Alive

INSIDE

Mandrills of Africa

Teens off to Belize

Rhythm of Congo Research

An insider magazine for members of the Zoological Society of Milwaukee • Winter 2005

ZOOLOGICAL SOCIETY OF MILWAUKEE

CONSERVE • EDUCATE • SUPPORT

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

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President's Letter

This will be a very active year for the Zoological Society and the Milwaukee County Zoo. You'll find a lot more to do when you visit the Zoo throughout the year.

First, thanks to our large new education facility – the Karen Peck Katz Conservation Education Center – we are offering more sessions of our most popular workshops and summer camps. See pages 15 and 16. We also now offer online registration, thanks to a grant from SBC Foundation. This makes it far easier for you to register for our programs. You don't have to wait in line, and you'll know in minutes if a camp is full or if you're registered.

Next up is one of the most exciting touring exhibits we have had at the Zoo. The Oceanic Reef exhibit will exhibit live marine animals in the Otto Borchert Family Special Exhibits Building. While it opens Memorial Day Weekend, this exhibit will be set up months ahead because it will take time and testing to bring the saltwater tanks to the right temperature as well as to the correct salt and mineral content for ocean life. So prepare to be dazzled by sting rays and other reef animals.

In June, we plan to open the Northwestern Mutual Family Farm. This favorite children's area of the Zoo will undergo significant changes. There'll be colorful new play areas, gardens and fun activities. This is a place where children can get close to, and even pet, some of their favorite animals: chicks, ducks, horses, calves, pigs, porcupines and more. You can see animal presentations all summer in the Stackner Animal Encounter, which also will have a chick hatchery and several animal exhibits. Plus, we're constructing a new Raptory Theater.

In midsummer, the big cats and more will be back as we premier the new feline building, to be called the Florence Mila Borchert Big Cat Country. See update on page 21. We still need your help to finish this building and hope you'll contribute to our Annual Appeal (see back page).

Finally, we are working this year on a book about bonobos, those rare great apes that are so much fun to watch at the Zoo. The Zoological Society of Milwaukee is the leading conservation organization helping protect bonobos in the wild, and our conservation coordinator, Dr. Gay Reinartz, heads the Bonobo Species Survival Plan for bonobos in zoos in North America. The story of bonobo conservation has lessons for conservation of all mammals, and we need to spread the word to the public (see page 24). Thanks for all your support, and enjoy 2005 at the Zoo.

Gil Boese, Ph.D., President
Zoological Society of Milwaukee

Alive

WINTER • JANUARY-MARCH 2005 Volume 25, Issue 1

FEATURES

A wine-tasting event February 19 at the Zoo's Peck Welcome Center featuring gourmet food sampling and animal greeters is being coordinated by the West Suburban Chamber of Commerce to benefit its foundation and the Zoological Society of Milwaukee. For tickets ($50 each), contact **(414) 453-2330** or **info@westsuburbanchamber.com**.

Special Summer Exhibit Replaces Winter Exhibit

The Zoo will spend several months this winter setting up tanks for live animals in the Oceanic Reef touring exhibit that opens Memorial Day Weekend. So there will be no winter exhibit in the Otto Borchert Family Special Exhibits Building. Look for a story on the ocean exhibit in April's *Alive*.

DEPARTMENTS

KIDS ALIVE

On the cover

Gunite, the Zoo's male mandrill. See page 23.

The Field Trip of a Lifetime

By Julie Lawrence

Bags packed and passports ready, six Wisconsin high school students and one teacher boarded an airplane last August destined for the Central American country of Belize. As part of the Belize & Beyond program – a joint effort of We Energies and the Zoological Society – the students were selected to join instructors Kerry Scanlan and Francesca Jeffries of the Zoological Society and Sue Schenk Drobny from We Energies as "eco-scholars" in Belize. The group spent their week exploring and learning firsthand the importance of international conservation.

The students were only six of 600 students from nine Wisconsin high schools who participated in the Belize & Beyond program in 2003. The program has classes and field trips each fall that focus on comparing the ecology of temperate and tropical forests and how economic factors can affect the environment. Daniel Lesniak, the teacher who accompanied the students to Belize, is from South Milwaukee High School. The six eco-scholars were selected based on essays, interviews and activities:

Natasha Bolz
Port Washington High School

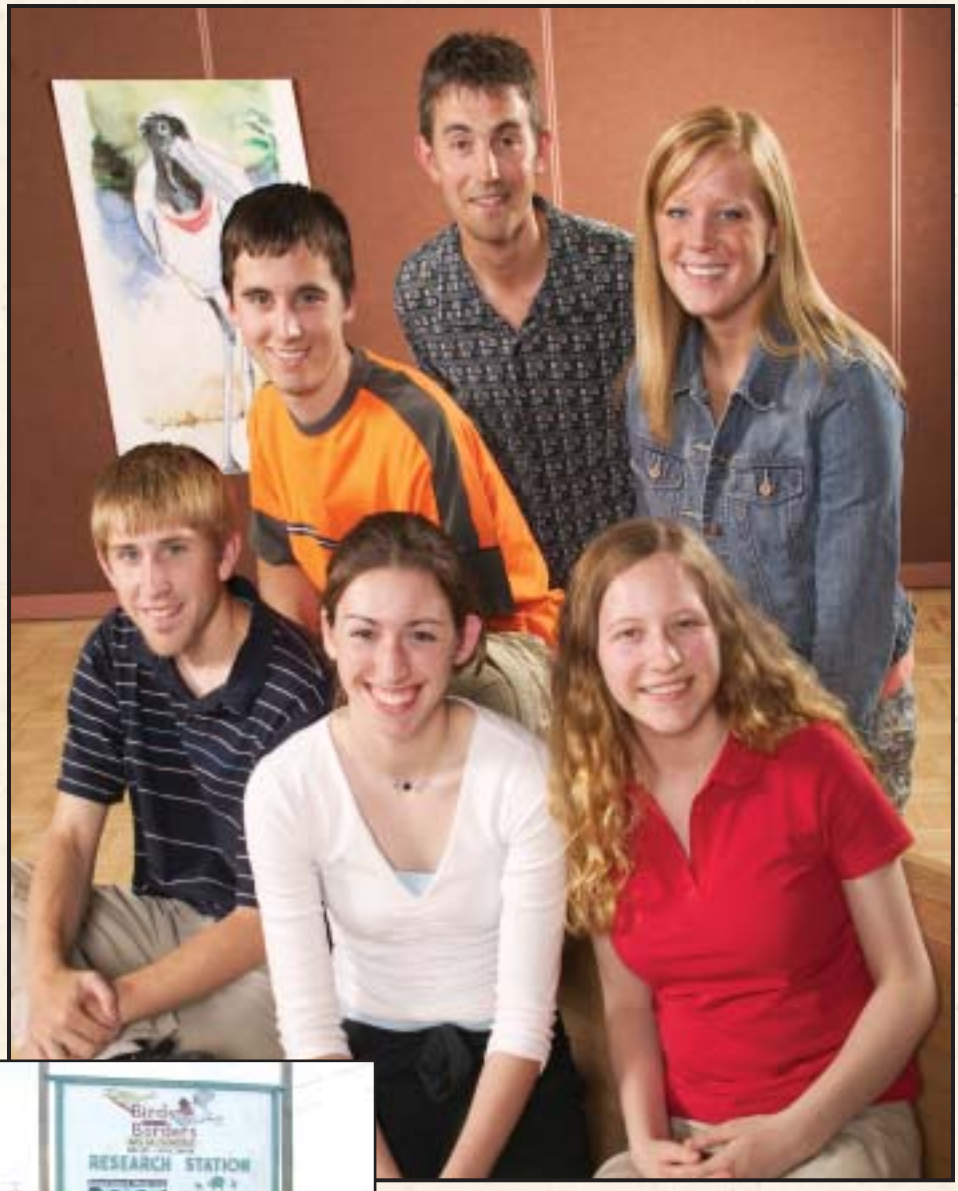
Scot Frassetto
Kimberly High School

April Janssen
Sheboygan North High School

Kristin Olson
Oshkosh West High School

Matt Rick
Kimberly High School

Bethany Simard
Appleton North High School



Milwaukee teacher Daniel Lesniak and five of the winning students met at the Zoo last June for a preview of their August trip to Belize. From left going clockwise are Scot Frassetto, Matt Rick, Lesniak, Kristin Olson, Bethany Simard, and Natasha Bolz. Not present was April Janssen. An illustration of a jabiru stork is in the background.

Belize & Beyond participants gather in front of a Zoological Society sign outside the Tropical Education Center, one of their "homes" in Belize. From left are Sue Schenk Drobny of We Energies, April Janssen, Scot Frassetto, Milwaukee teacher Daniel Lesniak, Zoological Society instructors Kerry Scanlan and Francesca Jeffries, Matt Rick, Natasha Bolz, Kristin Olson and Bethany Simard.

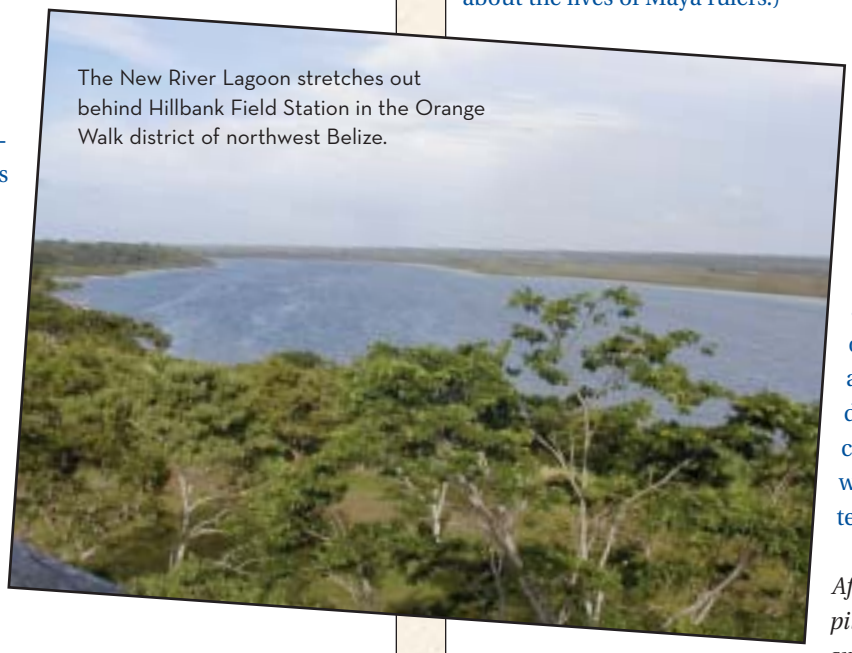
What follows are personal accounts of their experiences (with explanation in italics), taken from the daily journals they kept while they were there. You can see more photos from their trip on pages 12-14.

Day 1: Aug. 7, 2004 — "Arrive in Belize!"

The group flew in to Belize City and were greeted by staff from Programme for Belize, a Belize conservation group that works in conjunction with the Zoological Society of Milwaukee (ZSM). The staff drove them to the Hillbank Field Station, a research station in northwestern Belize within the Rio Bravo Conservation Management Area. This was to be their home for the next four days.

"On the way to Hillbank we saw a ton of wildlife, including large green iguanas, black howler monkeys and a spotted racer snake. Once we got settled in at the station, we took a walk around the grounds and spotted a falcon, grasshoppers of all different colors, and even a red butt tarantula!"

Natasha



The New River Lagoon stretches out behind Hillbank Field Station in the Orange Walk district of northwest Belize.

Day 2: Aug. 8, 2004 — "Early start today..."

Up at 5:30 a.m. and "birding" with Programme for Belize's tour guide, Jose, by 6 a.m., they were in for a long day.

"We actually got a late start because April's bags and our floors became infested with red ants. By 6:15, we were on our way to a very hot bird hike. Jose led us, using a telescope to point out everything he saw. The brown-hooded parrot was very cool, as well as the rufous-tailed hummingbird that we saw both in flight and perched."

After a presentation about the different eco-systems found in Belize – broadleaf forests, savannas, wetlands, and caves in limestone hills – they set out on a hike to experience the Belizean wilderness. "It was amazing! There were gigantic palms, long vines and a canopy keeping us covered and cool."

The afternoon brought more eco-adventure. They were introduced to the New River Lagoon and educated on its impact on the environment. "After the presentation, we paddled across the lagoon to Ramgoat Creek to see a forest of mangroves. It was incredible! We learned that the ones that don't touch the water are known as "fingers," or "appendages."

Natasha

Day 3: Aug. 9, 2004 — "Exploring Maya Ruins"

"After a few extra hours of sleep this morning, we took a large motorboat across the lagoon to the Lamanai Outpost Lodge, where the ancient Maya civilization once flourished. There we saw many cool artifacts like incense bowls, sculptures and stellae (massive stone slabs with carvings that tell stories about the lives of Maya rulers.)"

Jose led the students on a tour of the tropical forest where they came upon three Maya temples: Mask Temple, High Temple and Jaguar Temple. "The sun attacked us through the openings in the canopy, and although we were dressed lightly, we were consumed by sweat as we examined the three temples."

After their trek, everyone piled into the motorboat and headed back to the Lamanai Outpost for some much needed R and R. "On our way there we spotted a jabiru stork with the wing span of 9 feet!"

The busy day concluded with a tropical forest "frog walk," led by Jose. "We saw several cool tree frogs, but the best part was when everyone turned off their flashlights. It really allowed us to appreciate the blue-black vastness of the sky and the exuberance of the stars. The stillness of the night was amazing."

Bethany

Day 4: Aug. 10, 2004 — "Our first rain!"

"We began our day with an early rise to go bird-watching, by way of canoe, to see more of the lagoon's nesting birds. We saw a limpkin, whistling duck, muscovy duck, pygmy kingfisher and laughing falcon. The bird we got the closest to, the boat-billed heron, was my favorite."

During a presentation on the adverse affects of global climate change by Sue Schenk Drobny, the group experienced their first downpour in Belize. Although this was Belize's rainy season, rain had been scarce and the heat intense, even under the shade of the forest canopy. After a forester named Rick, who works for Programme for Belize, discussed forest protection and management, students ventured into the bush to see him in action. "Rick led us along a thick and winding path through the forest to show us some of the trees he's tagged." *The tags are used to tell which trees can be harvested.*

April

Day 5: Aug. 11, 2004 — "The animals of Belize"

"Today we waved goodbye to our Hillbank Field Station home and set off on our way to the Community Baboon Sanctuary." *The Sanctuary is 20 square miles of dense jungle, farmland, pasture and small villages. The area provides a sanctuary for large black howler monkeys, called "baboons" by the locals, and is home to several plants and trees known to have medicinal value.*

"We were greeted by Fallet Young, our very knowledgeable guide, who told us that the sanctuary is supported not only by the surrounding villages, but also by organizations such as the Zoological Society of Milwaukee!" *After a tour and lunch, they headed to the Tropical Education Center (TEC) near the Belize Zoo, their second "home" on the trip.*

"The Belize Zoo was nothing like our zoos in the States. You could walk right up to the enclosures, and all the signs were hand-painted. We saw many animals native to Belize, such as jaguars, spider monkeys, tapirs, jabiru storks and scarlet macaws."

Back at the TEC, Tony Garel, a Belize Zoo employee, talked about the problems that the proposed Chalillo Dam would create for scarlet macaws. "We learned that the dam would flood the macaws' breeding grounds, thus decreasing their population. What we hadn't realized was that the dam, despite its harmful effects on the macaw, was no longer 'proposed.' Unfortunately, it was actually being built while we were in Belize."

Later, they went on a special behind-the-scenes night tour of the zoo. "The girls got to hold a huge boa constrictor, which was kind of freaky. As we walked, we saw many of the nocturnal big cats, and got pretty close to the tapirs, too. It was a very neat experience."

Kristin

Eco-scholars touch a cut Mahogany tree in the sustainable forestry plot of Hillbank Field Station, a research station in northwestern Belize.

Students stayed in this tent camp at the Chaa Creek Nature Preserve.

Instructors Francesca Jeffries and Kerry Scanlan hold a flyer showing tropical butterflies on a visit to Green Hills Butterfly Ranch in the Cayo District of Belize.

Dan Lesniak keeps still so as not to disturb the butterfly on his neck.

Right: April Janssen climbs a tree in northwestern Belize as the others watch.

Above right: A lizard also climbs.

Day 7: Aug. 13, 2004 — "Last Day"

A long drive through Mountain Pine Ridge, a butterfly garden, and an excursion to Rio Frio Cave was how the eco-scholars spent their last day in Belize. On the way they discovered the damage that certain species were creating. "We learned that a tiny beetle was responsible for the destruction of many pine trees." *Overpopulation of the southern pine beetle is a serious threat to the lumber harvest in Belize. So far, clear-cutting a buffer zone in the forest is the only way to prevent the beetles from spreading.*

After a quick dip in the river, they pressed on to the Belize Botanic Gardens for a conservation and native flora tour. "One cool plant we saw was shampoo ginger. These plants' cones contain milky mucus which makes a great shampoo."

Scot

Day 6: Aug. 12, 2004 — "Morning bird-banding"

The travelers packed up again and headed west to Chaa Creek Nature Preserve for their final two days in Belize. From Chaa Creek they drove to Runaway Creek Nature Preserve, which is privately owned by the Zoological Society of Milwaukee's sister organization, the Foundation for Wildlife Conservation, Inc. (FWC), and is a ZSM conservation study site in Belize.

"We were greeted at the bird-banding site by David Tzul and Reynold Cal [ZSM employees who are Belize natives]. We were told to wear our rubber boots because it was wet and we were going to explore an underground cave!" *David and Reynold described how they study birds for the Birds Without Borders-*Aves Sin Fronteras℠ *research, conservation and education project coordinated by ZSM and FWC (see page 8).*

"After the lecture, it was time to check the site's net for fallen birds. We found two: an olive warbler and a slate-colored seedeater. We took the birds back to the banding table where Reynold and David measured their wing length and leg size. Finally it was time to band the bird. Reynold took out a tool that resembled a pliers, placed a tiny metal band around its ankle, and released the bird." *Bird banding is a way for researchers to track the migratory habits of these birds.*

Matt

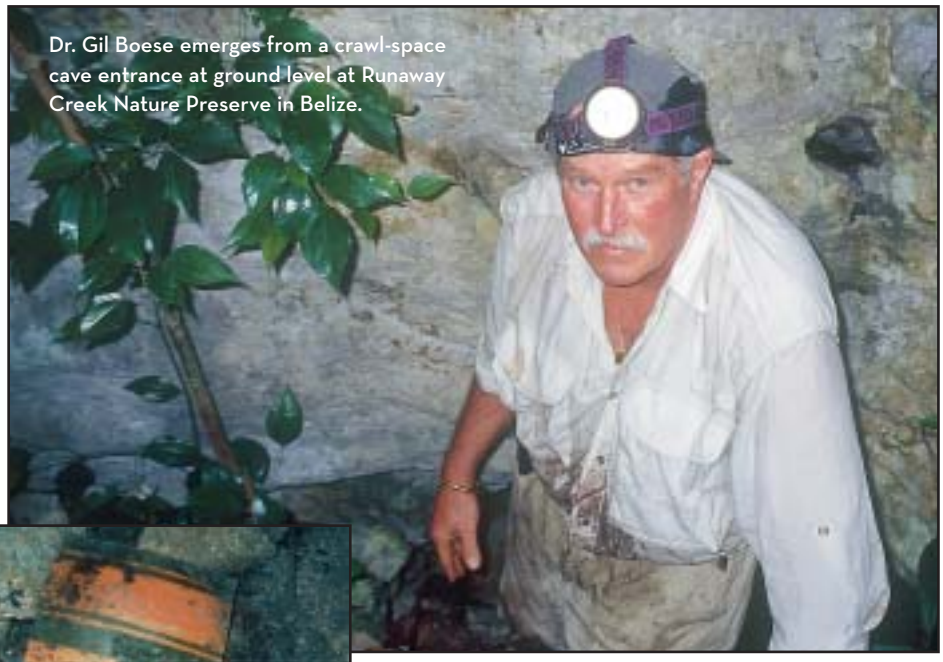
Getting around Belize by truck was part of the bumpy fun.

For more information about ***Runaway Creek Nature Preserve****, see pages 8-10 or go to* ***www.saveanacre.com.***

Lesson From the Shards

There are no real roads on this land. There are hardly any footpaths, unless you count the jaguar trails. But, then, the stealthy jaguars really don't leave trails. So when the men head out to explore, they usually take a four-wheel-drive truck as far as they can and then walk. Or they take a canoe, avoiding the crocodiles. Once on foot, they use machetes to forge through dense foliage toward, perhaps, the karst hills, limestone formations. It's hot. It's humid. The bugs are relentless. The men love it.

That's because you never know what you'll find on this unexplored preserve. The diversity of wildlife is impressive. So is the topography. During the rainy season, parts of the land are under water. Then there are those mysterious karst hills, filled with caves.



Dr. Gil Boese emerges from a crawl-space cave entrance at ground level at Runaway Creek Nature Preserve in Belize.

Shards of pottery designed by the Maya were found in caves at Runaway Creek Nature Preserve.

Photo by Vicki Piaskowski

The land is Runaway Creek Nature Preserve in the Central America country of Belize. Several years ago Dr. Gil Boese, president of the Zoological Society of Milwaukee (ZSM) and of its partner, the Foundation for Wildlife Conservation, Inc. (FWC), saved 6,137 acres in central Belize from development. The FWC bought the land and created a wildlife preserve. Now ZSM staff are exploring it. Dr. Boese participates on his visits to Belize three times a year.

It was on one of those explorations that the men, delving into one of the caves, came across evidence of an ancient civilization. The Maya had been here. There was pottery with unmistakable Maya symbols. The more they searched, the more they found: an abstract jaguar drawn on a cave wall; a bird (tody motmot) pictured on a broken bowl; a deer-like animal on a large plate; ceremonial bowls; petroglyphs.

So maybe this land was not so unexplored – at least in centuries past. Yet we know the land was not one of the centers of Maya civilization. You can see temples and other structures sprinkled throughout Central America where the Maya dwelled. It's very likely that the Maya who came to Runaway Creek were the remnants of a civilization that had come apart and had to disperse. "Our assessment is that the artifacts date to the post-classic period of the Maya, between 400 and 800 A.D.," says Dr. Boese.

"The fact that we're seeing the post-classic Maya period, at the end of the great population centers, shows that the Maya had moved from large centers to the rain forests and used caves when available. The pottery shows that they were still performing traditional rituals. They moved into the bush, but they took a certain amount of the culture and ceremony with them."

There is a lesson to us in these shards of civilization, says Dr. Boese. He quotes University of New Hampshire Archeologist William Saturno, who discovered a 2,000-year-old Maya mural in 2003 and spoke about it last October in Milwaukee: "You see a group of people, the ancient Maya, who 2,000 years ago conquered their natural environment, had cities, dramatic art, an understanding of the cosmos, architecture. And now there's nothing there but rain forest. It's gone," Saturno told the Milwaukee Journal Sentinel.

◀ A Maya plate found in a cave has a drawing (shown in outline form) of a bird that resembles a tody motmot.

Two bowls found in this cave have Maya designs.

Photo by Vicki Piaskowski

An abstract drawing of a jaguar, probably drawn by ancient Maya, was found in a cave at Runaway Creek Nature Preserve in Belize.

"They completely abandoned the previous way of life because they did so much damage to that environment they couldn't live there any more. They couldn't sustain all the things they accomplished."

Adds Dr. Boese: "My whole career has been based on understanding and preserving the environment. If we're not ecologically sensitive, we're not going to be sociologically successful. With all that skill and all that intellect, the civilization didn't survive. If you don't have the stewardship, you don't have the civilization."

So we have become the stewards of this land, says Dr. Boese. And, surprise, "we have walked into the middle of a natural history laboratory in the wild."

-Paula Brookmire

Right: Reynold Cal (foreground) led a tour of Crocodile Cave at Runaway Creek Nature Preserve in Belize for participants in the Belize & Beyond program. Behind him to the left are Zoological Society educators Fran Jeffries (far left) and Kerry Scanlan.

Photo by Joe Garel

A small ceremonial bowl and round plate used in Maya rituals were found in a cave at Runaway Creek Nature Preserve in Belize.

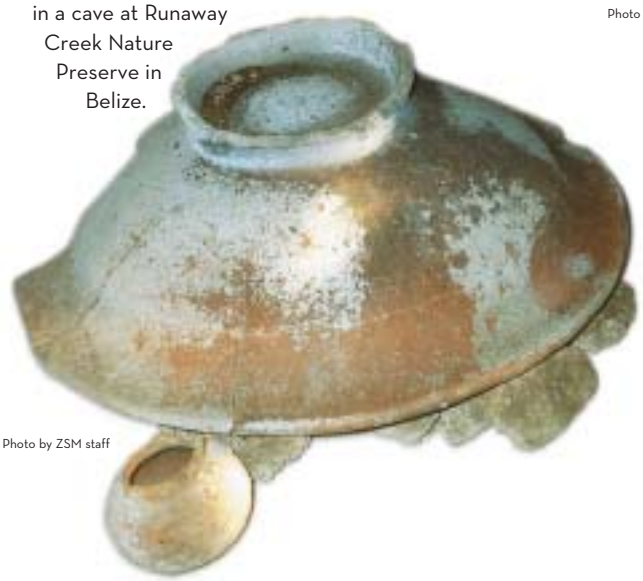


Photo by ZSM staff

EXPLORING THE BELIZEAN WILDERNESS

With more than 6,000 acres of pristine nature to explore in the lush greenery of a Belizean wilderness, Reynold Cal has what some would call a dream job. On any given day, you can find him hiking through hidden caves in search of Maya artifacts, trekking through deep valleys with jagged hillsides or simply trying to connect with and understand the complex ecosystem in the Central American country of Belize, where he lives and works.

Cal is a research associate for the Zoological Society's Birds Without Borders-*Aves Sin Fronteras*^{SM} (BWB-ASF) project. This research, conservation and education project coordinated by the Zoological Society of Milwaukee (ZSM) in cooperation with the Foundation for Wildlife Conservation, Inc. (FWC), started in 1996 to study migratory and resident birds in Wisconsin and Belize.

When he started working for BWB-ASF in January 2001, Cal admits that he really didn't know anything about the Zoological Society and very little about conservation. With his genuine interest in nature, field work and training, however, he has become a master of his environment. "I am now able to identify 90% of the birds in our nature preserve by sight and sound," he says. It's a skill crucial to his research.

Cal's collected data help the BWB-ASF staff plan the future of Runaway Creek Nature Preserve, a 6,137-acre study site in Belize owned by the ZSM's sister organization, the Foundation for Wildlife Conservation, Inc. "We rely on this information to determine which areas of the preserve would be best used for educational purposes, which would be appropriate for research, and which areas are best left undisturbed," he explains. Cal now manages the preserve. "My main responsibility is performing rapid ecological assessments of the area once a week. This involves exploring previously unexplored areas of the preserve and recording everything that we find, including birds, animals, caves and plants. We began just exploring the outskirts, but now we're making our way deep into the preserve. Lately, we've been traveling so far that we have to spend the night and return the next day. It's very easy to get lost."

Getting lost isn't necessarily a bad thing. He has stumbled across important artifacts. "The Maya have left signs of life." In most caves he has found pottery (some still intact), arrowheads, and, in some, actual coals left from fires burned during ancient religious offerings and rituals.

Cal has learned to be cautious, though. Some of his finds are alive. "We often see monkeys in the forest canopy or crocodiles and

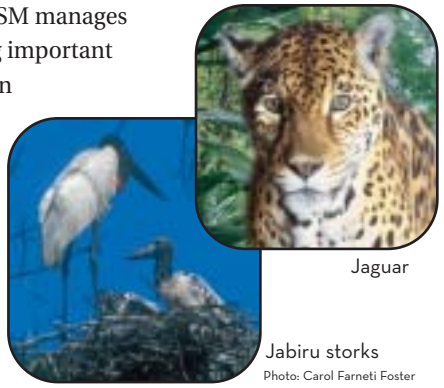
see **EXPLORING** *on page 10*

SAVE AN ACRE

SAVE AN ACRE
RUNAWAY CREEK NATURE PRESERVE

We need your help to protect a nature preserve in Belize. You've seen on these pages that Runaway Creek Nature Preserve is not only a home for endangered birds, jaguars and other wildlife, but it's also an archeological treasure. By helping the Zoological Society of Milwaukee (ZSM) protect this wilderness in Belize, you can help make a difference in one of the few Central American countries that still has large areas of undeveloped land. Wildlife throughout Central America faces threats from agriculture, pollution and poachers. Even nature preserves are vulnerable. Belize is important to us because many Wisconsin birds fly there every winter to survive. As the birds' wintering grounds shrink, our Wisconsin forests face the loss of more songbirds.

A few years ago the ZSM's partner, the Foundation for Wildlife Conservation, Inc., purchased 6,137 acres in Belize and created Runaway Creek Nature Preserve. This is home to howler and spider monkeys, crocodiles, jaguars, jabiru storks, tropical butterflies and exotic plants such as a rare passionflower. The preserve's habitats range from tropical forest to savanna, from limestone karst hills to the Sibun River. The ZSM manages the preserve and is doing important scientific field research on the land that will help conservation in all of Belize.



Jaguar

Jabiru storks
Photo: Carol Farneti Foster

Saving this sanctuary requires continuing effort, and we can't do it alone. If each of us supports just one acre, together we can save an entire 6,137-acre wilderness, one acre at a time. So far, about 100 people from Wisconsin, and across the country, have joined our conservation team by sponsoring an acre of land in Belize. You can help, too! Call Julie B. at (414) 258-2333 or go online at **www.saveanacre.com**. For $50 you can sponsor an acre of Runaway Creek Nature Preserve for an entire year. You will receive one year's enrollment in our electronic "Notes From the Field" program. These firsthand e-mail reports detail everything the field researchers observe and discover on the preserve. They are an interesting way to see how your contribution is making a difference.

RUNAWAY CREEK COFFEES & TEAS:

Last spring the Zoological Society launched a line of gourmet, fair-trade, organic coffees and teas to help support Runaway Creek Nature Preserve. A portion of each purchase is tax-deductible. Our five exclusive, custom coffee blends all are named after animals or flowers found on this wildlife preserve: **Jaguar Java**, **Monkey Mudd** (named after spider monkeys), **Crocodile Creek decaf**, **Jabiru Brew** (named for the jabiru stork), and **Passionflower decaf**. Coffees are micro-roasted in small batches in Milwaukee to assure you of freshness. Our four organic Runaway Creek Teas are from the Republic of Tea. Choose from **Ceylon Breakfast**, **Green Earl Greyer**, **Flowering Fruit Herb** and **Mint Fields Herb**.

TO ORDER, go to our Web site, **www.zoosociety.org**, and click on the Coffee and Tea link.

EXPLORING *continued from page 9*

snakes, which like to hide under rocks. You have to be really careful. About two years ago, I went to check the water levels of a cave at about 6:30 a.m. The cave had a 10-foot opening, which was covered by a huge boulder. So I climbed on top of the rock and shone my flashlight in the cave. I saw something move, and the next thing I knew, a large jaguar leapt out of the crack right below me. Once out, it stopped and stared at me for about 10 seconds before darting into the brush. That was the closest I've ever been to a big cat!"

For Cal, the jaguar was a good sign that endangered wildlife is flourishing. "BWB-ASF is doing a good job of keeping people aware of the hunter and poacher problem in Belize." Cal and other staff often present slide shows and give bird-banding demonstrations in schools. "Our message is to leave these animals alone because they are endangered."

The project also teaches landowners in Belize how to manage their land so it can serve as a breeding or stopover site for birds. "We've compiled a list of plants that birds and other animals feed on. At our talks, we emphasize the importance of sustaining a sanctuary for these trees." Their message is simple: When a habitat suffers, wildlife suffers. For Belize, where the economy thrives on bird-watching tourism, preserving natural areas for birds is vital.

Through education outreach efforts of Birds Without Borders-*Aves Sin Fronteras*, the next generation in Belize is learning at an early age why conservation – especially of birds and their habitats – is important. The next big step for BWB-ASF is gaining government assistance to prevent poaching, logging and other illegal activities that can occur on nature preserves. The hope is to exhibit Runaway Creek as a model for others interested in protecting Belizean land.

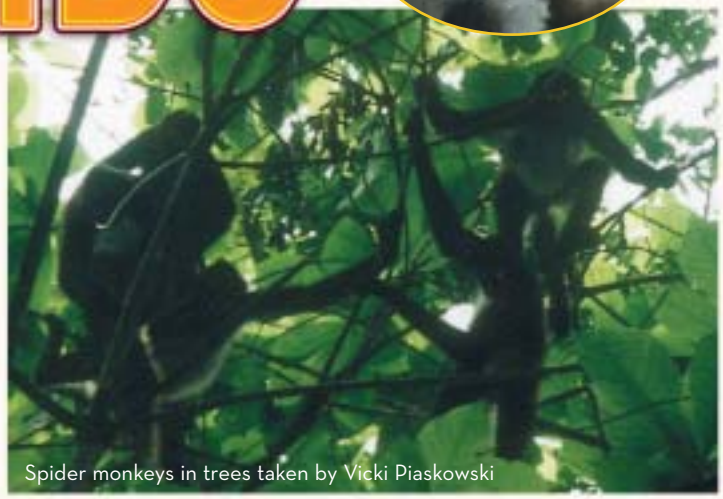
-Julie Lawrence

Kids Alive

You can pretend you're visiting Belize, like six Wisconsin teenagers did for real last summer (see pages 4 and 14). Come to the Milwaukee County Zoo to see the tapir and spider monkey. Both of these animals live in Belize. In this Central American country the Zoological Society has many projects to protect these animals.

Spider Monkey

What's that dark shadow up at the top of the forest? It has lots of limbs. It moves fast, like a spider traveling across your ceiling. But it's so big! It's a spider monkey. These monkeys move through trees as fast as humans can run on the ground. They swing with their hands, their feet and even their tail. The tail is like another arm because it can grasp branches. The underside of the tail has no hair and is lined with ridges that work like a human's fingertips. The ridges give the monkey a good grip on branches and help it pick up small objects. Spider monkey hands have no thumbs. Instead, they form hooks with their hands, making it easier to swing.



Spider monkeys in trees taken by Vicki Piaskowski

The Milwaukee County Zoo has seven black-handed spider monkeys. You can see them hanging around in the Primates of the World building. Myrtle and Bill are the older ones. There is also a young family of five. Each of their names ends with the word "tenango," which means "place that is walled." Mom Momostenango and Dad Quezaltenango have two sons, Chimaltenago and Huehuetenango. Their aunt is Mazatenango.

Belize Animals at the Zoo

Tapir at the Zoo

Baird's Tapir

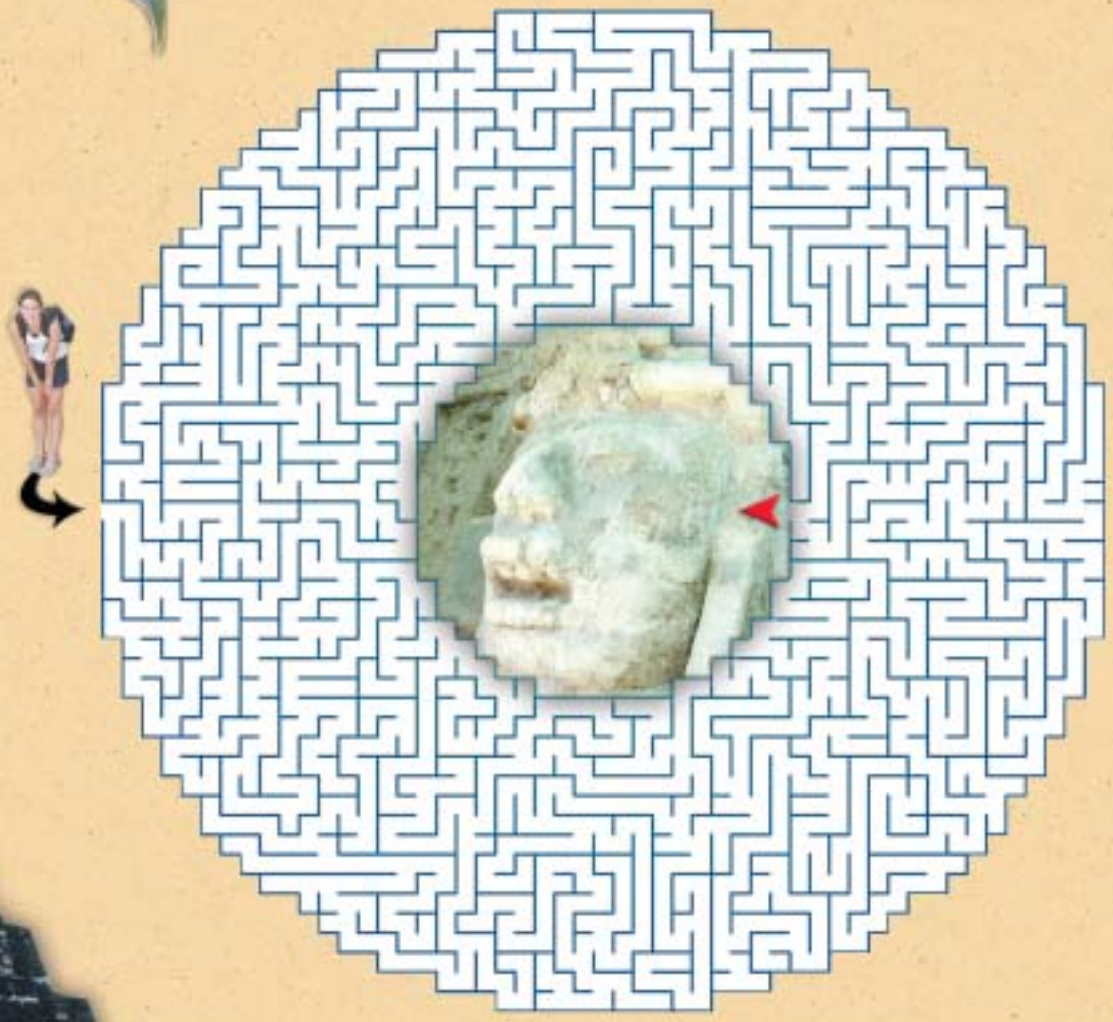
Watch out! There's a 700-pound tapir running at you in the Belize forest. It has a snapping jaw, a strong bite and tough skin. Tapirs are tough and can fight off many animals. They can even run after you in the water. They have a keen sense of hearing and smell. They know where you are. So it's much safer to visit the Baird's tapir at the Zoo.

What animals do you think are related to the tapir? Tapirs look a bit like anteaters, but an anteater's nose is long and rigid. A tapir has a short, fleshy snout. Just like an elephant, a tapir can use its nose to pull plants into its mouth. But it isn't related to an elephant, either. The clue is the tapir's cloven (split) hooves. The horse and rhinoceros are the tapir's closest relatives. Cloven hooves come in handy for walking on soft, muddy ground. Tapirs can walk or run with ease by spreading out their toes (three on each back foot, and four on the front feet). Unfortunately, their tracks are easy to see for hunters, one of their greatest threats.

You can see the Zoo's tapir family in warm weather in the South American yard. In winter they keep warm in Winter Quarters and are not on exhibit. Eve is the mom, Harley is the dad and Bobbi is their daughter.

Stone-Temple Maze

An ancient face was carved on a Maya temple in Belize (see photos below). Students from Wisconsin visited the temple in summer 2004. Pictures on this page show what they saw in Belize. Can you can find your way to the center of the maze and to the Maya temple?
(See page 4 for more information on the students.)



What's This Animal? Answer: spider monkey

What's This Animal?

24	25	20	12	4	19
2	5	8	18	4	7

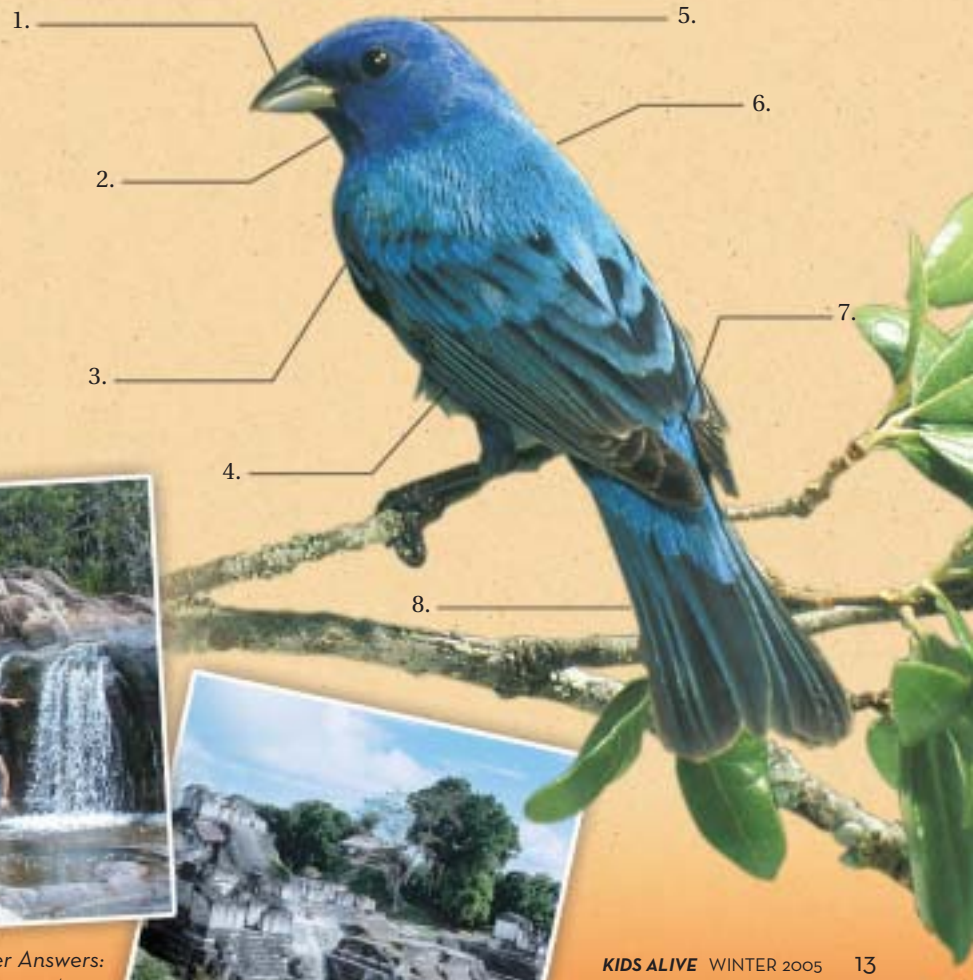
Look below for letters to go with the numbers above. Your answer will spell out the name of a Central American animal that uses its tail to grasp branches. With arms, feet and a tail to grip tree limbs, this animal can and swing from tree to tree quickly. This kind of grasping tail is called a prehensile (pree-**hen**-sil) tail.

A = 26	B = 3	C = 15	D = 12	E = 4	F = 16	G = 1	H = 17	I = 20	J = 23	K = 18	L = 21	M = 2
N = 8	O = 5	P = 25	Q = 14	R = 19	S = 24	T = 22	U = 13	V = 6	W = 11	X = 10	Y = 7	Z = 9

A Visit to Belize

Be a Bird-Watcher!

In Belize, Zoological Society researchers study birds that fly there from Wisconsin. Every fall, 114 species of birds from Wisconsin fly down to Belize for the winter. In spring they fly back to Wisconsin to have their chicks. This is called bird migration. You can be a bird-watcher, too. The first step is to learn the parts of the bird. See if you can fill in the names for eight parts of the bird at right.



Bird-Watcher Answers:
1. bill, 2. throat, 3. breast, 4. belly, 5. crown, 6. Back, 7. rump, 8. tail feathers

Teen Travels to Belize

What's better than seeing animals at the Milwaukee County Zoo? Going to visit them in the wild! Natasha Bolz, 16, of Port Washington, WI, had a great opportunity last summer. She observed tapirs, birds, spider monkeys, and crocodiles thanks to the Belize & Beyond program. This joint program run by We Energies and the Zoological Society of Milwaukee (ZSM) brought Natasha, five other high school students, and one teacher to Belize, a country in Central America (see page 4).

The journey to Belize started with Natasha's ecology class at Port Washington High School. The class focused on animals and their habitats. "ZSM and We Energies gave presentations on global warming, energy sources and conservation, and about different ecosystems and animals, especially birds. The first time we met with them, they told us that six to 10 students would be selected to go to Belize for one week. I immediately began to pursue this." Natasha needed to write three essays. One was about climate changes around the world. Another was about plants and animals that invade places they shouldn't be and push out other species. "The third was on how I would benefit from going to Belize and why I wanted to go."

Natasha did two other projects including a poster describing the effects of forest fragmentation (when large, continuous forests are divided into smaller sections as a part of development). Natasha was a finalist and, after an interview, won a spot on the Belize trip.

What was it like in Belize? "The birds were very exotic. Every morning we would wake up and hear their calls." Natasha got to jump right into the Belizean environment, literally, by swimming in a lagoon in northern Belize and canoeing through mangroves (swamps lined with trees that have roots sometimes growing above the ground). She hiked in a tropical forest, climbed Maya temples, and went on a night safari. In western Belize, she enjoyed the Belize Botanic Garden. North of Belize City, the capital, she got very close to black howler monkeys, affectionately called "baboons" by some of the local people, at the Community Baboon Sanctuary. In central Belize, she was fascinated by fluttering insects at Green Hills Butterfly Ranch and the rare jabiru stork at the Belize Zoo.

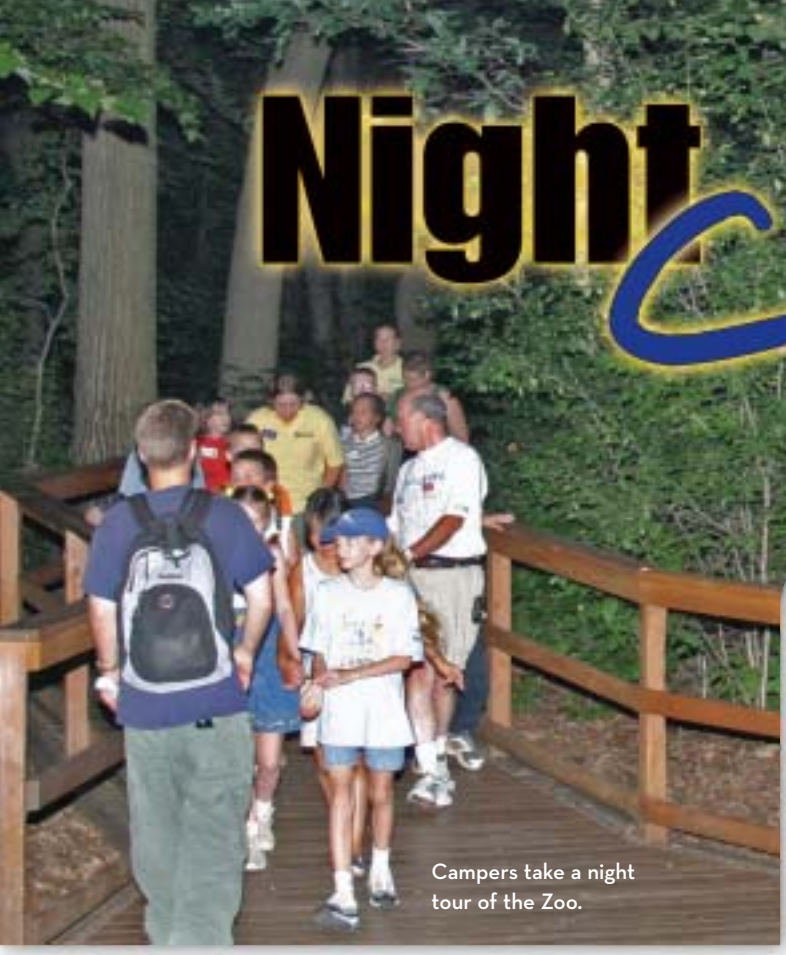
What does she remember most? Crocodile shining – using a light to make the eyes of crocodiles shine in the dark of night. "I have never seen a crocodile so close to me. One swam right under our boat."

Natasha Bolz

She didn't learn only about Belizean animals. "I learned about a different culture, environment, ecosystems." For example, she never saw "bleeding trees," tarantulas or mangroves in Wisconsin. "I understand more fully global warming, conservation, and (that)...everything a person does affects the environment somehow.... Conserving the tropical forest in Belize helps keep it natural and keep the habitats the animals need. Even though we may not always save a forest in Wisconsin, we can somewhere else, and it will still be beneficial."

-Teresa Dickert

Night Crawlers



Campers take a night tour of the Zoo.

When the sun sets and moonlight fills the sky, a whole new world emerges from within the darkness. Mysterious night creatures come alive just as we drift off to sleep. They live actively in the dark but, come daybreak, they leave few traces of their existence.

Through sensory exploration activities outdoors and educational games and projects in the classroom, campers at the Zoological Society's Night Crawlers overnight camp last summer discovered the amazing world of nocturnal animals. On a late-night tour through the Milwaukee County Zoo, campers were challenged to rely on their senses, just as animals do in the wild.

First campers learned how nighttime animals use their sense of sight for survival. Most nocturnal animals have keen vision, but are able to see the world only in shades of gray. While many animals are colorblind, some creatures, like bees, can see colors people cannot: ultraviolet light. In the darkness, nocturnal animals also have eye shine. Eye shine is when the backs of the eyes act as a mirror, and light reflects, or shines, off of the eyes. Did you know that it takes 45 minutes for human eyes to adjust totally to the dark? Once adjusted, our eyes actually can see better in the dark than those of a bear or a deer, and almost as well as those of a cat!

Campers also discovered how night animals depend on sound. Bats, for example, send out high-pitched squeaks that even the most sensitive human ear can't hear. The sounds echo off objects and help bats find their way. The ears of some animals are in odd places. You can find a grasshopper's ears on its abdomen, a cricket's ears on its legs and a frog's ears on the back of its head. Snakes, butterflies, moths and earthworms have no hearing at all. And while elephants and fennec foxes can hear, they also use their ears to cool off.

Then there's smell, perhaps the most interesting of the senses. Humans cover their smell with deodorant and perfume, but many animals rely on their scents to survive. They use their sense of smell to find food, attract mates, defend themselves and identify marked territory. Bears rub up against trees, leaving behind a scent that marks the edges of their territory. Impalas, fish and skunks give off an "alarm odor" when frightened, warning others to flee. While most animals have scent-producing glands on their anal region, deer have them on their legs, pigs on their knees, cats on their cheeks and elephants in the front of their ears.

Back in the classroom, campers made a colorful sand candle and created their own animal constellation and a mythical story explaining how the constellation was placed in the evening sky. After "campfire" songs and stories and a snack, campers – along with instructors and college interns – tucked into sleeping bags on the floors of the education building classrooms. Zoological Society Summer Camps 2004 were sponsored by PepsiCo Beverages & Foods and Pick'n Save. Last summer two Night Crawlers camps were offered for kids ages 9-11. In 2005, there will be three Night Crawler camps.

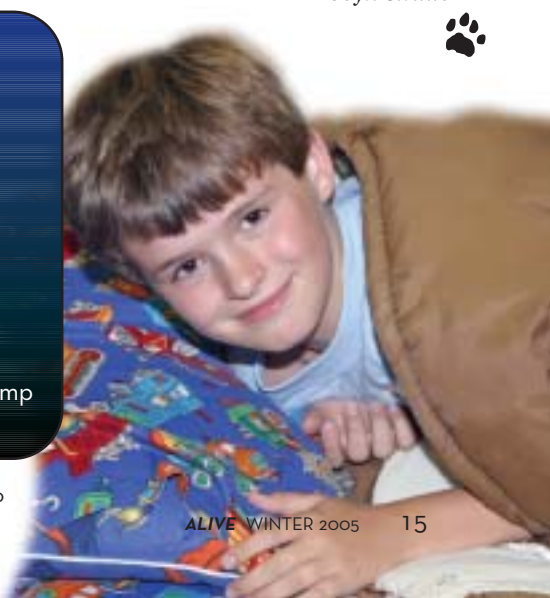
-Robyn Straub

Sign Up

for Summer Camps

To sign up your child for Night Crawlers overnight camp

Photos by Jennifer Richards



Joey Bougneit, 9, of Mukwonago tucked into his sleeping bag.

Education in a New

Light is pouring in, and so are the students. Everyone is enjoying the Zoological Society of Milwaukee's (ZSM's) new education facility at the Zoo. "What we notice the most is all the natural light that we have," says Dr. Dawn St. George, the ZSM's director of education. "It's just a very breathable building, very open."

The new building, called the Karen Peck Katz Conservation Education Center, opened in fall. With five more classrooms than our old building, we have been able to serve more students – 200 more just in fall – and increase the number of morning workshops, which are especially popular, says St. George.

The building's opening brought out dignitaries and the media to both a ribbon-cutting daytime ceremony and an evening premiere September 23. ZSM President Gil Boese, project manager for the facility, told the audience that all members of the building committee worked hard to finish it on time and on budget without sacrificing quality. Among that committee were Pat Dehn and Mike Borchardt of C.G. Schmidt, Inc., the contractor (interviewed in the story on page 18), and architect Paula Verboomen of HGA Architects & Engineers. She took time later to describe her goals for the 25,000-square-foot classroom and office building.

Karen Peck Katz, who is on the Zoological Society Board's education committee, is shown with her family applauding her efforts to get a conservation education building constructed. Family members (from left) are sister Jodi Peck and her husband, Les Weil; parents Micki and Bernard Peck, holding his grandson, 3-month-old Oliver Peck; Laura Peck (Oliver's mother); and Alan Katz, Karen's husband.

"Our primary goal was to respect the half-century-old tradition of quality buildings at the Zoo. Most of the existing non-exhibit buildings are done using local and natural materials, with a modern sensibility. By following this tradition, the building says 'Milwaukee County Zoo' without looking like … something from a land of make-believe. We did not use materials that look like something they are not," explains Verboomen. In fact, she worked to make the interior interesting by exposing the steel and wood structure and some of the ductwork. This can help children understand how a building is put together.

"We also wanted a building that is warm and welcoming. We achieved this by paying close attention to details and scale such as the window patterns and the sunshades, and by using materials with textural qualities and exploring how these different materials meet each other. The materials were chosen with an understanding of how light strikes their surfaces. The transparency of the gathering room (a two-story central atrium) offers a window to the Zoo, and its canopy serves as a beacon from a distance."

The upstairs offices, library and meeting rooms allow the staff to plan together while overlooking the plant-filled roof. "It has encouraged communication," says St. George, and it keeps our mission of conservation always in mind.

"The long and narrow site was challenging," Verboomen says. The building had to be sandwiched between the central parking lot and the Zoo Train tracks and still provide an

see **NEW LIGHT** *on page 19*

Light

One classroom was decorated for a workshop on ocean animals.

About 325 people attended the premiere of the Zoological Society's new education facility, many crowding into the central atrium, with windows looking into the Animal Adaptations Lab full of animal artifacts.

Earth-Friendly Education

The Zoological Society's new school at the Milwaukee County Zoo is no ordinary education building. In fact, it's a *conservation education* building, where all the workshops are concentrated on science-based curriculum and environmental awareness. So, it only makes sense that the very materials the building was constructed with fit within the same earth-friendly guidelines that the programs do.

"You can open almost every window in the building," says Mike Borchardt of C.G. Schmidt, Inc., the Milwaukee contractor involved with the project. "In most commercial buildings, the windows are fixed; so heating and cooling systems are almost always necessary. On nice days, opening a few windows is a natural and energy-efficient way to ventilate."

The Right Light

A major part of the building's environmental success is its incorporation of Wisconsin's Focus on Energy program, a statewide efficiency and renewable energy initiative supported by the Public Benefits Fund. The program is a public-private partnership of several Wisconsin energy organizations working for a stable environment by offering energy information and services for both residents and businesses.

As a part of this project, the new building's classrooms are filled with natural light from several windows with direct western exposure. Classrooms also have special lighting features, such as strategic switching of daylight controls. Each room has both an occupancy sensor and an "auto off" switch that control light fixtures near the windows. When a room is not occupied, the sensor turns the lights and the "auto off" switch off. When the room is in use, the lights at the windows must then be manually turned on. The extra effort helps to ensure that these lights are used only when absolutely necessary.

We Energies and the Milwaukee Metropolitan Sewage District (MMSD) both supplied grants for the building's green roof and energy-efficient lighting. Checking out the young plants are (clockwise from bottom right) MMSD's Chris Magruder, We Energies' Judy Mathewson, Ronald Pugh, David Ciepluch and Roman Draba.

Other energy efficiency tactics include the use of metal halide lamps, which incorporate what's known as "pulse-start technology." Simply speaking, this new technology offers a more reliable, and significantly longer, lamp life by revamping the ballast (the part that sends currents to the lamp and makes the light turn on). Another bonus is the lamp's enhanced ability to maintain consistent color temperature and performance, which results in vibrant displays and signs that won't appear washed out under bright lights.

The building also was designed with classrooms on only one side of each hallway (called a single-loaded corridor). This allows for direct natural light on each classroom's west side, and borrowed light from the day-lit corridor on the east side. This differs from typical schools with double-loaded corridors, or classrooms on both sides, resulting in dark, windowless hallways and a wider building. Our building's narrower structure allows more natural ventilation, thanks to lots of screened windows.

Go Green

Not all the improvements are inside. Up on the roof, you will not find the usual barren black sea of tar or gravel. Instead, the space is covered with growing plants, an innovative method to reduce storm-water runoff to benefit the environment. The Zoo's horticulturists, Ann Hackbarth and Noah Huber, maintain the roof's plants, which are mostly sedums, low-growing succulents that don't require a lot of work. During heavy rain fall, these plants act as a gigantic sponge in the midst of a densely cemented area. By soaking up excess runoff, the foliage protects sewers from getting clogged, which can lead to untreated sewage discharging into the watershed.

Relatively cost-effective, these appropriately named "green roofs" are becoming a trend across the country, particularly in urban areas. In 2003, We Energies and the Milwaukee Metropolitan Sewage District (MMSD) supplied the grants that allowed the Karen Peck Katz Conservation Education Center to construct one of about seven green roofs in Milwaukee. The others include the MMSD headquarters near downtown Milwaukee, the University of Wisconsin-Milwaukee's Great Lakes Water Institute, and the new Urban Ecology Center next to Riverside High School on Milwaukee's East Side. Garden roofs covered with numerous potted plants, such as the one atop Deborah Kern's Garden Room garden shop in Shorewood, accomplish some of the same environmental benefits.

Zoo horticulturalist Ann Hackbarth waters the roof.

Green roofs are also in the business of cooling things off. It's no secret that shiny, metal surfaces heat up fast under the sun. The "heat island effect" is what scientists call the generally higher temperatures in urban areas with many reflective buildings. Replace a reflective surface with lush greenery and heat will be absorbed when water from the plants evaporates, and surrounding temperatures decline.

The Karen Peck Katz Conservation Education Center is an example of "green" construction. "There are more and more buildings in Milwaukee, and the country, that are adhering to this practice," says Borchardt. In bigger cities like Chicago, green roofs have become a requirement for larger buildings. In Europe, he says, green construction is a standard practice. "Initially," he admits, "the cost of building green is higher than traditional construction." Over time, however, the energy savings outweigh these costs while significantly reducing pollution.

-Julie Lawrence

NEW LIGHT *continued from page 16*

outdoor activity area between the building and the tracks. So she created a long, narrow building. "We needed to maintain a safe distance from the train tracks for children's safety and to minimize train noise. We did not want the building to sit abruptly on the parking lot. Every inch we moved away from the train tracks encroached on valuable parking," she says. She succeeded, with cooperation from contractors and the Zoo, in providing a generous green outdoor area and a small green buffer on the parking lot.

Paula Verboomen of HGA Architects & Engineers designed the education building.

The narrow building has many advantages. It has good cross-ventilation. "We love the fact that the windows open and bring in fresh air," says St. George. Plenty of windows along the east and west walls of the building allow natural light to permeate the classrooms. The design is very energy-efficient (see story above).

The architect wanted the building to blend with its environment. "It needed to nestle in with the Zoo's edge and not dwarf its current or future neighbors," says Verboomen. So she broke the building into three nested sections: a one-story wooden section topped with a "green" roof, a second-story metal section, and an entrance portico visible from afar. "We used … somewhat prosaic materials in non-traditional ways…. Cedar siding forms the first floor, echoing the woody tree trunks of the Zoo's trees. Corrugated galvanized metal siding, a figuratively light material not unlike the leafy canopy of mature trees, forms the upper volume. A masonry base … grounds the building and follows the existing concrete block wall on the Zoo's sidewalk edge." The building will be a companion to a future new enclosed pedestrian entrance to the Zoo, where a pedestrian mall now exists (that building will be called the U.S. Bank Gathering Place).

How does the architect feel about the building now that it is open? "Seeing and hearing the donors mingling and admiring it on the night of the opening was very gratifying. Wandering the classrooms bedecked for the wonderful interactive programs affirmed we designed those spaces properly. But the greatest satisfaction of all was to have our 1-year-old son run enthusiastically through the gathering room to look at the polar bear in the Animal Adaptations Lab. The mission of the Society was so evident to me at that moment, and I was so proud to have been a part of the project."

-Paula Brookmire

Linking Chemicals & Animal Behavior

Are contaminants in our environment lowering our quality of life? This is a question that Ethan Clotfelter, a behavioral ecologist and professor at Amherst College in Massachusetts, may be helping to answer. In 1994, the Zoological Society of Milwaukee gave Clotfelter (below) a grant for conservation research, which helped him launch his career. "That field experience helped lay the foundation for my Ph.D., and that has helped lay the foundation for the rest of my work."

Studies have shown that many chemicals, such as pesticides, can have negative effects on animals. These chemicals particularly interfere with the endocrine system. The endocrine system regulates body activities through glands such as the pituitary, thyroid, ovaries, and testes. Clotfelter's work centers on the effects these contaminants have on behavior, as well as interactions between animal physiology and animal behavior. "Most of my research focuses on the selective pressures that shape animal social interactions, particularly reproductive, parental and aggressive behavior," he says.

Photos by Frank Ward

One of Clotfelter's projects involves studying the effects of chemicals called phytoestrogens on fish. He studies fathead minnows (*Pimephales promelas*) and Siamese fighting fish (*Betta splendens*), also known as bettas (small photo). Phytoestrogens are naturally occurring compounds found in many plants. Phytoestrogens have hormone-like capabilities that in some ways can have effects similar to pollutants such as industrial waste, pesticides, insecticides and hormones found in municipal waste. "Significant phytoestrogen levels have been reported downstream from some pulp and paper mills, but little is known about their effect on fish populations," he explains. Observing fish behavior is a good tool for studying endocrine-disrupting chemicals. Many fish species exhibit changes from exposure. Already Clotfelter has shown that phytoestrogen results in hyperactivity in fathead minnows, and he hopes to get similarly interesting results from Siamese fighting fish.

By studying how environmental contaminants alter the behavior of these species, scientists may discover ways to protect other animals and humans. Most of us know that chemical waste such as lead and mercury has an adverse effect on humans, but the consequences of many other chemicals on the human body are still unknown. The human endocrine system acts in a similar manner as that of "lower" vertebrates like the ones Clotfelter studies.

Clotfelter is also involved in a joint study with colleagues at Indiana University of how hormone levels influence the behavior of dark-eyed juncos (*Junco hyemalis*), a sparrow-sized songbird. He and other researchers put testosterone implants in both male and female juncos, and observed the behavioral and physiological changes that resulted from this hormone exposure. Previous studies showed that testosterone implants in male juncos decreased their parental behavior while increasing their energy allocated to courtship, mating, and territory defense. Clotfelter focused on females and found that testosterone implants delay their reproduction. "It also results in higher levels of testosterone in the eggs, which may have a cross-generational effect," he says. "There is also evidence that it makes females more aggressive and potentially less attractive to males."

Although these studies could be useful for humans, Clotfelter will stick with studying animals. "First and foremost, I am interested in the animals and animal populations."

-Teresa Dickert

A Natural Place for Cats

With only about half a year until completion, the renovation of the Florence Mila Borchert Big Cat Country is really taking shape. "The animals will return in April to get acclimated to their new surroundings," says Deputy Zoo Director Dr. Bruce Beehler. "We want them to feel completely comfortable before we invite the public in." The grand opening is scheduled for midsummer.

Key design features of the new facility give the feeling of expansion, although, technically, they are working with the same amount of space as before. Instead of several small exhibits inside, there will be four major ones, giving the animals much more space, which was gained partly by narrowing the wide walkways of the old building. "Even though the number of exhibits has decreased, we are actually going to have more animals on exhibit at one time than before," says Beehler. "Because we'll be able to rotate them between the indoor and outdoor exhibits, more animals can be out at once."

Each exhibit will feature large murals, natural looking rocks, and foliage reflective of the animals' native land. "We want visitors to get an accurate idea of what the animals look like in their natural environments," says Beehler. The jaguar area will resemble South and Central American rain forests, and the tigers' home will reflect that of a northern Siberian forest. The lions will have large Kopjee rock formations similar to those of the African plains to play on, but cheetahs prefer savanna and grasslands; so, naturally, their habitat will feature tall grasses and prairie-like elements.

The snow leopards, which prefer to be outside year-round, will forego an indoor exhibit for a large yard outside. These leopards love to climb to high altitudes; so their exhibit will resemble the foothills of the Himalayan Mountains, notes Beehler. In fact, an Asian theme will tie together the snow-leopard, Siberian tiger and outdoor red panda exhibits at the southern entrance to the building. At the north entrance, visitors will feel as if they are entering into an African savanna, says Beehler. A winding walkway (see above) weaves a path from one entrance to the other.

Thanks to Special Donors

- A major gift from the Florence Borchert Bartling Foundation allowed us to start the renovation on the Florence Mila Borchert Big Cat Country.
- Donors to the Zoological Society's Annual Appeal will help us to complete the building.
- Gordana & Milan Racic are lead donors for the

To contribute to the new Feline Building, please call us at (414) 258-2333, or go online at www.zoosociety.org.

Running Wild

Quick! What animal comes to mind when you think of the Zoo? An elephant? A giraffe? A lion? Far more common on the 200 or so acres of the Milwaukee County Zoo are hundreds of animals that are not technically on exhibit. They just run wild. These wild animals often are as fun to watch as the animals on exhibit. Chipmunks are the most populous small mammals, and there are several varieties of birds and bats. For at least five years, Zoo staff have been doing surveys of these wild animals.

The Zoo is a great animal refuge in the middle of a metropolis, notes Bess Frank, curator of large mammals. We have great-horned owls, red foxes, eastern chipmunks, short-tailed shrews, groundhogs, ground squirrels and even flying squirrels. In the past the Zoo had a herd of deer and a family of coyotes. There are probably too many raccoons, often popping up in Zoo garbage bins. There are skunks and numerous mice – white-footed, jumping and deer mice – and feral cats to catch them. Some of the animals cause problems, such as snapping turtles eating our trumpeter swan cygnets and Canada geese decorating walkways with dung. Other animals are life savers: Delicate fairy shrimp that grow only in spring puddles are important food for breeding birds such as pintail ducks. For the most part, this wild population adds to the park setting. In turn, the zoological gardens help preserve habitat for migratory birds, insect-eating bats and even blue-spotted salamanders.

"We want to understand the ecology of what's happening on Zoo grounds: which animals live here, migrate through and breed here," says Mike Frayer, an aviary zookeeper who has spent many a summer evening looking for bats. He and seven other Zoo Bat Action Team members have volunteered their time to set up delicate mist nets to capture bats, determine the species and sex, weigh and measure them, and immediately release them. Of the 25 bats captured since 2003, most have been big brown bats with some red bats. They caught one silver-haired bat and one northern long-eared bat. Two others – the little brown bat and the hoary bat – were identified by their calls. "We use bat-detector devices that are able to pick up the bats' high-frequency echolocation sounds," says another volunteer, Dawn Fleuchaus, the Animal Health Center supervisor. Of the seven species of bats in Wisconsin, six of them have been identified as visiting the Zoo.

For the small-mammals study, Fleuchaus and Zookeeper Earl Conteh-Morgan have used a variety of ways to trap or track animals, weigh and identify them, then release them. With track stations, they place bait and contact paper behind a strip of carbon powder or chalk, explains Fleuchaus. "The animal walks through the powder to get to the bait, and ends up leaving footprints on the paper that we can use to identify it." Their study also confirmed that small, burrowing, 13-lined ground squirrels have abandoned Zoo grounds as a habitat. Once abundant throughout the park, these squirrels now are nowhere to be found.

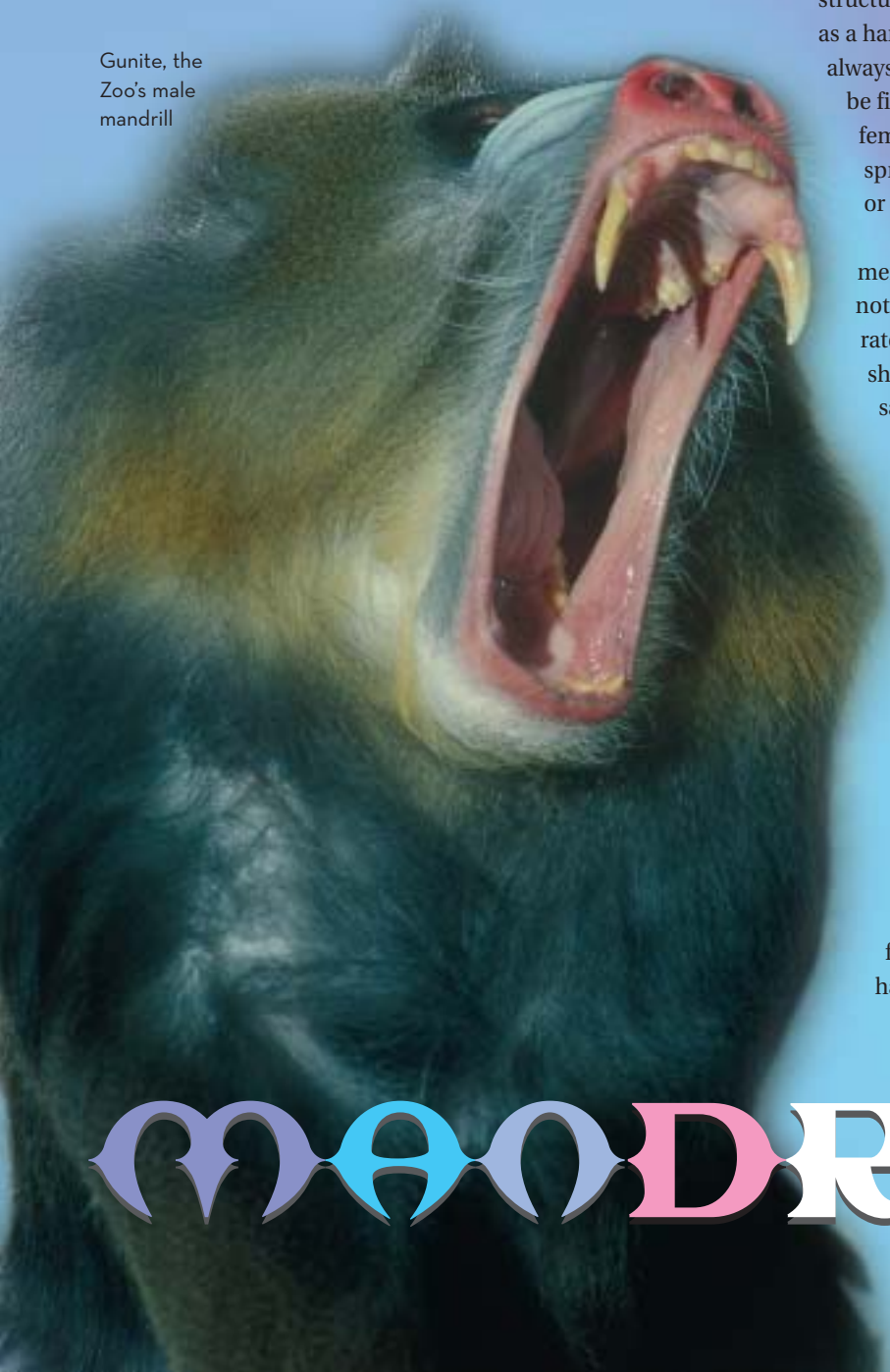
The long-term study of migratory birds has identified 146 species (including 31 species of warblers) that have visited the Zoo, says Zookeeper Mickey O'Connor. Among them are threatened species such as the Kentucky warbler, worm-eating warbler and hooded warbler. Raptors such as hawks, owls, turkey vultures and American kestrels have been sighted. At least 28 species have been discovered nesting on Zoo grounds, including migratory birds such as the red-eyed vireo and the ovenbird. Next time you're at the Zoo, look up, down or under to discover our *other* wildlife.

-Paula Brookmire & Julie Lawrence

Gunite is perhaps the most identifiable monkey in the Zoo's Primates of the World building. His pearly and pointy upper canines give him an unmistakable grin. A male mandrill's unique canines can grow up to 4½ inches long! When threatened, these large primates often don't have to fight – they just have to flash their competitor a wide smile. Upon seeing the impressive weapons, a predator is likely to make a quick U-turn!

Another distinguishing feature of a male mandrill is the bright, colorful markings of his face. Gunite seems better at "makeup" than the Zoo's other two mandrills, Fauna and her daughter Princess. A fully mature male mandrill's face contains a brighter and more colorful menagerie of blues, reds, and purples than the more muted females. Pads of thickened skin on his rump (called ischial callosities) add more light red to his decor. When the mandrill is threatened, the colors in his face become even more vibrant due to extra blood flow .

Many people recognize mandrills because of the wise, old baboon-like Rafiki in the movie "The Lion King." All mandrills might look alike to us, but each is recognizable to others in his social group.



Gunite, the Zoo's male mandrill

Group living is an important part of a mandrill's survival. Mandrills travel in troops through the forest floors of western central Africa. Troops usually contain 20-50 members (although troop size varies throughout the year) and are thought to have a hierarchical structure headed by an older, dominant male. This structure is known as a harem. The dominant male of a troop is often older and nearly always more colorful than lower-ranked males. Competition can be fierce since one benefit this male obtains is his choice of any females in his harem, which increases his ability to father offspring. Non-dominant males often split off into smaller groups or live alone.

Our Zoo's mandrill group is small but cohesive, and each member is important. When one mandrill is absent, the others notice. Fauna, who is 25 years old, is diabetic and has been separated from Gunite and Princess for more than six months while she goes through training to accept insulin injections, give urine samples and provide blood for glucometer readings. Gunite and Princess, who are both 14 years old, are visibly concerned about her absence. The separation is extra stressful for Princess, whose father died in 1998.

Diabetes and separation anxiety sound like human issues. It should come as little shock that mandrills are Old World monkeys, which are more closely related to apes and humans than to the separately evolved New World monkeys. Old World monkeys have a narrow nose with nostrils that point downward, and they lack a prehensile tail like many New World monkeys have. Some species of Old World monkeys, including mandrills, have a long jaw with cheek pouches for holding food. The cheek pouches are equipped with additional teeth to grind foods such as the protein pellets and produce our Zoo's mandrills munch on. The pouches are so large they can hold the equivalent of a stomach load of food! By conveniently storing things in its cheeks, a mandrill has its hands and feet free for running and climbing.

-Teresa Dickert

MANDRILLS

Zanga Mokila, a bonobo at the Zoo, is 6 years old in January. At right, from top: Isomana Edmond tracking bonobos, Dr. Gay Reinartz at the ZSM Kinshasa office, Prof. Lubini Constantin identifying leaves.

A Day

The Bonobo Story

Bonobos, perhaps the most endangered of the great apes, shy away from humans in their native African habitat, in the Democratic Republic of Congo (DRC). Rightly so. They often are hunted for food or the pet trade. The Zoological Society of Milwaukee (ZSM) has led the way in trying to save these humanlike primates. Through its Bonobo and Congo Biodiversity Initiative, the ZSM has established headquarters in Kinshasa, the DRC capital, and a research station called Etate in the DRC's Salonga National Park, a United Nations World Heritage Site. The ZSM is trying to save bonobos by 1) learning more about them to determine the best habitats to protect, 2) training Congolese in conservation work, 3) hiring Congolese to do research and guard against poaching and, through these jobs, gain a vested interest in conservation, 4) coordinating the Bonobo Species Survival Plan in North America, 5) helping support the large group of bonobos at the Milwaukee County Zoo.

The following story is a day in the life of the Etate research station when Dr. Gay Reinartz, ZSM conservation coordinator, is there, which is twice a year. It is an excerpt from a book that writer Jo Sandin, editor Paula Brookmire and the ZSM are preparing so we can share the story of these awe-inspiring great apes and the amazing people trying to save them.

(For more information, go to **www.zoosociety.org** and select conservation, bonobo conservation.)

in the Congo

Long before first light filters through the rain-forest canopy, the work day at Etate Research Station begins…in song. Here on the west bank of the Salonga River in the Democratic Republic of Congo, where the Zoological Society of Milwaukee helps fund a scientific outpost, humans begin to stir about 3:30 a.m. Back home in Wisconsin, it is still yesterday.

In her tent, researcher Dr. Gay Reinartz can hear the men softly singing hymns and chanting prayers in their native language or in the trade language of Lingala. Although the words are foreign, often melodies are familiar. "How Great Thou Art" is a favorite. One of the Salonga Park guards, with the rhythmic swish of a palm frond, begins to sweep patterns in the sandy yard. Late sleepers snore. Children giggle. An infant cries. Families often visit Etate. Someone jumps into the river for a quick wash. A clatter of pots announces that Mira, cook and camp boss, is preparing breakfast: coffee and fried plantains. Reinartz switches on the head lamp that illuminates her tent and begins to organize the day. Sitting crosslegged, she is surrounded by her office: clipboard, satellite phone, solar panel to recharge the power pack, account books, observation reports, lists of things to take into the forest.

Reinartz emerges from her tent to be met by pleasant smiles and a courteous "Bonjour!" (French is the official language here.) No matter how tired, no matter how ill (malaria is always a threat– Reinartz suffered a bad bout on her first trip to the Salonga), the residents of this small enclave greet every morning cheerfully.

People sit around the campfire as they eat and engage in what Reinartz calls kind conversation. Although her role is to drive the day's activities, she is careful not to rush. A soft approach is valued. As night fades to gray, she asks of those wise in the ways of rain-forest weather, "Will it rain?"

Reinartz discusses the day's objectives with her field team. They include Conservateur Mompansuon Botomfie of l'Institut Congolais pour le Conservation de la Nature (ICCN) and Lubini Constantin, professor of botany at the University of Kinshasa and an expert in the forests of equatorial Africa, who joined the research team for its spring mission in 2004. In addition, there is her research assistant, Guy Tshimanga, who is a graduate of the University of Kinshasa, and two local men whose expertise as naturalists springs from their rain-forest heritage, Mboyo Bolinga and Isomana Edmond. They load up with machetes, water, field notebooks, cameras and sample bags and set off into the green twilight before 6 a.m

Getting to the starting point for the new survey is a 3-kilometer hike in dim light on slippery forest paths. Moisture is constant even when it doesn't rain. Plants grow so quickly that branches and vines have intruded on a path cleared only yesterday. Sure-footed, forest-wise Edmond leads.

"If I can step where he steps, I don't fall," says Reinartz. As he swings his machete, Edmond watches for snakes, signs of leopards, and possible dangers. "If it's early enough, we hear monkeys calling," says Reinartz. "We stop and try to get a count of individuals." Rarely, they hear bonobos although sometimes they reach a nest only moments after the residents have left. "You can smell them," she says.

After eight missions to Salonga, during which she and her team have built and rebuilt (after a fire) a research station, established anti-poaching patrols, identified a not previously known food source for bonobos and documented about 40 species of nesting trees, Reinartz has seen the objects of her conservation efforts only twice.

Once on higher ground, the team follows transects, each about 2 kilometers long, cut during previous forays. This mission's goal is to match scientific with vernacular names of trees where bonobos nest. It has proved to be difficult to do this via collected specimens. Reinartz returned to Etate in April 2004 to find that termites had consumed the leaf presses. Therefore, the venerable Lubini identifies the trees on the spot, assisted by the forest savvy of Bolinga and Edmond. Among Salonga's 300 or 400 kinds of trees, differences can be subtle. Sometimes identification hinges on a single gland of a leaf 100 feet overhead. The two local naturalists show the professor not just adult trees soaring beyond sight, but also nearby saplings of the same species, with leaves within reach for close scrutiny.

Work continues with stops only for water (no lunch break) until about 3 p.m. "We go as far as we can go," Reinartz says. "We do as much as we can do. We hightail it back to camp." Encouraging themselves by counting off the yellow or pink plastic streamers marking the distance of their trails, the researchers speed along through air thick with humidity. "It's hot and steamy," Reinartz says, "unless it rains. Then it's cold, cold, cold." As they near camp, they smell dinner, mountains of rice sometimes enhanced by chicken or fish.

Reinartz retreats to her grass hut bathhouse and slops herself with cold water from a bucket, in lieu of a shower. Everyone reassembles for dinner. Some linger around the fire. As they talk, the men take turns using machetes to cut open black lumps on each other's feet. The lumps contain parasites.

In her tent Reinartz performs a similar operation with a knife. She fills out data sheets, plans the next day's mission and falls asleep to the murmur of deep voices.

-Jo Sandin

Above: Congolese gather at the riverbank of Etate research station to greet Reinartz approaching by boat.
Congo photos taken by ZSM staff.

Sisters in Volunteering

This is part of a series of stories on how people help the Zoo through the Zoological Society

Kathy and Mary Olejnik love apes and monkeys, but it wasn't enough just to visit them occasionally at the Milwaukee County Zoo. These two sisters decided to watch the primates they love and help out the Zoological Society of Milwaukee (ZSM) at the same time by joining Zoo Pride, the ZSM's volunteer auxiliary. Kathy, a volunteer for 10 years, and Mary, who just completed her ninth year, have made volunteering an important part of their lives.

Mary chairs Zoo Pride's primates committee with assistance from her sister and Michael Pazdan. Zoo Pride has several animal committees where members learn in-depth information about the animals, work with zookeepers, and train new volunteers to answer questions from Zoo visitors. Why primates? Kathy studied primates for her bachelor's degree in anthropology. Mary says she feels that all primates are special in some way and thinks that telling visitors about these animals will get them interested in conservation efforts in the wild as well. She really likes spider monkeys and bonobos (rare great apes).

Kathy and Mary say that interacting with the public is one of the most rewarding aspects of being a volunteer. Kathy recalls one visitor who, hearing Kathy talk about the endangered bonobos, asked how she could help. Kathy was more than happy to explain the ZSM's bonobo conservation efforts – both in Africa and at the Zoo – and how to contribute to them (**www.zoosociety.org** and select conservation, then bonobo conservation). The ZSM's conservation coordinator heads the Bonobo Species Survival Plan for North America and communicates with zoos in Europe.

The Olejniks support the Zoological Society in other ways, too. Each year Mary gives Kathy (a small-business owner in Milwaukee) for her birthday a sponsorship of Femelle, our Zoo's 42-year-old female gorilla, through the ZSM's Sponsor an Animal program. The program raises money to improve exhibits, upgrade buildings and maintain quality habitats for the Zoo's animals. "It is a good program because it gives people a focal point when they visit the Zoo, and an animal to be interested in learning about," Mary explains. She has purchased gift sponsorships for others as well.

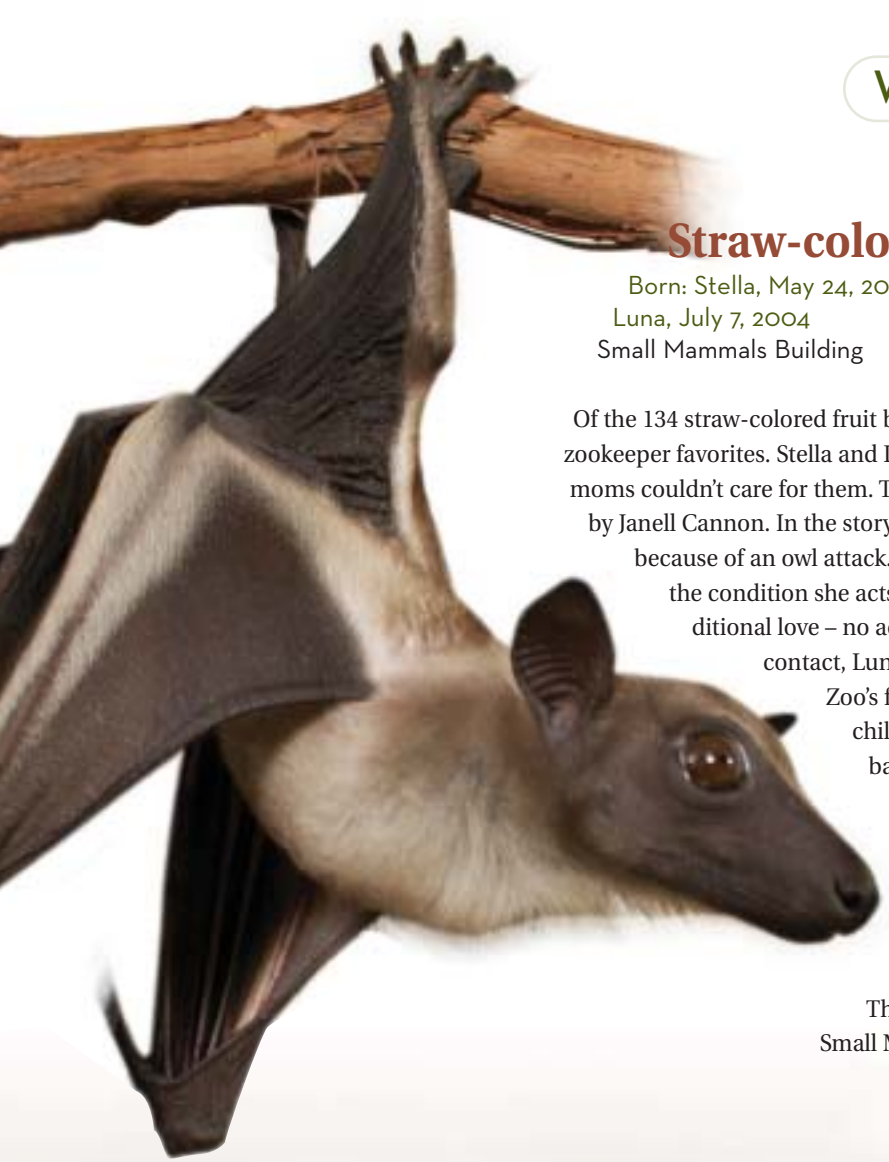
Kathy and Mary also volunteer as guides for VIP tours. "Leading small-group tours keeps us aware of all aspects of the Zoo while creating another opportunity to educate visitors about the wonderful diversity our Zoo has to offer," says Kathy. She also supports the ZSM through membership (for the last five years) in the Platypus Society, ZSM's highest level, donor-member-recognition group.

Mary, a librarian at Section Elementary School in Mukwonago, treats first graders to a yearly talk about gorillas. She links a fiction story they read in class, "Little Gorilla's Birthday Party," to gorillas at the Zoo and in the wild. "They love it!" she says. Mary also went to the Zoo with third-grade classes participating in a ZSM art project and gave them quick tours of the primate building. "My students know how much I love primates and birds and will share magazine articles or their zoo stories with me." Mary also volunteers at the Zoo's Birds of Prey Show each summer, and for three years has given summer presentations, with zookeepers, about the Zoo's camels.

While Kathy and Mary often do not work together, they do try to schedule similar hours. Both are members of the Association of Zoo and Aquarium Docents (AZAD), an international non-profit association that helps zoo and aquarium guides network to exchange information. The Olejniks attend AZAD annual conferences (including Philadelphia last year) as a "sister weekend."

-Teresa Dickert

Mary (left) and Kathy Olejnik



Straw-colored fruit bats

Born: Stella, May 24, 2004
Luna, July 7, 2004
Small Mammals Building

Of the 134 straw-colored fruit bats at the Milwaukee County Zoo, two females were zookeeper favorites. Stella and Luna were hand-raised by zookeepers because their fruit-bat moms couldn't care for them. They were named after "Stellaluna," a children's book written by Janell Cannon. In the story, baby fruit bat Stellaluna is separated from her mother because of an owl attack. She falls into a bird nest, and the bird agrees to raise her on the condition she acts like a bird not a bat. Zookeepers gave these tiny bats unconditional love – no acting like a bird necessary. Since she is accustomed to human contact, Luna will be featured in education programs next summer in the Zoo's farm. Stella (at left) went to a Zoo in New Orleans to star in children's programs. These crepuscular mammals, meaning the bat is active at dawn and dusk, are found primarily in the forests and savannas of Africa. As fruit eaters, they spread the seed of fruit trees to areas where the seeds have a better chance to grow. Straw-colored fruit bats are the best at dispersal of seeds in their habitat. Besides being named after their main cuisine, the species is named after the straw-colored, yellow fur that can be seen on a male bat's neck. Their large exhibit is in the dark, or nocturnal, section of the Small Mammals Building.

Crested Screamers

Hatched: September 18-19, 2004
Herb & Nada Mahler Family Aviary
Outdoor exhibit west of aviary (during warm weather)

Who's that screaming? If you are near the aviary at the Zoo, it might be the crested screamers. These large birds didn't get that name by whispering. Their harsh, trumpeting call can be heard from up to two miles away! Their trademark call is particularly noticeable during courtship, when two crested screamers perform clamorous duets. Our Zoo's only screamers, a courting couple, recently experienced the hatching of four screaming babies. Crested screamers are waterfowl found in South American grasslands, marshes, and lagoons. Although they can swim and fly, they prefer walking on the ground or on thick vegetation covering wetlands. They stand 30-36 inches tall. Humans have caused a loss of the screamers' natural habitat, but that isn't stopping them. The birds have shown their ability to adapt by foraging cultivated fields for food. A crested screamer comes equipped with two bony spurs, called carpal spurs, that protrude from the forward edges of each wing. These spurs protect them from other screamers, hunting dogs, and other enemies by delivering a deadly blow. The adult screamers will be indoors off exhibit in winter, taking care of their young until the weather is warmer. Zookeepers are unsure which zoos the baby screamers will go to once they mature.

Goeldi's Monkey

Date of Birth: Sept. 6, 2004
Small Mammals Building

If you are visiting the newest addition to the Goeldi's monkey family at the Zoo, you may notice that this young one seems especially fond of dad, Dana. The infant is not playing "favorites." It is just acting on instinct. For the first four to six weeks after birth, Goeldi's monkeys are cared for solely by their mother, in this case, named Friday. After that, however, Dad carries the infant, and the young monkey goes back to mom only for nursing. "At about a month and a half old, it started to sample solid foods from Mom's and Dad's mouths," says Small Mammals zookeeper Rhonda Crenshaw. As they get older, these omnivores love to munch on little critters like insects and crickets as well as fruits, nuts and vegetables. Native to South America, Goeldi's monkeys eat spiders, frogs, lizards, and snakes in the wild. These tiny, silky-haired monkeys grow only from 10 to 12½ inches long, but they can make lots of noise when threatened. Their species is endangered.

Penguin Update

Humboldt Penguin Exhibit

The Zoo's Humboldt penguin colony will be seeing some new additions this spring. That will help build the population back up after 11 of the birds died from West Nile virus in summer 2002. Since then, the Humboldts have been vaccinated for West Nile. Of the surviving 10 birds, nine are doing well, but one died from cancer last summer. In mid-July zookeepers removed the popular Humboldt penguins from their outdoor exhibit in the Main Mall of the Zoo and kept them indoors off exhibit for three months. "They were showing signs of fighting off a mosquito-borne virus," says zookeeper Carol Kagy, "but all tests showed it was not West Nile." The penguins have been back outside since October and normally stay outdoors all year. In the wild these endangered penguins are found off the coasts of Chile and Peru, in very temperate climates. Called the desert penguin, the Humboldt likes warm temperatures but can withstand colder weather due to its habit of swimming in the cold Humboldt current in the ocean off the Pacific coast of South America. Humboldt penguins are a focus of conservation efforts by our Zoo, which has been doing penguin studies in Chile for more than a decade, with support from the Zoological Society. The American Zoo and Aquarium Association has a Species Survival Plan for Humboldts to coordinate breeding on a national scale. The Zoo has six male and three female Humboldt penguins. The males have tags on their right wing, females on their left. The swimming penguin (photo above) is Jack.

Alive

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Go online at www.zoosociety.org or call (414) 258-2333, anytime.