBLIC-PRIVATE INVESTMENT

WCS is grateful to the generous public and private funders who make our work possible. Our strong public-private partnership with New York City and New York State dates back to 1895, and enables us to inspire the 4 million annual visitors to WCS's New York zoos and aquarium. WCS was chartered by New York State and founded on New York City parkland. We rely on both public and private support—as well as on our visitors and members—for the operation of our parks and exhibits, capital upgrades, and the care of our animals.

WCS is a trusted partner of governments around the world who rely on our unique expertise and track record of sustained conservation results. In FY 2019 (July 1, 2018–June 30, 2019), our global conservation programs received significant support from more than 9 government funders, including the US, Germany, France, and the UK, as well as from 17 multilateral agencies such as the Global Environment Facility, European Union, United Nations Development Program, World Bank, and Asian Development Bank.

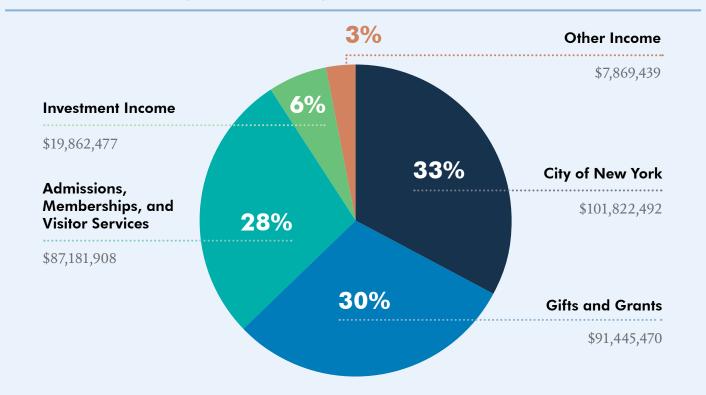
WCS would not be able to accept these funds without private philanthropy, due to the restrictions related to public and other grant funding. Each dollar of funding we receive from private donors allows us to leverage and put to work at least five dollars of additional funding towards the work described in this report.

We hope you feel proud of the results that your strong support and partnership have made possible.

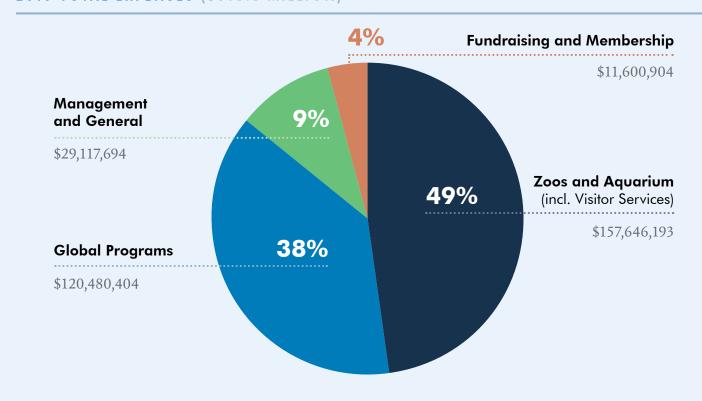


## **Financial Report**

2019 TOTAL REVENUE (\$308.2 MILLION)



#### 2019 TOTAL EXPENSES (\$318.8 MILLION)



## STATEMENT OF ACTIVITIES (JUNE 30, 2019 AND 2018, IN THOUSANDS)

2019 TOTAL REVENUE (\$308.2 MILLION)	2019	2018
Bequests	\$ 1,112	\$ 3,783
Gifts and Grants	75,397	100,343
City of New York	101,823	71,632
Federal Agencies	14,936	39,458
Gate & Exhibit Admissions	41,403	32,463
Visitor Services	29,884	27,033
Memberships	15,894	13,119
Investment Income	19,863	41,030
Other Income	7,870	7,225
Total Revenue	\$ 308,182	\$ 336,086
2019 TOTAL EXPENSES (\$318.8 MILLION)  Zoos and Aquarium	\$ 136,410	\$ 125,377
Global Programs	120,480	116,359
Visitor Services	21,236	19,169
Management & General	29,118	29,930
Fundraising and Membership	11,601	11,964
Total Expenses	\$ 318,845	\$ 302,798

## CONSOLIDATED BALANCE SHEETS (JUNE 30, 2019 AND 2018, IN THOUSANDS)

SSETS	2019	2018
Cash and cash equivalents	\$ 40,658	\$ 53,194
Miscellaneous receivable	5,044	2,837
Receivable from the City of New York	77,334	61,707
Receivable from the State of New York	2,298	2,732
Receivable from Federal sources	12,376	33,977
Contributions receivable	7,490	4,313
Non-US governmental and bilateral grants and contracts receivables	17,932	27,137
Private organization grants and contracts receivables	25,294	35,824
Inventories	2,658	2,415
Prepaid expenses	4,035	6,296
Investments	466,794	472,917
Amounts held in trust by others	1,858	1,918
Funds held by Bond Trustee	3,122	14,870
Property and equipment	440,746	385,047
otal Assets	\$ 1,107,639	\$ 1,105,184
Accounts payable and accrued expenses	\$ 49,374	\$ 59,137
IABILITIES AND NET ASSETS		
Accounts payable and accrued expenses	······································	\$ 59,137
Accounts payable and accrued expenses  Grants and contracts liabilities	22,884	_
Accounts payable and accrued expenses  Grants and contracts liabilities  Annuity liability	22,884 2,859	– 2,969
Accounts payable and accrued expenses  Grants and contracts liabilities  Annuity liability  Loans payable	22,884 2,859 6,953	2,969 7,000
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable	22,884 2,859 6,953 134,011	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation	22,884 2,859 6,953 134,011 48,779	- 2,969 7,000 134,683 45,570
Accounts payable and accrued expenses  Grants and contracts liabilities  Annuity liability  Loans payable  Bonds payable  Post-retirement benefit obligation  Total Liabilities	22,884 2,859 6,953 134,011	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation Total Liabilities let Assets (Without donor restriction)	22,884 2,859 6,953 134,011 48,779 <b>264,860</b>	- 2,969 7,000 134,683 45,570
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation Total Liabilities let Assets (Without donor restriction) General Operating	22,884 2,859 6,953 134,011 48,779 <b>264,860</b> (3,019)	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation  Total Liabilities  let Assets (Without donor restriction) General Operating Board Designated	22,884 2,859 6,953 134,011 48,779 <b>264,860</b> (3,019) 101,083	
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Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation  Total Liabilities let Assets (Without donor restriction) General Operating Board Designated Net investment in property and equipment  Total without donor restrictions	22,884 2,859 6,953 134,011 48,779 <b>264,860</b> (3,019) 101,083	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation Total Liabilities let Assets (Without donor restriction) General Operating Board Designated Net investment in property and equipment Total without donor restrictions let Assets (With donor restriction)	22,884 2,859 6,953 134,011 48,779 264,860 (3,019) 101,083 301,145 399,209	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation Total Liabilities let Assets (Without donor restriction) General Operating Board Designated Net investment in property and equipment Total without donor restrictions let Assets (With donor restriction) Purpose restricted	22,884 2,859 6,953 134,011 48,779 264,860 (3,019) 101,083 301,145 399,209	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation Total Liabilities let Assets (Without donor restriction) General Operating Board Designated Net investment in property and equipment Total without donor restrictions let Assets (With donor restriction) Purpose restricted Endowment Corpus	22,884 2,859 6,953 134,011 48,779 264,860 (3,019) 101,083 301,145 399,209 172,058 271,512	
Accounts payable and accrued expenses Grants and contracts liabilities Annuity liability Loans payable Bonds payable Post-retirement benefit obligation Total Liabilities let Assets (Without donor restriction) General Operating Board Designated Net investment in property and equipment Total without donor restrictions let Assets (With donor restriction) Purpose restricted	22,884 2,859 6,953 134,011 48,779 264,860 (3,019) 101,083 301,145 399,209	

Additional updates on WCS's financial information can be found at wcs.org/financials.

## **Contributors**

Your generous support and partnership make it possible for WCS to save wildlife and wild places. Thank you for standing with us. We are proud to acknowledge your impact as conservation champions on the pages that follow. WCS IMPACT REPORT 2020

#### **CUMULATIVE GIVING**

## **Celebrating WCS Legacy Supporters**

2020 marks WCS's 125th year of conservation. We are deeply grateful for the outstanding generosity and loyalty of the following individuals, foundations, institutions, and corporations, whose cumulative giving has made it possible for WCS to save wildlife and wild places—and connect people to nature through our four zoos and aquarium in New York City. Thank you.

#### **LEADERSHIP SUPPORTERS**

Donors who have cumulatively given \$10 million or more.

Anonymous Donor Arcadia - a charitable fund of Lisbet Rausing and Peter Baldwin Mrs. Vincent Astor\* David Bonderman and Laurie F. Michaels/Wildcat Foundation Margaret A. Cargill Philanthropies Margaret\* and James\* Carter C. Diane Christensen and Jean M. Pierret Liz Claiborne and Art Ortenberg Foundation Doris Duke Charitable Foundation, Inc. Goldman Sachs William B. Lloyd\* John D. and Catherine T. MacArthur Foundation Gordon and Betty Moore Foundation The David and Lucile Packard Foundation The Howard Phipps Foundation Robertson Foundation Julian Robertson The Starr Foundation Allison and Leonard Stern Ann and Andrew Tisch Joan O.L. Tweedy\* Lila Acheson Wallace Bronx Zoo Robert W. Wilson Charitable Trust

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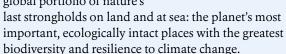
Ward W. and Priscilla B. Woods

Donald and Barbara Zucker

### FOUNDERS OF THE ARCADIA FUND

# Lisbet Rausing and Peter Baldwin

Arcadia Fund supports WCS's efforts to protect a global portfolio of nature's



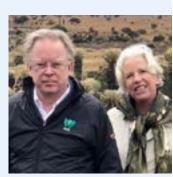
"WCS offers a unique combination of science, education, and conservation action on the ground. They build capacity and develop local partnerships that empower people to help protect their natural habitat. And they are committed to sharing information and results so that we can collectively deliver bigger, better conservation results, faster and with more durability," says Peter Baldwin.

Lisbet Rausing adds, "We still remember how, when we were children, our elders ripped through nature—logging, clearing, burning, poisoning, building. We seek to mend and heal the planet from these often mindless, and sadly ongoing, assaults. Ours is a fragile ecosystem and our human footprint has grown dramatically, resulting in many endangered species. If we do not protect it—if it vanishes forever—then future generations will have no base from which to build a vibrant, resilient, green future."

The couple was moved by a visit to Colombia with WCS President Cristián Samper. "We had the opportunity to see the amazing diversity of Cristián's home country and the work WCS is doing in the Andes. We believe that a partnership with WCS is our best hope of achieving inspiring results like those."

"We are inspired by WCS's vision of building a global portfolio of nature's strongholds, preserving the most important places for biodiversity conservation."

—LISBET RAUSING AND PETER BALDWIN



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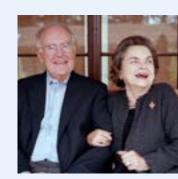
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The Gordon and Betty Moore Foundation is driven by the vision of its founders to create positive outcomes for future generations, including the conservation of our



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planet's natural resources. "Over the last two decades, the Moore Foundation has partnered with WCS on important initiatives ranging from the creation of technology to monitor protected areas—now integrated across more than 60 countries around the world—to establishing clear links between health and conservation, which is particularly crucial in the challenges we face today," says Harvey Fineberg, President.

Avecita Chicchón, Program Director for Andes-Amazon, says "Ensuring the long-term conservation of the most biodiverse and intact areas in the Amazon Basin is a priority for us, and we believe that sustainable management of Indigenous lands and protected areas is a key part of this strategy. In Bolivia's Greater Madidi Landscape, WCS helped establish formal rights and management by Indigenous Peoples of their lands and conducted a two-year scientific expedition that firmly established Madidi as the world's most biologically diverse protected area."

"WCS's strength lies in its long-term commitment to its sites, steeped in partnership with local communities and governments, and grounded in science. This, combined with a holistic approach to the combined threats of environmental degradation, biodiversity loss, and a shifting climate, make for lasting and transformative impact."

-AILEEN LEE

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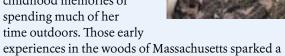
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WCS IMPACT REPORT 2020 \* Deceased as of June 30, 2020

### **WCS TRUSTEE AND WILDERNESS PROTECTOR**

### Elizabeth **Ainslie**

Elizabeth Ainslie has fond childhood memories of spending much of her time outdoors. Those early



lifelong love of nature and animals that would evolve into her deep commitment to saving wildlife and habitats. Nearly 20 years ago, Ainslie joined the board of a

land alliance and learned about the importance of open space preservation and its impact on the quality of life for current and future generations. She joined the WCS Board of Trustees in 2017. "When I was introduced to WCS, I was excited to find an organization with a mandate that marries two of my great interests: saving wildlife and wild places."

Seeing her philanthropy in action has been gratifying for Ainslie. She says of her 2019 trip to WCS's field site in Gabon, "It was inspiring to meet many of the WCS field scientists who have worked tirelessly with communities and local government to promote wildlife conservation. The dedication and commitment of these incredibly talented individuals created an indelible impression that has strengthened my passion for WCS's mission."

"I am proud to be working with WCS to protect nature's strongholds. It's more important now than ever before."

**—ELIZABETH AINSLIE** 

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### **The Walt Disney** Company

The Walt Disney Company's partnership with WCS began 50 years ago, when Walt himself visited the Bronx Zoo to draw inspiration for stories and characters like Bambi—which have



**WALT DISNEY** 

encouraged young people to

become guardians of our planet ever since. Walt's love of nature spurred the company's strong commitment to conservation.

Some of the Disney Conservation Fund's first grants 25 years ago supported WCS's field efforts to study and protect African wildlife—and since then, Disney has directed more than 150 grants to WCS conservationists across 40 countries.

Disney's Dr. Mark Penning notes that Dr. William Conway, then President of WCS, played a key role in the launch of Disney's Animal Kingdom in 1998: "His insights established the foundation of our approach to animal care, welfare, and conservation, and his guidance helped us create a place where children and families can experience the wonder of nature together."

As a global company, Disney values that "WCS is globally respected and recognized, offering people stories of hope that drive both individual action and longstanding change."

"With 125 years of experience, WCS brings a deep understanding to conservation, made possible by a talented team of experts, from scientists and veterinarians to educators and community leaders. The global breadth of this expertise, combined with on-the-ground results, are what makes our WCS relationship so meaningful."

—DR. MARK PENNING

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LEFT Since in the early 20th century, WCS has made significant contributions to the study and protection of marine mammals such as these humpback whales including groundbreaking use of data from whalers in the Arctic, discoveries that influenced the passage of the Marine Mammal Protection Act, and helping create of some of the world's first marine protected areas. WCS is leading the way in restoring at-risk populations of whales, dolphins, walrus, and other marine wildlife; and our programs help save the majority of the most threatened great whale species and coastal dolphin species.

#### WILDLIFE HERITAGE CIRCLE AND ESTATES

#### **WILDLIFE HERITAGE CIRCLE**

Members of the Wildlife Heritage Circle have demonstrated their commitment to our mission by including WCS in their estate plans or establishing life-income gifts. We are grateful for their contributions, which will provide important future support for our efforts to save wildlife and wild places.

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**CONSERVATION SCIENCE CHAMPION** 

### Marshall M. Weinberg

Marshall M. Weinberg first fell in love with wildlife on a 1957 trip to East Africa. "To see thousands of hippos and elephants



in Uganda, and more than a million gazelles, zebra, and wildebeest on the move, migrating from Kenya to Tanzania—it's almost beyond belief or description. I count those among the greatest moments of my life."

That love turned to generous support for conservation thanks to a serendipitous meeting over hot dogs at a football game with WCS Trustee Rosina Bierbaum. "My mother had raised me to care not about money or material goods but about helping mankind. And Dr. Bierbaum helped me understand that if you support a bright young scientist, they'll go on to teach other young scientists, and those will teach others still, and it will never stop."

Weinberg made a generous endowed gift to WCS in 2020 when he discovered more about the role of WCS and the Bronx Zoo as "an essential center of research for conservation science." He found the Zoo itself to be "unsurpassed in the world. Looking into the gorillas' eyes, it's almost as if you could talk with them."

"If it weren't for the Wildlife Conservation Society's scientists, we could lose the world's elephants, wildebeest, birds, and marine animals. That's why I'm very proud I can help WCS at this crucial moment."

**—MARSHALL M. WEINBERG** 

#### **FOURTH GENERATION LEGACY SUPPORTER**

#### David T Schiff

Since WCS's founding 125 years ago as the New York Zoological Society, the Schiff family has played a central role in the organization's growth.



David Schiff's great-grandfather Jacob was a founder, and his grandfather, father, and uncle all served as Trustees. "Before the war I was brought to the Bronx Zoo in my short pants and introduced to the animals," says Schiff. "The platypus made the greatest impression, but all sparked a lifelong love of nature and science."

As a Trustee himself since the 1960s and Board Chair for 11 years, Mr. Schiff has provided leadership and sustained support for initiatives ranging from exciting new zoo experiences to the global expansion of WCS conservation and field veterinary programs. "This pandemic has shown us just how critical it is to protect animal health. We've known for a long time that animal diseases can jump to humans, but we couldn't get people to pay attention. I hope that we can now cement broader understanding of the links between animal and human health."

Whether in Peru, Cambodia, the Congo, or New York City, Mr. Schiff believes WCS's ability to forge connections to local people is key to its success. "When a community or country sets out to create a protected area, WCS scientists literally help draw the map, identifying the most important landscapes and the practices that work best."

"The Bronx Zoo is a tremendous resource for education. Public high schools have long used the Zoo as part of their classroom experience. And with new platforms for remote education, we can expand access and expose far more young people to animals and environmental challenges."

—DAVID T SCHIFF

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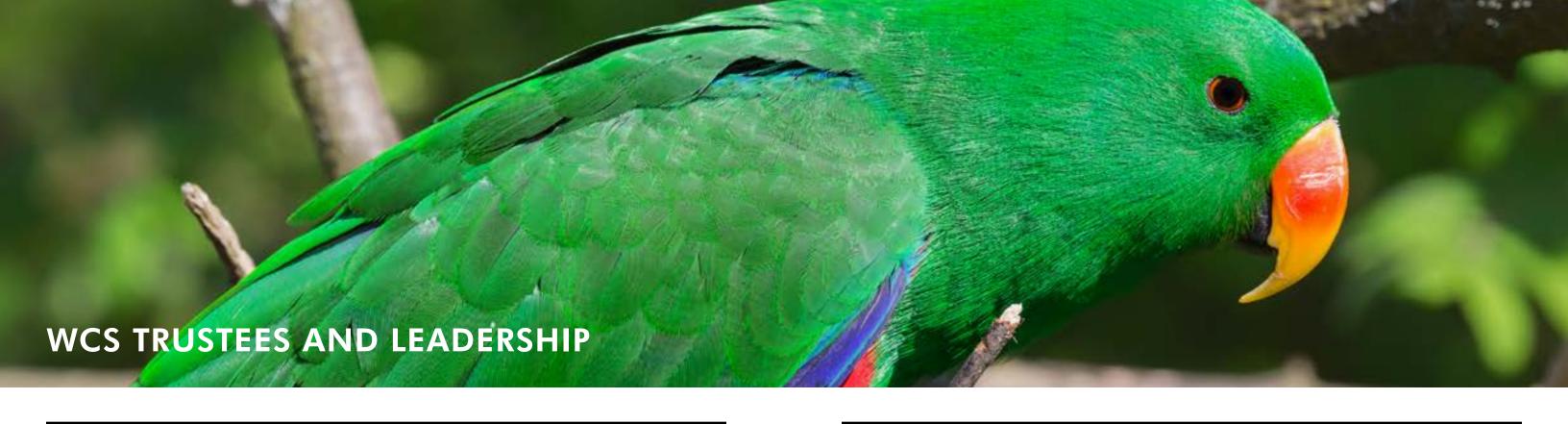
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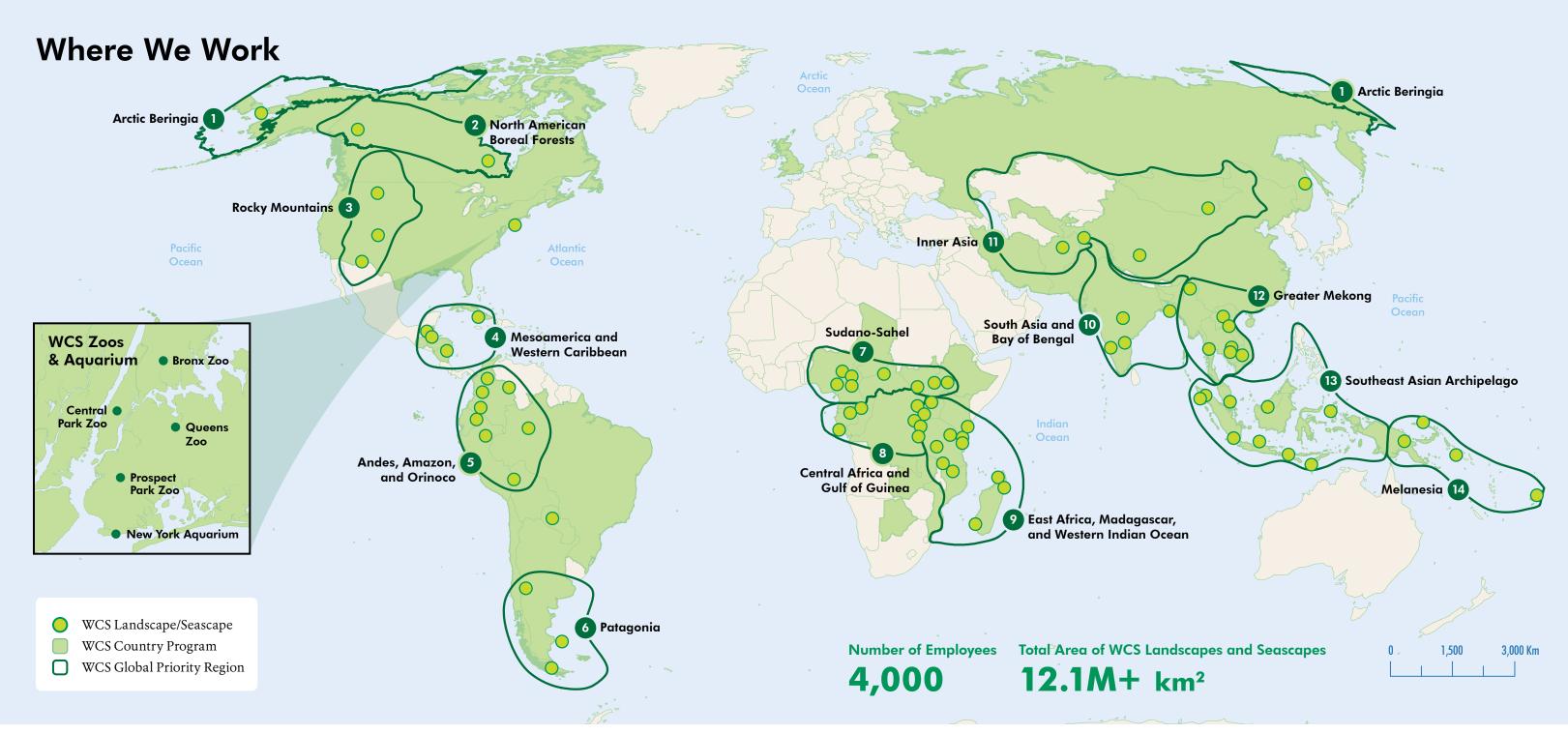
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**LEFT** WCS has partnered with nine clans from the Manga tribe in Papua New Guinea's Bismarck Forest Corridor to establish a new protected area, bring hunting and harvesting of their forest to sustainable levels, and launch community-run livelihood initiatives.

WCS IMPACT REPORT 2020 WCS TRUSTEES AND LEADERSHIP



Arctic Beringia

Arctic tundra and productive seas of Alaska, western Canada, and northeastern Russia

- North American Boreal Forests
  Boreal forests, mountains, and peatlands
  in Canada and Alaska
- Rocky Mountains
  Forests, grasslands, and riparian
  systems from southern Canada
  to the US-Mexico borderlands

4 Mesoamerica and Western Caribbean

> Forests, coasts, and coral reefs in Belize, Cuba, Guatemala, Nicaragua, and Honduras

- 5 Andes, Amazon, and Orinoco Forests, grasslands, and wetlands of Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela
- 6 Patagonia

Landscapes, coasts, and seascapes of southern Chile and Argentina

7 Sudano-Sahel

Savannas, woodlands, forests, and wetlands of Nigeria, Cameroon, Chad, Central African Republic, South Sudan, and Ethiopia

- 8 Central Africa and Gulf of Guinea Forests and coasts, including Equatorial Guinea, Gabon, Republic of Congo, and
- 9 East Africa, Madagascar, and Western Indian Ocean Savannas, forests, and coastal habit

Democratic Republic of Congo

- Savannas, forests, and coastal habitats of Uganda, Kenya, Rwanda, Tanzania, Mozambique, and Madagascar
- South Asia and Bay of Bengal Forests, mountains, and coasts,

Forests, mountains, and coasts, including Pakistan, India, and Bangladesh

11 Inner Asia

Forests, grasslands, and mountains of Afghanistan, Mongolia, the Tibetan Plateau of China, and the countries of Central Asia 12 Greater Mekong

Forests, grasslands, wetlands, and coasts of Cambodia, Laos, Myanmar, Thailand, Vietnam, and southern China

Indonesia, Malaysia, and the Philippines

- 13 Southeast Asian Archipelago
  Forests, coasts, and coral reefs of
- 14 Melanesia Highlands and islands of Fiji, Papua New Guinea, and Solomon Islands

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WHERE WE WORK 93

# **Ways to Give**

#### PRESIDENT'S CIRCLE

WCS is pleased to recognize those who contribute annual gifts of \$25,000 as part of the President's Circle. At this level of giving, you receive all the benefits of Conservation Patrons, plus exclusive invitations and insider access to WCS leadership and Program experts.

For more information, contact Stephen Ham at 718 741 1619 or SHam@wcs.org.

#### **CONSERVATION PATRONS**

Conservation Patrons who support WCS at the \$1,500 to \$24,999 level receive invitations to panel discussions and special events, access to our five New York City wildlife parks—including special exhibits, attractions, and private tours—recognition in the WCS Impact Report, and more.

For more information, contact Sarah E. Walker at 718 741 1647 or SEWalker@wcs.org.

# CORPORATE PARTNERSHIP & ENGAGEMENT

WCS Corporate Partners provide vital operating support of our conservation efforts through philanthropic giving, corporate membership, sponsorship, and cause marketing. Partnerships with WCS help corporations gain brand exposure, consumer loyalty, and community engagement, while aligning with an important cause that resonates with their consumers, employees, and investors.

For more information, contact JoAnne Fairchild at 718 741 1651 or JFairchild@wcs.org.

#### **PLANNED GIVING**

You can build a conservation legacy by designating WCS as a beneficiary in your will. You can also name WCS as a beneficiary of your individual retirement account, life insurance policy, donoradvised fund, or brokerage account.

For more information, contact Emily Hirshbein at 718 741 1628 or EHirshbein@wcs.org.

#### **NAMING OPPORTUNITIES**

There are exhibits, galleries, and benches available for naming within well-loved spaces at our five wildlife parks. Naming an animal is also a unique way to provide critical support for the care, enrichment, and health of the animals at WCS's Bronx Zoo, Central Park Zoo, Queens Zoo, Prospect Park Zoo, and New York Aquarium.

For more information, contact Allie Logan at 718 741 1653 or <u>ALogan@wcs.org</u>.



Learn more about these giving programs at

wcs.org/waystogive

For information on how you can support the Wildlife Conservation Society, please call our Global Resources Division at 718 220 5090 or visit wcs.org. A copy of this annual report may be obtained by writing to the Chair of the Board, Wildlife Conservation Society, 2300 Southern Boulevard, Bronx, New York 10460. In addition, a copy of the WCS's annual filing with the Charities Bureau of the Office of the New York State Attorney General may be obtained by writing to the Charities Bureau, New York State Attorney General's Office, 3rd Floor, 120 Broadway, New York, New York 10271. The report can also be found online at wcs.org.

#### **RECOMMENDED FORM OF BEQUEST 2019**

The Trustees of the Wildlife Conservation Society recommend that, for estate-planning purposes, members and friends consider the following language for use in their wills:

"To the Wildlife Conservation Society ("WCS"), a not-for-profit, tax-exempt organization incorporated in the state of New York in 1895, having as its principal address 2300 Southern Boulevard, Bronx, New York 10460 and tax identification number EIN: 13-1740011, I hereby give and bequeath [describe gift] to be used as determined by WCS for its general purposes."

In order to help WCS avoid future administrative costs, we suggest that the following paragraph be added to any restrictions imposed on a bequest:

"If at some future time, in the judgment of the Wildlife Conservation Society, it is no longer practical to use the income and/or principal of this bequest for the purposes intended, WCS may use the income and/or principal for whatever purposes it deems necessary that is most closely in accord with the intent described herein."

If you wish to discuss the language of your bequest and other planned giving options, please contact the Office of Planned Giving at 718 220 6894.

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