



Alive

- Inside** • A Fish of Many Colors
- Bringing Exhibits to Life With Graphics
 - The Zoo's Dairy: Fun for Kids
 - Hand Surgeon Volunteers at the Zoo



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Chuck Wikenhauser (standing) with Dr. Robert Davis

Research here at the Zoo. Zoo Director Chuck Wikenhauser and I signed the proclamation creating the center in May (see photo). The center includes ZSM bonobo research and conservation projects in Africa, the Bonobo Species Survival Plan (coordinated by the ZSM's Dr. Gay Reinartz) as well as management and care of the Zoo's 17-member bonobo group. The announcement came during the premiere of our new outdoor bonobo exhibit, made possible by a generous gift to the ZSM from an anonymous donor. That donor and others also funded an impressive new, interactive graphics display near the indoor bonobo exhibit. In this issue we highlight the ZSM's Creative Department, which designed the bonobo graphics and, on a broader level, has created the "face of the Zoo" through signs, videos, artwork, special exhibits and more (see page 4).

Bonobos also serve as an example of our Zoo's leadership in animal health care. Like humans, great apes are suffering from an epidemic of heart disease. Lody the bonobo is one ape who has lived a longer life thanks to early detection of heart disease by zookeepers and veterinarians. His story (page 6) leads us into the discussion of how zoos are uniting to study ape heart disease, thanks in part to one of our Zoo veterinarians, Dr. Vickie Clyde. She helped bring together heart experts and ape specialists from across the country for a conference at our Zoo. She and Dr. Roberta Wallace, our senior Zoo vet, recently were honored for their leadership in conservation and animal-health efforts (page 3). Their professionalism has attracted many health experts, such as hand surgeon James Sanger (page 8) and ultrasound technician Leann Beehler (page 6), to volunteer their services to our Zoo.

In addition to our veterinary staff, other Zoo staff have been leaders in conservation and efforts to help animals. Craig Berg, reptile and aquarium curator, was honored by the ZSM for his international research on frogs and snakes (page 14). Carol Kagy, area supervisor for the Zoo's birds, demonstrates how our keepers go above and beyond to help birds breed (page 9). Bonobo zookeeper Barbara Bell (page 6) is a leader in training bonobos to help with their own healthcare.

In our mission to support the Zoo, the 101-year-old ZSM continually tries to update our operations. This fall the ZSM Board has proposed some changes that will modernize the ZSM's structure and functioning. See proposed Amendments to the Zoological Society of Milwaukee's Articles of Incorporation (page 12). We're proud of our century of success and the public-private partnership with Milwaukee County that has produced a top-notch Zoo.

Robert Davis

Dr. Robert (Bert) Davis
 Chief Executive Officer

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See the insert packaged with this *Alive* that includes a list of Serengeti Circle members and Platypus Society members.

ON THE COVER: A multitude of cichlids at the Zoo. See page 15.

Women of Dedication

Imagine more than 2,200 animals gathered in one place. They're as varied as elephants and bats, rattlesnakes and tiny birds, octopus and fish. The place is the Milwaukee County Zoo, and you'd think it would take an army of veterinarians to care for them. But you'd be wrong. There are two: veterinarians Roberta Wallace and Victoria Clyde. It's no wonder they were recognized as Women of Influence for 2011 by The Business Journal of Milwaukee in June. Dr. Wallace, senior staff veterinarian, has been with the Zoo for 22 years. She hired Dr. Clyde, staff veterinarian, in 1996. They are assisted by veterinary technicians, healthcare consultants and other Zoo staff. In addition to caring for animals and supervising a teaching hospital, both vets are involved in conservation and health projects. Dr. Clyde is the veterinary advisor to the North American Bonobo Species Survival Plan (which is coordinated here in Milwaukee) and she has helped develop a nationwide heart health program for great apes (see page 6). Dr. Wallace has led a 17-year research effort to study and help conserve Humboldt penguins in the wild and is the veterinary advisor to the Humboldt Penguin Species Survival Plan. Also honored as a Woman of Influence by the business newspaper was long-time Zoological Society of Milwaukee Board member Jill Pelisek of the University of Wisconsin-Milwaukee's Lubar School of Business.

Dr. Victoria Clyde (left) and Dr. Roberta Wallace

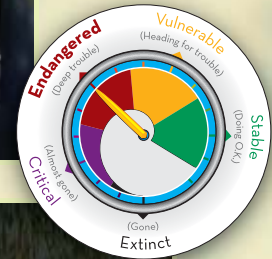


The Signs Are Everywhere



Far left: Marcia Sinner (left) and Roberta Weldon pause as they set up a life-size photograph of a healthcare consultant who works with the Zoo's bonobos. Left: Julie Radcliffe stands near a map of Salonga National Park showing the Zoological Society of Milwaukee's (ZSM)'s research station, called Étate.

Animal conservation gauge designed by the ZSM Creative Department.



The Zoo's new bonobo-graphics area features a diorama of Étate research station, with a guard figure created by Craig Yanek.

Sophia, a studious 3-year-old, stared at the word “bongo.” It was written on a sign in front of the exhibit for the forest antelope, called a bongo. Sophia pointed her little finger at the sign and proudly sounded out the letters to her mom, Shana Quandt of Brookfield: “B, O ... N, G, O.” Tyler Schanen, 9, of Muskego, pushed a blue button to view a video of the Zoo's bonobo moms and babies. Katie Miller, 9, of Green Bay, stopped at the sign in front of a golden lion tamarin exhibit to learn quick facts about the tamarins. “I look at the ‘Guess What?’ part in the sign first,” she said, “because it tells you something really interesting that you don't know about.”

For these three children at the Zoo last summer, the signs and videos did exactly what they were intended to do: grab attention and educate. Think about it: Hundreds of signs, banners and interactive displays throughout the Milwaukee County Zoo enrich your visit. Plus they provide a playful “look” to the Zoo. All these pieces were created by the graphic designers who work in the Creative Department of the Zoological Society of Milwaukee (ZSM). The signs, literally, are everywhere. You see the first banners as you approach the Zoo on Blue Mound Road. Then each admission gate has a different animal-coat design. Do you recall where you parked? Ah, yes: “You are in the Zebra Lot” announces a sign emblazoned with a zebra image and asking, “Do you know where zebras live?” Before you've entered the Zoo park, you're primed to think about wildlife.

The first animal exhibit to greet you features Humboldt penguins. It's lined with colorful and engaging signs about Humboldts – from their habitat off the coasts of Chile and Peru, to their conservation status (vulnerable), to the Zoo's Humboldt penguin research efforts in South America. You could learn a lot more about these penguins from stories published in Zoological Society publications (www.zoosociety.org, select Membership, then Publication Archive), which also are designed by ZSM artists. But signs need to be simple and child-friendly. “I had to put on kids' glasses to figure out what might appeal to them,” says Julie Radcliffe, the ZSM's interpretive graphics manager, who creates most of the educational signs. “Instead of just using bullet points of facts, I decided to enliven the text by using arrows, fun fonts, big question marks and images of the animals.” Roberta Weldon, senior graphic/multimedia artist and designer of *Alive* (the magazine you're reading now), created the status gauge for animal signs. This clock-like dial (see above) displays an animal's conservation status (stable, vulnerable, endangered, critical or extinct).



When the Zoo hosted an Association of Zoos and Aquariums convention in 2008, attendees praised Weldon's clever design. "I noticed that dial," says 16-year-old Kaitlyn Narr, from Slinger, as she stood at the elephant exhibit in July. "It's upsetting how many animals are endangered, but it's good for the public to know."

The Zoo wasn't always festooned with creative banners and signage and videos. "Many years ago in front of exhibits were green-painted wooden panels with white text of the common and Latin names of the animals, and a globe showing where the animal lived," says Radcliffe. "But there were no pictures." The Zoo's makeover began in 1997 when Marcia Sinner, the creative director, was hired. "When I started we had old computers and software that wasn't up to date, and the five designers had to share software," says Sinner. "My first budget got all the software and printers updated, which increased our efficiency." Sinner gradually added more advanced equipment until, eventually, the department could create much of what the Zoo and the ZSM needed without going to a lot of outside printers. Today, the Creative Department is responsible for all permanent and temporary (or event) signs and banners – try counting them sometime. Moreover, ZSM artists design all publications – that includes your *Wild Things* newsletter designed by Kevin de Wane and brochures for ZSM classes, recently designed by Isaiah Chentnik – plus hundreds of flyers, ads, invitations, cards and more annually. They also create animations, logo designs, dioramas and even T-shirt designs.

Want to know more about animal healthcare? In 2003, the department tackled its first large project to create a permanent Zoo display: the Holz Family Foundation Learning Zone annex to the new Animal Health Center. Here you'll find videos on what the veterinarians and other healthcare consultants do, a diorama of a snow leopard exam, and interactive displays featuring animal heartbeat sounds – all of it designed by ZSM artists. A second major project, in 2005, involved designing signs and interactive displays in the Florence Mila Borchert Big Cat Country, which included a behind-the-scenes video. For another huge project, begun in spring 2010 and funded by an anonymous donor, the Creative Department designed and built a huge graphics display near the bonobo exhibit, which is in the Willis G. Sullivan Bonobo Hall within the Stearns Family Apes of Africa Pavilion.

Both the ZSM and the Zoo do a lot for bonobos. The ZSM's Bonobo and Congo Biodiversity Initiative (BCBI) program – headed by Dr. Gay E. Reinartz – operates in the Democratic Republic of Congo to protect and study the endangered great ape. The Zoo has one of the largest groups of bonobos in the world, an invaluable resource for researchers. The Creative Department coordinated with Dr. Reinartz and the Zoo's bonobo zookeepers to determine the scope of the project. They decided to create a multi-media experience using short interactive videos, audio components, blown-up images on walls and a museum-quality diorama. Mary Kazmierczak, ZSM information specialist, provided much of the background research plus text editing. "For the BCBI component we wanted to convey what it's like traveling with Dr. Reinartz to the research station, and what it's like to live in the forest and do research on bonobos

there," says Weldon, who conducted 600 hours of shooting, interviewing and editing to create the exhibit's 46 short videos with Sinner, who did another 600 hours of editing work. Particularly striking is the diorama of Étate research station in Salonga National Park. It includes a life-size figure of a guard, created by diorama specialist Craig Yanek of Yanek Studios in Milwaukee. Nearby is a model of a pirogue – a dug-out wooden canoe used by Dr. Reinartz and her team – with a giant image of the research station in the background. "Kids love to sit in the pirogue and have their pictures taken," says Weldon. "It's another way the exhibit is interactive."

The second part of the exhibit is dedicated to the Zoo's bonobos and their care behind the scenes, as well as to national research being conducted on our bonobos. "We worked with zookeepers to find out what was important for the public to know about them," says Weldon. "The keepers were a great help, whether speaking on camera, answering questions, or even doing a bit of filming behind the scenes." Bonobos are conditioned to participate in their own healthcare, and videos show bonobos letting veterinarians examine their hands or letting specialists give them ultrasound exams. Other videos show zookeepers preparing food and explaining what bonobos eat, how much and how often. Sinner, Weldon and Radcliffe visited the bonobo holding area numerous times to shoot video. This entailed risks since bonobos are not always kind to visitors. "Those first few visits, we were prepared to be urinated on, or have feces thrown at us," says Sinner. Luckily, the bonobos held their fire. Adds Radcliffe: "I was surprised at how noisy they are, but they are clearly intelligent, and after a visit or two they remembered us, and they were curious about us."

The bonobo graphics project was above and beyond the day-to-day projects of the five-member Creative Department. "Each designer works on a number of jobs at any given time," says Sinner, adding, "One of the most difficult parts of the job is time management and task prioritizing." Another ZSM manager, Robin Higgins, praises Sinner's department. Higgins, vice president of Communications, Marketing and Membership, says, "Each artist brings a unique perspective to each project. The team's endless energy and enthusiasm for our Zoo is incredible. It is amazing to take a walk around the Zoo and realize how much they contribute to the image of the Zoo and the Zoological Society."

By Zak Mazur



Peering out from a model of a dug-out canoe used in Congo research are (from left) Tyler, Tim, Luke and Nathan Schanen.

The Heart of the Matter

Lody, one of the Milwaukee County Zoo's bonobos, wasn't feeling well. As the respected patriarch of the group, Lody often had the task of breaking up fights. But he began hanging back and got tired quickly. Barbara Bell, a bonobo zookeeper, noticed his unusual behavior and contacted the veterinarians. The zoo health team brought in

Leann Beehler, a cardiac ultrasound technician, to scan Lody's heart. The echocardiogram showed that Lody had a decrease in his heart function, which caused his lethargy. The great ape was put on heart medications and a lower salt diet. That was in 2005. Six years later, in summer



Dr. Vickie Clyde

2011, Lody was still alive and an active member of the group, thanks to his treatment.

Lody is an example of both a problem and one solution. The current epidemic of heart disease is not confined to humans. It shows up in all the great apes. But there's a mystery: The type of disease seems to be different in each. In humans, heart disease is mostly caused by coronary artery atherosclerosis. This is a condition where fatty material collects along artery walls until it thickens, hardens and blocks an artery. In contrast, great apes – which consist of gorillas, bonobos, orangutans and chimpanzees – suffer from interstitial myocardial fibrosis, which is a replacement of heart muscles by fibrous tissues that strangle the heart. Even hearts from wild gorillas killed by poachers showed some of the fibrosis. Exploring this perplexing difference between humans and apes may help our understanding of heart disease in both.

In captive bonobos (as well as in gorillas and orangutans), cardiovascular disease accounts for about 45% of adult deaths, says Dr. Vickie Clyde, one of the veterinarians at the Milwaukee County Zoo, which has a large bonobo group. Again, fibrosis of the heart muscles is usually the cause. Both male and female bonobos can have heart disease, she says, but males seem to be affected at a younger age. Dr. Clyde wanted to find some answers.

So did the Association of Zoos and Aquariums (AZA), a national accreditation group that our Zoo belongs to. Each endangered animal species (including the great apes) has an AZA Species Survival Plan (SSP), a captive breeding and management program. About 12-15 years ago, the Gorilla SSP veterinary advisor, Dr. Hayley Murphy, now based at Zoo Atlanta, began looking at gorilla echo-cardiograms with medical cardiologist Ilana Kutinsky, M.D., and developed a gorilla cardiovascular database. Then they formed the Gorilla Health Project with other AZA gorilla veterinarians.

In 1998, when Dr. Clyde became veterinary advisor to the Bonobo SSP (headquartered at the Zoological



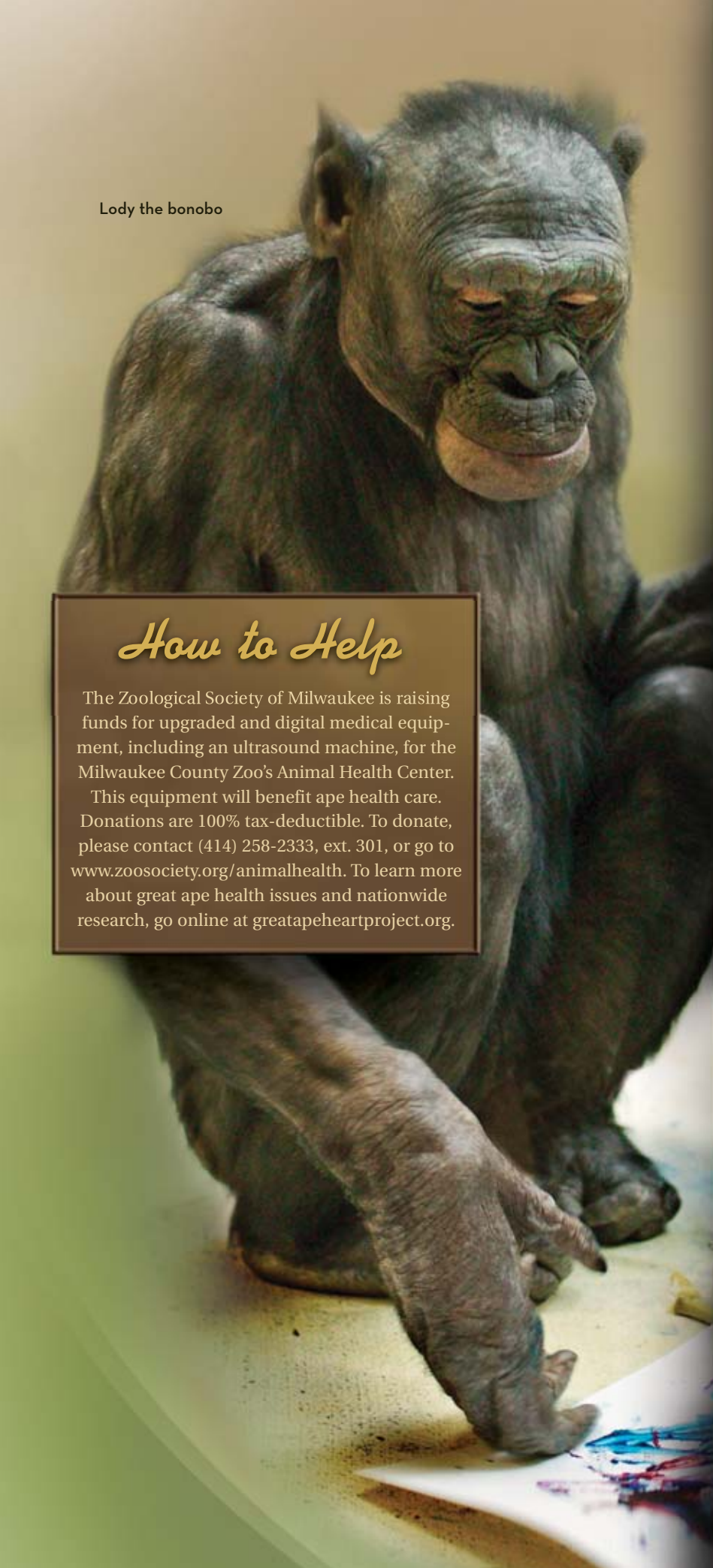
Photos above and below by Paula Brookmire



Enlarged gorilla heart

Dr. Linda Lowenstine (photo above), an ape-pathology expert from the University of California-Davis, presented a workshop at the Milwaukee County Zoo in 2009 comparing diseased ape hearts.

Society of Milwaukee), she reviewed causes of death in all captive bonobos in Europe and the U.S. and discovered the high level of heart disease. Luckily, ape keepers at the Milwaukee County Zoo had started training the apes in the mid-1990s to participate in their own healthcare. As they developed trust in their keepers, the animals learned to present their hands, ears, backs and other body parts for exams. This trust meant that many of the apes did not have to be anesthetized for scans. Bonobos allowed ultrasound probes to be placed on their chests as they leaned forward against the mesh front of their enclosure. With the help of Leann Beehler, a registered diagnostic cardiac ultrasound technician, who has volunteered her ultrasound screening at



Lody the bonobo

How to Help

The Zoological Society of Milwaukee is raising funds for upgraded and digital medical equipment, including an ultrasound machine, for the Milwaukee County Zoo's Animal Health Center.

This equipment will benefit ape health care. Donations are 100% tax-deductible. To donate, please contact (414) 258-2333, ext. 301, or go to www.zoosociety.org/animalhealth. To learn more about great ape health issues and nationwide research, go online at greatapeheartproject.org.

the Zoo for more than 15 years, our Zoo developed a databank of echocardiograms from both awake and anesthetized apes, says Dr. Clyde. This was valuable in determining the normal heart shape and function in healthy bonobos, as well as how to detect abnormally functioning hearts.

Keepers are the best people to detect warning signs of heart disease in apes, says Dr. Clyde. "The early signs of heart disease are very subtle. Even an ultrasound only picks up structural changes, and by the time you have structural changes, you have cardiovascular disease. So, how can we prevent it? We're trying to train keepers to be alert to animals like Lody the bonobo, now about 38, hanging back or sitting by himself." Zookeeper Bell's reports on Lody's behavior saved his life.

Over the years, as Drs. Clyde and Murphy compared notes, they realized that all four ape SSPs needed to coordinate their efforts – and they needed input from other experts. Dr. Clyde already had sought the assistance of Dr. Sam Wann, a Milwaukee cardiologist specializing in human heart disease, and of other medical specialists (see page 8). "We needed to find ways to identify animals with early cardiovascular disease and try to prevent progression of the disease," says Dr. Clyde.

So in 2009, Drs. Clyde and Murphy organized a meeting at the Milwaukee County Zoo that was called the Great Ape Cardiovascular Working Group. Both the Zoological Society and the Zoo provided assistance. "We brought together 25 people from the four ape SSPs: vet advisors, pathology advisors, cardiologists and ultrasonographers who were working with apes, as well as cardiac researchers collaborating with SSPs." Dr. Linda Lowenstine, professor of veterinary pathology at the University of California-Davis, who is also pathology advisor to all of the ape SSPs and has been studying heart disease for decades, presented a lab showing diseased bonobo and gorilla hearts (see photo). This 2009 meeting led to funding from a grant and to the formation of the Great Ape Heart Project, now based at Zoo Atlanta and headed by Dr. Murphy. "The overall goals of our group," says Dr. Clyde, "are first, to figure out what causes heart disease in apes so we can prevent it; second, to detect it early enough to do something about it; and, third, to fine-tune treatments so that animals – like Lody – can live longer, healthier lives."

By Paula Brookmire with contributions from Ben Wright

THE HAND-Y MAN



Far Left:
Dr. James Sanger
(bonobo photo in
background)

Dr. Roberta
Wallace (see
page 3) and
Dr. James Sanger
examine an
anesthetized
bonobo in the
Animal Health
Center.

Photo: Jean Gilomen

You could call him the bonobos' right-hand man. That's how the bonobos know Dr. James Sanger. It started during house calls to the Milwaukee County Zoo to see Maringa, a former matriarch of the bonobo troop. Dr. Sanger was treating an infected bite on her right hand. As Maringa held up her hand to be examined on one of his visits, other bonobos followed her lead. By the time Dr. Sanger had finished her exam, he had a whole line of bonobos with their right hands eagerly poised for examination, too. That's how he learned that bonobos like attention.

Dr. Sanger has volunteered his time – and hands – for 15 years to heal the hands of injured primates. As a professor of both plastic surgery and hand surgery at the Medical College of Wisconsin and chief of plastic surgery at Zablocki Veterans Administration Medical Center, he brings important expertise to the Zoo. He has operated on seven or eight bonobos, examined at least 15 others, and performed hand surgery on a gorilla and an orangutan. He was recruited by a colleague, urologist Dr. Frank Begun, who had worked with Zoo staff on a bonobo sperm- and egg-harvesting project. Dr. Begun, impressed with the Zoo staff, had encouraged area surgeons to help with Zoo animal needs. He knew that Dr. Sanger majored in zoology in college and might be interested in primate hands. "It was always fascinating to me how similar yet different various primates' hands are," says Dr. Sanger. "They all started as one common hand."

At the Zoo he assesses hand bites and infections, and also treats fractures, often due to falls and fights. For his safety, the surgeon doesn't treat a bonobo unless it's anesthetized, since these apes are powerful wild animals. Surgery isn't always necessary since open wounds and broken bones heal fairly easily on their own, he says. When surgery is needed, keeping a cast on these intelligent apes can be a problem since they often find ways to remove their casts. The one orangutan Dr. Sanger operated on

had fractured several fingers on both hands. To keep the ape from biting off its cast, he cast each arm from the elbow down and then cast the arms together behind the ape's back, to immobilize them. "Orangutans are extraordinarily adept. Had we not operated, the orangutan's fingers would have healed deformed and it wouldn't have been able to grab anything," says Dr. Sanger. "For quality of life, there was no question that we needed to perform surgery." A few days after surgery, he was amazed to find his patient climbing in its exhibit using its feet, its arms still in the cast behind its back.

Whether it's orangutan agility or bonobo group dynamics, the apes remind Dr. Sanger of humans. "When you're here, you start to study them like they study you, and you begin to realize why they do some of the things they do," he says. "Bonobos are so communicative. They have such personality and exhibit emotions that we feel" – from the affection between a mother bonobo and child to spats between bonobo "teens." Bonobos also have a hierarchy and may inflict bites as discipline. These great apes are often considered matriarchal, with females usually ruling the troop. On one visit, to examine the hand of an important female bonobo, Dr. Sanger found himself faced with a few male bonobos blocking his view of the female (to protect her) and ready to urinate on him – a territorial sign of aggression. It was only when keeper Barbara Bell calmed them with fruit treats and soft words that they relaxed. "I would've been rather wet and shocked," he says. "Thanks to keepers like Barbara and the animals' trust in them, it's possible to examine these apes." He notes that the bonobos seem to consider zookeepers "part of the bonobo troop."

Why does such a prominent Wisconsin hand surgeon volunteer at the Zoo? With volunteer work, he says, "you get more out of it than you put in. It's all interesting. I go into the Zoo for an hour, but I feel like I get three or four hours' worth of learning."

By Erica Breunlin

Motmot Matchmaking



Did you know that zookeepers are animal matchmakers? And, like people, animals can be picky when choosing a mate. Luckily, a male blue-crowned motmot that was introduced last May into the Herb & Nada Mahler Family Aviary hit it off with one of the resident female motmots. Within days of introduction, the two began burrowing a nest together in the free-flight exhibit, which is in the center of the aviary. “Motmots (shown at right) are unique because they dig tunnels into embankments that can be 6 to 10 feet long that lead into a nest chamber,” says Carol Kagy, the Milwaukee County Zoo’s aviary area supervisor. “The process of choosing and digging a nest together helps to build and maintain a strong breeding bond.” Indeed, by June the female had laid a clutch of three eggs. Since 2000, Kagy and her colleagues have crafted several nesting sites using PVC pipes that are usually about 5 inches in diameter. The pipes are filled with dirt, which the motmots then excavate. The pipes are fitted into various parts of the aviary. To date, 16 chicks have been hatched. Almost all of them have been sent to other zoos, although two chicks were awaiting transfer when we went to press.

Kagy maintains records of the motmot nests she has designed since Oct. 2000. Her findings, along with photos by aviary zookeeper Heather Neldner, were published online by the Coraciiformes Advisory Group, an organization that shares taxon (categorization) information about Coraciiformes with other institutions in the Association of Zoos and Aquariums. Coraciiformes are an order of birds (most of them colorful) that includes kingfishers, hoopoes, bee-eaters, rollers and hornbills. Kagy based her nest designs on successful models used at the Riverbanks Zoo & Botanical Gardens in Columbia, S.C. “Our motmots began excavating several sites in the aviary’s free-flight exhibit, finally settling on the current site, which has been successful.” Nests here at the Zoo generally consist of tunnels ranging from 2 feet to 7 feet in length and 5 inches in diameter that lead to a 12-inch-square nest box. The motmots do not always take to the nests, and sometimes they will excavate a nest but not use it for a year. Motmots may do this for two reasons. “We think they abandon the nest for one year to see if it can hold up to a rainy season,” says Kagy. “Also, if the nest appears to be abandoned, predators won’t waste time hanging out there. This is speculation, but it makes sense.” Zoogoers can see the entrance of the current motmot nest by entering the free-flight exhibit from the rockhopper-gentoo penguin area. Turn left and look up about 20 feet on the cliff wall to see the hole.

Blue-crowned motmots are not endangered. Their range extends from eastern Mexico through Central America to northern South America. The Zoo’s new male motmot, however, wasn’t captured in the wild. He came from the Denver Zoo, and for a very specific reason. “After our male breeding motmot died last year, we contacted Kevin Graham, an aviary zookeeper at Disney’s Animal Kingdom,” says Kagy. “He maintains a Species Survival Plan that lists the genetic lines of captive blue-crowned motmots in North American zoos.” Graham determined that the male motmot in Denver was the best genetic match for the Milwaukee County Zoo’s female. In return, the Denver Zoo will receive the first male chick hatched from our Zoo’s female. As for the June clutch of eggs, Kagy said they turned out to be infertile. “The male was introduced late in the season; so this will probably be the only clutch of eggs this year,” she says. “We will start up again next year.”



Carol Boyd Kagy, area supervisor for the Zoo’s birds (including these Humboldt penguins), has helped the Zoo’s motmots (see above) with their nests.

By Zak Mazur

Kids ALIVE

Tyler Schanen holds a glass of milk to show that milk comes from cows.

The Moo in Milk

Fun Dairy Treats:
Pudding
Chocolate milk
Custard
Milkshakes

What do cows like to do at the Milwaukee County Zoo? Greet you with a friendly “MOO” and make MILK of course, too! Did you know that the Zoo has its own dairy farm? You may be drinking some of its milk. It’s the only working dairy farm in the city of Milwaukee. And the farm is a place where you can learn all about cows and milk. Watch a real cow being milked! Play with Belle the Dairy Cow. She’ll teach you all about a cow’s anatomy, or body parts. Look for the giant milk, cheese and ice cream fence posts in the Munchkin Dairy Farm, presented by Northwestern Mutual Foundation. Then bring dairy farm fun home with you and have a dairy party with friends! Shake milk to music as you make butter using directions on these pages. Lead friends in a milk-tasting science experiment. Discover some foods and drinks that contain cow’s milk. And top your party off with ice cream!



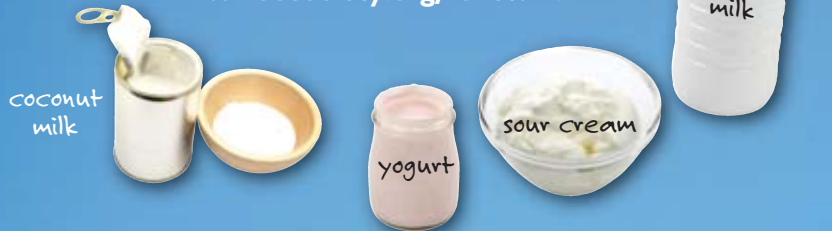
Tim Schanen

ice cream

Dairy or Not?

Did you get a healthy dose of dairy today? Dairy products contain milk and give you lots of the calcium and protein you need. Calcium builds strong bones.

Circle the foods that do **not** contain cow's milk. For the answers, go online to zoosociety.org/funstuff.



The Milk Challenge

(4 people minimum)

Science can be both fun and delicious. Try this experiment with your friends. You can be the scientist and your friends can taste-test four kinds of milk. Can they tell which is which? It's a milk mystery! Note: Ask an adult to take you to the grocery store to buy milk and cream.

Materials:

- 4 plastic cups (about 6-ounce size) for each taste tester
- Permanent marker
- Cartons of skim milk, 2% milk, whole milk and heavy whipping cream (preferably of the same brand)
- Pen, paper and chart printed out at zoosociety.org/funstuff

Directions:

1. Taste testers, line up 4 cups on table. Label side of each cup 1, 2, 3 or 4 with permanent marker.
2. Scientist, fill each cup $\frac{1}{4}$ of the way with a different kind of milk. Do not use the same order for all the testers. Write down on your chart which milk goes with which cup number for each person.
3. Taste testers, take a sip from each cup. Get a good taste of each one. Write your milk guesses on the side of each cup. Use these labels: "S" for skim milk, "2" for 2% milk, "W" for whole milk, and "H" for heavy whipping cream.
4. Scientist, check everyone's answers.

Bonus Milk Challenge:

Guess the percentage of total butterfat in skim milk, 2% milk, whole milk and heavy whipping cream. For the answers, go to www.zoosociety.org/funstuff.

Shake Your Booty for Butter!

Shake up your party with this dairy dance! Grab some jars and some friends. Then turn up your tunes, get "moo"-ving, and shake cream into butter.

Each person will need:

- $\frac{1}{2}$ cup heavy whipping cream (room temperature)
- 5-inch-tall by $3\frac{1}{2}$ -inch-diameter clear glass or plastic jar with tight lid
- Small bowl (right)
- Slotted spoon
- Pinch of salt
- Bread

Directions:

1. Pour cream into jar and screw lid on tightly.
2. Shake jar constantly at least 10 minutes. After 8 to 9 minutes, you'll see a light yellow clump. This is your butter! Keep shaking. More of the cream's fat will thicken into butter. (If you do not use HEAVY whipping cream, this may take longer than 10 minutes.)
3. When most of the cream's fat has turned solid, spoon it into bowl. Pour any remaining liquid down your kitchen sink drain.
4. Taste. Add a pinch of salt if it needs more flavor. Spread it on bread and enjoy. Refrigerate to preserve.



Luke Schanen shakes cream into butter. He put the butter in the blue bowl (top).



Proposed Amendments to the Zoological Society Articles of Incorporation

In 1953, the Zoological Society of Milwaukee County adopted its first Articles of Incorporation. The membership was considerably smaller then and the Articles were written for a small, hands-on organization of a few thousand households primarily from Milwaukee County with a few members residing in Ozaukee and Waukesha Counties.

Fast forward almost 60 years to 2011 and you will discover a much different organization. The Zoological Society of Milwaukee County (ZSM) now consists of more than 52,000 member households (an estimated 150,000 to 200,000 people). Most of them reside in the five-county area surrounding the Milwaukee County Zoo or in northern Illinois. This means that the processes used by the ZSM since 1953 are no longer as efficient as they could be. In fact, very few of the members currently exercise their right to vote, making it more difficult for the ZSM to operate effectively. In canvassing other non-profits in our area and looking at our peer zoos and aquariums, we recognized the need to update our Articles of Incorporation to make them more in line with the standard practices of other non-profit organizations and more consistent with the ways in which a modern zoo operates.

The ZSM Board of Directors therefore has proposed changes to the ZSM's Articles of Incorporation. The Articles of Incorporation contain ZSM's basic governing rules and are intended to set out, in broad strokes, how the ZSM is organized and operated. Please take some time to read the proposed changes in full at: www.zoosociety.org/articles. You also can review the summary information below. The Executive Committee and the Board of Directors have approved this proposal unanimously and ask that the members support it as well.

A meeting to vote on the proposed changes will be held at the ZSM at 4:30 p.m. on October 11, 2011. Please contact Jeanne O'Dean-Wotnoske (414-258-2333) by October 7, 2011, if you plan to attend so that we can arrange the necessary meeting space. A proxy form was distributed with the September-October issue of *Wild Things*. We have included another proxy form here for your convenience so that you can return it to us if you do not plan to attend the meeting on October 11th.

Summary of Changes

Most of the proposed changes to the Articles of Incorporation reflect contemporary language that more accurately defines the purpose of the ZSM today and that more closely reflects Wisconsin's current statutory requirements for organizations such as the ZSM. Below is an article-by-article summary of the proposed changes:

Article I

The proposed change to this article would add "Inc." at the end of the ZSM's name ("Zoological Society of Milwaukee County, Inc.") to comply with current statutory requirements.

Articles II and III

The ZSM is a tax-exempt charitable organization described in Section 501(c)(3) of the Internal Revenue Code. The proposed changes would update the description of the ZSM's purposes to include 501(c)(3)-required language regarding the ZSM's charitable, educational, and scientific purposes. The proposed changes would provide more detail regarding the restrictions applicable to the ZSM as a 501(c)(3) organization (e.g., the ZSM may not provide any private benefit or inurement, the ZSM may not engage in any political campaign activity). The proposed changes also would:

- Provide that the ZSM "supports" the Milwaukee County Zoo (rather than "fosters" the Milwaukee County Zoo).
- Clarify that the ZSM provides assistance to Milwaukee County in connection with the Zoo (rather than assistance to Milwaukee County, the Milwaukee County Park Commission, the City of Milwaukee, and other municipalities located in Milwaukee County).
- Add "educational programs" to the list of activities carried on by the ZSM.
- Specifically authorize the ZSM to make charitable distributions in furtherance of its charitable purposes.
- All other purposes and activities of the ZSM remain unchanged from the existing Articles of Incorporation.

Articles IV and V

The proposed changes would provide that the ZSM will not have voting members (all references to voting members elsewhere also would be removed) and that the directors shall not be treated as members for certain legal purposes. This change is needed to move governance authority to the Board of Directors instead of expecting 52,000+ member households to maintain voting responsibility. This change would align the ZSM's procedures with its peer non-profits in the community and also with other institutions within the zoo and aquarium community. ZSM members would still have the same benefits that they have today.

Board Update

Article VI

The proposed change would clarify that the ZSM shall be managed by its Board of Directors.

Article VII

The proposed change would add a provision stating that the Articles of Incorporation can be amended in the future by a two-thirds vote of the ZSM's Board of Directors.

Article VIII

As a 501(c)(3) organization, the ZSM is required to include certain standard language regarding dissolution in its Articles of Incorporation. The proposed change would add that language.

Article IX

This article identifies the ZSM's principal office, registered agent, and registered office.

MAIL-IN PROXY – PLEASE RETURN BY OCTOBER 11, 2011

ZOOLOGICAL SOCIETY OF MILWAUKEE COUNTY ANNUAL BUSINESS MEETING October 11, 2011

Notice is hereby given that the business portion of the annual meeting of Zoological Society of Milwaukee members will be held on Tuesday, Oct. 11, 2011, at the Peck Welcome Center Theater in the Milwaukee County Zoo, 10005 West Blue Mound Road, Milwaukee, Wis. It will convene at 4:30 p.m., with adjournment planned for 4:45 p.m.

The purpose of the annual business meeting is presentation of summary financial reports, election of directors, and proposed Amendments to the Articles of Incorporation. Refreshments or special programs will not be a part of the annual business meeting.

Rich Tennessen, *Chair of the Board*

To view candidates for election to the Board or to respond to this proxy online, go to zoosociety.org/About/AnnualMeeting.php. Please have your Zoo Pass member number ready.

PROXY CARD

The undersigned, a member of the Zoological Society of Milwaukee County, a Wisconsin nonstock corporation, hereby appoints:

Mike Carter, Treasurer of the Board of the Zoological Society of Milwaukee County
Maria Gonzalez Knavel, Secretary of the Board of the Zoological Society of Milwaukee County

or either one of them, as my proxies with full substitution, and I authorize either of them to cast my vote at the annual meeting of the members of the Zoological Society of Milwaukee County to be held at 4:30 p.m. local time, October 11, 2011, at the Peck Welcome Center Theater in the Milwaukee County Zoo, 10005 West Blue Mound Road, Milwaukee, Wisconsin, and at all adjournments thereof, with discretionary authority to vote in my place and act on my behalf on the following matter:

FOR or **AGAINST** approval of the proposed amendments to the Zoological Society of Milwaukee County's Articles of Incorporation.

YOUR PROXY MUST BE RECEIVED BY THE ZOOLOGICAL SOCIETY OF MILWAUKEE COUNTY, Attention: Secretary, 10005 West Blue Mound Road, Milwaukee, WI 53226, NO LATER THAN 12:00 P.M. CENTRAL TIME, OCTOBER 11, 2011.

- FOR** approval of the proposed amendments to the Zoological Society of Milwaukee County's Articles of Incorporation.
- AGAINST** approval of the proposed amendments to the Zoological Society of Milwaukee County's Articles of Incorporation.

Circle of Support

The Zoological Society of Milwaukee (ZSM) has presented awards to four recipients for their research efforts and financial support. They received the awards at the annual Serengeti Circle luncheon in May 2011. The Serengeti Circle recognizes grantors, sponsors and donors at the \$3,500 giving level and up. Each spring the ZSM holds a luncheon at the Milwaukee County Zoo to thank them, and this spring's event also honored the four award recipients. Featured here are three of them (one winner requested anonymity).

The *Pan paniscus* Award (formerly called *Gorilla gorilla gorilla*) was presented to Craig Berg, aquarium and reptile curator at the Milwaukee County Zoo since 1996. This marks the first time a Zoo

employee has received a conservation award from the Serengeti Circle. The award recognizes conservation projects that Berg has spearheaded to help Wisconsin's endangered species, including a "head start" program at the Zoo for the ornate box turtle. He also has promoted conservation of Wisconsin's massasauga rattlesnake and Butler's garter snake. Berg has studied and worked to conserve frogs and snakes in Central America and the Caribbean, particularly on the island of Grenada and in Panama. He is manager for the Zoo's iguana conservation program, and has been invited to help develop a conservation action plan for the island of Aruba. Berg has contributed to 18 publications and given numerous presentations about his work. The *Pan paniscus* award, given annually, is a framed footprint of an endangered bonobo.



The *Loxodonta africana* Award (a framed African elephant footprint) was accepted by Steve Steiner, senior vice president of North Shore Bank. The bank was honored for its longtime support of the Zoological Society and the Milwaukee County Zoo. The bank has sponsored the North Shore Bank Safari Train at the Zoo since 2005 and, since 2008, has sponsored (along with FOX 6) the Zoo's series of six annual Family Free Days, giving many families who might not otherwise be able to afford Zoo admission, a chance to enjoy a day at the Zoo. The free days are held once a month November through April. The *Loxodonta africana* award is presented to a corporation or foundation that supports the ZSM and the Zoo through grants and/or sponsorship.



The *Panthera leo* Award (a framed African lion footprint) was given to the Charles D. Jacobus Family Foundation. Missy MacLeod, president of the foundation, which has headquarters in Milwaukee, accepted the award. The foundation has supported the ZSM's Animal Ambassador program for more than 15 years. This program gives elementary students from schools in economically disadvantaged areas of Milwaukee County the opportunity to learn about wildlife and the environment that humans share with animals. The program makes it possible for second- through fourth-grade students to visit the Zoo and have ZSM educators visit their classrooms. The *Panthera leo* award is presented to an individual, corporation or foundation that has made a significant financial contribution and/or actively supported the ZSM's conservation education programs.

Cichlids

New research on the Zoo's colorful fish, June 2011
Aquatic & Reptile Center (ARC)

In the world of male cichlids, color patterns – not just color itself – can make the difference in which male is picked by a female. The Milwaukee County Zoo's 12,000-gallon African Great Lakes Aquarium is home to 1,000 cichlids representing 16 species, making it one of best places to study these fish. Since 2007, three men have been observing cichlids here, and they recently published their discovery that pattern can be more important than color or species. The researchers are Craig Berg, the Zoo's reptile and aquarium curator; Joshua Kapfer, assistant professor at the University of Wisconsin – Whitewater; and Michael Pauers, adjunct curator of fishes at the Milwaukee Public Museum and a lecturer in zoology at UW-Waukesha. "We observed the behavior of four species of cichlids," says Pauers. "Cichlids are great to study because they behave the same way in captivity as they do in the wild." The researchers focused on male cichlid aggression toward other males that could be competitors. They moved individuals into small aquariums for the research. Males of the same species but with different color patterns might chase and nip at each other, but they didn't really attack. Vigorous, biting attacks occurred when the fish had similar color patterns, whether they were from the same species or from entirely different species. "Thus, we discovered their aggression is prompted by color patterns and has nothing to do with their species," says Berg. Their findings have been published in prestigious academic journals such as Britain's Royal Society's "Biology Letters" and,



most recently, in "Ecology of Freshwater Fish." Berg and Pauers have been friends since college, when they found out they both loved cichlids. "There are about 2,400 species of cichlids," says Pauers. "They represent almost 10 percent of all known bony fish." Most are found in Africa's three Great Lakes: Lake Victoria, Lake Malawi and Lake Tanganyika, although cichlids also live in South and Central America, and parts of Asia. "Anybody can come to the Aquatic & Reptile Center to study aggressive male cichlid behavior," says Berg. "Look for a brightly colored individual swimming or floating near a rock with its fins sticking straight out. If you can identify that, look at what's going on around him. Chances are you'll see another fish doing the same thing near him. That's a sign of aggression."

Mandarins and Monogamy

New drakes arrived April 7, 2011
Herb & Nada Mahler Family Aviary

The male (drake) Mandarin duck has long played an important role in Chinese culture. One reason is obvious: the Mandarin drake's vibrantly colored, almost iridescent plumage inspires awe. "I think they're beautiful," says Alex Waier, bird curator at the Milwaukee County Zoo, which is why the Zoo added four drakes to its collection in April. Beyond beauty, the Chinese revere Mandarin drakes for the devotion they show to their hens, which is rare among duck species. Mandarin drakes usually reunite with the hens they mated with after the eggs have hatched. They even share scout duties and watch over ducklings. A Chinese proverb for loving couples uses the Mandarin duck as a metaphor: "Two Mandarin ducks playing in water." Oriental art often features Mandarin ducks, and the Mandarin duck symbol – 鸳鸯 – is commonly used at Chinese weddings. When Mandarin ducks molt, the drake becomes almost indistinguishable from the female, says Waier. The Zoo's Mandarin drakes last molted in June 2011 (larger photo taken in July). They will regain their full vibrant coloring (inset photo of duck at full color – Shutterstock) by spring 2012, but even now the birds stand out. Although the duck's natural range includes southeast

Siberia, China and Japan, small populations can be found in Europe and even North America. This is because they've been collected by Europeans since the 1700s. Over the centuries some have escaped. Habitat destruction has drastically reduced Mandarin duck populations in their native territories. Still, the bird has two things going for its survival: It is popular among bird collectors, and it is not hunted for food because it tastes awful.



Holiday Gifts for Animal Lovers

Go online to purchase these gifts: zoosociety.org/SocietyStore

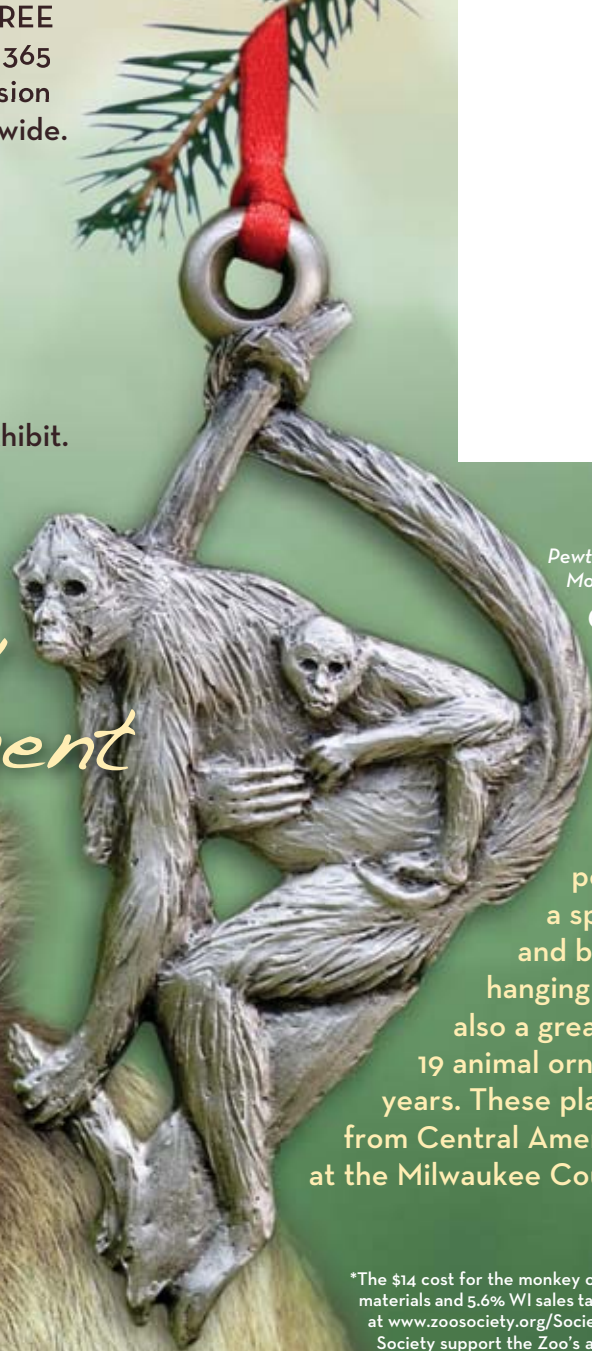
Get Your Pass to the Zoo

This holiday gift keeps on giving for a full year. The Zoological Society Zoo Pass gives you FREE admission to the Milwaukee County Zoo for 365 days. Plus, you get free or discounted admission to more than 150 zoos and aquariums nationwide. You can even include parking with the Zoo Pass Plus!

The Zoo Pass holiday package includes:

- A plush-toy animal (new memberships only and while supplies last)
- Four coupons: two for Zoo attractions and two for the Zoo's summer 2012 dinosaur exhibit.
- Information on membership benefits and a calendar of events

Spider Monkey Holiday Ornament



Pewter Spider
Monkey Ornament

Only \$14 each*

Spider monkeys love to hang from trees. That's why this year's holiday pewter ornament - a spider monkey mom and baby - is perfect for hanging in your home. It's also a great gift. Pair it with 19 animal ornaments from past years. These playful, agile monkeys from Central America are on exhibit at the Milwaukee County Zoo.

*The \$14 cost for the monkey ornament includes postage, mailing materials and 5.6% WI sales tax. Order this and past animal ornaments at www.zoosociety.org/SocietyStore. Proceeds help the Zoological Society support the Zoo's animals.