A Continuous Commitment

Creating a sustainable future for wildlife and for people around the world
The Need for Conservation Never Takes a Day Off

We are dedicated to conserving and caring for animals. This commitment has never wavered — not even in light of COVID-19. The pandemic certainly presented us with new challenges as international travel became nearly impossible, lockdowns were enforced and social distancing required us to rethink some of our fieldwork. However, with help from our conservation partners, we were able to mitigate many challenges and pivot our efforts to help both animals and communities during COVID-19.
Dear Friends,

As it was with the rest of the world, 2020 was a year like no other for the Saint Louis Zoo WildCare Institute.

January started out strong with the release of 15 critically endangered addax antelope in Chad. We awarded nine grants to Zoo employees to participate in conservation work across the globe, including Armenia, Ecuador, Kenya, the Pacific Islands, Peru and Sumatra. Six additional Zoo employees went to the remote area around Laisamis in northern Kenya to participate in the biennial Grevy’s zebra census, known as the Great Grevy’s Rally. The Saint Louis Zoo was one of only two zoological institutions that sent a representative to the 2020 Biennial Meeting of Parties in Longyearbyen, Norway. We were proud to have our WildCare Institute Arctic Program represented, as well as the Zoo’s commitment to polar bear conservation and climate change solutions.

Then in mid-March, the Zoo had to shut its doors to guests for 80 days. Zoo employees in Ecuador, who were there for amphibian conservation work, were called home to St. Louis, as our partners there also started COVID-19 quarantine restrictions. In St. Louis, the continuous integrated science program with the School District of University City had to go on hold as schools across the nation went to online classrooms. In Tanzania, our partners at the Ruaha Conservation Project reported record flooding compounding impacts from the pandemic.

Remarkably, however, our conservation efforts persisted.

Multiple partners shifted their skills to focus on local community health. For example, the Grevy’s Zebra Trust’s Nkirreten Project switched from making reusable sanitary napkins for girls and women to making face masks. In the Galápagos, those who had trained through the decades on wildlife health pivoted their expertise to become a COVID-19 testing site.

Malagasy master’s and Ph.D. students published papers and defended their theses. Remote learning continued with our partners in Saipan. Communication and collaboration with Native American partners persisted through online communications. There were advancements in advocacy efforts to address the wildlife trade and invasive species management.

Animal reintroduction, translocation and head-starting efforts still occurred among addax, Saharan red-necked ostrich, scimitar-horned oryx, hellbenders and American burying beetles. Field conservation research in Botswana progressed with innovative, non-invasive methods for mitigating conflict between African painted dogs and livestock farmers. Biodiversity studies and a new canid project began at the Saint Louis Zoo WildCare Park.

In closing, despite all of last year’s challenges, the conservation work of the WildCare Institute persevered. This is in large part due to the deep roots that have grounded the WildCare Institute, consisting of partnership, a devotion to wildlife and commitment. Our successes are grounded in your support, whether it is through a donation, a partnership, a collaboration or simply through the sharing of our stories. Thank you for your interest in the Saint Louis Zoo WildCare Institute and for supporting our dedication to create a sustainable future for wildlife and for people around the world.

Elizabeth Kelley, Ph.D.
Executive Director
Saint Louis Zoo
WildCare Institute

Bob Merz
Assistant Director
Saint Louis Zoo
WildCare Institute
What is a Center? What is a Program?

A Center is an initiative that has focused conservation efforts with long-term partnerships.

A Program is an initiative that is either new or smaller in scope than a center.
The WildCare Institute is comprised of Centers, each of which is focused on particular animals and habitats that need our help. We follow three key pillars to guide our conservation efforts: wildlife management and recovery, conservation science, and support of the human populations that coexist with wildlife.

**The Botswana Center for African Painted Dogs**
Through this Center’s primary partner, Botswana Predator Conservation, this Center is supporting work to minimize human/painted dog conflict, using innovative research that includes both fieldwork and chemical analyses in the laboratory. Learning more about scent marking in this species is the key to using artificial chemical signals to keep them safely inside protected wildlife areas.

**Center for American Burying Beetle Conservation**
In decline due to habitat loss and fragmentation, American burying beetles are “nature’s recyclers”; they eat dead animals and release decomposing components back into the environment. Through this Center, Zoo employees raise the threatened species at the Zoo. Then, with help from Zoo volunteers, the beetles are released into the wild, where employees monitor their progress.

**Center for Asian Elephant Conservation**
This Center and its partners focus on Asian elephant management, recovery and conservation science. Rewilding retired logging elephants in Myanmar and establishing corridor habitat in India are among ways this Center helps save endangered Asian elephants from extinction.

**Center for Avian Conservation in the Pacific Islands**
The inspiration behind this Center was the accidental introduction of the brown tree snake on the island of Guam, which devastated the island’s forest bird species. Now, this Center helps save native birds by moving them to safe islands, among other conservation efforts.

**Center for Avian Health in the Galápagos Islands**
The Galápagos Islands are home to unique species (including many species of birds) that can be found nowhere else. The growing effect of the human population and the introduction of diseases pose a threat to the wildlife on the islands. This Center helped develop the first-ever avian health program in the Galápagos.
Center for Chelonian Conservation
Headed by the Saint Louis Zoo Institute for Conservation Medicine, the Center team works to conserve turtles and tortoises by studying their health and movements. This research increases our understanding of environmental factors that affect the health of turtle populations and that may have implications for humans.

Center for Conservation of Carnivores in Africa
Africa is home to several endangered carnivores, including cheetahs, lions and hyenas. Part of conserving carnivores in Africa is helping to mitigate conflicts that arise between communities and animals. This Center works with several partners to find solutions so people can better coexist with wildlife.

Center for the Conservation of Congo Apes
This Center is an evolution of the WildCare Institute’s multi-year program support for the Goualougo Triangle Ape Project in the Republic of Congo. The ultimate goal is to develop conservation policies and local leadership to ensure the long-term survival of chimpanzees and gorillas in the Congo Basin.

Center for Conservation in Forest Park
This Center utilizes Forest Park in St. Louis for conservation education. The Center works to get more children outdoors, especially children in urban areas who have limited access to parks. The Center’s goal is to develop empathy in participating students toward animals and nature through activities in the park, as well as classroom visits.

Center for Ecuadorian Amphibian Conservation
Amphibians are disappearing at an exponential rate, and Ecuador ranks third in the world for amphibian diversity. This Center and its partner are working to conserve amphibians in Ecuador from extinction through field surveys, habitat protection, research and conservation-breeding programs.

Center for Conservation in the Horn of Africa
This Center plays a key role in sustaining critically endangered species in Africa, particularly Grevy’s zebra. By supporting community-based coalitions and establishing conservation, research and education programs, this Center strikes a balance between the needs of community members and the imperiled existence of rare species.

Center for Conservation in Madagascar
This Center, through its core partner, the Madagascar Fauna and Flora Group, is spearheading research on population size, demographics, health and habitat use of two critically endangered lemur species at Betampona Natural Reserve in eastern Madagascar. The results will guide a management plan that aims to prevent their local extinction through translocations of unrelated groups into the reserve.

Center for Conservation in Punta San Juan, Peru
Punta San Juan is home to the largest breeding colony of Humboldt penguins in Peru. The guano of sea birds is often harvested and sold as fertilizer, but this can negatively affect penguins. This Center conducts an annual census of penguins and participates in sustainable guano harvests.

Center for Conservation in Western Asia
Over the past 17 years, Saint Louis Zoo employees have studied Armenian vipers, which have experienced population declines due to habitat loss, livestock grazing and persecution. The Center’s research team continues to analyze the Armenian viper’s habitat use, genetic diversity and population structure both in the field and also at the Armenian Conservation Breeding Center.

Center for Native Pollinator Conservation
Pollinators are critical for our lives. Many mistakenly think that pollinators will always be around. However, our actions of altering pollinators’ habitats and the misuse of pesticides have impacted many species. This Center works to save pollinators by planting habitat and developing conservation and education programs.

Ron Goellner Center for Hellbender Conservation
A Missouri native, the hellbender is the largest species of salamander in North America. Over the past 40-plus years, hellbender populations have experienced a 70% decline. The Ron Goellner Center for Hellbender Conservation established a conservation breeding program to help save these unique amphibians.

Saharan Wildlife Recovery Center
This Center focuses on addressing the Sahara’s silent crisis of extinction by linking zoo expertise and resources with conservation action. Work includes using animals raised in human care to restore critically endangered species to the wild, like addax, Saharan red-necked ostrich and scimitar-horned oryx.
Fieldwork not only provides our Zoo team with the opportunity to collect important data and help save animals in the wild; it also provides opportunities for our team to see how natural environments function and deepens their appreciation for conservation and for the animals in their care. While COVID-19 required many conservation Centers to temporarily halt or modify fieldwork, the pandemic couldn’t stop us entirely!

Grevy’s Zebra Census in Kenya

Grevy’s zebra are an endangered species; it is estimated that fewer than 3,000 of these animals are left in the wild due to competition with livestock, habitat loss and climate change. To save these animals, Zoo team members representing the Center for Conservation in the Horn of Africa participated in the Great Grevy’s Rally in northern Kenya in January and February 2020.

During the Rally, scientists and citizens worked together to count the endangered zebra population.

Martha Fischer, Saint Louis Zoo WildCare Park General Curator; Tim Thier, Curator of Mammals/Antelope-River’s Edge; John Clark, Zoological Manager of the Children’s Zoo; and Children’s Zoo Keepers Jamie Lombardo, Nicole Brown, Maddison Syberg and Cora Munroe were part of a 16-member team from seven different zoos accredited by the Association of Zoos and Aquariums to survey the northernmost subpopulation of zebras in remote Laisamis in northern Kenya.

This event occurs every two years and is organized by the Grevy’s Zebra Trust, one of the WildCare Institute’s long-time conservation partners. By gathering data on the Grevy’s zebra populations, we will be in a better position to understand how to save them from extinction.

Studying Biodiversity at the Saint Louis Zoo WildCare Park

Our Zoo team is studying the native animals and plants living on and migrating through the site of the Saint Louis Zoo WildCare Park, located in north St. Louis County. The WildCare Park, anticipated to open as early as 2026, will offer both public experiences and a Conservation and Animal Science Center to help advance our wildlife conservation efforts. Data collected will allow the future WildCare Park operations to exist in harmony with native animals and plants using this land.

There are several areas of study, including health studies of aquatic turtles, as well as surveys of coyotes and foxes.

Leading the study of aquatic turtles are Zoo employees representing the Center for Chelonian Conservation, who are experts in veterinary and conservation medicine. Data collected on the turtles include: the number of turtles found (283 in 2020) and where they live on the property; the turtles’ exposure to environmental toxins, like pesticides, lead and arsenic; and the presence of infectious diseases of conservation concern. In 2020, researchers discovered that the WildCare Park ponds support a large number of turtles from a variety of different species. Some turtles use multiple ponds, moving from one pond to another and traveling long distances. Most of the species are small, such as red-eared sliders, but the snapping turtles are the most impressive, weighing up to 24 pounds.

Animal care experts have also been studying animals of the dog family, such as foxes and coyotes, through strategically placed cameras across the WildCare Park. The photos collected from these cameras tell researchers which species are present and may allow them to estimate the number of animals of each species using the property. The photos also help researchers understand which parts of the property these native species prefer. In 2020, the cameras took 32,000 photos of wildlife.

Other areas of study include birds, bats, reptiles, invertebrates and plants.

Wildlife Populations Increase and Sustainable Guano Harvests Continue in Peru

Despite COVID-19 challenges and country-wide restrictions in Peru, the Center for Conservation in Punta San Juan, Peru, and its partners were able to acquire a census of Humboldt penguins, Peruvian fur seals and South American sea lions at Punta San Juan. Happily, the animals’ numbers are at the highest they’ve been in the last four years, with 1,256 Humboldt penguins, 2,004 Peruvian fur seals and 5,332 South American sea lions recorded in 2020.

Monitoring the animals’ populations helps us gauge their health and conservation status, especially for the penguins, which can be vulnerable to harvesting guano.
Rare Toad Discovered in Salinas, Ecuador

We often rely on local communities to assist us with monitoring and caring for wildlife. In 2020, local people in Salinas, Ecuador, discovered rare Guanujo stubfoot toads (Atelopus guanujo) in the wild. This is a major accomplishment; this frog was last collected in the wild in April 1988. These unique orange-brown toads have gone to Centro Jambatu, an amphibian conservation organization that partners with the Center for Ecuadorian Amphibian Conservation, to start an assurance colony for the species.

Fieldwork from Missouri to Kenya

(excrement) for fertilizer. The Center participates in sustainable guano harvests to help the penguins, and was able to do so in 2020, with some safety modifications. Prior to entering the Punta San Juan National Reserve, the 100 guano harvest workers showed their rapid tests for the COVID-19 virus, and everyone wore masks and practiced social distancing while working.

Monitoring Great Apes in the Republic of Congo

As COVID-19 spread, wearing masks and social distancing became the norm. Fortunately, partners of the Center for the Conservation of Congo Apes that are studying habituated western lowland gorillas in northern Republic of Congo were already familiar with these practices. Apes can be susceptible to human illnesses, and our partners have been implementing preventative health and safety measures for several years to reduce the possibility of disease transmission between humans and wild ape populations. Due to COVID-19-related challenges, a new team was asked to assist with field monitoring at Mondika Gorilla Tracking to ensure the well-being of habituated gorillas. The team readily accepted this important task and learned an expansive network of forest trails and gorilla groups at Mondika. While these team members have extensive experience in implementing health and safety protocols, working in a different forest with new groups of apes is challenging. Thanks to the dedication of the field teams, chimpanzees and gorillas have been safely monitored at field sites during the pandemic. In all, 34 gorillas are being habituated and/or monitored by our partners in Congo.

2020 Numbers at a Glance

34
Gorillas habituated/monitored by Congo partners

1,256
Humboldt penguins counted in 2020

32,000
Photos of wildlife taken for the WildCare Institute Canid Conservation Initiative

1988
The last time the rare Guanujo stubfoot toad (Atelopus guanujo) was discovered in the wild, before a local partnering Ecuadorian community discovered it in Salinas in 2020
Restoring Ecosystems Through Reintroductions

Animal care is the heart of what we do. Part of that care sometimes entails raising animals in human care, then releasing them to the wild so they can help re-establish their wild populations and bring balance to their local ecosystems.

American Burying Beetles Released In Southeast Missouri

The Saint Louis Zoo is a world leader in caring for American burying beetles. As of 2020, the Zoo’s colony has produced over 13,000 beetles. And for the last nine years, the Center for American Burying Beetle Conservation has reintroduced them to their native Missouri habitats, with an additional 19 years of surveying for them in the wild. In June 2020, Bob Merz, Associate Director of the WildCare Institute; Invertebrate Keeper Renée Hazen; and Bird Keeper Melissa Miller were joined by the U.S. Fish and Wildlife Service and released 97 American burying beetles at Taberville Prairie. All beetles were provisioned with a dead quail and buried in underground chambers where they will raise their young. Due to COVID-19 social distancing requirements, everyone drove separately, remained socially distant on the three release sites and wore masks when they were in close proximity.

Critically Endangered Addax Antelope Reintroduced in Chad

The large white addax antelope now numbers fewer than 200 in the wild. In 2020, the Saharan Wildlife Recovery Center and its partners worked to reintroduce addax to the wild in Chad using animals raised in human care from UAE. Fifteen satellite-collared addax were released in January 2020; the collars help animal care experts track the addax once released. An additional 25 addax were released in July 2020. Because of the pandemic, the team responsible for collaring these 25 animals was unable to enter the country. Ultimately, the decision was made to release these animals without collars, while grazing conditions were still favorable. Despite the lack of telemetry to help locate this second cohort, the Chadian monitoring team has done an admirable job of tracking their movements as they explore and mingle with the first cohort released. With calving underway, the number of wild addax is now at 54 and growing in this region of Chad. A third release of 25 more collared animals is planned for October/November 2021. The monitoring of these re-wilded addax is supported in part by a generous anonymous donation to the Saharan Wildlife Recovery Center.

Over 1,000 Hellbenders Released Into Native Ozark Rivers

Behind the scenes at the Saint Louis Zoo’s Charles H. Hoessle Herpetarium is a 32-foot-long, man-made Missouri stream for breeding hellbenders. Zoo employees representing the Ron Goellner Center for Hellbender Conservation breed groups of adult hellbenders and head-start the young hellbenders for their eventual release into Missouri rivers, their native home. In 2020, over 1,000 Ozark and eastern hellbenders were released in Missouri river systems. The animals were released by the Missouri Department of Conservation, in cooperation with the Zoo and U.S. Fish and Wildlife Service. To ensure social distancing, the animal transfers from our Zoo team to the Missouri Department of Conservation herpetologist occurred in open-air parking lots. Crews releasing hellbenders also were reduced and limited to two individuals per boat. Since 2008, more than 8,600 Zoo-raised endangered hellbenders (664 eastern and 7,977 Ozark) have been reintroduced to the wild in Missouri.

2020 Numbers at a Glance

13,000 American burying beetles produced at the Saint Louis Zoo

97 American burying beetles released in southeast Missouri

40 Addax reintroduced in Chad

1,000 Hellbenders released into native Ozark rivers
When the pandemic hit, we knew there would be an impact on wildlife conservation efforts. We also knew the pandemic would have a dramatic effect on the communities that coexist with wildlife. Helping them mitigate COVID-19 economic and health issues has been critical. Our Centers and partners were able to mitigate several pandemic-related challenges through ingenuity, years of dedicated partnership and sheer tenacity.

**STAYING CONNECTED VIRTUALLY**

**WildCare Virtual Happy Hours**

In this era of social distancing, remaining connected has never been more important. Throughout 2020, we hosted four virtual happy hours and invited guests age 21 and older to join us. As attendees sipped their adult beverage of choice, Zoo employees representing different Centers shared stories about animals and conservation work. These engaging happy hours covered a variety of topics, including Humboldt penguin censuses in Peru, helping provide communities in Madagascar with a stable source of food and the wonderfully weird characteristics of American burying beetles. These happy hours were recorded and are viewable at stlzoo.org/happyhours.

**Promoting Bird Conservation in the Pacific Islands via Virtual Education**

A top priority to help native birds in Saipan is to reach public school teachers and students and encourage the birds’ conservation through education initiatives. To reach students in a COVID-19 world, the Center for Avian Conservation in the Pacific Islands and its partners created virtual programs for K-12 students. These virtual programs focused on aspects of ecological and basic bird awareness. Another focus was using community science apps that allow the students to contribute by sharing their observations of birds, thus helping scientists with bird censusing.

**Encouraging Tree Regrowth in the Pacific Islands**

In 2015 and 2018, Super Typhoons Souledon and Yutu, respectively, caused widespread devastation in the Northern Mariana Islands, including the widespread loss of trees and other vegetation. Keri Lammering, Saint Louis Zoo Conservation Education Liaison, was able to collaborate virtually with the Micronesia Islands Nature Alliance (MINA) to discuss any support that the Center for Avian Health in the Pacific Islands could provide to help tree regrowth. The Center was able to help with MINA’s Bring the Trees Back campaign, which supports native tree plantings around the areas that were most heavily impacted by the typhoons. MINA discovered that early tree plantings were trampled by beachgoers and run over by vehicles. The Center was able to help install new fencing to help protect new tree plantings. To date, 697 trees have been planted at 13 different sites on Saipan.

**HELPING COMMUNITIES STAY HEALTHY AND OVERCOME CHALLENGES**

**Creating Reusable Face Masks for Communities in Kenya**

Face masks have become a health necessity during the pandemic. Team members of the Grevy’s Zebra Trust, a principal partner of the Center for Conservation in the Horn of Africa, pivoted from making reusable sanitary pads to making face masks for communities in Kenya. The Grevy’s Zebra Trust’s Nkirreten Project usually makes reusable sanitary napkins for girls and women in Samburu using zebra-striped material. In March 2020, the Trust’s seamstresses pivoted quickly from producing sanitary pads to producing reusable cloth masks, which are given away free. The masks are given to Grevy’s Zebra Trust team members and their families, as well as to elderly and vulnerable people in the communities. In addition to the 5,000 masks sewn and distributed, the seamstresses were also able to make 600 reusable sanitary napkins.

**Viruses and Vaccinations in Madagascar**

Madagascar has the dual distinction of being one of the poorest nations in the world, while also one of the most biologically diverse. The economic hardships from Madagascar’s COVID-19 lockdown were disproportionately felt by the poor. Endangered species, killed for bushmeat, were also among its victims. Well before COVID-19, the Center for Conservation in Madagascar contributed to a program aimed...
Helping to Improve Food Security for Native Tribes via Pollinator Conservation

Throughout 2020, the Center for Native Pollinator Conservation continued to prioritize the Native Foods, Native Peoples, Native Pollinators initiative, which helps develop pollinator-related programs suited to the desires of partnering Native American nations and tribes. Examples of outreach include supplying fruit and vegetable seeds to tribes or developing education programs. Earlier in 2020, Center Director Ed Spevak, Ph.D., along with his Washington University Buder Center for American Indian Studies practicum student, Eric Pinto (Zuni/Choctaw), visited the Winnebago Tribe’s reservation in Nebraska. While there, they met with the Ho-Chunk Food Sovereignty Task Force to discuss improving food security and sovereignty and increasing pollinator habitat. They also supplied fruit and vegetable seeds to tribes and installed bee hotels around an apple orchard on the reservation. Throughout the pandemic, Dr. Spevak also collaborated virtually with representatives from various native tribes about pollinators and food production.

Adapting Conservation Efforts to a COVID-19 World

at benefiting people and wildlife by reducing pressure on Betampona Natural Reserve’s endangered species as a source of protein or income. Newcastle disease, a highly transmissible airborne avian virus, is the primary constraint on family chicken production in Africa. A Newcastle disease vaccination program targeting 12 villages was initiated in May 2018 when the average number of chickens owned by households was just over nine. That number increased steadily to an average of 23 by September 2020. Our objective was to demonstrate that vaccinations pay for themselves. Our next objective is to facilitate the cost and management of a Newcastle disease vaccination program to the communities.

Helping to Improve Food Security for Native Tribes via Pollinator Conservation

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Animal Care Experts Pivot Work and Help with COVID-19 Testing

Zoo employees representing the Center for Avian Health in the Galápagos Islands were in Ecuador in March 2020 and were sent home early due to the pandemic. The Galápagos Islands were soon on lockdown. Work soon pivoted to helping the community stay healthy during COVID-19. The first animal disease testing laboratory facility on the Galápagos Islands, the Agency for Biosecurity Galápagos, became a site for COVID-19 testing. The Zoo’s Senior Scientist and University of Missouri-St. Louis Professor, Patty Parker, Ph.D., advised the local team that conducted this work during their initial phases and training.

Cheetah Children’s Book Issued to Children with Reduced Access to Schools

Cheetah Conservation Botswana, a partner of the Center for Conservation of Carnivores in Africa, published a children’s cheetah book, “Xabe the Cheetah Hero,” which was funded by the Center. The book was produced as an adaptation in place of Cheetah Conservation Botswana’s reduced access to schools and students during the COVID-19 pandemic. It tells the tale of a young boy who rescues a cheetah cub from poachers. We hope it will inspire young people in Botswana to care for wildlife. There will be 1,250 books going to schools across the country.

2020 Numbers at a Glance

4 WildCare Virtual Happy Hours hosted
5,000 Reusable face masks made from the Grevy’s Zebra Trust’s Nkirreten Project
23 Average number of chickens owned by households participating in a Newcastle disease vaccination program (up from 9)
8 Partnering native tribes that participate in pollinator conservation efforts
Our animal care experts, scientists, researchers and partners are dedicated to solving conservation challenges. We take action by conducting research in labs, in the field, at the Saint Louis Zoo and among communities. We also strive to make our voices heard and advocate for animals and the habitats they need to survive.

**Motion Passed to Strengthen Conservation Protections in Madagascar**

Many of Madagascar’s plant and animal species, like the highly endangered lemurs, are found nowhere else in the world. Invasive species are a primary cause of biodiversity loss and degradation of ecosystem function, especially in island ecosystems. When alien species are accidentally introduced into a new ecosystem, native species could be completely wiped out. The Saint Louis Zoo co-sponsored an International Union for Conservation of Nature (IUCN) resolution, which passed at IUCN Conservation Congress 2020, to help biodiversity in Madagascar. The resolution calls upon the government of Madagascar and international invasive species specialists to take several steps to eliminate threats of invasive alien species, including government action and creating a countrywide database and reporting system.

**Scientists Study COVID Anthropause Impacts on Tortoise Health in the Galápagos Islands**

Animal care experts representing the Center for Chelonian Conservation began a study to examine COVID-19 anthropause impacts on tortoise health in the Galápagos Islands. In this case, anthropause refers to when human activity was reduced when the pandemic hit. As part of this study, researchers collected samples to assess hormonal and behavioral changes in tortoises influenced by tourist presence.

**Studying African Painted Dogs’ Scent-Marking Sites**

Camera trapping at African wild dogs’ shared scent-marking sites has given us new perspectives on these endangered, social super-predators. Botswana Predator Conservation Trust, a partner of the Botswana Center for African Painted Dogs, is placing these cameras. African wild dog social and spatial organization focuses on shared scent-marking sites, where packs advertise their occupation of home ranges, dispersers leave scent messages for potential mates and dogs that have lost their packs reunite with them. Shared scent-marking sites are used by up to six groups, and packs visit these sites multiple times daily; their most frequent activity after hunting. Some sites outline the packs that use them and may secure range boundary locations across generations. From camera trapping, behavioral scientists can study the complex interactions of various packs of painted dogs throughout the seasons.

**Planning Armenian Viper Blood Collections**

The Saint Louis Zoo has supported conservation and research in Armenia for over 17 years and is a recognized leader for its husbandry and breeding of the Armenian viper at the Charles H. Hoessle Herpetarium at the Zoo. Zoo employees representing the Center for Conservation in Western Asia are making plans to collect bloodwork from wild vipers. This bloodwork will help provide data on vipers pre- and post-brumation (a time when reptiles are dormant during low temperatures), as well as help us compare data on wild vipers versus vipers in human care at the Zoo. While this bloodwork was planned for 2020, it was postponed due to COVID-19 and is slated for 2022.

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**2020 Numbers at a Glance**

- **7** IUCN resolution co-sponsors (including the Saint Louis Zoo), aiming to prevent invasive species in Madagascar
- **52,000** Estimated number of Asian elephants in Southeast Asia in 13 range countries
- **8** Wild dog packs that our partnering organization is researching
- **17** Years the Saint Louis Zoo has supported Armenian viper conservation in Asia
Asian Turtle Conservation Program

A hot spot of turtle diversity, Southeast Asia boasts over 90 species. Many are evolutionarily distinct and highly threatened. Asian freshwater turtles are harvested unsustainably to meet demands from food, pet and medicinal trades, causing massive population declines. The Asian Turtle Conservation Program supports efforts to develop sustainable assurance colonies, focusing on species from Vietnam. The Saint Louis Zoo Department of Herpetology manages five species of Asian turtles for the Association of Zoos and Aquariums through Species Survival Plans (plans that help ensure sustainable animal populations). The Zoo also collaborates with the Turtle Survival Alliance and the Asian Turtle Program to further contribute to the conservation of these imperiled taxa.

Crocodile Conservation and Research in Cuba

Crocodiles are indicators of ecosystem health. They are both apex predators (animals at the top of the food chain with no natural predators) and habitat engineers (organisms that create, modify or maintain habitats). Working with Cuban conservation experts, this Program supports the conservation of the critically endangered Cuban crocodile, a flagship species for the conservation of the Zapata Swamp ecosystem in Cuba. With ongoing field studies, habitat conservation efforts, and conservation-breeding for population augmentation in the wild, this Program is taking a One Health approach to conservation in Cuba.

HUTAN – Kinabatangan Orangutan Conservation Programme

HUTAN, a French NGO created by Drs. Isabelle Lackman and Marc Ancrenaz, has been operating in Sabah, a Malaysian state in the northern part of Borneo, since 1998. Their primary area of operation is the lower Kinabatangan floodplain, a biodiversity hotspot, harboring a remarkable diversity of wildlife including iconic species such as the orangutan, proboscis monkey, Bornean gibbon, Bornean elephant, clouded leopard, sun bear, eight species of hornbills,

Conservation Programs

Action Indonesia

Indonesia is one of the world’s biodiversity hotspots and three of its iconic species—anoa, babirusa and banteng— are threatened with extinction. The WildCare Institute supports Action Indonesia, which was created in 2016 to ensure the long-term survival of these imperiled species in the wild and in human care. Action Indonesia formed the first ungulate Global Species Management Plans and is utilizing this unique framework to take meaningful steps to conserve these unique species.

Andean Bear Conservation Alliance

Andean bears, an important flagship species for the Tropical Andes ecosystem in South America, face a number of threats, including habitat reduction and fragmentation, and high mortality caused by anthropogenic factors. The WildCare Institute has supported the Andean Bear Conservation Alliance (ABCA) since 2012. The ABCA works to tackle conservation threats using a multifaceted approach, which includes field research to better understand bear ecology and distribution. It also uses engagement of local protected area management to establish and scale conservation plans on population monitoring and capacity-building projects.

Arctic Program

The Zoo has partnered with six Alaska Native villages to work toward a common goal of climate change mitigation and polar bear conservation/co-management. Key priorities also include education outreach and youth support, subsistence awareness, and Traditional Ecological Knowledge awareness. Zoo employees regularly travel to villages in Alaska to provide STEM (Science, Technology, Engineering and Math) and conservation-based educational programming. The Zoo also offers free distance learning programs with the villages to stay connected as much as possible throughout the year. The Zoo works with the U.S. Fish and Wildlife Service and the Alaska Nannut Co-Management Council to learn more about the status of Alaska’s polar bears and polar bear research.
conservation efforts. The Saint Louis Zoo also is a North American Songbird SAFE (Saving Animals From Extinction) program partner. The SAFE programs harnesses the collective expertise of zoos and their resources to save species and promote conservation efforts.

**Okapi Conservation**

Okapis are an elusive relative of the giraffe, native only to the Democratic Republic of Congo. The Saint Louis Zoo is dedicated to the care of okapi in zoos and in the wild. The WildCare Institute supports the Okapi Conservation Project with its work to secure a protected area for okapi in one of the most biologically diverse places on Earth, the Ituri Forest. It also supports local communities by training and equipping wildlife guards, providing community assistance (clean water, medical services, school supplies, etc.) to the people living next to the reserve, and offering conservation education.

**Partula Snail Conservation**

Partula snails once populated the South Pacific Islands, from Palau to the Society Islands, including Tahiti and Moorea. These snails, however, experienced a devastating decline when the predatory rosy wolf snails (*Euglandina rosea*) were introduced to the islands in the 1970s as a form of biological control.

In 1990, the Zoo initiated the Partula Species Survival Plan (SSP) to manage the Partula populations on a national scale, and Zoo employees continue to coordinate this plan. The WildCare Institute works closely with the International Partula Programme Conservation, coordinated by the Zoological Society of London, which is involved in breeding programs for Partula snails, in zoos around the world. Through this cooperative effort, the WildCare Institute provides funding for staff, equipment for field surveys, the construction and monitoring of predator exclusion reserves, and reintroduction efforts. The Zoo has been an active participant in reintroductions since 2015 by providing both snails raised at the Zoo and employees to assist with their reintroduction to the wild.

**Polar Bears International Program**

The WildCare Institute partners with Polar Bears International (PBI)—a non-profit organization dedicated to worldwide conservation of the polar bear and its habitat. The WildCare Institute supports PBI’s maternal den study conducted by scientists in Svalbard, Norway, to document the denning behavior of polar bear mothers that are choosing to den on land, possibly sensing that the sea ice is too unstable for their dens.

Many North American songbird populations are in drastic declines. In fact, it is estimated that we have lost approximately 2.9 billion songbirds throughout the U.S. and Canada since 1970. This Program seeks to raise awareness of the threats to songbirds, such as building collisions, free-roaming cats and light pollution, just to name a few. Zoo employees promote planting native plants that support caterpillar food sources for songbird chicks, encourage citizen science projects to aid in valuable research that helps support songbird conservation, and develop critical partnerships that will amplify conservation efforts. The Saint Louis Zoo also is a North American Songbird SAFE (Saving Animals From Extinction) program partner. The SAFE programs harnesses the collective expertise of zoos and their resources to save species and promote conservation efforts.

**North American Songbird Program**

### Okapi

Image of Okapi

### Partula snail

Image of Partula snail

### Polar bear

Image of Polar bear

### Northern cardinal

Image of Northern cardinal

and a wide array of other primates, birds, and more incredible animal and plant life. HUTAN staff operate in many projects, including the orangutan research unit, elephant and hornbill conservation teams, swiftlet recovery group, reforestation unit, wildlife survey and protection teams, and environmental education programs. All of these projects research and conserve wildlife, as well as work with people and industries to foster peaceful sharing of the habitats. The WildCare Institute began supporting HUTAN with the opening of the Donn and Marilyn Lipton Fragile Forest and provides integral core program support, plus funding to help with primate surveys and monitoring orangutan corridor use including by bridges over manmade tributaries of the Kinabatangan River.

**Conservation Programs**
The black rhinoceros is critically endangered with approximately 5,000 black rhinos remaining in the wild. The greatest threat to black rhinos is illegal poaching for their horns, which are in demand for traditional medicine in Asia. The horns are sold illegally on the black market and are currently valued to be worth more than gold pound for pound—even though rhino horn is made of keratin, the same protein that makes up hair and fingernails. The WildCare Institute supports conservation initiatives for the black rhino in Kenya and Zimbabwe. New waterholes and solar-powered water pumps have been installed in the Northern Rangelands Trust’s Rhino Sanctuary in the Sera Conservancy in northern Kenya. Here, anti-poaching teams and rhino monitoring rangers protect the black rhinos that were reintroduced to the sanctuary in 2015. In Zimbabwe, the WildCare Institute supports the International Rhino Foundation’s Stop Poaching Now initiative by purchasing equipment, such as binoculars, cameras and GPS devices, to support black rhino conservation and anti-poaching efforts.

Save the Tasmanian Devil Program

The Tasmanian devil was once common throughout the island state of Tasmania; however, the species has experienced a rapid decline since the 1990s due to the rare devil facial tumor disease that has spread throughout the population. The Save the Tasmanian Devil Program (STDP) was established in 2003 by the Tasmanian government in response to the rapid decline of the animals. The STDP joined forces with universities and zoos worldwide in their effort to halt the effects of this disease. The WildCare Institute has provided financial support to the STDP since 2015. The Zoo has had ambassador devils in its care since 2016. These charismatic ambassadors help raise awareness about the challenges facing wild Tasmanian devils.

Spring Peeper Program

Based on a national study, there is an estimated 2 to 3% decline in frog and toad populations across the Midwest, which began in the 1990s. Observations from local frog and toad community science projects indicate a possible absence or decrease of three members of the hylidae family (spring peepers, chorus frogs and cricket frogs) within the area of St. Louis. This Program’s goal is to identify, maintain and increase current urban populations of these three local frog species via crowd-sourced monitoring and focused acoustical surveys to track frog populations.

Conservation Council

The role of the Conservation Council is to provide the Saint Louis Zoo WildCare Institute with greater insight and understanding of the conservation issues being addressed by the Zoo, and to develop stronger advocacy among the Zoo’s boards for its conservation mission. The Council also provides financial oversight to the WildCare Institute budget. We thank these members for their service.

Patrick J. Moore, Chair
Caryl Flannery, Vice Chair
Michael Abbene
Erica Agnew
Jeff Deemerath
Marguerite Garrick
Judith A. Harris
Steve King
Katie Lineberry
Matt MacEwan
Charlie Merz
Stan Niemann, DVM
Mike Polletti
Jason Sapp
Thomas Tyler
Virgil Van Trease
Mercedes Vasquez
Tina VonderHaar
Susan Williams

A Gift to Help Conserve African Painted Dogs

In 1995, Donald Slavik founded The Donald Slavik Family Foundation because he believed that living in peace with our natural world was the most important thing we as humans could do. In 2020, that ethos led to a $100,000 investment by the foundation into the Botswana Center for African Painted Dogs, whose central partner, the Botswana Predator Conservation Trust, works to minimize livestock predation by African painted dogs and other African carnivores.

Compared to other predators in Africa, painted dogs have a very complex scent marking behavior. When a pack approaches another’s territorial markers, they do not cross each other’s bio-boundary. Through the support of The Donald Slavik Family Foundation, the Center has been able to expand an innovative approach that combines two different scientific disciplines—behavioral ecology in the field with the principles of chemistry in the laboratory—to create a solution that will dramatically reduce the threat of human and wild dog conflict. According to Lisa Kelley, Ph.D., Executive Director of the Saint Louis Zoo WildCare Institute, “Conflict with humans due to fears that their livestock will be killed is the biggest threat for this endangered canid. The African Wild Dog Bio-boundary Project could be the catalyst to save this species for the future.”

The daughter of Donald Slavik, Susan Williams, serves as the foundation’s trustee, along with her husband, Felix Williams. Susan has previously served on the Saint Louis Zoo Association Board of Directors, and she and Felix have been advocates for the Saint Louis Zoo for many years. “We are so fortunate that Susan, Felix and The Donald Slavik Family Foundation share the same values and beliefs of the Saint Louis Zoo – that a world without wildlife is not one worth living in,” says Jeffrey Bonner, Ph.D., Dana Brown President & CEO.

The Saint Louis Zoo is grateful to The Donald Slavik Family Foundation for its support on our efforts to save this beautiful and unique canid species.
The Saint Louis Zoo WildCare Institute has five primary funding sources, shown here.

**Endowment: 54%**
This amount is the harvest from the endowment that was created in 2003 by a $16,000,000 gift from the Saint Louis Zoo Friends Association (now the Saint Louis Zoo Association). An additional anonymous $100,000 gift, plus unspent WildCare Institute funds from the first four years of the organization’s operations, have been added to the endowment. Additional gifts from generous individuals have allowed the endowed pool to grow, including the Guinn Cheetah Fund, Dexter Conservation Field Work Fund and Hecker Conservation Fund. As of December 31, 2020, the WildCare Institute endowment has grown to over $30 million.

**Charitable Gifts: 29%**
Donations fund over one quarter of the WildCare Institute’s wildlife conservation efforts. While some of these donations are unrestricted, many support specific Centers and projects. These generous donors are listed separately in the 2020 Honor Roll section of the report. Funding comes from private individuals and organizations.

**Mary Ann Lee Conservation Carousel: 10%**
Proceeds from this attraction help support Saint Louis Zoo WildCare Institute conservation initiatives in the U.S. and around the world. We are forever grateful for Mary Ann Lee’s generosity.

**Change for Conservation: 4%**
Our Change for Conservation program offers Zoo guests an opportunity to donate a dollar or more to support conservation with select purchases.

**Grants: 3%**
The Zoo is fortunate to partner with government and private organizations that support our conservation efforts through grant funding, including the Missouri Department of Conservation’s ongoing support for our hellbender and American burying beetle conservation efforts.

**Expenses**

**Conservation Activities: 73%**
A majority of the WildCare Institute budget goes to direct support for conservation activity in the field, or is directly related to the field. This covers not only the Centers’ individual budgets but also includes any projects approved through Field Conservation or Field Research Conservation Grants. Field Conservation and Field Research Conservation Grants are competitive grants that provide additional support for conservation projects in the field and are eligible to any partner that collaborates with a WildCare Institute Center or Program. Conservation membership and range-country community engagement programs are also included in this category.

**Salaries and Fringe Benefits: 21%**
This is the cost of salaries and fringe benefits (including pension, FICA, and insurance) associated with WildCare Institute employees.

**Consulting: 3%**
Several Centers, such as the Center for Conservation in Madagascar and the Saharan Wildlife Recovery Center, provide financial support to contract employees, who serve leading roles in managing in-range wildlife conservation research.

**Travel: 2%**
Cost of travel to field site locations and conservation meetings.

**Other: 1%**
Includes cost of postage, satellite telephones and some small field equipment.

The Foundation has been a generous supporter of the Saint Louis Zoo WildCare Institute and the Ron Goellner Center for Hellbender Conservation since 2013, providing more than $725,000 to this conservation project. “The Center is the first in the world to successfully breed hellbenders in human care. Since the Foundation began its investment in our efforts, the Center team has released 8,633 hellbenders back into their native Missouri water systems,” said WildCare Institute Executive Director Lisa Kelley, Ph.D.

Andrew "Andy" S. Love, Jr. is the lead member of the Board of Governors of the Foundation and has been a Zoo supporter and advocate through the decades. Andy’s grandfather, Edward K. Love, was a sportsman, financier and one of the early members of the Missouri Conservation Commission, later renamed the Missouri Department of Conservation. He established the Edward K. Love Conservation Foundation in 1938 to aid in the protection and conservation of wildlife in Missouri.

The Foundation is recognized at the Zoo with the Edward K. Love Conservation Foundation Cypress Swamp exhibit in the 1904 World’s Fair Flight Cage and was the recipient of the Saint Louis Zoo Award in 2004. We are deeply appreciative of the support of Andy Love and the Edward K. Love Conservation Foundation.
Center Partners

Botswana Center for African Painted Dogs
Botswana Predator Conservation Trust

Center for American Burying Beetle Conservation
Missouri Department of Conservation
The Nature Conservancy
U.S. Fish and Wildlife Service

Center for Asian Elephant Conservation
International Elephant Foundation
IUCN Asian Elephant Specialist Group
AZA Asian Elephant Saving Animals From Extinction Program
Smithsonian Conservation Biology Institute
Wildlife Trust of India

Center for Avian Conservation in the Pacific Islands
Association of Zoos and Aquariums
Commonwealth of the Northern Mariana Islands' Division of Fish and Wildlife
Pacific Bird Conservation
U.S. Fish and Wildlife Service

Center for Avian Health in the Galápagos Islands
Agency of Biosecurity for Galápagos
Charles Darwin Foundation
Galápagos National Park
University of Missouri-St. Louis
Zoological Society of London

Center for Chelonian Conservation
Charles Darwin Foundation
Ecology Project International
Galapagos Conservation Trust
Galapagos National Park Directorate
Houston Zoo
Universidad Complutense de Madrid
Universidad Europea de Madrid
Max Planck Institute for Animal Behavior
Forest Park Forever
Little Creek Nature Area Ferguson-Florissant School District
Principia School, Town and Country
Tyson Research Center, Washington University in St. Louis
Wildlife Rescue Center – St Louis
Saint Louis University Department of Biology
Washington University in St. Louis
Turtle Survival Alliance
Wildlife Conservation Society

Center for Conservation of Carnivores in Africa
Cheetah Conservation Botswana
Cheetah Conservation Fund-Namibia
Lion Landscapes-Ruaha Carnivore Project - Kenya/Tanzania
Range Wide Conservation Program for Cheetah and African Wild Dogs
Tanzania Carnivore Center
Tanzania National Parks Association
Tanzania Wildlife Research Institute
Wildlife Conservation Society
Zoological Society of London

Center for Conservation of Congo Apes
Goualougo Triangle Ape Project

Center for Conservation in Forest Park
Forest Park Forever
St. Louis Department of Parks
The School District of University City

Center for Ecuadorian Amphibian Conservation
Fundacion Jambatu
Missouri Botanical Gardens
Universidad Tecnológica Indoamérica

Ron Goellner Center for Hellbender Conservation
Arkansas Game & Fish
Missouri Department of Conservation
Ozark Hellbender Working Group
U.S. Fish and Wildlife Service

Center for Conservation in the Horn of Africa
AZA Giraffe Saving Animals From Extinction Program
Grevy's Zebra Trust
Houston Zoo
Ishaqbini Hirola Community Conservancy
IUCN Antelope Specialist Group
Kalama Community Wildlife Conservancy
Kenya Wildlife Service
Laikipia Forum
Lewa Wildlife Conservancy
Marwell Wildlife
Mpala Research Centre
Northern Rangelands Trust
Princeton University
Ruko Community Wildlife Conservancy and Giraffe Sanctuary
Sera Wildlife Conservancy and Rhino Sanctuary
Wild4 Me
WildBook
Wildlife Direct

Center for Conservation in Madagascar
Association Vahatra
Atsinanana Region, Madagascar
Centro de Investigación en Biodiversidad e Recursos Genéticos CIBIO/InBio
Critical Ecosystem Partnership Fund
Durrell Institute of Conservation and Ecology, Kent University
Global Environment Facility
IUCN Environmental Law Centre
IUCN Invasive Species Specialist Group
IUCN SOS Lemurs
Madagascar Fauna and Flora Group
Mahalana
Madagascar Institute for Conservation of Tropical Environments
Madagascar National Parks
Madagascar Voakajy
Ministry of the Environment and Sustainable Development, Madagascar

Principia School, Town and Country
Tyson Research Center, Washington University in St. Louis
Wildlife Rescue Center – St Louis
Saint Louis University Department of Biology
Washington University in St. Louis
Turtle Survival Alliance
Wildlife Conservation Society
### Center Partners

Native tribes such as the Ho-Chunk/Winnebago Tribe and Omaha Nation, Confederated Salish and Kootenai Tribes of the Flathead Nation, Meskwaki Department of Natural Resources, the Thunder Valley Community Development Corporation, Keweenaw Bay Indian Community, and Quapaw Nation

Nebraska Indian Community College

Ogala Lakota Tribe

Pawnee Nation College

Seed Savers Exchange

St. Louis Art Museum

St Louis Audubon Society

The City of St. Louis and local communities

The Nature Conservancy

Yellowstone to Yukon Conservation Initiative

### Center for Conservation in Western Asia

Detroit Zoo

Los Angeles Zoo

Ministry of Nature Protection-The Republic of Armenia

Missouri Botanical Garden

Republican Veterinary-Sanitarian and Phytosanitary Center of Laboratory Service (SNCO)

Scientific Center of Zoology and Hydroecology of the National Academy of Sciences of Armenia

Sedgwick County Zoo

The Scientific Center of Zoology and Hydroecology of the National Academy of Sciences of Armenia

Toledo Zoo

World Wildlife Fund-Armenia

### Honor Roll

Charitable gifts and grants received from generous donors in 2020 in support of the Saint Louis Zoo WildCare Institute to be utilized immediately or in the future.

### Major Gifts

- **$49,999 – $25,000**
  - Mr. & Mrs. Gabriel Ferguson
  - Mr. Chris G. Zacher
  - Phillip & Tiffany Zacher
  - Mr. & Mrs. Roger C. Zacher
  - Ms. Lynn Zacher-Davis & Mr. Dennis Davis

- **$24,999 – $10,000**
  - Mrs. Ann L. Case
  - Chicago Zoological Society
  - Mrs. Karen A. Goeliner
  - Mrs. Patricia G. Hecker
  - Mr. Charles J. Hess
  - Kansas City Zoo
  - Mr. Steven B. King
  - Mr. & Mrs. Roger C. Zacher
  - Mr. & Mrs. William Forsyth
  - Mr. & Mrs. Virgil VanTrease

- **$10,000 & Above**
  - Ms. Martha R. Kratzer
  - Kaye Campbell-Hinson & Anonymous – 2
  - Ms. Patricia Taillon-Miller
  - Roland & Marylyn Schiller

### Special Gifts

- **$49,999 – $25,000**
  - Mr. & Mrs. Gabriel Ferguson
  - Mr. Chris G. Zacher
  - Mr. & Mrs. Roger C. Zacher
  - Ms. Lynn Zacher-Davis & Mr. Dennis Davis

- **$24,999 – $10,000**
  - Mrs. Ann L. Case
  - Chicago Zoological Society
  - Mrs. Karen A. Goeliner
  - Mrs. Patricia G. Hecker
  - Mr. Charles J. Hess
  - Kansas City Zoo
  - Mr. Steven B. King
  - Mr. & Mrs. Roger C. Zacher
  - Mr. & Mrs. William Forsyth
  - Mr. & Mrs. Virgil VanTrease

- **$10,000 & Above**
  - Ms. Martha R. Kratzer
  - Kaye Campbell-Hinson & Anonymous – 2
  - Ms. Patricia Taillon-Miller
  - Roland & Marylyn Schiller

### How You Can Help

As you have seen through this report, the Saint Louis Zoo WildCare Institute accomplished a great deal and overcame many hurdles in 2020. This vital work has been undertaken and completed through strategic partnerships, our team’s expertise and passionate donors. We simply could not have done it without you.

By using the enclosed response envelope, you become even more of a conservation champion—for an animal, an ecosystem and our world. Your gift will make a difference today and for future generations. For more information on contributing to the work of the WildCare Institute, please visit stlzoo.org/wildcare or contact the Saint Louis Zoo Development Office at (314) 646-4691.

Photography by: Roger Brandt, Christopher Carter, Luis Coloma, Justin Elden, Martha Fischer, Steven Huiles, Kevin Kampwerth, Ray Meiboom, Fidy Rosemambintrivo, Ed Spevak, JoEllen Toler, Megan Turner, Robin Winkelman, and many other Saint Louis Zoo employees and partners.

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