



Alive

In this issue:

Finding the Love for Bats

Preparing the Zoo for Winter

Keeping Ape Hearts Strong

Studying Giraffes in Namibia



The mission of the Zoological Society of Milwaukee is to conserve wildlife and endangered species, educate people about the importance of wildlife and the environment, and support the Milwaukee County Zoo.

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As zoos have evolved over the decades, their missions have expanded beyond the animals in their care. Organizations such as the Milwaukee County Zoo and Zoological Society of Milwaukee help animals in a variety of ways. For example, many Milwaukee zookeepers volunteer with conservation projects around the world. Joan Stasica, area supervisor of pachyderms, tells us on page 8 about her trip to Namibia to participate in a giraffe research project. Here at the Zoo, veterinarian Dr. Vickie Clyde is leading research into heart disease in captive great apes. The work of Clyde and her team will help apes, particularly bonobos, at zoos around the world live longer, fuller lives. Check out page 6 to learn more about this project.

Sometimes the Zoo's mission means providing a home to animals in need. Penny the fly river turtle is one of those animals (page 15). She was smuggled from her home near Indonesia or Australia into the United States, destined for the pet trade. When she was confiscated by the U.S. Fish and Wildlife Service, she needed a place to go with expert care and plenty of space to swim. The Zoo has provided that home, and she's loving her new exhibit.

We consider all of the animals at the Milwaukee County Zoo to be ambassadors for their species in the wild. That's especially true with some of the less popular animals such as snakes, bats and sharks. Turn to page 4 to see how zookeepers and educators at the Zoo help people gain a new appreciation for these important species. The good news is, all three of these animals live in indoor exhibits you can visit this winter, so make sure to say "hi" next time you stop by!

Jodi Gibson

Jodi Gibson, President & CEO
 Zoological Society of Milwaukee

CONTENTS

Volume 38, Issue 1

Ready for School: Zoo Classes prepare youngest students 3
 Where's the Love? A new view of unappreciated animals..... 4
 Heart-Healthy Apes: Zoo participates in new research..... 6
 On the Spot: Zookeeper describes giraffe fieldwork..... 8
 Kids Alive: Crazy for camels..... 10
 Winterizing the Zoo: Animals & keepers get ready..... 12
 By the Numbers: Fascinating Zoo facts..... 14
 Turtle Tale: Penny gets a second chance..... 15

ON THE COVER: Apollo the African straw-colored fruit bat.
 Photo by Bob Wickland



Getting Ready for School



When I started bringing my 2-year-old to Zoo Classes and Camps, I had no idea how much he would learn about animals, nature and the learning process. Now Calvin is in kindergarten, and he's putting what he learned into practice. I tell everyone I know how amazing Zoo Classes and Camps are in preparing young children for school.

One person I told was my sister, Christina, who has a son the same age as Calvin. Christina is one tough customer. She is not about to spend her time and money on something she doesn't consider valuable. Plus she has a degree in biology, so she knows a little something about science herself. So don't take my word about the program – listen to her in our interview below.

Miles (left) poses with his cousin, Calvin, and friend, Oliver, during Zoo Camp for 4- and 5-year-olds.

*Stacy Vogel Davis,
Alive editor*

Why did you sign Miles up for Zoo Classes and Camps?

We signed Miles up at age 2 to help him learn social skills in the years prior to preschool. It really helped him learn to interact with other children and adults in a formal educational environment (but not too formal!).

What were your expectations going into his first class?

The only expectation we had was to have a lot of fun! I was happy to find out the children were not required to participate in any particular activity, even the listening time. This is helpful for strong-willed toddlers who are not used to a structured environment.

What was your impression of the classes and teachers?

The classes have great educational value. The children are learning not only about animals, but also letters, shapes and numbers. They develop fine motor skills with painting, coloring and other projects. The teachers are the perfect combination of fun and professional – Miles loves them!



Miles (right), age 5, peeks with his handmade binoculars at his cousin, Calvin, during "Forest Explorers" camp.

Do you think the classes helped Miles learn about school?

The classroom is set up much like any other preschool environment. Miles began half-day preschool at age 3 and, because of Zoo Class, was already accustomed to sitting in a circle and listening to the teacher. It also helped him learn about free-choice activities that often appear

in the classrooms of young children. It helped him learn that at any given time, he would be expected to stop a certain activity and be redirected to something else.

How did you see Miles grow as he went through the classes?

Miles became more confident as he moved through the classes. He knew the routine and looked forward to each activity. The classes always began with choice time and ended with circle time, a snack, and a visit from an animal or a trip into the Zoo. Eventually this enabled him to navigate the classes for older children without an adult present.

What do you like best about the classes? What does Miles like best?

The best thing about the classes is the variety of activities surrounding a common theme. Miles is able to choose the activities he wants to do and finish. Miles, of course, loves all the art projects and the animals.



Calvin (left) and Miles, both 5, make mud pies during "Forest Explorers" camp.

The Zoological Society offers classes and camps for infants through age 14, plus family classes and photography classes for adults. Visit zoosociety.org/Education to learn more and sign up for Spring Zoo Classes, sponsored by Meijer. Registration for Zoo Summer Camps, sponsored by Penzeys Spices, starts Feb. 7.

Finding Love for Unappreciated Animals

Many visitors are hesitant when they first meet Apollo, an African straw-colored fruit bat who lives behind the scenes in the Small Mammals Building of the Milwaukee County Zoo. They cringe or turn away when they see Rhonda Crenshaw, the Zoo's small mammals supervisor, holding the bat.

But then Apollo charms them with his soft fur and friendly face. They laugh as he shoves a grape half the size of his head into his mouth and sucks every last bit of juice before spitting out the skin. "Once they meet Apollo up close, they realize bats aren't so scary and are maybe even cute," Crenshaw says. "It's an example of the big difference one little creature can make."

The animals at the Milwaukee County Zoo are ambassadors, bridging the gap between people here and wildlife around the world. That's especially true of animals with maligned reputations such as bats, snakes and sharks. The keepers and educators at the Zoo help people appreciate these misunderstood animals. When visitors see the animals and learn more about them, they often stop being afraid and start caring more about the animals' future.

Underdogs of the Animal Kingdom

Snakes might just be the most feared animals at the Zoo, but it's the snakes themselves that are in danger. Many snake species, such as the timber rattlesnake and Eastern massasauga rattlesnake in Wisconsin, are disappearing. "All snakes in areas of high human population are vulnerable," says Melissa Spreda, a keeper in the Zoo's Aquatic & Reptile Center (ARC). "Learning to live with the snakes isn't always the first option." For example, a bounty program that ended in 1975 decimated the timber rattler population. People were paid \$5 for every tail they turned in and \$10 for every whole snake. These days it's nearly impossible to find these animals in Wisconsin, except at the Zoo.



Above: Apollo the African straw-colored fruit bat has helped many people overcome a fear of bats.

Left: Rhonda Crenshaw, small mammals area supervisor, teaches visitors about straw-colored fruit bats during an Animals in Action talk.

Photos by Bob Wickland

Spreda enjoys sharing her love of snakes with visitors. "They're calm, peaceful creatures," she says. "There's lots of diversity in colors, shapes and behaviors." Keepers and Zoo Pride volunteers offer facts about snakes and other reptiles through Animals in Action talks in summer. The Zoo also offers a bat Animals in Action talk in the Small Mammals Building.

In another area of the ARC, a leopard shark helps visitors learn important facts about sharks. Sandra is 3.5 feet long and weighs 10 pounds, much smaller than the murderous, fictional great white shark in "Jaws." About half of the 450 species of shark are less than 3 feet long, says Jeff Johnson, another ARC keeper.

Sharks usually dart away from people, and they are much more likely to be killed by humans than to attack one.

A few years ago, zookeepers and volunteers got involved with Seafood Watch, an organization that helps people make informed seafood choices so they don't harm sharks and other endangered aquatic animals. The ARC has also held public training sessions of the leopard sharks in the past to show how smart they are, letting visitors watch as the sharks touch a target to get a food reward.



Left: Very few Eastern massasauga rattlesnakes remain in Wisconsin, but you can see some at the Milwaukee County Zoo.

Photo by Richard Brodzeller

Right: Madison M., 7, of Waukesha, carefully pets a cornsnake during an Animal Storytelling class.

Photo by Richard Taylor

Education & Empathy

The Zoological Society's Education Department takes the learning a step further through classes, camps and school programs. A camp called "Spy Kids" helps dispel animal myths as the campers try to figure out who has put out signs with false information such as "Elephants are afraid of mice," "Wolves are fierce and aggressive toward people" and "Bats are blind." Instructor Jessica Ciatti sometimes brings snakes to schools. "When the students meet the snake, they realize, 'Oh, I don't really need to be scared of this,'" she says. She enjoys seeing children overcome their fears by touching the snake. Some don't get to that point, and that's OK. "They come away with a better understanding and appreciation of the animal, even if they don't necessarily like the animal."

This year, the Zoological Society's Kohl's Wild Theater is bringing a play to schools called "Misunderstood: Musicals for the Underappreciated," which includes skits about bats and frogs. "Kohl's Wild Theater is at its best when we highlight the animals

that have trouble highlighting themselves," says program coordinator Dave McLellan. "We help audiences bridge the divide to creatures that are foreign to us through creative, theatrical techniques." The audience learns not to make snap judgments not just about animals, but about people as well.

"Educating the kids is key to dispelling old myths," says Crenshaw, the small mammals supervisor. "Once they meet the animals, they see how cool they are. That can break the cycle of fear."

By Stacy Vogel Davis



In the Kohl's Wild Theater play "The Legend of Hibernacula," children learn the important role bats play in the environment and that you shouldn't prejudge others.
Photo by Richard Brodzeller

Mythbusters



Leopard sharks such as the one pictured here are not at all like the fictional, murderous great white shark in "Jaws."
Photo by Richard Brodzeller

Bats

Myths: Bats want to suck your blood or will get tangled in your hair.

Truth: Bats do not build nests and have no interest in human hair. While vampire bats in Central and South America do feed on the blood of livestock, they don't hurt the animals and don't feed on human blood.

Why They're in Trouble: A fungal infection called white-nose syndrome is killing bats in North America at an alarming rate. Bats worldwide are losing their homes to deforestation.

Why They're Important: Insect-eating bats help keep the insect population under control, while fruit bats disperse seeds and fertilize plants with their dung.



Timber rattlesnakes are rare in Wisconsin, in large part because of a bounty program that paid people for killing snakes. Photo by Bob Wickland

Snakes

Myth: Snakes are slimy and aggressive attackers.

Truth: Snakes have dry, smooth skin. Although some snake species are venomous, they usually would rather slither away than bite a human.

It's very rare to come across a venomous snake in Wisconsin. The best thing to do if you see a snake is to leave it alone.

Why They're in Trouble: Many species have lost their habitats to encroaching human development.

Why They're Important: Snakes are a vital step in the food chain, preying on rodents and providing food to predators such as owls.

GIVING A HAND FOR HEART-HEALTHY *BONOBOS*



Zuri the bonobo presents his finger to zookeeper Stacy Whitaker and veterinary technician Bob Korman so they can take his blood pressure. Photos by Mark Scheuber

Zuri the bonobo is an easy-going, quiet guy. He's not a leader of the bonobo group at the Milwaukee County Zoo, but he's as active as a typical bonobo, says Stacy Whitaker, lead bonobo keeper. You might not guess he was diagnosed a few years ago with heart disease. In fact, he might not be alive today if not for the Zoo's work studying heart disease in great apes. The Zoo was a founding partner of the Great Ape Heart Project (GAHP) and the first zoo to train bonobos for "awake" – without anesthesia – echocardiograms and blood-pressure readings. Through this work, Zoo veterinarians discovered Zuri's heart problems. With daily medication, he remains a healthy 19-year-old bonobo.

"Twenty years ago, sudden death was often the first and only sign of heart disease in great apes," says Dr. Marietta Danforth, GAHP project and database manager. "Today, through routine cardiac health screenings, we are able to detect and treat heart disease and reduce sudden cardiac-related mortalities."

Zuri's diagnosis didn't come as a surprise – his father died from a heart condition at age 14, quite young for a species that can live 40 years or more in captivity. In fact, cardiovascular disease is remarkably common in bonobos and other great apes. About 45% of captive bonobos that live past the age of 1 die from heart problems, says Dr. Vickie Clyde, Milwaukee County Zoo veterinarian. The disease often strikes males early, with many of them dying in their 20s or 30s.



Dr. Vickie Clyde Photo by Richard Brodzeller

At least, that's how it used to be. But Clyde and Zoo staff are contributing to the effort to slow the progression of cardiovascular disease, improve quality of life and extend lifespan in affected apes. The latest piece of that effort is a grant allowing the Zoo and its partners to study bonobo genetics and evaluate diagnostic tools such as finger blood-pressure cuffs.

Clyde has been collecting information about bonobo heart health since 2005 as the veterinary advisor to the Bonobo Species Survival Plan®, which manages captive bonobos in North American zoos. At the same time, the veterinary advisor to the Gorilla Species Survival Plan was collecting similar information. Their efforts became the basis for the Great Ape Heart Project based at Zoo Atlanta in 2010. Since then, the project has expanded to collecting heart data for chimpanzees and orangutans as well as gorillas and bonobos. Nearly every institution in the Association of Zoos & Aquariums that houses great apes participates, Danforth says.

Clyde and her team, including Zoo veterinary technician Bob Korman, local cardiologist Dr. Sam Wann and cardiac sonographer Leann Beehler, recognized the importance of measuring the bonobos' heart health often. That meant training the animals to get blood-pressure readings and echocardiograms (ultrasounds of the heart) while awake instead of putting them under anesthesia. Blood-pressure cuffs placed around the arm didn't work because the bonobos would panic when the cuff tightened. "We assumed they felt

like they were being grabbed, so they instinctively pulled back,” Clyde says. Instead, the team has trained 14 of the Zoo’s 21 bonobos to sit for blood-pressure readings using a finger cuff, which doesn’t cause as much alarm. “These finger cuffs really don’t feel like anything,” Korman says. “Even the really skeptical bonobos, after they feel it, they’re fine with it.”

The GAHP hopes to confirm that finger cuffs are an effective way to measure bonobos’ blood pressure through a three-year grant from the Institute of Museum and Library Services. The grant, now in its second year, has provided finger cuffs to the six other institutions in North America that house bonobos. With the additional data, the GAHP hopes to establish more reliable baselines for normal bonobo blood pressure.

After years of practice, the staff at the Milwaukee County Zoo has refined the process for taking bonobos’ blood pressure. They start by simply putting the cuff on the bonobo’s finger and letting the animal get used to the machine. In future sessions, the staff increases the pressure on the cuff, offering food rewards such as grapes for good behavior. One of the main challenges is getting the bonobos – especially the younger ones – to sit quietly for the procedure. “If you get a bonobo to sit still, that’s amazing,” says Whitaker, the bonobo keeper. Laura, the oldest bonobo in the group at age 50, is the best at keeping still for the readings, and younger bonobos learn from her, Korman says. “They just stick their fingers out,” he says. “It’s amazing. They see it and they imitate it.” As part of the grant, the Milwaukee County Zoo and GAHP have created a video to train other zoos in taking finger-cuff readings.

The data from these readings help zoos understand more about heart disease in bonobos and how to treat it. “We want to identify who’s at risk, treat them if they are at risk and help them live long, high-quality lives,” Clyde says. Affected bonobos are typically treated with human medicine, but veterinarians don’t always know how much to give them. The finger-cuff readings help the veterinarians determine if the medications are working or if the dosage needs to be adjusted.

The grant also allows the Milwaukee County Zoo and the Medical College of Wisconsin to look at bonobos’ genes to learn about the genetic causes of cardiovascular disease. Dr. Melinda Dwinell, associate professor of physiology at the college, says the team has mapped the genomes of three bonobos already – a father, mother and child – and plans to map six more. “We hope to identify some variants that are present only in the bonobos with cardiovascular disease that can be used to screen living bonobos and predict if they are at risk of developing the disease,” she says. “If they are at risk, it might be possible to treat them before they show signs of disease or alter their diet and environmental conditions to reduce the likelihood of mortality.”

The project still has much to learn about heart disease in bonobos and other great apes, including why the disease is so prevalent and how it differs from heart disease in humans. But it has made great strides that have benefited Zuri and many other apes. Zuri already has lived five years longer than his father and shows no sign of slowing down. “That’s a victory,” Whitaker says.

By Stacy Vogel Davis



Top: Milwaukee County Zoo staff measures bonobo Makanza’s blood pressure using a finger cuff and arm cuff to compare results while he is under anesthesia for a dental procedure.

Middle: Milwaukee County Zoo staff performs an echocardiogram (ultrasound of the heart) on Brian the bonobo in 2014. The Zoo is now able to perform echocardiograms on many of the bonobos while they’re awake.

Bottom: Dr. Sam Wann (left), a cardiologist, and Leann Beehler (second from left), a sonographer, serve as advisers to the Great Ape Heart Project and have volunteered many hours working with the Milwaukee County Zoo’s apes. Here they take an echocardiogram of Tommy the orangutan. Photos by Mark Scheuber

Keeper on the Spot



Photos provided by Joan Stasica



When the researchers found a giraffe, they photographed it, noted its location and attempted to get a DNA sample if they didn't already have one on file.

The keepers at the Milwaukee County Zoo don't just take care of animals here – many of them also participate in conservation initiatives around the world. In May 2016, pachyderm supervisor Joan Stasica spent 10 days in northwestern Namibia as a volunteer research assistant through the Giraffe Conservation Foundation (GCF). Namibia, located on the southwest coast of Africa, has a sparse human population but is rich in wildlife, including giraffes. Here's her story in her own words.

When I sat down to write this article, I was torn as to what aspect of the trip I should focus on, because to me it was all so incredible. Do I tell you about the stark beauty of the Namibian desert? Do I summarize the data we collected? Do I tell you the funny anecdotes, or describe the people I met? Maybe I can describe a typical day in the field.



Giraffes often gather in groups, making the team's job of identifying them even harder.

I always woke up early in the field. My companions referred to me as the camp barista, because I'd get up, build a fire and have the coffee ready before any of them emerged from their tents. I liked this cool, quiet alone time in the desert, listening to bird calls and the fire crackling. When my companions awoke – Emma, the researcher, and Gareth and Alice, British zookeepers – we'd have coffee and a simple breakfast. Then we'd clean up and double-check that the ATV was fully stocked. Our field equipment would already be packed: a high-quality camera, a GPS, binoculars, huge binders full of giraffe photos, a dart gun and supplies to preserve any tissue samples we collected. We also brought field guides of every description, a satellite phone for emergencies, our journals, extra sunscreen, hats and water bottles. In the back of the ATV was a very small fridge that plugged into the vehicle and housed the most treasured supplies of all: leftovers from last night's dinner that we would eat for lunch and a single beer or cider for each of us to drink at dusk. This would be our traditional "sundowner," the only cold beverage we'd drink all day.

Emma is a doctorate student from the University of Dublin studying several aspects of giraffe population dynamics. She goes out in the field every month. The primary danger facing giraffes in Namibia is habitat loss. Very little is known about how the Namibian giraffe population uses its habitat, so Emma is looking at the movement of groups and individuals through the region and some of the factors that influence that movement, particularly the seasonal stages of vegetation growth. She's also looking at the composition of groups and whether a few males are fathering all the young or many males are getting a chance to breed. This information should help GCF determine what to focus on when working on giraffe conservation in Namibia.



Joan Stasica stands in an elephant footprint while assisting with fieldwork in Namibia.



Garth and Emma compare the giraffe they just photographed with previously identified giraffes.

Most of our day was spent in the ATV. Emma would drive, and Gareth, Alice and I would scan the landscape for animal life. We'd usually stop to gawk and take pictures of any animal we saw, but when we spotted a giraffe, we got down to business. Let's say we spotted a single giraffe standing under a tree. Even as Emma was slowing the ATV, one of us would be trying to get a decent picture of the giraffe, preferably from the side. Someone else would be recording the GPS coordinates of our location, Emma would be reminding us to write down the species of tree the giraffe was feeding on, and whoever was left would be madly flipping through the binders of photos, trying to determine if the giraffe outside was already pictured and identified. The first day Gareth, Alice and I did this, it seemed ridiculously difficult; we were supposed to flip as quickly as possible through a binder with 50 to 80 photos of giraffes and identify the exact giraffe that was standing outside? It seemed impossible. But by our fourth or fifth day in the field, we were saying things like, "Oh, that's Coffee Girl; she's got that weird starburst pattern on her left side. We saw her yesterday."

If we found the giraffe in the binder, we'd record its ID number and name on our data sheet beside our GPS coordinates and the numbers of any new photos we'd taken. The binder photos also indicated which giraffes had been darted for DNA samples. If the giraffe outside had not been darted, one of us would carefully pass the dart gun to Emma, and she'd reposition the ATV until she had a good shot. The darts are designed to collect a snippet of tissue and then bounce off. If Emma hit the giraffe, Alice, Gareth and I would jump out of the ATV and retrieve the dart. (By this time, the giraffe would have angrily run off.) The darts were neon blue and usually easy to locate on the rocky desert soil. But occasionally one would bounce into vegetation, and finding it would become a group project. We'd then remove the tissue sample from the dart and place it into a tube of ethanol for preservation.

If the giraffe wasn't already pictured in our giraffe binders, we'd try to get a few pictures and record the photo numbers next to the GPS location on our data sheet. After returning from the

field, we spent a day in the GCF offices double-checking these unidentified giraffes, assigning them ID numbers, printing their photos and adding them to the binders.

So that was the procedure if we saw one giraffe browsing on a tree. It doesn't sound that complicated, right? But the thing is, we rarely saw just one giraffe, calmly browsing on a tree. We'd usually see five or six giraffes at a time, and they'd be wandering in and out of vegetation, and the data collection process would become exponentially more difficult.

Between giraffe sightings and data collection, we would drive through Emma's study sites and stop for lunch. Toward the end of the day, as the sun started to go down, we'd stop to collect firewood. Back at camp, Emma would make dinner over the open fire while Gareth, Alice and I double-checked our giraffe IDs for the day and did whatever data entry we could on the GCF laptop before it died. After dinner, we'd make tea, talk and watch the stars come out, and then we'd get ready for bed. It was a simple routine, uncluttered by phones, television and the Internet, and it was immensely satisfying. I will return to Namibia in February on a trip supported by the Zoological Society.

We always say our animals are ambassadors for their wild counterparts, but zookeepers are ambassadors as well. Trying to get the public interested and invested in wild animals and the environment is a big part of our job. Initiatives like this give us firsthand information to share with the public and helps us make our conservation message more personal and immediate. It also brings home to us exactly what we're working for. Seeing the wild versions of our animals, their habitats and the threats they face can spur us to work harder to get our message out.

By Joan Stasica

CRAZY FOR CAMELS!

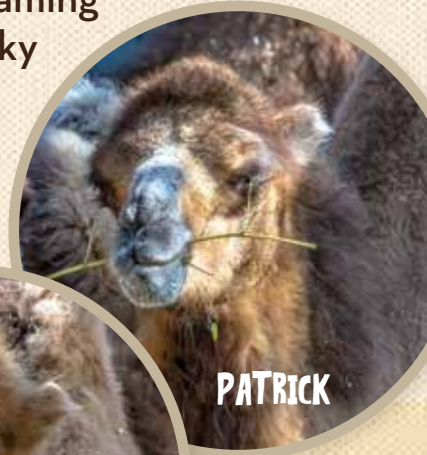
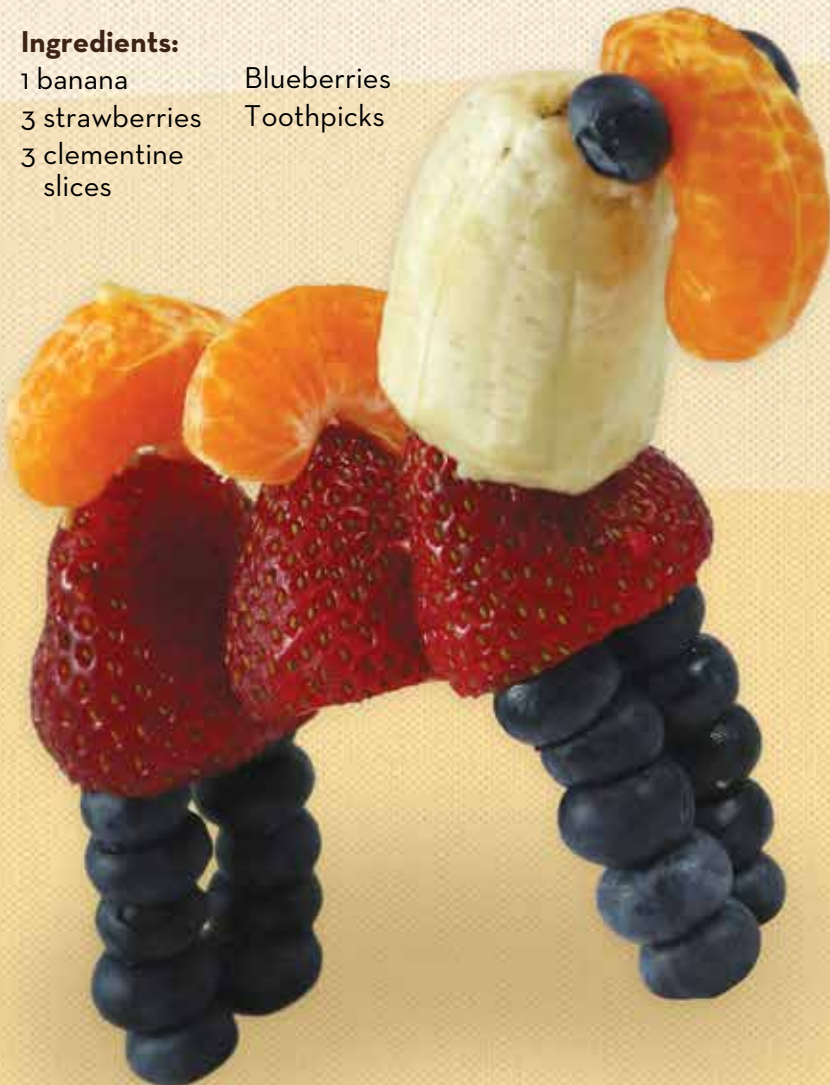
It's been an exciting year for the Bactrian camels at the Milwaukee County Zoo. This spring, the Zoo welcomed two new calves to the herd: Patrick, born March 5, and George, born May 22. While we usually think of camels roaming the deserts of Africa, Bactrian camels originate from the rocky deserts of China and Mongolia. They are adapted to withstand temperatures from -22 degrees to more than 100 degrees.

FRUIT CAMEL SNACK

Bactrian camels are herbivores, which means they eat only plants. Try out this snack inspired by the Bactrian camel's diet.

Ingredients:

1 banana	Blueberries
3 strawberries	Toothpicks
3 clementine slices	



PATRICK



GEORGE

Camel photos by
Joel Miller

Directions:

1. Slice the top off of three strawberries and attach them together with two toothpicks.
2. Attach clementine slices to the tops of the second and third strawberries to form the humps.
3. Attach two toothpicks each to the bottoms of the first and third strawberries. These will become the legs.
4. Put blueberries on the toothpicks to form the legs.
5. To make the neck, take half of a banana and attach it to the first strawberry with toothpicks.
6. Take one clementine slice and fasten it to the top of the banana neck to make the head.
7. Add a blueberry to each side of the clementine slice for eyes, and your fruit camel is complete!

EGG CARTON CAMEL

Did you know that unlike their Arabian camel relatives, Bactrian camels have two humps? Their humps store fat that can easily be turned into energy when food and water aren't nearby. This lets them walk for miles without getting exhausted. This egg carton camel craft is the perfect way to make your own camel with two humps.

What you'll need:

- Egg carton
- Brown paint and a paintbrush
- Four pipe cleaners - yellow, orange or brown
- Brown construction paper
- Scissors
- Black marker
- Hot glue gun



Directions:

1. Cut two egg sections out from the egg carton (keep them attached to each other) and paint them brown. Let them dry while you create the tail, legs and head.
2. Cut a strip of brown construction paper the length and width of your index finger. Add "hair" to the tail by cutting small slashes in the end.
3. Cut the shape of a camel head and neck from brown construction paper. Draw the eyes, ears and mouth with a black marker.
4. Curl a pipe cleaner around your index and middle fingers. Bend one end flat (this is the side you will attach inside the egg carton). Turn the other end into two camel toe loops so your craft can stand properly. Do this three more times for the other three legs.
5. Once the paint has dried, ask an adult to help you hot glue the head and neck onto the front of the camel and the tail onto the back.
6. Once the head and neck are dry, turn your camel upside down and attach its legs with hot glue. Make sure they are dry before standing your camel up!

DESERT SCENE

Materials:

- Blue construction paper or cardstock
- Several pieces of sand-colored construction paper (think red, yellow, brown and orange)
- Black construction paper
- A stencil or cutout of a camel. You can find a stencil at zoosociety.org/CamelStencil, or try creating your own!
- Scissors
- Glue



Directions:

1. Use your blue construction paper as the background of the camel masterpiece.
2. Rip strips of the sand-colored construction paper horizontally and layer them on top of each other on the blue paper to create the look of sand and sand dunes. Be as creative as you'd like!
3. Glue your strips of construction paper into place.
4. Trace your paper camel on black paper and cut it out.
5. Glue your camel cutout on top of the sand. Add as many camel cutouts as you'd like.

DID YOU KNOW?

The vast majority of camels are domesticated. There are only approximately 600 wild camels living in China and 450 in Mongolia. They are critically endangered, meaning they have a high risk of going extinct in their natural habitat. Wild camels lose their habitats to domestic or livestock animals and are sometimes shot by hunters to keep them away. Mining and climate change are also factors in their endangered status.

The Wild Camel Protection Foundation is a registered nonprofit organization determined to protect wild camels in the Gobi Desert. For more information, visit wildcamels.com.

Winterizing THE ZOO

When it gets colder outside, your daily life changes. You make adjustments around the house to keep it warm and prevent the pipes from bursting. You bring out the warmer winter clothes and shovel and salt the walkway. If it's too cold or icy outside, you stay in and find ways to entertain the family. Zookeepers take similar actions to get the animals and exhibits ready for winter at the Milwaukee County Zoo.

Winter Weight

Hibernation is probably the most well-known animal behavior in winter. What people may not know is how long it takes to get the bears ready. In September, zookeepers start adding fatty fish to the bears' diets. During this six-week cycle, the bears gain about 25% in additional weight. In the next stage, the bears eat every other day, then every third day as their metabolic process changes leading up to hibernation. In November, zookeepers fill the bears' dens with straw – about five bales per animal. “The four grizzly bears turn the straw into a powder. They stomp it down and tear



Grizzly bears get ready to hibernate in their den. Photo by Richard Brodzeller

it apart before finally resting on it,” says Dawn Fleuchaus, North America area supervisor. The black bears keep their straw piles bigger and climb in for their slumber. The Zoo's bears, with the exception of Snow Lilly the polar bear, hibernate from November to March or April. Don't be surprised if you see the bears walking outside in the winter. Sometimes they get up, walk outside, maybe eat some snow and then go back inside for more hibernation. The Zoo's badger, Oscar, also hibernates in winter. “We don't let him hibernate in the exhibit because his burrow holes could fill with ice or collapse,” says Fleuchaus. Instead, zookeepers make an insulated den box for Oscar.

You may joke about adding holiday or winter weight, but in the animal world adding weight can be a necessity. The Zoo's harbor seals add significant weight in the form of blubber before winter. The adult male, Ringo, can gain almost 100 pounds to stay warm. Like the bears, the weight gain is not a quick and easy task. “We don't let them just gorge on food; the seals need to add weight gradually,” says Fleuchaus. A gradual weight gain is healthier and keeps the seals active.

Ice Isn't Nice

Water and winter don't always go hand in hand, so zookeepers need to pay attention to the water in their areas. Warm water is added to the harbor seal pool to prevent it from icing over. While Humboldt penguins can handle a wide range of temperatures, their water is kept at about 50 degrees. In the camel exhibit, keepers insulate the water source with straw to prevent burst pipes. In the Herb & Nada Mahler Family Aviary, water is used to combat the dry air. Just as the constant heat in your home can dry out your hands, birds get dry feet. That's why you will see misting water more often in the winter. The outdoor water supply is shut off in other areas of the Zoo like you might do in your own home.



Seals enjoy their outdoor pool year round. Photo by Olga Kornienko



Peacocks get extra food from the keepers in winter. Photo by Richard Brodzeller

There are some animals you don't see in winter because they are in what the Zoo calls Winter Quarters. Animals that stay in Winter Quarters are mostly the hoofstock like impala, kudu, zebras and gazelle. "Most of our animals can be on exhibit if there is no ice and it's a sunny 45 degrees," says Danielle Faucett, area supervisor for Winter Quarters. But zookeepers also need to think about the health of the exhibits. "The savanna exhibit can become very soft after the snow melts, which means too many feet may destroy the grass. We want to take care of the grass so the impala and gazelle can enjoy it the following summer." The solution is exercise yards that zoogoers don't see. There is a covered yard behind the scenes that the animals can use during really cold or snowy days. There is a second exercise yard that is not covered. As long as there isn't ice, the animals can use it to stay active.

Keeping Busy

There is no black and white when it comes to elephants or giraffes in the winter. Each animal is different when it comes to tolerance. "The elephants, for example, might go out for half an hour when it's 35 degrees out, while the giraffes only get 15 minutes of access, and the tapir won't go out at all," says Joan Stasica, pachyderm area supervisor. She says the biggest challenge is to keep the animals busy and engaged when they aren't able to spend as much time outside. Parents might have a similar problem when it comes to keeping their kids entertained when they can't go outside in bad weather.

One way to keep the animals engaged is extra training. Since they aren't on exhibit, zookeepers can spend more time teaching the animals to help with their healthcare. For example, they can train an animal to offer a leg so zookeepers can do an exam. Other activities for the animals include enrichment items that stimulate their senses. "Enrichment is anything that makes the animals' environments different, day to day," says Stasica. She uses a lot of feeder items for the giraffes – large plastic toys, usually with one or two holes in them. The giraffes have to use their tongues to pull the food out. In Winter Quarters, a novel item like a snowman can stimulate the animals' senses. It's something for them to see, shred and feel. Music or nature sounds are popular forms of enrichment while the animals are inside.



Brittany spends a little time outside in the snow. Photo by Richard Brodzeller

Extra Attention

You can still see the peacocks walking around in winter. There are about 50 of them at the Zoo. Zookeepers need to feed them on a more regular basis in winter, not only because they need to gain weight but because there isn't as much food available. "During the summer they eat a lot of food dropped by the guests and also forage in the woods for natural food items, so they require less food from the keepers," says birds and family farm curator Alex Waier. Zookeepers set up warming sites for the peacocks around the Zoo with straw bales piled up to block the wind. You may see them outside the giraffe and primate buildings and near Macaque Island.

There are many animals that love the winter – snow leopards, red pandas, polar bear, elk and caribou, to name a few – just as some people do. Don't forget you can step into some of the buildings to stay warm and watch animals like the big cats, birds, fish, snakes and bats all winter long.

By Katie Krecklow

Remember, the Zoo's hours change in winter. The hours through February are **9:30 a.m.-2:30 p.m. weekdays,** **9:30 a.m.-4:30 p.m. weekends.**

ZOO BY THE NUMBERS

From a five-ton mammal to a five-gram amphibian, the Milwaukee County Zoo offers some eye-popping numbers. Here are a few facts you can use to impress your friends:

The Zoo has **3,342** animals representing **374** species.



African elephant Ruth, the largest animal at the Zoo, weighs **10,807** pounds or **5.4** tons. That's about the weight of an RV or mobile home. The Zoo's other elephant, Brittany, weighs **7,899** pounds. Happy the hippo weighs **5,296** pounds.



The green and black poison dart frog is one of the smallest species at the Zoo. It weighs just **5** grams, about the same as a piece of paper. The blue and yellow poison dart frogs weigh **7-10** grams.



The Zoo has about **340** birds in its collection, including about **50** peafowl, and more than **1,000** fish.



There are an estimated **10,000** trees on Zoo grounds representing more than **80** species.



Bahatika the giraffe is the tallest animal at the Zoo, towering over his visitors at about **13 feet, 6 inches**. That's more than twice as tall as an adult man.

21 bonobos live in the Stearns Family Apes of Africa building, making it the largest bonobo group in North America.



The Zoo sits on **190** acres, including the parking lot.

Penny swims through the African Lakes Exhibit. Fly river turtles are the only freshwater turtles with flippers. Photo by Bob Wickland



HAPPY ENDING FOR SMUGGLED TURTLE

At 26 pounds and 15 inches long, Penny the fly river turtle doesn't look like the type of reptile you could just plunk into a fish tank at home. But that was her likely destiny when she was caught from the wild as a baby and smuggled into the United States. Fortunately, she was confiscated by the U.S. Fish & Wildlife Service and now is able to live in the huge African Lakes Exhibit at the Milwaukee County Zoo.

Penny's story illustrates some of the threats facing turtles all over the world. The fly river turtle is listed as vulnerable by the International Union for Conservation of Nature because of its exploitation in the pet trade. "It's easy to go out and sell these turtles for high profit," says Melissa Spreda, a zookeeper in the Aquatic & Reptile Center.

Fly river turtles, also known as pig-nosed turtles, live in rivers and other freshwater bodies in Australia and Indonesia. They are the only freshwater turtles with flippers and are identifiable by their protruding snouts and leathery shells. Poachers typically catch the turtles before they hatch or when they're still quite small for sale as pets in developed countries, including the U.S. Most people who buy the turtles don't realize how big they will get, Spreda says. "No commercial tank you can buy at a pet store is going to be big enough for a fly river turtle." The turtles don't breed well in captivity, so almost all of the ones sold in the U.S. are imported illegally.

Penny, who is about 13 or 14 years old, probably was confiscated at an airport as a baby, Spreda says. She spent some time at the Los Angeles Zoo before coming to the Milwaukee

County Zoo in 2012. At the time the Zoo didn't have space to put her on exhibit, so she lived behind the scenes. This fall, keepers decided to try putting her in the exhibit with the African cichlids, where she has thrived.

Turtles are smarter than people realize. Penny is trained to touch a target so keepers can easily get her into and out of her exhibit. She enjoys getting her chin rubbed and her shell scrubbed, Spreda says. She likes interacting with puzzle toys as enrichment to find the treats inside, particularly when the treat is a fig, her favorite food. "She's like a big water dog," Spreda says. "She really interacts with her environment. She knows her keepers."

The keepers are grateful that Penny found a good home at the Milwaukee County Zoo, but many turtles aren't so lucky. While some turtles come to the U.S. from the Eastern Hemisphere, many others are heading in the opposite direction. "We are buying them for pets, while at the same time people are raiding our native turtle population and selling it to China for food," Spreda says. The vast majority of turtle species around the world are in decline. Turtles often nest in large groups, so entire generations can be wiped out by smugglers. "Turtles are pretty defenseless, despite having their tough armor," Spreda says. And they're not good pets for most people. "Their care is much more complex than just a tank with some water."

By Stacy Vogel Davis

Alive



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Fly river turtles are also known as pig-nosed turtles because of their protruding snouts.
Photos by Bob Wickland

A TURTLE TALE

Penny the fly river turtle seemed destined for a tragic life. She was smuggled as a baby from her home near Australia or Indonesia to the United States, intended as a pet for someone who probably had no idea how big she would get. But authorities confiscated her, and she is thriving in her new exhibit at the Milwaukee County Zoo – a happy ending indeed! Read all about her on page 15.

