



WILDLIFE CONSERVATION 2020 REPORT

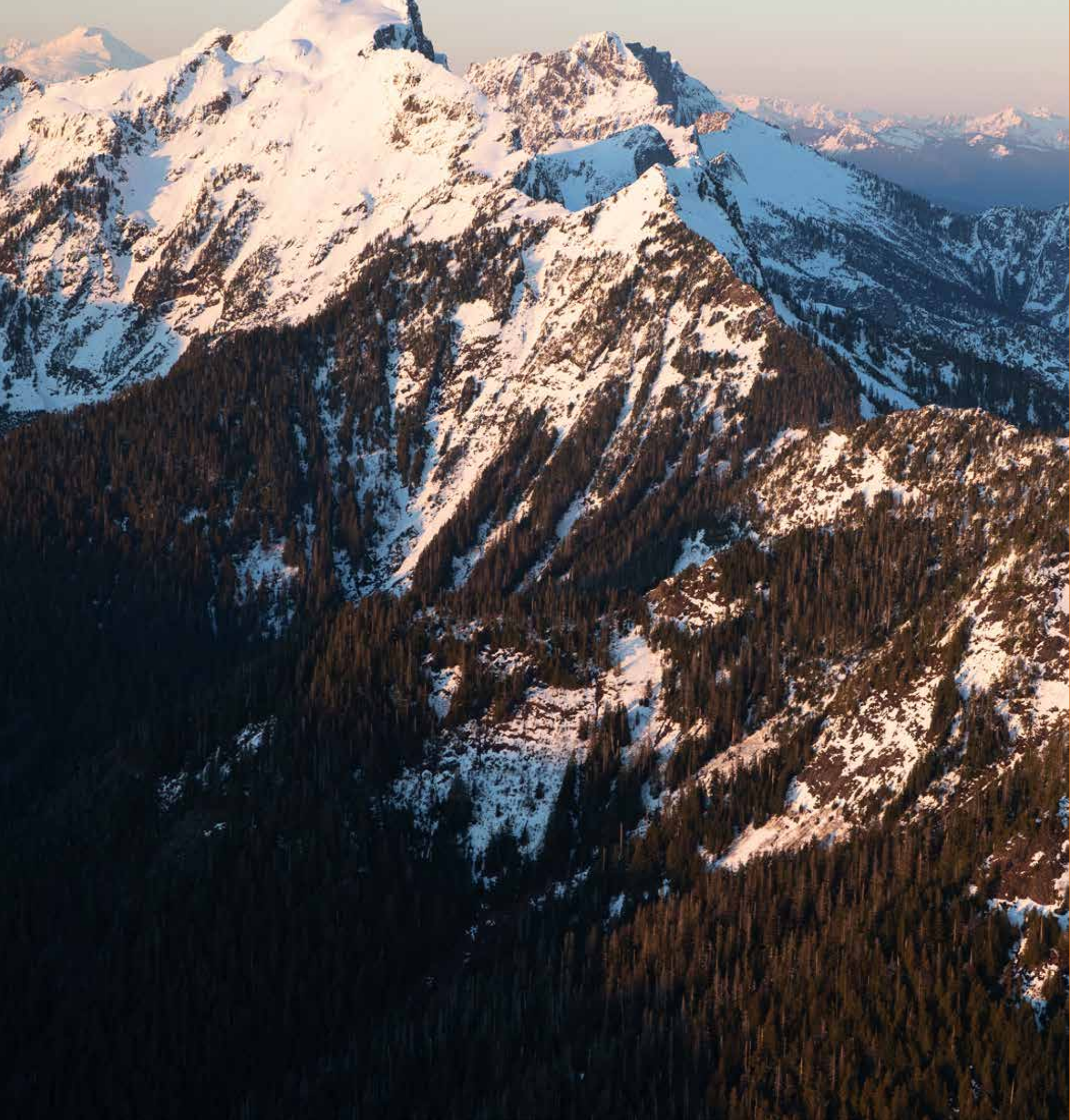


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Alejandro Grajal, PhD

*President and CEO
Woodland Park Zoo*

All wildlife is in human hands. Our destiny is inextricably linked with that of wild creatures everywhere in the world. We bear the responsibility to steward that relationship in such a way that allows humanity and all other species on our shared planet to thrive. That is why Woodland Park Zoo has taken on a new mission: to save wildlife and inspire everyone to make conservation a priority in their lives.

To that end we are launching a modernized Wildlife Conservation Division to help save wildlife and create new generations of conservationists. With the help of our community, our staff, and our partners throughout the world, Woodland Park Zoo developed a new Strategic Plan.

No longer only a destination for wildlife and wonder, Woodland Park Zoo is becoming Seattle's partner and center for conservation, powering a true conservation movement for everyone in our community.

Whether we are encouraging empathic connections between guests and wild creatures through extraordinary experiences at the zoo, or working in the field to protect endangered species from poaching, wildlife trafficking or habitat loss, Woodland Park Zoo is leading the charge to create a community of both care and action that extends well beyond our borders to encompass the entire planet.

We have a radically new vision for what a zoo can be and how conservation can work for everyone—starting right here in Seattle, with the potential to reshape the world. The fate of all wildlife depends on nothing less than our full commitment to this ambitious goal. Join us and help species thrive.

“Woodland Park Zoo saves wildlife and inspires everyone to make conservation a priority in their lives.”

Woodland Park Zoo's mission statement is both simple and profound: conservation—in particular wildlife conservation—is Woodland Park Zoo's primary focus.

Woodland Park Zoo's Strategic Plan specifically states “we purposefully define Woodland Park Zoo as a conservation organization that is determined to both build upon its proud history of innovation and leadership.” This statement is transforming the way we think and act as an organization, while simultaneously acknowledging and celebrating our previous century of experience and ongoing core work.

The Wildlife Conservation Division is mandated with helping the organization achieve this ambitious mission through a variety of initiatives. We are building and implementing innovative conservation programs, and incorporating cutting-edge conservation concepts to find solutions to what were once thought of as intractable problems. This is propelling Woodland Park Zoo into a global leadership role where we are helping to demonstrate to others how to achieve conservation successes in a rapidly modernizing and fast-changing world.

Woodland Park Zoo is also taking on new leadership roles, locally and globally, to help guide both our conservation initiatives in the greater Seattle area and the larger, global conservation community. This includes regional and international policy to help influence conservation strategies and outcomes on the world stage. All of this is focused on exponentially increasing our impact on key conservation priorities.

These broad, bold steps are helping to redefine Woodland Park Zoo for the 21st century as a fully integrated conservation organization, and they are driving our effort to become a regional and global conservation leader that saves wildlife and inspires everyone to make conservation a priority in their lives.

We look forward to having you join us in this exciting new conservation partnership.



Peter Zahler

*Vice President of
Conservation Initiatives
Woodland Park Zoo*



WILDLIFE CONSERVATION PROJECT MAP

■ SIGNATURE PROGRAMS ■ CONSERVATION PARTNERS ■ WILDLIFE SURVIVAL PROGRAMS



SIGNATURE PROGRAMS

Signature Conservation Programs have multiple projects, each of which is designed to tackle a different threat and protect or recover a particular species or part of the landscape.



Woodland Park Zoo actively saves wildlife and wild places around the world by designing, implementing, and supporting conservation projects and programs. The cornerstone of our conservation work is our Signature Conservation Programs.

Conservation is rarely achieved through a single intervention. Wildlife and wild places face multiple threats in almost every location on the planet, and a conservation initiative must focus on and deal with multiple threats if it is to be truly successful.

To address these factors, Woodland Park Zoo's Signature Conservation Programs are long-term, strategically focused initiatives. They have rigorous and well-thought-out strategies that focus on and save both the wildlife species of importance, and their specific landscapes.

Signature Conservation Programs have multiple projects, each of which is designed to tackle a different threat and protect or recover a particular species or part of the landscape. These projects are integrated parts of a holistic strategy to protect the entire landscape and the suite of species within it.

Most important, Woodland Park Zoo Signature Conservation Programs actively and successfully mitigate threats to their priority species and landscapes, and thus they are successful at conservation. Their actions directly stem the tide of wildlife population declines, habitat degradation, or loss, and they produce demonstrable improvements.

Signature Programs use cutting-edge wildlife monitoring, research, analysis, publication, outreach, education, threat mitigation, community empowerment, improved local governance, management capacity building, technological applications, changes in policy, innovative partnerships, project evaluation and other conservation tools. Woodland Park Zoo Signature Conservation Programs serve as local and global models for how to achieve effective, long-term conservation success.



TREE KANGAROO CONSERVATION PROGRAM

The Tree Kangaroo Conservation Program has helped over 50 villages and 14,000 indigenous landowners and their families create the first-ever community managed Conservation Area in Papua New Guinea's history.

The YUS Conservation Area is now protecting over 300 square miles of land, from 13,000 foot-high cloud forests to lowland rain forests to coastal areas and their coral reefs.



Founded in 1996 by Lisa Dabek, PhD, Director, TKCP and Senior Conservation Scientist at Woodland Park Zoo, the Tree Kangaroo Conservation Program (TKCP) saves wildlife and habitat and supports community livelihoods in Papua New Guinea. Key species being protected include the endangered Matschie's tree kangaroo, critically endangered long-beaked echidna, New Guinea harpy eagle, emperor bird of paradise, and a number of other spectacular, vulnerable and endemic species.

Papua New Guinea (PNG) is unique in terms of its incredible biological and cultural diversity, with over 850 different languages, and with a land tenure system where over 90% of the land and sea is under customary ownership. Local communities are almost completely isolated from government support, and basic infrastructure is lacking. At the same time PNG and its wildlife are under serious and growing threats from unsustainable local resource use, mining and logging.

CREATING PROTECTED AREAS

Faced with these challenges, Dabek and her team began a long, slow process of developing trust among the many local communities in whose land she worked. Today, TKCP has helped over 50 villages and over 14,000 indigenous landowners and their families create the first-ever community managed Conservation Area in Papua New Guinea's history.

The YUS (Yopno-Uruwa-Som watersheds) Conservation Area is now protecting over 300 square miles of land, from 13,000 foot-high cloud forests to lowland rain forests to coastal areas and their coral reefs.

BUILDING NEW GOVERNANCE INSTITUTIONS

Woodland Park Zoo helped local communities create new governance institutions. These include a local conservation research and management organization, TKCP-PNG; a community land management organization, the YUS Conservation Organization; and a community livelihoods cooperative, the YUS Conservation Coffee and Cocoa Cooperative.



MANAGING THE YUS CONSERVATION AREA

Creating a protected area is one step, but effectively managing it is another. TKCP facilitated the establishment of the Conservation Area Management Committee (required under the Conservation Areas Act), which provides vital avenues for YUS people to communicate and engage directly with higher levels of government for the successful management of the YUS Conservation Area.

TKCP helped create and train the YUS Conservation Area Ranger team, which is responsible for patrolling and monitoring wildlife in the YUS Conservation Area. These first-ever community rangers in PNG are local landowners, nominated by their own communities to conduct patrols and evaluate the effectiveness of conservation efforts.

Community Rangers are trained to use SMART (Spatial Monitoring and Reporting Tool) and work with all levels of the community and government through the Conservation Area Management Committee (CAMC).

The YUS Junior Ranger Program (for ages 3-17) is another innovative practice that TKCP is implementing, building the next generation of conservation leaders for Papua New Guinea.

Woodland Park Zoo also manages the first conservation endowment for Papua New Guinea, which provides partial annual funding for the protection of the YUS Conservation Area in perpetuity.

LAND USE PLANNING

The people of YUS depend upon their land and natural resources for food, water, shelter and livelihoods. Managing the responsible use of the forest products, wildlife, and water across the YUS landscape will ensure the communities' continued commitment to protecting the YUS Conservation Area.

TKCP worked with YUS landowners on an indigenous mapping project that resulted in local language community resource maps for the region. This was a first for PNG, and the land-use planning process is now used as a model in PNG for engaging communities in conservation efforts. The National Government of Papua New Guinea has incorporated TKCP's process into its Protected Areas Policy that guides the management of protected areas throughout the country.

TKCP is now helping communities build three-dimensional resource maps that all community members can learn and benefit from as they plan their future land use.



IMPROVING LIVELIHOODS

To improve local livelihoods while providing incentives for conservation, TKCP has partnered with local PNG landowners and with specialty coffee roasting companies in the United States and Australia – Seattle’s Caffè Vita and Melbourne’s Jasper Coffee, respectively – and more recently with companies interested in value-added “conservation” cocoa, including PNG-based Queen Emma Chocolates.

The Seattle-based Caffè Vita brings sustainably-grown conservation coffee beans to the US. By selling farm-direct, YUS farmers earn revenues 150% higher than local market rates. Caffè Vita’s “YUS PNG” coffee can be purchased right on Woodland Park Zoo grounds.

During 2018, YUS Conservation Coffee farmers sold 30 tons of their shade-grown, wildlife friendly coffee crop – injecting nearly \$60,000 directly into the local YUS economy. As one of the only sources of cash income for the participating villages, farmer earnings through the sale of YUS Conservation Coffee helps families to pay for their children’s school fees, cover health costs, improve their homes, establish savings and reinvest in their livelihoods.

HEALTHY VILLAGES HEALTHY FORESTS

TKCP is also providing these isolated rural communities with greater access to health information and services. The project emphasizes how healthy environments are integral to healthy communities. Trainings have been given in 40 villages in YUS, producing more than 200 youth and peer educators who are able to educate their communities on environmental stewardship, safe sex, sexually transmitted infections, gender issues, and pre- and post-natal care, among other topics.

The one-health program has improved women’s lives by providing them with information about family planning, contraception, birth spacing, sanitation, malaria prevention and child care. Most significantly, the health and family planning services program has trained women to become peer educators for health and environmental issues, giving them a greater voice in their communities.

This One-Health training (in partnership with the University of Washington, volunteer international physicians, Colgate-Palmolive, World Vision PNG, and the PNG provincial Health Department) is laying the foundation for younger women to play a more active leadership role in the YUS Conservation Area in the future.

WILDLIFE RESEARCH AND CONSERVATION

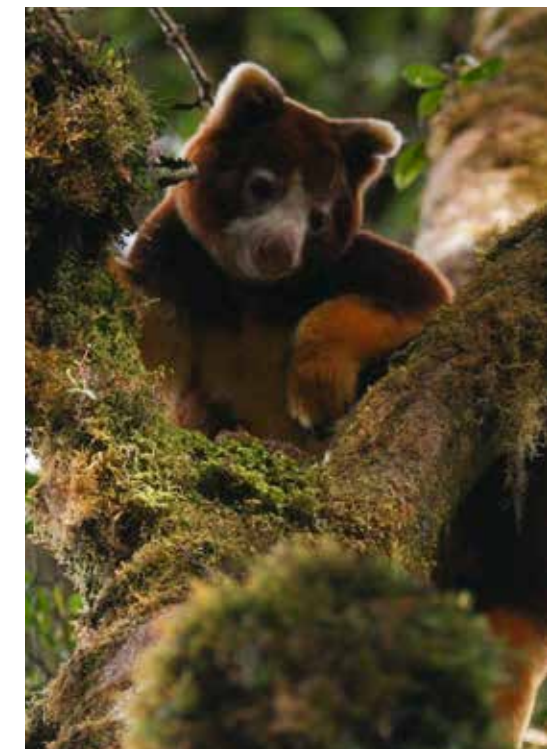
The endangered Matschie’s tree kangaroo represents the largest endemic mammal in PNG aside from humans, occupying the ecological niche filled by primates in other parts of the world. They are an iconic animal and central to the cultural identity of the country’s indigenous communities. Yet when Dabek began studying these fascinating animals as a University of Washington graduate student in 1987, very little was known about their biology, natural history or conservation status.

TKCP continues to focus on field research to inform conservation decision-making. The program has developed cutting-edge partnerships with Microsoft and other tech companies for revolutionary research tools, including new satellite collars, high-tech drone photogrammetry and cloud-based machine learning. These new tools allow the team to map forests in three dimensions and then track tree kangaroos within that three-dimensional forest canopy. Nutritional studies of wild tree kangaroos also are being carried out to better inform zoo diets of tree kangaroos at Woodland Park Zoo and other Association of Zoos & Aquariums Tree Kangaroo Species Survival Plan institutions.

In addition to TKCP’s ongoing studies of tree kangaroo ecology, research studies examine ecological and social questions to guide local initiatives and contribute to the global scientific knowledge of the species, ecosystems and anthropology of the YUS landscape.

BRINGING IT BACK TO WOODLAND PARK ZOO

TKCP is committed to serving as a model program for others. The program shares lessons learned and new technologies with other conservation partners around the globe, as well as with our community here in Washington. As just one example we have instituted an ongoing indigenous exchange program between PNG community members and Washington’s Lummi Nation tribal members to share experiences and lessons learned. TKCP also participates in zoo and conservation conferences and workshops, thereby helping to make Woodland Park Zoo a global leader in wildlife conservation.



LIVING NORTHWEST PROGRAM

Woodland Park Zoo is committed to protecting and preserving our own backyard – from our urban green spaces to the great wild landscapes of the Pacific Northwest.

Our Living Northwest Program conservation efforts fall into one of two strategies—those related to *recovery* of wildlife populations in Washington’s great wilderness areas, and those related to improving *coexistence* of human and wildlife populations in one of the fastest growing urban landscapes in America.

The Pacific Northwest contains some of the last great stretches of wilderness in the United States. It is one of only two areas in the lower 48 containing almost the entire suite of wild carnivores (with plans to translocate the one missing species, the grizzly bear).

Some of these species, however, were almost lost or were actually driven to local extinction, and are only now beginning to return to the area.

At the same time the Northwest has one of the fastest-growing human populations in the country. As wild species return to the region they face the growing pressure of habitat loss, and the resulting issues of conflict and coexistence with people.

Woodland Park Zoo is committed to protecting and preserving our own backyard – the great wild landscapes of the Pacific Northwest.

Our Living Northwest Program conservation efforts fall into one of two strategies—those related to recovery of wildlife populations, and those related to improving coexistence of human and wildlife populations.





These two strategies are developed under the five themes of intact natural communities, habitat connectivity, climate change, community engagement and community science, and technological innovation.

The Living Northwest Program works on the recovery of wolverines, wolves, Canada lynx, and Olympic martens, as well as western pond turtles (our zoo-based headstart program has brought the species back from only 150 turtles in the wild to well over 1,000 today) and the endangered Oregon silverspot butterfly.

Our coexistence efforts include projects aimed at field research and community education around wild carnivore species found in the urban environment of the greater Seattle region, as well as projects about bats and insect pollinators.

WASHINGTON WOLVERINE PROJECT

Wolverines are indicators of true wilderness, requiring enormous landscapes, little human disturbance and deep snow in early spring for denning.

Wolverines were once extinct in the contiguous US due to relentless over-trapping and persecution. In recent years, however, wolverines have begun to naturally recolonize the Cascades of Washington state.

Woodland Park Zoo has been contributing to the successful recovery of wolverines since 2013. Wolverine numbers likely number between 20-35 now in Washington, with clear evidence of breeding and population increase.

Our wolverine project has already developed new and improved monitoring methods for the species, and aims to track wolverine recovery and longer-term response to climate change, while ensuring that habitat connectivity is maintained or enhanced.

WPZ has successfully developed new tools to monitor wolverines and other rare, high-mobility species. This includes a high-tech scent dispenser and a camera-trap protocol that detects wolverines with high consistency.

We are also developing a long-term monitoring framework for wolverines in the Cascades, and we are co-leading a multi-state monitoring effort as part of the Western States Wolverine Working Group. Lastly, we are active members of the Washington Wildlife Habitat Connectivity Working Group, aimed at identifying important wildlife movement corridors that will help wolverines and other wildlife effectively adapt to climate change.



WESTERN POND TURTLE RECOVERY PROJECT

The western pond turtle—one of just two turtles native to the Pacific Northwest—experienced a dramatic decline over the last century due to collection for food, habitat alteration and invasive bullfrogs that eat hatchling turtles.

In 1990 there were only 150 western pond turtles left in Washington. Today, successful reintroduction has brought that population up to over 1,000.

Without the collaborative efforts of Woodland Park Zoo and Oregon Zoo's head starting programs, it is very likely that the western pond turtle would be extinct in the wilds of Washington.

Woodland Park Zoo head started and released 55 western pond turtles in 2018. Head starting allows turtles to grow big enough to avoid predation by invasive bullfrogs.

In 2016, the Western Pond Turtle Recovery Project was awarded the Association of Zoos & Aquariums' prestigious North American Conservation Award, and the program was one of the first AZA Saving Animals From Extinction (SAFE) projects.



NORTHWEST CARNIVORE MONITORING

Rare montane and forest species such as wolverines, Canada lynx, Cascade red foxes, fishers, martens, gray wolves, and grizzly bears occur at low densities, and are either only recently recovering in the Pacific Northwest or at risk of extirpation. Their rarity, cryptic behavior, and the region's rugged topography and harsh winters make these species very difficult to study and monitor.

Newly developed tools for addressing these challenges—for example, high-tech camera traps and scent dispensing devices (high-tech scent dispensers to lure animals close to remote cameras)—are now permitting us to effectively survey for such species.

Woodland Park Zoo and partners are devising a comprehensive, long-term monitoring framework to fully track populations of many of these Pacific Northwest montane carnivores. This includes new technologies and advanced statistical designs that greatly enhance our ability to understand and protect these rare, flagship species of our great Pacific wilderness.



OREGON SILVERSPOT BUTTERFLY RECOVERY PROJECT

The Oregon silverspot butterfly was once found from southern Washington through northern California. By 1980, when the butterfly was listed as threatened by the U.S. Fish and Wildlife Service, it was only known to exist at one site in Oregon.

Woodland Park Zoo has participated in the care and release of between 1,000 and 2,000 silverspot butterfly pupae each year since 2001. Continued efforts have secured five current populations—four in Oregon and one in California.

From 2008–2012, Woodland Park Zoo and Oregon Zoo collectively released over 10,000 pupae in select locations. In 2012, both zoos shared the “AZA Significant Achievement Award” for their work on the Oregon silverspot captive rearing program.

In July of 2018, the zoo participated in the first release of 500 caterpillars on Oregon’s Saddle Mountain in an effort to build a new population there.



OLYMPIC MARTEN RECOVERY PROJECT

Only nine reliable records of the cat-sized Pacific marten on the Olympic Peninsula have been recorded in the 50-year period from 1968 to 2016. The four most recent records all occurred at high elevations.

Recently, a remote camera monitoring initiative led by Woodland Park Zoo, Washington Department of Fish and Wildlife and partners detected martens in a remote drainage of the Olympics.

Woodland Park Zoo will be assisting with recovery of martens on the Olympic Peninsula, including estimates of current distribution, assessments of causes of population decline and/or ongoing depression, and potentially active augmentation of the population.



SEATTLE URBAN CARNIVORE PROJECT

Seattle has one of the fastest growing human populations in North America. Increasing contact between humans and carnivores (e.g., coyotes, bobcats, raccoons, black bears, river otters) can lead to conflict and increased concerns over risk to humans, whether real or perceived.

Woodland Park Zoo’s Seattle Urban Carnivore Project will greatly expand our knowledge of occurrence and distribution of Seattle’s urban carnivores, as well as factors affecting coexistence with these species.

We are using camera trapping and community science (e.g., Carnivore Spotter reporting portal) to understand how carnivores and humans are currently coexisting in space, time and resource use within the greater Seattle landscape.

This project will provide information to residents of the greater Seattle region regarding the carnivore species with which they coexist, and the ways to best avoid human-carnivore conflicts. It will also provide tools for the design and planning of parks and green spaces that will enhance human-carnivore coexistence.



COEXISTING WITH CARNIVORES

Coexisting With Carnivores, run out of Woodland Park Zoo’s Learning & Innovation Department, works to prevent negative interactions between humans and the wildlife that call the greater Seattle area home. The project engages community members to explore the roles carnivores play in healthy local ecosystems, as well as teaches people behaviors that can ultimately prevent conflict.

Through Coexisting With Carnivores, middle school students and Issaquah residents gain knowledge of local carnivores such as coyotes, bears and raccoons, and their roles as part of urban and suburban ecosystems. Further, they personally engage in community-driven learning and problem-solving around issues of human-wildlife interaction in one of the fastest-growing urban regions in the country.

CONSERVATION PARTNER PROGRAMS



These programs are multi-faceted in design and alleviate multiple threats; they deliver significant and measurable positive conservation outcomes; and they serve as global models for successful conservation. They also are successful at saving wildlife and their wild landscapes.

Conservation partnerships are a critical part of Woodland Park Zoo's organizational strategy to successfully save wildlife. The Woodland Park Zoo Conservation Partner Programs build global partnerships that support highly successful conservation initiatives around the world.

Conservation Partner Programs also have a connection with animals in Woodland Park Zoo's care, or represent significant global environmental issues. This connection between our field programs and our zoo exhibits gives us the opportunity to tell stories of successful wildlife conservation to our audiences.

Woodland Park Zoo has 11 Conservation Partner Programs across Africa, Asia and Latin America.

MALAYAN TIGERS

In 2012 Woodland Park Zoo partnered with Panthera and Rimba to create the Malayan Tiger Program. At the start of this program there was no reliable evidence of tiger presence in northern Taman Negara National Park. Today we have confirmation of a significant population, reproduction and cubs surviving to sub-adulthood.

The Malayan tiger subspecies is considered Critically Endangered by IUCN. They prey mainly on wild deer and wild pigs. Their main threats include habitat loss, both from increased human population encroachment and the rapid growth of industrial agriculture (including palm oil), and poaching for the illegal wildlife trade.

The program's main landscape, the 386 square mile Kenyir-Taman Negara Core Area, encompasses forest reserves and the northeastern part of Taman Negara National Park – the largest protected area in Peninsular Malaysia. The area is rich in biodiversity, harboring at least 43 mammal species, including the Malayan tiger, the leopard and the clouded leopard.

In 2012 when the program began, there was no reliable evidence of tiger presence in Taman Negara National Park. Today we have confirmation of a significant population, reproduction and cubs surviving to sub-adulthood.

Over the past year, Rimba has had extraordinary success working with the state government to add over 115 square miles of newly protected tiger habitat as a state park – land that was previously designated as logging concessions.

To safeguard the national park and the new state park, Rimba's patrol teams have been working with the Department of Wildlife and National Parks to keep the landscape safe from poachers. Patrol teams run medium- to long-range patrol trips (5-7 days) and the data is fed into a SMART monitoring system.

These patrol teams are experiencing successful capture and prosecution of poachers through vigilance mapping and identifying targeted patrol sectors and incursion locations. Over the last six years the program has helped the Department of Wildlife and National Parks locate and arrest 26 poachers.

The Malayan Tiger Program was created by Woodland Park Zoo in 2012 in partnership with Panthera and local non-governmental organization, Rimba.

The program's goal is to protect and recover populations of tigers and other vulnerable species in and around Taman Negara National Park in Peninsular Malaysia, including SE Asia's largest population of Asian elephants.

This unique partnership is already showing substantial metrics of success, from a major increase in protected tiger habitat to successful anti-poaching efforts and to significant signs of tiger recovery in the landscape.



SNOW LEOPARDS

In Kyrgyzstan, we partner with the Snow Leopard Trust to convert hunting concessions into protected areas. We are currently in negotiation with the Government of Kyrgyzstan to protect roughly 2,300 square miles of prime snow leopard habitat over the next 5-10 years.



Woodland Park Zoo's former Curator of Education, Helen Freeman, created the Snow Leopard Trust (SLT) in 1981. Today SLT engages with all 12 snow leopard range country governments and implements field programs in five of the most important range countries: China, India, Kyrgyzstan, Mongolia and Pakistan.

In 2017 the status of snow leopards was reassessed by IUCN from Endangered to Vulnerable. The global population is still under threat, with somewhere between 4,000 to 8,000 animals found across 12 countries in Asia.

SLT's Snow Leopard Enterprises works with more than 400 women from 40 communities across snow leopard range to provide a market for handicrafts in return for a pledge to protect snow leopards. Since inception, total revenue for communities exceeds \$1 million – and handicrafts are available in Woodland Park Zoo's ZooStores.

With support from the Kyrgyz Government, we are testing and implementing conversion and co-management of former hunting concessions into protected areas with anti-poaching training and a rewards program for rangers.

In 2015, Shamshy, a former hunting concession in Kyrgyzstan, was turned into a wildlife sanctuary, managed by SLT. Cameras recorded the first pictures of snow leopards in the local mountain range just one year later.

Shamshy was originally used for trophy hunting of ibex; there is now a long-term agreement with the government to halt all hunting within the concession. We are co-managing the landscape with local communities to develop community-based conservation solutions.

We are currently in negotiations with the Government of Kyrgyzstan to include additional hunting concession conversions, with our ultimate aim to protect all of the Ala-Too Mountains (roughly 2,300 square miles) over the next 5-10 years.

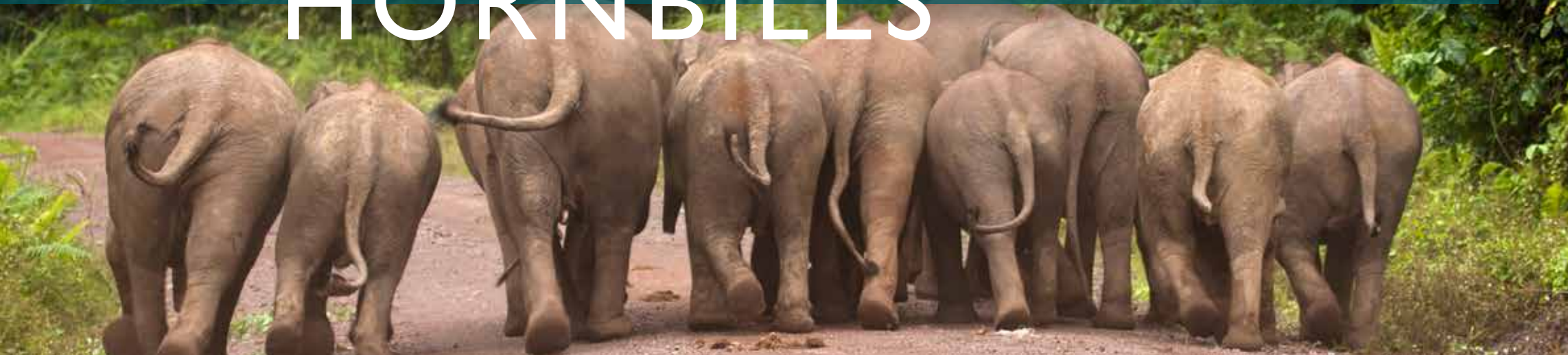
In 2018, we launched the first eco-camps for children at the Shamshy protected area. With this success, we are now ready to expand and hold 10 eco-camps for up to 100 children from different schools throughout our target areas.

We have conducted camera trap surveys every year since 2013, including the first-ever documentation of Eurasian lynx within the Sarychat Ertash reserve. In 2019, we will also expand our surveys to cover another 380 square miles to help the Government of Kyrgyzstan's goal to estimate the snow leopard population in the country.

We built predator-proof corrals in 2017-2018, and thus far the corrals have been 100% successful at avoiding losses for penned livestock. We will build five new predator-proof corrals in the community regions around Sarychat.



ASIAN ELEPHANTS, ORANGUTANS AND HORNIBILLS



Through the work of Hutan and other partners, 28% of Sabah's land mass is fully protected today, safeguarding approximately 80% of the remaining 11,000 Bornean orangutans found there.

Hutan is dedicated to conserving Asian elephants, orangutans and other wildlife in Sabah, Malaysia. Hutan's holistic strategy combines long-term scientific research, wildlife and habitat protection and management, habitat restoration, human-wildlife conflict mitigation, policy work, capacity building and education.

Through the work of Hutan and other partners, 28% of Sabah's land mass is fully protected today, safeguarding approximately 80% of the remaining 11,000 Bornean orangutans found there.

Hutan pioneered orangutan bridges to alleviate habitat fragmentation from logging. All bridges are now regularly used by orangutans during forest dispersal.

Recent research by Hutan indicates that natural habitat available to elephants in Kinabatangan is too small to support the current population of 200-250 individuals. Elephants are spending increasing amounts of time in oil palm plantations, leading to potential human-elephant conflict.

To increase elephant habitat access, eight full-time women employees have planted and are caring for more than 100,000 tree seedlings in order to create an elephant corridor between the lowland and highland forests of the state of Sabah.

Current focus is on researching elephant dynamics in landscapes dominated by fields and crops, particularly oil palm plantations. Results indicate that some elephant family units spend a significant amount of time in plantations where they rest during the day and begin foraging at night, specifically on the old palms that are cut down and left on site to improve the soil.

Over the past two years, Hutan Wildlife Wardens patrolling the Lower Kinabatangan recorded and reported multiple cases of illegal activity, involving snares, signs of illegal logging, poaching and encroachments within the Lower Kinabatangan Wildlife area.

Recently, Wildlife Wardens found a young baby elephant lost in an oil palm estate. Instead of contacting Wildlife Rescue for capture and translocation to the Sepilok Elephant Sanctuary, the team located the herd and coaxed the baby back toward the group. While it took several hours, the baby was eventually reunited with its mother.

Due to deforestation, large trees with natural nest cavities have all but disappeared for Hutan's eight hornbill species. A Woodland Park Zoo funded project has led to the first documented instance of rhinoceros hornbills using a nest box to raise a chick in late 2017.

BORNEAN ORANGUTANS

Over the course of three years, the program has worked with five local communities, assisting them in legally securing over 18,000 acres of orangutan and rain forest habitat, and turning over management of the land to their villages.

Now in its 25th year, the Gunung Palung Orangutan Conservation Program (GPOCP) is preserving Bornean orangutan populations and forest habitat in and around Gunung Palung National Park, in West Kalimantan (Borneo), Indonesia.

Gunung Palung National Park represents one of the most important blocks of orangutan habitat left in the world and is the only remaining intact lowland alluvial rain forest in Borneo.

The protected area of the national park encompasses 417 square miles. Currently the park is home to an estimated 5,000 critically endangered orangutans, one of the few remaining viable orangutan populations.

The national park also harbors other endangered wildlife such as the Malayan sun bear, white-handed gibbon, proboscis monkey, Sunda pangolin and Horsfield's tarsier.

Specific conservation threats in this region include the expansion of large-scale oil palm plantations, illegal logging, the poaching of orangutans for the pet trade, and a general lack of awareness about environmental issues.

Research has shown that over 75% of orangutans live outside of protected areas. With this in mind, we work with the communities surrounding Gunung Palung National Park – primarily drawing staff from the local area – to address these threats.

Over the course of three years, we worked with five local communities, assisting them in legally securing over 18,000 acres of orangutan and rain forest habitat, and turning over management of the land to their villages. We aim to gain legal protection of two more community managed forest areas.

We work with field investigators, using GPS and drone technology, trained undercover investigators and a large network of informants who provide information on orangutan poaching and trade.

As a result of these efforts, over 160 orangutans have been rescued from dangerous situations over the past 14 years. In 2017, GPOCP

reported 10 cases of illegally held orangutans or human-orangutan conflict to authorities, resulting in eight rescues or confiscations.

Through environmental education activities, such as mobile cinema events, puppet shows and village discussions, over 5,800 students learned about living with orangutans.

We also create opportunities for local families to adopt sustainable livelihoods, thereby decreasing their dependence on environmentally destructive activities. The Customary Forest Initiative and the Non-Timber Forest Product (NTFP) Artisan Groups are two examples of these community-partnership projects.

GREATER ONE- HORNED RHINOS



In 1993, recognizing the escalating crisis facing all five rhino species, the International Rhino Foundation (IRF) was born. The International Rhino Foundation is dedicated to the survival of the world's rhino species through conservation and research.

At the heart of IRF's vision is the belief that these magnificent species should endure for future generations, and that protecting rhinos ensures the survival of many other species that share their habitat, including people.

Ten years ago, only about 20,800 rhinos roamed earth. Today, rhino numbers hover around 29,500 – over a 40% increase in 10 years.

Despite this, Africa's black rhino and Indonesia's Sumatran and Javan rhinos have been driven to the brink of extinction, primarily through poaching. Poaching is driven by a

IRF's team relies on an intelligence network to gather information concerning the movement of poaching networks. With well-informed advanced warning, authorities can better prevent poaching incursions and increase the rates of suspect apprehension, arrest and prosecution.

IRF also conducts wildlife crime trainings and distributes guides for law enforcement professionals to increase the number of poaching cases successfully prosecuted and increase convictions. Increased convictions should deter would-be poachers which will lead to a decline in the poaching rate and an increase in the rhino population.

Roughly 70% of the entire greater one-horned rhino population is found in Kaziranga National Park in Assam, India. To help build up the global population, IRF is supporting efforts to translocate rhinos to other parks that are now well-protected.

The population of Asia's greater one-horned rhino was reduced to fewer than 200 individuals a century ago from hunting and habitat loss. Thanks to strict protection, the total population has rebounded to more than 3,550 today.

misconception that rhino horn has medicinal value (rhino horn is primarily keratin, the same substance as our hair and fingernails).

The population of Asia's greater one-horned rhino was reduced to fewer than 200 individuals in northern India and the lowlands of Nepal a century ago from hunting and habitat loss. Thanks to strict protection, the total population has rebounded to more than 3,550 today.

In Assam, India, IRF supports an Intelligence and Law Enforcement program to reduce poaching and illegal wildlife trade, and provides security support for national parks with rhino populations.

Since April of 2008, 20 greater one-horned rhinos have been translocated to Manas National Park. At least 13 calves have been born in the park since then. Following that success, a second set of translocations began in 2015, with six greater one-horned rhinos moved to the Laokhowa-Burachapori Wildlife Sanctuary.



ASIAN CRANES



Established in 1994, Russia's Muraviovka Park protects one of the few remaining undisturbed wetlands within the immense floodplains of Russia's Amur River Basin. The park's wetlands have been designated as a Wetland of International Importance under the Ramsar Convention.

Covering 16,000 acres, the park is a breeding ground for six species of crane (red-crowned, white-naped, hooded, Siberian, Eurasian and demoiselle – almost half of the world's species), the endangered Oriental stork, and over 300 other species of birds (including 20 threatened species).

Over 40% of the world's population of the hooded crane, around 20% of the world's population of the white-naped crane, and 20% of the world's population of the Oriental stork make a long stopover within the park. Thousands of bean geese, white-fronted geese and lesser white-fronted geese join them.

White-naped cranes number fewer than 6,700 globally, and they are experiencing rapid population declines across their range due to habitat loss. However, Muraviovka Park experienced record-high breeding success for white-naped cranes in 2017, with 19 chicks fledged.



The number of Critically Endangered Siberian cranes stopping at the park has increased each year since 2013, even as global populations continue to drop rapidly elsewhere due to wetland conversion.

The park's successful captive breeding and release program resulted in two young red-crowned cranes joining the wild population of this Critically Endangered species in 2018.

During the last five years, breeding density of white-naped cranes, Oriental storks, and yellow-breasted buntings in the park was the highest across the distribution ranges of these species.

We conduct fire management and suppression activities, grassland restoration and field research including surveys and studies of heavy metal threats. We also provide food for cranes and other birds by planting corn, grain and sunflower, and we ensure smooth operation of the park.

In addition, we provide environmental education programs for local youth by conducting international summer camps. The park has involved thousands of children, teachers, and other people from all 17 districts of the Amur Region, city of Khabarovsk, and Primorski Region, including orphanages and social shelters, with diverse activities and events that no other organization in Russian Far East offers.

Covering 16,000 acres, the park is a breeding ground for six species of crane – red-crowned, white-naped, hooded, Siberian, Eurasian and demoiselle – almost half of the world's crane species.

Tarangire National Park has experienced one of the highest elephant population growth rates and lowest poaching rates in Africa. The park has not lost a single elephant to poaching from the program's study population since the start of our work.

Conservation
Partners

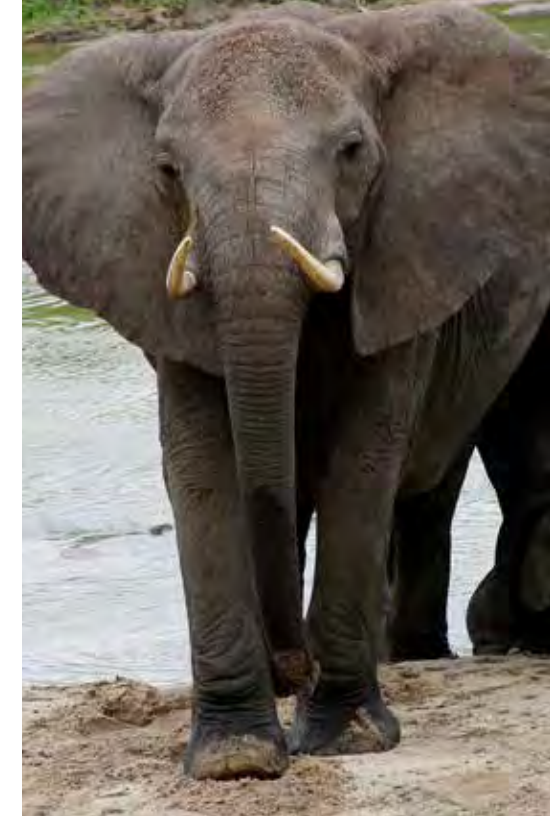
TANZANIA ELEPHANTS

African elephant populations have undergone a recent catastrophic decline due to ivory poaching. In just seven years (2007-2014), poaching has been responsible for a 30% decline in African savanna elephants.

The Tanzania Conservation and Research Program is in its 25th year of research and is the second-longest elephant research project in Africa. The team has individually identified and monitors over 1,000 known elephants. Intensive monitoring allows for rapid alerts to park authorities in the event of problems such as poaching.

Largely because of the Tanzania Conservation and Research Program, Tarangire National Park has experienced one of the highest elephant population growth rates and lowest poaching rates in Africa. We have not lost a single elephant to poaching from our study population since the start of our work. Two major reasons for this success are our permanent presence in the park and that we hire village game scouts outside the park to monitor poaching.

Our program is also targeting other migratory ungulates in the Tarangire ecosystem. This includes zebra, wildebeest, eland, buffalo, Coke's hartebeest, fringe-eared oryx, impala and Grant's gazelle.



The wildlife in the Tarangire ecosystem is highly mobile, and Tarangire National Park (1,000 square miles) protects only 10% of this ecosystem. Without protecting migration corridors and dispersal areas on community lands, the long-term sustainability of the wildlife in the ecosystem is under grave threat.

To deal with this threat we have protected over three-quarter million acres of land outside the park. We developed innovative CCROs (Certificates of Customary Rights of Occupancy) to help local communities protect land, including some of the most important wildlife dispersal and grazing areas.

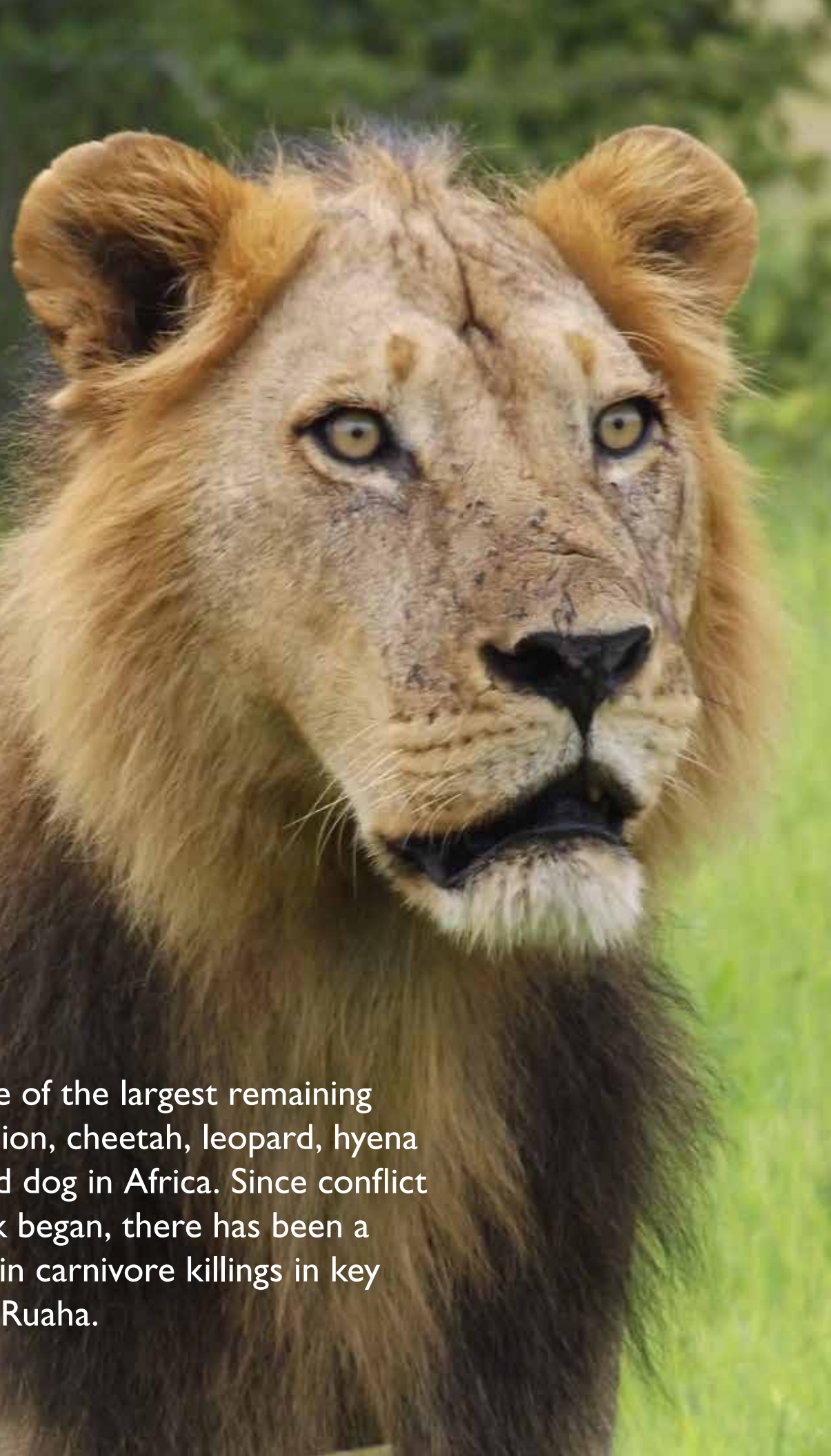
The project has identified and assessed the 50 square mile wildlife corridor that links Ruaha and Katavi National Parks, potentially one of the largest wildlife corridors in Africa. We are currently working with the Tanzanian government to protect this corridor.

To help eliminate poaching, we employ village game scouts to patrol the area. We have trained them to use the SMART anti-poaching monitoring system, monitor wildlife populations and prevent any illegal killing of wildlife.



RUAHA | CARNIVORES

Ruaha has some of the largest remaining populations of lion, cheetah, leopard, hyena and African wild dog in Africa. Since conflict mitigation work began, there has been a 90% reduction in carnivore killings in key villages around Ruaha.



Tanzania's Ruaha landscape is one of the most significant areas left in the world for large carnivores. Species include lion, cheetah, leopard, spotted hyena and African wild dog.

The Ruaha landscape holds around a tenth of the lions left in the world, the third largest population of endangered African wild dogs, and one of only four large cheetah populations left in East Africa.

This landscape is centered in and around Ruaha National Park, which at nearly 8,100 square miles is the largest park in Tanzania and the second-largest park in Africa.

Most of our work occurs on village land along the southern border of the park, which covers an additional 1,500 square miles. Therefore, the project covers a geographic area of around 10,000 square miles.

Large carnivores impose significant costs on poor rural communities in this landscape, mainly through attacks on livestock. This leads to intense human-carnivore conflict and high levels of carnivore killing.

We work with households to help protect their livestock from attack, which reduces retaliatory carnivore killings. We also work across multiple villages to deliver high-priority local benefits (focused on education, healthcare and

veterinary medicine, as selected by villagers) which are linked specifically to the presence and protection of wildlife.

Young village warriors are becoming Lion Defenders. These defenders have fortified over 364 bomas (livestock corrals), preventing attacks on over 16,145 head of livestock.

Since conflict mitigation work began, there has been a 90% reduction in carnivore killings in key villages around Ruaha.

Camera trapping initiatives in 12 villages employ 24 officers and have provided over \$190,000 in community benefits in healthcare, veterinary medicine and education since 2014.

Many local people are unaware of why Ruaha is so important for large carnivores in particular, and what strategies they can use to improve human-wildlife coexistence. We use a variety of approaches, including educational park trips, DVD nights, and engagement with local warriors to increase local knowledge of wildlife, increase empowerment, and therefore improve attitudes and reduce conflict with wildlife.

Over 1,400 local villagers living outside Ruaha National Park have now visited the park through trips led by the Ruaha Carnivore Project. Surveys show an increase in carnivore interest and knowledge, and a positive attitude about the park and large carnivores from local visitors.

MONDIKA GORILLAS

The Mondika Gorilla Project is helping to protect one of the last strongholds of the Critically Endangered western lowland gorilla. Efforts are underway to add over 24,000 acres of important gorilla forest habitat to the neighboring national park.

The Congo Basin's Sangha Tri-National region is a UNESCO World Heritage Site comprising protected areas (including Nouabalé-Ndoki National Park, or NNNP) and large multi-use concessions. The region includes some of Central Africa's most expansive remaining Intact Forest Landscape (IFL) and is home to the majority of the world's western lowland gorilla and central chimpanzee populations.

Since 1999, the Goulougo Triangle Ape Project (GTAP) has successfully implemented a multi-faceted program in and around NNNP. This project includes documenting behavior and ecology, monitoring great ape health, and examining

ape population dynamics within the changing conservation landscape of the Congo Basin.

The Mondika Gorilla Project, part of the GTAP, is focused on great ape conservation in one of the last intact forest landscapes outside of NNNP – the 24,710 acre Djéké Triangle. The Mondika Gorilla Project's goals include improving the status of African apes through applied conservation, sustained employment for Congolese nationals and local capacity building efforts.

The project's research on great ape distribution and resource needs is also being used to identify and lobby for increased protection of critical resources and habitat. The Djéké Triangle, where the Mondika Gorilla Project is located, is in the Kabo logging concession. The

concession is adhering to Forest Stewardship Council (FSC) certification and is designated as a "conservation set-aside area" that is currently sparing the region from timber exploitation.

The project is now compiling information to lobby for the increased protection of this important landscape as a fully protected area. Not only is this region the last remaining Intact Forest Landscape located outside of the NNNP, it is the site of one of the longest running gorilla research and conservation projects in all of Africa. Efforts to protect this area will also demonstrate the importance of the site for tourism and sustainable employment of local indigenous people.

HUMBOLDT PENGUINS



Approximately half of all Peruvian Humboldt penguins call Punta San Juan home. The incredible productivity of the Humboldt Current also makes Punta San Juan a key site for Guanay cormorants, Peruvian pelicans, Peruvian boobies, Inca terns, Belcher's gulls, snowy egrets, black oystercatchers, and kelp gulls, as well as fur seals, sea lions, dolphins, whales and orcas.

It is estimated that there are approximately 30,000 Humboldt penguins, found only along the rugged Pacific coasts of Peru and Chile. Approximately half of all Peruvian Humboldt penguins call Punta San Juan home.

In 2009, Punta San Juan was incorporated in the Peruvian Protected Areas System, marking the first formal declaration of protection of marine waters in Peru. The project is protecting this breeding area and overseeing the transition from a guano reserve to a protected marine reserve.

The Humboldt Current System that runs past much of this coast is a major upwelling system that gives rise to one of the most productive marine ecosystems in the world.

Because of this productivity, Punta San Juan is also one of the world's most important breeding sites for Guanay cormorants, Peruvian pelicans and Peruvian boobies. It is home to large populations of fur seals and sea lions, as well as Inca terns, Belcher's gulls, snowy egrets, black oystercatchers and kelp gulls.

Other common marine mammal species in this high-biodiversity area include marine otters, humpback whales, sperm whales, common dolphins, dusky dolphins, bottlenose dolphins and orcas.

A critical threat to the penguins comes from overharvesting of guano for organic fertilizer in the birds' primary nesting area. Protocols established in Punta San Juan on sustainable guano harvests, without negatively affecting the penguins, are being adapted at 33 other Humboldt penguin sites.

Because 2018 was one of the lowest years for chick production, studies are currently being conducted to see which penguin nests offer the greatest reproductive success. Observers monitor and document nest occupation during the breeding season, logging how many types of nests there are, which are occupied, which nests adults select, and if they are successful in having a chick or not. Information from this study indicates which nests are successfully selected for reproduction and allows for increased protection of critical nesting areas.



AFRICA'S GIRAFFES

The Giraffe Conservation Foundation (GCF) is the only NGO in the world that concentrates solely on the conservation and management of giraffes in the wild throughout Africa, currently working on conservation initiatives in 15 African countries.



The Giraffe Conservation Foundation's objective is to raise awareness and support towards securing a future for giraffes and the conservation of their habitat in Africa. All work is science-based and provides innovative approaches to saving giraffes by identifying key threats and solutions, cooperating with communities, and collaborating with local, national, and international partners on conservation efforts in the best interest of giraffe conservation in African range states.

In the 1980s, there were indications that giraffes numbered more than 155,000 individuals across Africa, but today, GCF estimates that the total population is approximately 111,000 individuals. While that indicates an almost 30% drop in the population, the numbers are less startling than previously thought. In 2016, the IUCN Red List assessment indicated that there were fewer than 100,000 individuals left – so while the numbers are still down overall, this improved data gives GCF actual population numbers to work with.

While on the surface it looks like this is a success, in some areas previously regarded as prime giraffe habitat, numbers have dropped by 95% in the same period. This is where GCF comes in. In order to develop the baseline for giraffes across Africa, GCF began by compiling

historical and current data on giraffe numbers, their distribution and threats from across their range over a decade ago.

Because giraffes are one of the most recognizable charismatic African megafauna, they are considered a critical tourism attraction and economic draw for the range countries. In order to reinforce that value, GCF works with local communities in a number of ways to ensure giraffe populations for years to come.

Woodland Park Zoo has been working in collaboration with GCF to focus on long-term ecological monitoring efforts on the desert-dwelling Angolan giraffe in northwestern Namibia. Part of this ongoing monitoring includes the collaring of 20 giraffes with newly designed GPS satellite solar units for tracking, and over 360 Angolan giraffes have been individually recorded in the project area.

In addition, the zoo supports the Khomas Environmental Education Programme (KEEP), which is an interactive environmental education program for students in the 3rd and 4th grades. The program shares a strong value message with students, that we are part of nature even when living in a city, challenging them to become teachers in their own homes.

WILDLIFE SURVIVAL PROGRAM

Woodland Park Zoo currently supports 18 Wildlife Survival Program initiatives around the world. These include red panda conservation in Nepal, protection of mountain gorillas in Africa's transboundary Virunga Mountains and conservation of the Bali myna songbird.



Woodland Park Zoo has over 300 species in our care. These species are the very foundation of the organization's ability to reach and exponentially increase its overall conservation impacts, and help create a social movement for conservation.

Wildlife Survival Programs are a critical part of the organizational strategy to achieve successful conservation. We support the best possible on-the-ground conservation projects that successfully remove threats to the wildlife that are also exhibited at the zoo. The animals in our care are ambassadors for their wild relatives, helping us tell stories of successful conservation in their native land.

We support conservation efforts to save southern river terrapins and Asian giant softshell turtles, colobus monkeys in Kenya, sloth bears in India, Komodo dragons in Indonesia, lemurs in Madagascar and Steller's sea eagles in Russia.

Wildlife Survival Program activities also directly involve Woodland Park Zoo staff. Our zoo staff regularly travel to and work on Survival Program field initiatives across Asia, Africa and Latin America. We provide strategic and technical assistance as well as hands-on field work support to help save these species in the wild.

Woodland Park Zoo also participates in a captive breeding and reintroduction program for Tahiti's Critically Endangered *Partula* snail, helping to bring the species back from near-extinction.

WILDLIFE SURVIVAL FIELD INITIATIVES



RED PANDA NETWORK

For the second time in 20 years, red pandas have regressed from Vulnerable to Endangered status. That means that without extensive and targeted conservation efforts, red pandas may become extinct in the wild. The major drivers of this decline are poaching, habitat loss and the illegal red panda pet trade.

The Red Panda Network is working to ensure the survival of wild red pandas and preserve their habitat in Nepal, India, China, Bhutan and Myanmar. The Red Panda Network's conservation programs now extend to over 50% of Nepal's red panda population and range. One hundred fifty local Nepalese people have been trained in anti-poaching investigation techniques. They now patrol over 76,000 acres, resulting in a 65% reduction in the presence of traps and snares since 2015.

BALI MYNA

Endemic to the island of Bali, there may be only 50 wild Bali myna left. A focused captive breeding program is beginning to bring this songbird back. Through the Silent Forest: Asian Songbird Crisis program, captive-bred Bali myna are being released in an effort to rebuild the wild population.

On the island of Bali, small populations are known to exist only in Bali Barat National Park. With an extremely small range, and such a tiny wild population, this bird is facing the threat of extinction from illegal poaching for the cage bird trade. Captive breeding efforts have helped

to bring the Bali myna back from the brink of extinction – it was possible that no birds were left in the wild as recently as 2006. Today about 50 wild mynas are known to inhabit the park.

Another captive breeding effort has resulted in about 65 birds released on nearby Nusa Penida Island (not a part of the Bali myna's original range). At least 62 chicks were reported to have fledged in the wild up to 2011, with evidence that a population still survives there.

A major radio-tracking project is taking place to monitor post-release birds by a PhD and Indonesian students, and another study is upcoming to determine the breeding productivity of the wild population. These projects will help to inform and refine conservation efforts to save this threatened species.

CHACOAN PECCARY PROJECT

Once believed to have been extinct, the Chacoan peccary was re-discovered in the early 1970s. Living mainly in the hot, arid Chaco scrublands of Central South America, it is one of the few large mammals discovered by scientists since 1900. Of the three species of peccary, the Endangered Chacoan peccary is the rarest and most vulnerable to human disturbance. Estimates put the current population at around 3,200.

Currently there are 70 Chacoan peccaries in the on-site captive breeding population at the El Centro Chaqueño Parla Conservación e Investigación (CCCI) Reserve, with good reproduction that led to 15 newborns in 2018, all in good health. Woodland Park Zoo Curator Martin Ramirez participated in the July 2018 field exam program to assess the health of the peccaries.

The program has a unique citizen science opportunity – a digital museum dedicated exclusively to recording the Chaco's biodiversity. Visitors are encouraged to send photos of plants and animals in the Chaco to the project through their website.

WILDLIFE SURVIVAL CAPTIVE BREEDING & REINTRODUCTION



PARTULA SNAIL REINTRODUCTION

Most species of native *Partula* tree snails from French Polynesia were driven to extinction through predation by the invasive, carnivorous rosy wolf snail. Some of the species were rescued by the international zoo community before they disappeared.

The endangered snails are being held in 15 American and European zoos, where they are being bred in an effort to re-establish those species in the wild. Woodland Park Zoo raises *Partula nodosa*, a Tahitian species that is currently extinct in the wild.

In 2018, six species of snail were released onto Tahiti and Moorea islands in protected reserves. 2019 saw Woodland Park Zoo's first snails released back to their native habitat. To date, populations of 11 species of *Partula*, and one subspecies, have been released at around a dozen locations on three of the Society Islands.



AMPHIBIAN ARK

The northern pool frog became extinct in the United Kingdom in 1995 as a result of habitat loss, habitat fragmentation and changes in land management. Ten years later, in 2005, a reintroduction program was undertaken by Amphibian and Reptile Conservation (ARC) Trust and Natural England to an undisclosed site in eastern England. Frogs were wild-caught in Sweden and translocated to the UK. While this reintroduction appears to have been successful to date, there is still only one established population in the UK.

The ARC trust is now establishing a head-starting program for the species so that captive-reared animals can be released to reinforce and secure a second wild population in the UK. The second reintroduction site is Thompson Common, which is designated as a Site of Special Scientific Interest and a Special Area of Conservation. These designations accord the area a high level of protection.

The main aim of the Reintroduction Strategy is to restore the species to a Favourable Conservation Status by reintroducing pool frogs to a series of representative sites across their historic English range. This will help to form a robust distribution that makes the population more resilient to the potential negative impacts of climate change.

Habitat restoration measures are undertaken in parallel with species reintroductions, so that both habitat and species restoration outcomes identified under "Biodiversity 2020" (the UK Government's biodiversity strategy for England) are met.

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Woodland Park Zoo's conservation programs successfully save wildlife and wild landscapes. We do so because our well-being is inextricably linked to the well-being of the natural world. Saving the natural world is saving our planet, and our future.



OUR MISSION

Woodland Park Zoo saves wildlife and inspires everyone to make conservation a priority in their lives.

OUR VISION

Woodland Park Zoo envisions a world where everyone lives sustainably with wildlife and their habitats