



SPRING 2017

LINCOLN PARK ZOO®

FOR WILDLIFE. FOR ALL.

Sharing the Earth

Harmonious habitats for
people and wildlife

A MAGAZINE FOR MEMBERS OF LINCOLN PARK ZOO

SPRING 2017

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FOR MEMBERS OF LINCOLN PARK ZOO

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On the cover: A Puerto Rican parrot displays its brilliant green plumage, red forecrown and white eye ring. Photo by Ricardo Arduengo, Associated Press.

**LINCOLN PARK ZOO
MAGAZINE**

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We Depend on You

Who funds Lincoln Park Zoo?
You do! Through purchases and contributions, zoo members, donors and visitors provide more than 80 percent of the annual operating budget necessary to keep this privately managed institution open and free every day and support its mission of wildlife conservation, animal care and learning. Support the zoo at lpzoo.org/donate.



Go Online for More

Visit lpzoo.org/magazine for special web-only features, including photos, video and blog posts, inspired by the stories in this issue.





A Vision for the Future

From the cover of our magazine to the gates at the zoo, you may have noticed a new look at Lincoln Park Zoo. We have been working hard to forge our future, and in doing so have set a new vision to strive towards over the next 100 years:

Inspire communities to create environments where wildlife will thrive in our urbanizing world.

Advancing this vision will guide everything that we do at Lincoln Park Zoo, from our partnerships to our relationship with you, our members. It has also shaped our new logo and a new tagline: **For Wildlife. For All.** These four words distill our commitment to you and to wildlife.

We are proud of our 149-year history of offering a place for people to connect with nature, share joyful memories, and learn about and love animals from all over the world. We are proud to prioritize the care of our animals, provide wildlife conservation leadership through our science-based approach, and offer an array of learning opportunities for all ages. We are proud to partner with experts beyond our borders to bolster animal populations, save endangered species and mitigate human-wildlife conflict.

We are proud to share these experiences and the collective knowledge of our caregivers, scientists and educators with the public for free, every day of the year. Whether you have a few minutes or hours, want to learn about gorillas or ride the carousel, we're glad you dropped by. After all, this is *your* zoo. Zoo members, donors and visitors generate more than 80 percent of the annual operating budget that powers our non-profit institution. Lincoln Park Zoo is *for all*.

“Together, we are a formidable force that is taking action on behalf of wildlife.”

Together, we are a formidable force that is taking action on behalf of wildlife.

We are proud to be an urban zoo in the heart of Chicago. Our location helps us serve visitors from across the city and beyond. This is especially relevant as we look to the future. More than two-thirds of the world's population will live in

urban centers by 2050. We have found ways to work with our urban environment rather than against it. We've designed habitats that support animals' natural behaviors. We created a prairie ecosystem for native animals and plants at Nature Boardwalk. Our Urban Wildlife Institute is just one example of city dwellers working together to bring about positive environmental change. Our common cause: Inspire communities to create environments where wildlife will thrive in our urbanizing world.

For Wildlife. For All. We hope you'll join us on the journey forward. ■

KEVIN J. BELL
PRESIDENT AND CEO



Photo by Colobus Conservation

Crossing Guardians

Jade Price, a Helen Brach Primate House keeper, is used to arranging tree limbs for monkeys to help them get from point A to B. But she really branched out by volunteering last year at Colobus Conservation, a non-profit organization in Diani Beach, Kenya, that builds aerial ladders across the resort's busy main road to help wild Angolan colobus monkeys and other primate species safely cross. Her field work, part of an Earthwatch Institute expedition, was supported by zoo donors Mary and Bruce Feay. (See "Zoo Family Album," page 19.)

"More primates have been killed or injured as the area has developed into a popular tourist destination," says Price. Diani Beach is located 19 miles south of Mombasa on the Indian Ocean coast. "Concerned residents founded this organization in 1997 to do something about the growing number of monkeys being hit by cars."

Their solution—"colobridges" made from PVC pipe and rubber hose threaded with heavy-gauge wire and chain link—provide an inexpensive solution to a human-wildlife conflict issue.



Bear Essentials

How do polar bears thrive in the Arctic? Find out during daily demonstrations at 1 p.m. at Walter Family Arctic Tundra.

Keepers use operant-conditioning techniques that let male polar bear Siku (above) voluntarily participate in his own care. You'll see the thick fur, textured foot pads, claws and teeth that help this species survive the cold, grip rugged terrain and catch seals.

"Polar bears are built to survive the cold, vast Arctic through special adaptations," says Manager of Guest Engagement Amanda Berlinski. "Asking them to show these to us lets us theme our interpretative talks around a habitat being altered by climate change."

That's a message with real teeth.

On the Mend with Mom

A baby Hoffman's two-toed sloth is thriving thanks to expert intervention from Animal Care and Veterinary Services staff.

Shortly after his birth last August, the infant was found weak and dehydrated. He spent that night in an incubator, returned to mom Hersey the next day, and was treated with antibiotics and fluids for six weeks. Caregivers weighed him daily and closely monitored his feeding, which included goat's milk until he was strong enough to nurse from mom on his own.

Today, he's thriving at Regenstein Small Mammal-Reptile House, clinging to Hersey in the mixed-species Ecosystem's leafy canopy. The little sloth, as yet unnamed, will keep nursing for a short while but also shares his parents' diet of fruits, veggies and nutrient-rich, high-fiber biscuits.



Join Us at the Lion House

Beginning March 25, the Kovler Lion House will offer a new, interactive, digital experience: Wild Horizons! Guests will be greeted with animated scenes set in Chicago and the Serengeti that showcase how the zoo is living its vision: inspiring communities to create environments where wildlife will thrive in our urbanizing world. Stop by to learn about the zoo's global conservation and community-engagement efforts. Kids can offer their interpretation in a coloring area. And everyone gets a free souvenir when they take a photo with our social-media camera, which lets you share the experience and your support for wildlife!

On a Roll

La Plata three-banded armadillos are known for their hard, leathery shells. But new arrivals—like the baby born February 8 at Regenstein Small Mammal-Reptile House—don't start out that way.

"They're soft at first," says General Curator Dave Bernier. "Their shell starts to harden about six weeks after birth. They're about the size of a golf ball when they're born and look like miniature versions of adults."

Since 2000, Bernier has helped guide the growth of the zoo-based population as studbook keeper and Species Survival Plan[®] (SSP) coordinator. The SSP is a cooperative management effort across Association of Zoos and Aquariums institutions. The species, native to central South America, is threatened in the wild by habitat loss and hunting.

"We've had 54 successful births at the zoo, and this is a big win for us," says Bernier. "The parents are founders in the population and genetically valuable."



The Eagle Has Landed

Amelia, meet Ethan. Ethan, meet Amelia. In December, Animal Care staff introduced a young female bald eagle to an older male at the Regenstein Birds of Prey Exhibit.

"She's still molting into her adult plumage, and the feathers on her head aren't fully white yet," says Assistant Lead Keeper Kristin Dvorak. "She also has really bright yellow feet."

Female bald eagles are larger than males—an adaptation suited to nesting duties in the wild, where breeding pairs typically mate for life. Amelia weighs 11 pounds, about 2 pounds more than Ethan. Their living arrangement is for companionship, not breeding.

Amelia and Ethan are not capable of sustained flight due to injuries suffered in the wild—the reason for their care at the zoo. As is the case for all bald eagles cared for at accredited zoos, they are on loan from the U.S. Fish and Wildlife Service.

"She's a super calm bird, and their introduction went very smoothly," says Dvorak. "Amelia also likes to be where Ethan is. If he decides to come down from the ledge, so does she."

Below: American bald eagles Amelia, left, and Ethan, right, have become close companions, perching together on rocky ledges in their woody home.



Zoo caregivers make the rounds, in more ways than one, during a wellness check on the baby armadillo.

Biodiver



City



The Urban Wildlife Institute's family portrait of Chicago's ecosystem provides a template for healthier urban habitats far beyond the city's borders

BY CRAIG KELLER

Even in the age of smartphone cameras and social-media photo sharing, the scope of this zoo-led photography project is eye-opening.

Four times a year, biologists at Lincoln Park Zoo's Urban Wildlife Institute (UWI) install more than 100 cameras across the Chicago metro area along three 50-kilometer transects and the lakefront. The cameras—many strapped to trees and posts in parks, cemeteries, forest preserves and golf courses—are motion-triggered and snap up digital images for one month. Raccoons crossing 18th-hole fairways in the wee hours. A gray squirrel foraging in a pile of leaves. A park visitor's pet dog chasing that squirrel. Coyotes on the hunt. A plastic bag tossed

by the breeze. If it moves in front of the lens it's documented.

This type of research has never been done on such a scale: across all seasons, for multiple years, with the goal of understanding the entire wildlife community, rather than just one species.

Annually, more than 100,000 photos are amassed, about twice the number collected in 2010 when this urban biodiversity monitoring program started with 40 cameras. Citizen scientists help the researchers tag photos for data analysis by clicking through photos on chicagowildlifewatch.org and identifying animal species captured in pixels. The site is patterned after similar efforts like Tanzania's snapshotserengeti.org.

"They get a lot more traffic because people are excited to see lions," says UWI Director Seth Magle, Ph.D. "But given that we're asking people to look at pictures of squirrels, I think it's amazing how much participation we've had."

Then again, adds Magle, curious onlookers routinely insist on sharing personal tales of urban wildlife encounters with UWI researchers when they're setting up cameras. "I think people really are interested in these local species. It's just that no one has approached them to talk about that."

Urban Planning Prospects

Ultimately, UWI's goal is to improve human-wildlife interaction and apply animal conservation plans that help support wildlife-friendly cities. "To do that we're collecting as broad and flexible a data set as possible, because conflict between people and animals comes in many forms and derives from many species," says Magle. "We're trying to understand where these species are located and, more critically, why are they there and how does that result in conflict?"

UWI postdoctoral researcher Travis Gallo, Ph.D., is busy sifting through 11 seasons' worth of camera-trap data to arrive at some answers through site analysis and statistical modeling.

UWI scientists, including Coordinator of Wildlife Management Maria Jazmin Rios (page 4) and Assistant Director Liza Watson Lehrer (this page, bottom left), install camera traps at Chicago transect sites. The fruits of their labors—candid photos of local wildlife—provide revealing details about how different species, from deer to coyotes to skunks, live in urban green spaces.



“Many species are very flexible and find their way in the urban environment, especially in a city like Chicago, which has so many green spaces they can utilize to avoid humans.”

“We’re looking at which wildlife communities live in different types of green space or wildlife habitats in Chicago, and how those differ from one another,” says Gallo. “Through that we can find some generalizations. Some preliminary results show that cemeteries and golf courses can be good habitats for raccoons. Some city parks are good for opossums while others are not. We’re taking the next step to learn why those differences exist and use that knowledge in a more applied manner for things like urban planning.”

UWI researchers also hope to understand how species interactions are altered in cities, as opposed to those occurring in vast wilderness areas like national parks. Are coyotes pushing out foxes in the city because they outcompete them as predators? Are opossums relegated to suboptimal habitats by raccoons for the same reason? Are skunks moving closer to downtown?

“We’ll be able to parse that out with stats over time once we have enough data,” says Gallo.

The research has major implications for city planning. Park planners and landscape architects now request camera traps on land where restoration work has been completed or built structures are being considered.

UWI Assistant Director Liza Watson Lehrer has taken the lead in a green-infrastructure collaboration with the City of Chicago. The possibilities are intriguing. UWI research, for

example, may help predict how various species are affected by more or less green space.

“People often don’t consider the urban core as natural habitat for wildlife, and they’re surprised to learn we have mink, muskrat and beaver,” says Lehrer. “Many species are very flexible and find their way in the urban environment, especially in a city like Chicago, which has so many green spaces they can utilize to avoid humans.”

According to plan, Chicago was the first step in an ambitious Urban Wildlife Information Network that UWI has been building over the past two years. Regional expansion is well rooted: partner institutions in Madison, Wisconsin, and Indianapolis have had biodiversity monitoring projects up and running for the past year. Nationally, partners in Denver and Fort Collins, Colorado; Manhattan, Kansas; Austin, Texas, and Los Angeles are on board. Magle is in discussions with several more national and international prospects.

“We want to export this model to other cities around the country and eventually the world,” says Magle. “Species and habitats will vary across cities, of course, but we believe with



Take Action

→ Help UWI scientists ID local wildlife at chicagowildlifewatch.org.



enough data we'll be able to identify some simple rules about how different species assemble in urban areas in general. And that will be powerful information that lets us make broad recommendations to landscape architects and city planners."

Magle calls this goal the "holy grail" of urban wildlife conflict mitigation. "The holy grail," he says, "is to understand those universal rules, the patterns that hold everywhere."

The Sky is Not the Limit

UWI's prescient decision to go broad from the beginning opens the door to endless offshoots.

"We didn't set out to answer one or two questions about a few species, but to create an adaptive monitoring platform that will exist in perpetuity," says Magle. "When we started setting up these cameras it wasn't an easy sell to say we were collecting data for hundreds of questions we couldn't even imagine at the time."

City park planning and epidemiology research are just two spokes sprouting from the hub of UWI's all-inclusive biodiversity data collection. It's the perfect putty for all manner of partnerships. Among the recent offshoots: a Northeastern Illinois University professor and the Adler Planetarium are interested in layering that data into studies of how light pollution affects animals in different parts of the urban environment.

"They're talking about using high-altitude balloon flights to collect different data layers," says Magle. "Sounds crazy but I think it's going to happen. We have such a unique and rare data set that it's attracting more and more people from all sorts of disciplines. So it's not just for us but for the wider scientific community as well. That's why, when people ask me how long we're going to keep taking photos, I say forever—or at least as long as we can. Cities are changing all the time, and animals adapt along with them."

Urban Wildlife Information Network Partners

Los Angeles, California

California State University,
Long Beach
New Partner

Austin, Texas

Wild Basin Creative Research Center,
St. Edward's University
New Partner

Denver, Colorado

University of Colorado
Joined January 2017

Fort Collins, Colorado

Colorado State University
Joined July 2016

Manhattan, Kansas

Kansas State University
Joined April 2016

Madison, Wisconsin

University of Wisconsin
Joined January 2016

Indianapolis, Indiana

Butler University
Joined January 2016

Take Action With Us

BY MEGAN ROSS,
EXECUTIVE VICE PRESIDENT

We know you are dedicated to Lincoln Park Zoo and we're deeply honored by that. We know, too, that your commitment goes beyond the zoo's gates to conserving animals and their environments, both locally and globally.

This issue highlights how zoo staff, scientists, partners and volunteers are working to better understand and conserve wildlife. You may be wondering, beyond supporting that work through my zoo membership, how can I help?

My column, launched with this issue, will focus on a particular topic, and suggest actions—large and small—that you can take. The only way we can succeed is together. Coexistence requires your help!

Let's start in your neighborhood with actions identified by the zoo's Urban Wildlife Institute. Here are a few simple ways to get started:

- 1 Appreciate local wildlife! When you see wildlife, don't approach, but get a picture. We like to say, "Tweet it, don't touch it!" Help increase awareness of the cool wildlife that surrounds us.
- 2 Feeding wild animals may create conflicts between people and animals. Keep your garbage secure and don't feed wildlife you see in parks, your neighborhood or at the zoo.
- 3 Create wildlife-friendly spaces by planting Illinois-native plants in your yard or school garden. Ask your local garden center about which native plants are good choices for you.

- 4 Help us build the world's largest urban wildlife dataset! Visit chicagowildlifewatch.org to identify the animals we've captured on our camera

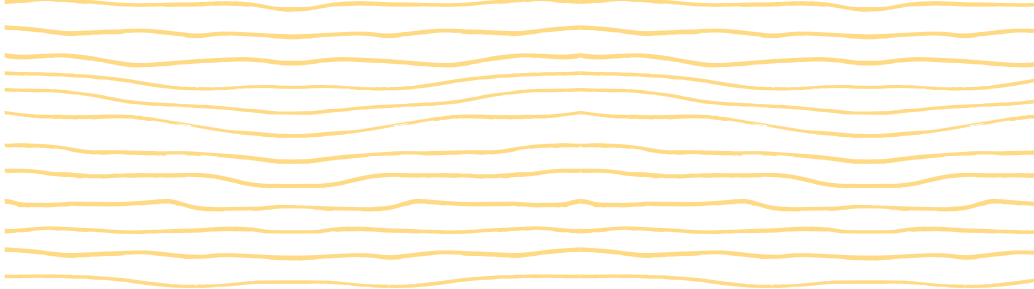
traps at sites across Chicago. Help us understand how wildlife use cities, and get to know a few of your animal neighbors.



Let's Talk Tanzania



Wild zebras and domesticated donkeys (left) graze at a protected-area site where multiple land use is permitted. Local residents (above) collect data for a community survey. Dennis Rentsch, Ph.D. (opposite), at Lincoln Park Zoo's Regenstein African Journey.



A zoo researcher shares next steps for the zoo's wildlife-conservation and community-engagement efforts in the Serengeti



BY CRAIG KELLER

With the recent hiring of Dennis Rentsch, Ph.D., as Serengeti Research Scientist, the zoo is building on the success of its Serengeti Health Initiative, which benefits wild carnivores, people and domestic dogs by reducing rabies and canine distemper in villages bordering Serengeti National Park in Tanzania.

Rentsch, a conservation biologist, has worked on community-based natural resource management projects in Tanzania for the past 12 years. From 2008-2016 he worked for the Frankfurt Zoological Society, a German nongovernmental organization that's provided support in the Serengeti for six decades. Rentsch worked closely with Serengeti National Park managers, local communities and government agencies to develop strategies for engaging communities in conservation initiatives, including anti-poaching efforts, livestock health initiatives, land-use planning and benefit sharing.

We asked Rentsch about the challenges facing the region and how the zoo can continue supporting the needs of its people and wildlife.

It's not all about the lions and wildebeest migration, is it?

Wildlife conservation issues in Tanzania are really more

about people than wildlife. The way to conserve these species is to address complex issues such as why people eat bushmeat [the meat of wild animals] or reconciling land conversion with the needs of communities around these protected areas. I'm interested in the interface between people and wildlife from a conservation perspective, understanding that if you can get people on board you can protect the wildlife.

When your income comes from raising cows and goats, are you less attentive to the needs of wildlife?

Livestock and the competition for grazing land is currently the biggest issue facing a lot of protected areas in east Africa. People have huge herds of cattle on community land that can't support that much grazing anymore. Next door are these protected areas with nice, green grass—a natural, rotational grazing system that supports over a million wildebeest. So it's creating a huge amount of animosity between the parks and communities wanting access to those areas for livestock.

Is a semi-nomadic pastoral culture less invasive than farms?

A lot of these protected areas wouldn't exist without pastoralists [semi-nomadic livestock herders]. Agriculture is not compatible with big expanses of wildlife. Once that land is converted it's very hard to reclaim it. Maasai pastoralists typically do not hunt wildlife, eat bushmeat or convert land into agriculture as quickly. If a national park has neighboring pastoralists it's more likely to have wildlife as well. Fifty years ago, if they were planting corn fields in the Ngorongoro Conservation Area—a protected area southeast of Serengeti National Park—instead of having pastoralist Maasai living there, we wouldn't have Ngorongoro today.

How can conflicts between agriculture and protected areas be resolved?

Ultimately, conflict resolution will depend on effectively managing grazing lands. But we can use community surveys to discover the specific challenges people face and advise the park on how to address them to change behavior and attitudes.

How are those surveys conducted?

We're training local community members in digital data collection and evaluating two areas: the impacts of park management interventions and people's attitudes toward the park. What are the costs and benefits they face? Do they associate those with the park or living in proximity to wildlife? We'll repeat it in a few years to see if any of the park's interventions have been more or less successful in changing attitudes toward conservation and touching the lives of the local communities. I was encouraged by the preliminary results. People were asked how they would feel



A Maasai pastoralist walks across grassland terrain in the Ngorongoro Conservation Area, where black rhinos (below) are thriving. Lincoln Park Zoo and Serengeti National Park staff (below, right) discuss educational opportunities.

if the park no longer existed. Many responded, “I’d be sad” or “It contributes to the national economy” even if they don’t see the benefit themselves.

Let’s talk about some wildlife success stories—elephants in the Serengeti, for instance.

Ivory poaching has decimated the elephant population in Tanzania by about 60 percent in the last decade. But in Serengeti National Park, the population has doubled over the same time period. It’s a conservation success that’s led to more conservation challenges. Managers might think that’s where their job ends, but success also depends on support from communities that can see elephants as pests or collude with poachers and retaliate against these animals.

Eastern black rhinos in Ngorongoro have a stable population as well. You’ve said this may represent an opportunity for the zoo to support Tanzanian research.

One of the areas we’re exploring now is assisting the Ngorongoro Conservation Area managers with advice on that population. Ngorongoro is one of the few areas in which they’ve been able to monitor rhinos closely and keep them alive despite the poaching pressure everyone else is facing. But that’s creating challenges for management with an increasing

number of males leading to territorial conflict and suspected overrepresentation in the gene pool. In a way it’s a small closed population, just like we manage in zoos. There’s a lot of groundbreaking expertise at the zoo in small population management and viability assessments. We’re exploring applying these methods to this wild population that’s well known and managed with data they’ve collected for many years.

Besides scientific support, how else can the zoo help this region thrive?

The zoo’s Hurvis Center for Learning, with its informal science education expertise and community engagement focus, is really going to help Serengeti National Park with its environmental education mandate. There’s a lot of interest from the park and Hurvis Center to bring that together. Dana Murphy, Hurvis Center’s Vice President for Learning and Community Engagement, and I traveled there in February to discuss possibilities with the park.

Serengeti National Park’s outreach team is significantly understaffed and, while they have some very good training materials and curricula, those were developed almost 20 years ago. The park’s visitor center is undergoing a renovation, and we think there’s a great opportunity to bring in communities to learn about conservation issues and also educate tourists about the impact they’re having on conservation. Not only why Serengeti is important, but what the threats are, and what can be done to address those. We hope to help the park with these areas.



Sounds like partnership is the common denominator in any project the zoo pursues.

I see our role as making sure whatever science we’re doing is addressing questions management is interested in. We shouldn’t be the ones driving the research agenda, but there may be tools or expertise we have that can assist that. It’s a lot of channels to navigate in this approach, but worthwhile because you’re on more stable footing working within the system. There will be bumps in the road, but with the right ideas and partners I’m confident we’ll have a significant conservation impact on the Serengeti region’s wildlife and communities.



Data Loggers

In a remote corner of the Republic of the Congo zoo scientists are documenting timber extraction's impact on wild apes

Take Action



Look for the FSC label when buying wood and paper products as well as non-timber forest products such as latex.



Wildlife conservationists and logging companies are often at odds when it comes to protecting or exploiting natural resources. But in tropical forests in the Republic of the Congo—where Lincoln Park Zoo Research Scientist Dave Morgan, Ph.D. (left), has led studies of wild apes

since 1999—close collaboration between scientists and loggers is grafting a promising partnership model.

In 2011, Shanghai-based agriculture company Olam International diversified into tropical-hardwood harvesting, acquiring 2.1 million acres of production forests in Congo. The logging concession is adjacent to Nouabale-Ndoki National Park, and both areas are study sites where Morgan conducts his scientific work with resident communities of chimpanzees and western lowland gorillas under the auspices of the Goualougo Triangle Ape Project (GTAP).

Fortunately, this pristine ecosystem has remained largely intact. A previous logging company, after being accused of ignoring poachers here, reformed their management practices to become the first in central Africa to earn Forest Stewardship Council (FSC) certification in 2006. Olam also adheres to those sustainable management guidelines and does not log in the park—although roads built around the park for timber extraction still bisect habitat the apes depend on for survival.

Morgan's team, which includes his wife, Crickette Sanz, Ph.D., trackers from indigenous tribes and local, university-trained researchers, documents plant species while

following the apes daily to study their foraging patterns and preferences.

"These ethnic groups were losing this botanical knowledge," says Morgan. "Now, if you work for us, you have to know the most important species of trees."

Olam also gave Morgan's team access to its vast, collected data on plant species throughout its logging concession. GTAP researchers have overlaid that with their own data on ape territories and foraging behaviors.

"Most companies won't let you do that," says Morgan. "It can help predict where the chimpanzees and gorillas will be. By using their tree data and seeing where they want to put logging routes, we can see if that will fall in a chimpanzee hot spot, and make recommendations to Olam about the impacts of their operations on apes. They're supposed to take that into consideration when strategizing about where to build a road."

GTAP researchers recently completed an unprecedented study examining the impact on gorilla and chimpanzee groups in a specific area before, during and after logging. "My impression is chimpanzees are more sensitive than gorillas during and after logging," says Morgan. "They appear to show a population decline, even though that area was only subjected to lower-impact logging twice. Gorillas remain more stable, because they're not as territorial and can move around."

The study's results mean researchers will have to work harder to help protect chimpanzees, but Morgan is optimistic about the road ahead for the evolving relationship between conservationists and the logging industry.

"In Canada, FSC models use the ecology of caribou to drive how logging concessions are managed," he says. "We're going to try to do the same for apes in Congo."—Craig Keller



Photos by Isaac Guzman

It Takes a Little Village

BY BRIDGET O'SHEA

Lincoln Park Zoo and new community partners are bringing together learning, science, art and nature in one of the city's most densely populated areas.

Last fall, the zoo's Hurvis Center for Learning announced an ambitious community-engagement initiative in Little Village—a vibrant Mexican-American enclave on Chicago's Southwest Side—with local organizations, schools and residents. This effort was made possible through generous support from the Caerus Foundation, Inc., and the Pritzker Foundation.

Bilateral collaboration is key. Co-created programs benefit from the zoo's science and learning expertise and resources, but live in the community they empower. They range from ecology-focused gardens to wildlife-themed visual arts.

"We want the community to drive the process and tell us what will benefit them," says Manager of Community Engagement Lisa Hyatt. "We're getting ideas from them and running with those."

Hyatt joined the zoo's Learning Department last spring to build a partnership model the zoo hopes to repeat in other neighborhoods. In Little Village she works closely with Community Learning Facilitator Ray Arroyo, a local resident with a background in science and arts youth outreach.

Putting Down Roots

Little Village has the least amount of green space per resident in Chicago, limiting residents' exposure to nature and wildlife. Last year, Little Village residents visited Nature Boardwalk at

Gardens and art are inspiring new views of wildlife and ecology in a Southwest Side community thanks to a partnership sprouting in its urban landscape



This page and opposite, left to right: Lisa Hyatt, teens from the zoo's Conservation Ambassadors Board and school children team up for wildlife-themed art activities in Little Village. Above: Marshall Square Resource Network participants are joining with the zoo to cultivate community-garden programming.

Lincoln Park Zoo to inspire ideas about how ecology and urban wildlife might inform programming and community spaces.

To maximize and create more green space, the zoo is working with Enlace, a local nonprofit that runs three community gardens, and partnering with Hammond Elementary School to build a garden on its grounds. Zoo educators will help create curriculum about urban wildlife that Enlace and Hammond can use to engage school kids and community members.

Teachers, parents and students are helping to design a garden on a grassy lot next to the school. With support from zoo horticulturists and nonprofit partners including the Marshall Square Resource Network, they're digging in this spring.

"It won't only be a vegetable garden," says Hyatt. "It can provide an outdoor classroom, nature-play space, a pollinator garden and a yoga/exercise area."

Hammond's principal, Ana Orbe, says past efforts have languished because the school is mostly surrounded by asphalt. "Our students don't get to see grass much," she says. "They're afraid of bees. Many don't have backyards at their homes. So we've always sought to get kids out of the classroom to focus on what they may not see every day."

Framing the garden as an ecosystem with wildlife will help teach children about bees, insects, plants and the roles among all living things, says Orbe. "Exposing them to this green space will let them experience nature beyond just turning a page in a book."

Art and Animals

Partners are also leveraging the community's rich artistic and cultural life to teach residents about wildlife conservation. Artists and educators have teamed up for workshops and pop-up events at street fests and school fairs.

Even more expansive is a pilot program that will bring zoo-themed sculptures to Marshall Boulevard, a main thoroughfare in Little Village. The idea originated with Omar Magaña, executive director and founder of Little Village's



OPEN Center for the Arts, who had created a sculpture based on a drawing of a giraffe made by his 5-year old daughter. That inspired a unique, multifaceted plan that links arts and science learning.

"It's very important to us to find ways to inform the community about the earth and its animals and how people are affecting things," says Magaña. "Through art you can provide a lot of that information without saying anything."

Adds Hyatt, "We're bringing kids to the zoo and having them observe species related to animal conservation projects. Our scientists and Animal Care staff are excited to participate in the process."

Students from three schools located on the boulevard began the process during field trips to the zoo earlier this year. They viewed chimpanzees and learned about work zoo scientists are doing in Africa and, in the United States, with Chimp Haven national sanctuary and Project ChimpCARE. Kids drew what they observed, and a panel of zoo and Little Village representatives chose four drawings that Magaña and fellow artists will turn into life-size sculptures.

The partners want to repeat the process annually. Sculptures will be displayed first at the zoo, then move to

Marshall Boulevard, prompting residents to think about how they relate to wildlife. "We'll also have interpretive panels next to them," says Hyatt, "and schools can use these for programming."

OPEN Center has also hosted wildlife-themed art workshops for parents, children and teens. Through drawing, sculpting and other art forms attendees learn about different species and how human activity impacts them. Workshops are often linked to cultural events. During a Day of the Dead-themed workshop last fall, zoo educators showed participants animal skulls as they crafted animal masks associated with the holiday.

"We talked about anatomy," says Hyatt, "like the difference between the skulls of coyotes and dogs."

Residents Nury Ortega and her son have attended several workshops. "This is a great way for kids to learn about animals and the planet," says Ortega.

The Road Ahead

Plans are also in place to add programming for, and created by, teens. Hyatt, the zoo's Urban Wildlife Institute and three teen-focused community organizations are brainstorming ideas such as a teen environmental summit. Teens themselves will call the shots.

"We took teens on tours of Nature Boardwalk last fall and asked them what 'wildlife in my community' made them think of," says Hyatt. "They said 'dead animals,' 'dead plants,' 'trash,' 'nothing.' So we need to intervene now and show them what's possible."

While changing perspectives can take time, community-engagement partners are committed to building success in Little Village with teens and other residents holding the reins.

"We're saying to them, 'Dream with us. Tell us what you'd like to see a collaboration with the zoo look like in years to come,'" says Hyatt. "This is just the beginning."



Pairing Up Parrots

Population planners at the zoo are helping wildlife biologists in Puerto Rico breed success for one of the world's most critically endangered birds

BY CRAIG KELLER

When Jafet Vélez-Valentin began managing an aviary where one of the world's most endangered birds is bred, he told colleagues his top priority wasn't producing eggs and chicks.

"I care about breeding pairs," says Vélez-Valentin, a biologist and aviculturist at the U.S. Fish and Wildlife Service (USFWS)'s Iguaca Aviary, a breeding facility for Puerto Rican parrots that's perched on the slopes of the Sierra de Luquillo mountains in Puerto Rico's tropical El Yunque National Forest. "When we focus on bonding happy, fertile pairs, the chicks follow."

That matchmaking strategy—finely tuned by population-analysis support from Lincoln Park Zoo scientists—has paid off for the species, whose bonded pairs mate for life. Its population at two aviaries and three wild-release sites in Puerto Rico now hovers around 600 thanks to a sharp increase in recent years. That's decidedly better than 1975, when the species' wild numbers had tumbled to a very unlucky 13.

"When I started as a technician in the early '90s, we were excited if we hatched one or two chicks each year," says Vélez-Valentin. "This past year, between the two aviaries, we had more than 80."

This parrot baby-boomer generation is the reward for a

sustained, multi-partner effort over nearly 50 years. USFWS initiated a recovery program in 1968 after the population had fallen to about 70 birds, and in 1972 began captive breeding with less than 20 parrots.

The parrot's plight was set in motion more than 500 years ago. A medium-size Amazon parrot species found only in Puerto Rico, it flourished across the island in pre-colonial times. Indigenous Taino people called the bird "iguaca" after the sound of its harsh flight call. Blending into the forest canopy with their green plumage, the birds were easier to hear than see.

The Tainos were decimated by smallpox after colonization by Spaniards, who also cleared the iguacas' lowland-forest habitat for agricultural plantations. Over the ensuing centuries, poaching, red-tailed hawk predators, hurricanes and competition with other birds for nesting cavities in trees further hastened the species' decline. By the 1940s only one small population clung to survival in El Yunque, on the eastern side of the island.

Several conservation partners have joined USFWS to save the species from extinction, including the Puerto Rico Natural and Environmental Resources Department, which manages the other breeding aviary in Rio Abajo, a protected reserve

One-Way Flight to Chicago

Last October 23, for the first time ever, USFWS allowed Puerto Rican parrots to be moved from the island to a continental U.S. site: Lincoln Park Zoo. Two young males, ages 5 and 6, now reside in the Ecosystem exhibit at Regenstein Small Mammal-Reptile House.

The goal is to extend the recovery program's educational outreach efforts beyond Puerto Rico. "These birds are ambassadors for the conservation of an endangered species," says Vélez-Valentin.

Ethnic pride is also part of the picture. "The Puerto Rican community in Chicago may not know about this important work," says Hope B. McCormick Curator of Birds Sunny Nelson, who also collaborates on this conservation project. "Many people travel back and forth, so if we're informing them here that also feeds back to the aviary's audience in Puerto Rico and creates a nice circle."



Photo by Tanya Martinez

Puerto Rico's El Yunque National Forest (opposite page and above, bottom) is one of three wild-release sites for the Puerto Rican Parrot Recovery Program, a collaborative effort between USFWS, Lincoln Park Zoo staff (above, top) and other partners.

with a drier, subtropical climate closer to the parrot's historic habitat. Lincoln Park Zoo's Alexander Center for Applied Population Biology began offering its unique expertise in 2006.

That link continues through the zoo's Population Management Center (PMC), which also supports Association of Zoos and Aquariums institutions by recommending moves and matches in cooperatively managed zoo animal populations. The PMC helps aviary managers decide which parrots to pair by analyzing demographic and pedigree-based genetic relationships across the captive and wild populations. Specialized software programs developed by the zoo, and shared with the aviaries, help track individuals' life histories and calculate ideal mates to maintain the highest level of genetic diversity.

"When you start with 13 founders you're obviously limited," says PMC Director Sarah Long. "The population is genetically vulnerable, but because they increased to such a large size, that protects them a little bit. They're able to breed, and they're retaining as much gene diversity as they can."

PMC researchers also help integrate more precise records of parrots released to the wild. "We did some detective work to better connect animals brought in from wild nests," says Long, "and made informed assumptions for some of the pedigrees."

Husbandry methods in the field make it challenging to maintain up-to-date data. Program scientists sometimes place eggs laid in aviaries in wild nests to be incubated by foster parents, and also move injured chicks from nests into aviaries for rehabilitation.

The monitoring of release sites, however, is sophisticated and vigilant. Researchers scale trees in professional climbing gear to check on nests—including artificially constructed cavities crafted from PVC tubing—and regularly survey the wild population from atop 80-foot-high platforms.



Infrared cameras inside nests stream video to screens at the aviaries, helping scientists monitor hatches and chick development. Aviary technicians also repair damaged eggs and use incubators that mimic the temperature fluctuations that occur in wild nests when mothers temporarily leave to forage for seeds and fruit. And then there are the test flights.

"We train the birds inside flight cages for at least a year before release," says Vélez-Valentin. "Part of the training is to develop bonds between individuals in groups, which increases the survival probability of the species." His team also looks for socially disengaged "loners" who would struggle to survive in the wild, but might still contribute to the captive-breeding effort.

Inclusiveness also frames Vélez-Valentin's belief that the program's success depends on teamwork among its many collaborators, from zoos to conservation-oriented non-governmental organizations to universities.

"We live in a world where the loner will die," says the scientist. "Working together, sharing knowledge and learning from others is essential."

Take Action



Learn more about the Puerto Rican parrot recovery program's conservation efforts from Jafet Vélez-Valentin, Sarah Long and Sunny Nelson, the featured speakers at a special Wine & Wildlife presentation at Lincoln Park Zoo on Thursday, April 20. Buy tickets at lpzoo.org/wine-wildlife.

Vélez-Valentin, Long and Nelson will also present a talk about the recovery program at the National Museum of Puerto Rican Arts and Culture, 3015 W. Division Street, on Saturday, April 22. Learn more at lpzoo.org/events.

Notes from the Underground

A zoo scientist burrows in to save the black-footed ferret as part of a coalition providing a model for population recovery efforts

BY CRAIG KELLER

The black-footed ferret, one of the most endangered mammals in North America, has come close to extinction several times. Remarkably, over the past three decades, a coordinated recovery effort among federal agencies, zoos, animal conservationists and communities has bred and reintroduced enough individuals to the wild to give this elusive, nocturnal predator a fighting chance.

Rachel Santymire, Ph.D., Director of the zoo's Davee Center for Epidemiology and Endocrinology, has played a key role in the effort, from fertility research to alleviating human-wildlife conflict by ferreting out disease vectors. Here's a brief history of the species' decline and comeback and Santymire's involvement, interspersed with her commentary.

750,000 B.C.E.–Circa 1900

Black-footed ferrets thrive throughout central North American range.

1900–1909

San Francisco hit by two outbreaks of bubonic plague, introduced by rats aboard Chinese cargo ships.

1900–1950s

Sylvatic plague, caused by the same bacterium in bubonic plague, spreads to rural, wild animal populations—transmitted from fleas on rats to California ground squirrels to fleas on prairie dogs. Across Great Plains it devastates colonies of prairie dogs and the black-footed ferrets that prey on them and shelter in their burrows.

“North American animals didn't evolve to have any resistance to plague, so it wipes out a lot of prairie dog species and ferrets.”

Late 1950s

Ongoing agricultural encroachment and extermination of prairie dogs further decimates black-footed ferret population. By late 1950s species thought to be extinct in wild.

1964–1979

Small, wild population of ferrets discovered in South Dakota. U.S. Fish and Wildlife Service (USFWS) collects nine individuals for breeding program. Species listed as endangered when U.S. Endangered Species Act is created in 1973. Wild population dies out in 1974. Breeding population fails; last captive ferret dies in 1979. Species again considered extinct.

1981

Another isolated population discovered on cattle ranch in Wyoming after taxidermist identifies dead animal a dog brings home to its owner as a black-footed ferret.



Photo by blackfootedferret.org

1984

Black-Footed Ferret Recovery Program relaunched by USFWS. Wild population estimated at 129.

1985–87

Twenty-four individuals removed from wild after canine distemper virus (CDV) from domestic dogs and coyotes, as well as plague, causes rapid population decline. Wyoming Game and Fish Department initiates captive breeding effort with 18 individuals after six die from CDV.

“Of those 18, only seven produced offspring that survived. All the black-footed ferrets we have today, including the wild ones, come from those seven individuals.”

1986–2010

Black-Footed Ferret Species Survival Plan (SSP®), a collaborative breeding program among five zoos in the Association of Zoos and Aquariums (AZA) and USFWS's National Black-Footed Ferret Conservation Center in Colorado, produces about 8,800 kits (offspring). Since 1991, more than 4,500 individuals have been reintroduced to the wild at managed sites in Great Plains states.

“The goal of the SSP is to maintain genetic diversity, produce enough individuals for the breeding program, and supply individuals for wild release.”



1998

Santymire begins working with recovery program through Smithsonian's National Zoo's Conservation Biology Institute. For Ph.D. project, starts researching ferret fertility and developing biological sample collection and storage methods in 2000.

"My role has been to monitor fertility. There's been a recent decline in breeding success, from zoos to the wild, despite our reproductive science getting better. We're trying to find out if the cause is environmental or genetic."

2001–2005

Davee Center for Epidemiology and Endocrinology founded at Lincoln Park Zoo. Santymire assumes directorship in 2005 and initiates endocrinology program.

2002–2006

Santymire and colleagues collect, examine and re-release about 250 wild black-footed ferrets at Great Plains sites during biomedical survey to help assess health and reproductive viability of wild populations. Often working in a converted-RV mobile lab, researchers collect biological samples, including semen that's frozen using a process involving liquid nitrogen.

"We freeze it so we can bring back genes without taking individuals from the wild and disturbing the wild population."

2009–2010

Smithsonian scientists, working with Santymire, thaw cryopreserved semen from "Scarface"—one of the 18 individuals removed from the wild 20 years earlier—to produce eight kits via artificial insemination.

2010

Through AZA Conservation Grants Fund, Santymire and zoo educators initiate outreach program with Northern Cheyenne Tribe in southeast Montana, the 17th black-footed ferret reintroduction site. Curriculum teaching prairie-ecosystem conservation implemented with community schools. Despite ongoing plague-vaccine program and insecticide dusting for fleas at burrows, plague wipes out local prairie dog and ferret population over next few years. Another reintroduction attempt later planned for fall 2017.

"Many teachers there are ranchers' daughters and grew up viewing prairie dogs as a threat. We took these teachers to prairie dog towns to observe social interactions. We changed their perspective on the value of prairie dogs as a keystone species."

2014

USFWS expands reintroduction sites beyond federal lands, starts paying ranchers \$15/acre to help monitor and allow prairie dogs and ferrets on their property.

2014–15

Santymire and research partners collect, examine and release ferrets at Arizona and South Dakota sites. Santymire leads survey on Cheyenne reservation of free-roaming dogs, which transmit CDV through fleas to black-footed ferrets. Helps local vets vaccinate dogs at spay/neuter clinics.

"We're not here to manage their dogs, but to make them healthier so that people and wildlife are healthier."

2014–2016

Researchers in Montana, Colorado and South Dakota use drones to distribute new oral plague vaccine in peanut-butter cubes to prairie dogs. Geneticists sequence genomes of two living ferrets and, by extracting DNA from preserved samples, two ferrets that died in 1980s. Gene-editing technology may lead to cloning individuals with enhanced genetic diversity or antibiotic resistance to plague and CDV, but the black-footed ferret conservation community needs to explore the ethical challenges.

2017

Santymire travels to Wyoming field sites in spring. She is the only researcher banking semen samples from the wild and most of zoo population and continues providing feedback to program partners.

"We still have so much to learn from this species about wildlife conservation and evolution. Our work isn't over yet, but this is a success story."

Roots for the Home Team

Volunteers help the zoo's gardens grow and cultivate community in other ways, too

BY BRIDGET O'SHEA

On the south end of Lincoln Park Zoo sits an oasis covering about 14 acres that's home to more than 120 plant species and many forms of native wildlife. Zoo horticulturists and volunteers have geared up to keep this thriving, urban ecosystem healthy in all seasons.

"At Nature Boardwalk, a lot of volunteers are needed to remove weeds and invasive plant species," says Director of Horticulture Joe Rothleutner. "It is physical work, but rewarding to see the immediate impact from a day of weeding."

Local invasive species, which could devastate the zoo's carefully managed prairie ecosystem, include burdock and buckthorn, Rothleutner explains. "Nature Boardwalk volunteer opportunities also involve planting new native plants alongside the zoo's horticulture staff."

Maria Jazmin Rios, Coordinator of Wildlife Management at the zoo's Urban Wildlife Institute, adds that Nature Boardwalk, a planned landscape completed in 2010, provides many benefits for volunteers. "It's a young prairie, so it's still evolving," she says. "It's a space for people to newly experience a type of ecosystem once widespread in this region."

Rios says the pond at Nature Boardwalk is home to a growing population of different turtle species. The site is also located along a migration flyway for birds, so many species use it as a rest stop during their seasonal flights.

"Our mission is to connect people to wildlife," says Rios. "Nature Boardwalk is a great way to get behind that."

Gardens on the zoo's main grounds and the Edible Garden at the Farm-in-the-Zoo (pictured, above right) also need volunteers, says Director of Volunteer Services Betsy Maher. "Edible Garden volunteers work at the Farm alongside our Guest Engagement Ambassador volunteers, who demonstrate to visitors

where their food comes from," says Maher. "It's not just gardening, but also educating the public about agriculture." ■



From Antlers to iPads

Guest Engagement Ambassadors also staff mobile learning carts to educate the public about animal adaptations, using props such as deer antlers.

Maher says one of the more popular open volunteer positions at the zoo is that of an animal behavior monitor. Trained volunteers observe zoo animals in four-hour shifts and record specified behaviors using ZooMonitor, an iPad app developed by scientists at the zoo. "This data helps curators make informed decisions about animal care needs and better understand individual animal welfare," she says. Applicants must interview for this position, which requires a more rigorous commitment than other volunteer opportunities.

With activity picking up across the zoo as the weather warms, volunteers are needed in other areas as well, including guest relations, retail and special events.

Whether you're a green thumb, animal lover or people person, the variety of options makes it easy to make a difference at the zoo.

The zoo's spring volunteer-recruitment drive is in full bloom.
→ Learn more at lpzoo.org/volunteer and apply!



**Take
Action**



Bruce and Mary Feay (center) provided field experiences for keepers Anthony Nielsen, Jill Gossett, Leslie Lurz, , Anita Yantz, Jade Price and Mike Skidmore.

Mary and Bruce Feay

Zoo donors Mary and Bruce Feay have volunteered for 40 expeditions organized by Earthwatch Institute, a nonprofit that pairs volunteers with scientists to support conservation efforts. Since 2007, they've magnified their passion for wildlife by supporting conservation field travel for the zoo's keepers, curators and scientists through their Feay Conservation Travel Fund.

Several Animal Care keepers have taken part in Earthwatch expeditions as a result, acquiring valuable experience relevant to their career development.

"It was inspiring to see a species I care for at Regenstein Center for African Apes in its natural habitat," says Leslie Lurz, who in 2014 traveled to Uganda to study a decline in fruit trees that has spurred wild chimpanzees to risk foraging at nearby farms.

Mitigating human-wildlife conflict was also the focus of Regenstein African Journey (RAJ) lead keeper Jill Gossett's 2013 trip to a South African wildlife reserve. Gossett surveyed black-backed jackals, a scavenger species persecuted by ranchers protecting livestock. "I witnessed how challenging it is to manage a wildlife reserve and protect the animals entrusted to its care," says Gossett. "It renewed my own dedication to caring for the animals at Lincoln Park Zoo."

In 2007, RAJ assistant lead keeper Mike Skidmore (who's also the 2017 recipient) provided rhino-activity monitoring at a

Kenyan wildlife conservancy that creates sustainable strategies for wildlife and agriculture. Kovler Lion House lead keeper Anthony Nielsen studied permafrost in Manitoba in 2010 to help gauge the effects of climate change on polar bear habitat. Helen Brach Primate House keeper Anita Yantz surveyed monkeys threatened by poachers on an island off the Cameroon coast in 2012. And last year, primate keeper Jade Price journeyed to Kenya to care for colobus and other monkey species affected by urban development (see "Wild File," page 2).

"This is a perfect way for us to make a difference together."

"If you've been out in the field," says Bruce Feay, "you appreciate the difficulty and importance of the work."

Typically, keepers recap their experiences in presentations to zoo staff. The Feays never miss them. It's clear from their delighted expressions that the rewards go beyond generous financial support.

"A lot of people may not be aware of how hard these keepers work every day to care for the zoo's animals, or know about their efforts on behalf of global wildlife conservation," says Mary Feay. "That's a passion we share. So this is a perfect way for us to make a difference together." ■ —Craig Keller



Chill Out at SuperZooPicnic

Carnival games, free train and carousel rides, musical entertainment and picnic spreads take over the zoo on Friday, June 9, for SuperZooPicnic, our annual members-only party. This year's celebration, themed "Polar Picnic" for the new Walter Family Arctic Tundra, will run from 5–8:30 p.m., giving guests plenty of time to enjoy the festivities. From animal enrichment to hula-hooping, there's cool family fun for all. Prepare to bear down on the ever-popular pie-eating contest. Ready, set...go to lpzoo.org/superzoopicnic to learn more.

Take Action

ADOPT AN ANIMAL

Support your zoo even more: ADOPT an animal! ADOPT options include a cuddly plush, certificate of ADOPTION, magnet-frame photo and fun fact sheet. April's featured ADOPT: Japanese snow monkeys.

What could be cooler?

→ Shop at lpzoo.org/ADOPT.

SHOP THE WISH LIST

The zoo's Wish List lets you contribute to the animals' daily care and welfare by providing extra enrichment that supports natural behaviors and healthy diets. → Browse this month's Wish List at lpzoo.org/wishlist.

at lpzoo.org/wishlist.

Cock-a-Doodle-Zoo!

Rise with the roosters and join us for Members-Only Morning at the Farm-in-the-Zoo on Saturday, May 13, from 8-10 a.m. Make the most of our urban farm by playing games, meeting animals and enjoying the early garden harvest. Get details at lpzoo.org/memberevents.

Cure for the Winter Doldrums

Throughout Member Appreciation Month in February, members were treated to all sorts of perks, from free parking to additional gift shop discounts to curated activities with weekly themes. Members went sleuthing through animal houses on scavenger hunts, saw crowned lemurs, meerkats and a polar bear receive special enrichment and enjoyed four days of free ice skating at the Farm-in-the-Zoo. We really ramped it up this year—and plan to make next year's Member Appreciation Month even better.

Merry-Glow-Round

More than 2,700 zoo members and their guests flocked to Members-Only Night at ZooLights Presented by Kalahari Resorts and Conventions on December 8. Getting exclusive access to ZooLights Presented by PowerShares QQQ by Invesco for one entire evening prompted plenty of sparkling smiles. So did free ice skating and complimentary rides on the AT&T Endangered Species Carousel and Lionel Train Adventure. Guests also carved out time for ice sculpting, crafts and visits with Santa in the Helen Brach Primate House—the North Pole native's preferred tropical habitat when in Chicago. ■



Eastern Massasauga Rattlesnake

Snakes don't always get a fair shake in the court of public opinion. But Lincoln Park Zoo has been looking out for eastern massasauga rattlesnakes, a species decimated by habitat loss and fragmentation across its North American range around the Great Lakes.

These venomous but mild-tempered pit vipers sport a saddle-shaped coloration pattern and live in wetland areas from fall to spring, hibernating in burrows during the coldest months. From spring to fall they mate in drier, upland habitat. Their habitat has been affected by farming practices that drained wetlands, fragmentation from human settlements and roads, and encroachment of woody vegetation that restricts their ability to thermoregulate. These threats, as well as poaching and human persecution, have imperiled their survival.

Since 2009, the zoo has worked with

conservation partners to study a healthy population in Michigan. More than 800 snakes have been captured, examined, identified and released to restored grassland habitat. The biological and ecological research helps guide sustainable land-management practices at the site and informs conservation plans.

Last fall, the U.S. Fish and Wildlife Service listed the species as threatened across its entire range under the Endangered Species Act—a decision informed by population-modeling analyses from the zoo's Alexander Center for Applied Population Biology.

"It's a major step in the right direction for protecting the species," says Vice President of Conservation and Science Lisa Faust, Ph.D. "Rattlesnakes are an integral part of the Midwestern ecosystem and should be embraced, not feared." ■ —Craig Keller





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Upcoming Events

Go to lpzoo.org/calendar for details on upcoming events.

April

- Saturday, 8**
Second Saturdays Garden Tour
- Monday, 10-14**
Spring Break Camp
- Saturday, 15**
Easter Egg-Stravaganza
- Thursday, 20**
Wine & Wildlife: Puerto Rican Parrots

May

- Saturday, 13**
Members-Only Morning Food Truck Social
- Saturday, 20**
Zoo-ologie: *A Midsummer Night's Roar*
- Sunday, 21**
Zumba at the Zoo
- Wednesday, 24**
Twilight Safari
- Wednesday, 31**
Locally Sourced at the Patio
- Sunday, 14**
Mother's Day Brunch

June

- Thursday, 1 & Sunday, 4**
Yoga at the Zoo starts
- Sunday, 4**
United Run for the Zoo
- Sunday, 8**
Adults Night Out
- Friday, 9**
SuperZooPicnic: Polar Picnic
- Monday-Friday, 12-16**
Conservation Camp starts
- Friday, 16 & Saturday, 17**
Craft Brews at the Zoo
- Monday-Friday, 19-30**
Zoo Crew starts
- Saturday, 24**
Campout at the Zoo