

# Toucan Talk

## Environment, Economics, & the Rain Forest

**T**he phrase global warming does not sound very threatening. Perhaps if the scientific community were to begin discussing "global hothouse" or "global inferno," we would pay more attention to their warnings. In order to understand why global warming is so serious, we need to know a little about the atmosphere that surrounds our home planet and makes it habitable.

The atmosphere is a blanket of gases about 30 miles thick that surrounds the planet. It can be compared to a thermal blanket which has insulating layers and therefore holds heat. Nitrogen and oxygen molecules make up a large portion of the atmosphere. There

are also some trace gases such as carbon dioxide and methane, present only in very small proportions, and there is water vapor in varying amounts.

The water vapor and trace gases are very important in maintaining livable conditions on earth. They are responsible for what scientists refer to as the greenhouse effect. The greenhouse effect keeps the earth at a comfortable temperature and makes life possible on the planet.

It works like this: Heat and light come to the earth from the sun in the form of radiation. The radiation passes through the gases of the atmosphere, and is absorbed by the land and oceans of the earth's surface. Excess heat energy is then reflected back out into space. This heat energy is in a different form than the original radiation, and not all of it escapes the atmosphere. Some of it is absorbed by the trace gases and water vapor and this trapped heat warms the air in the lower atmosphere. This is basically the greenhouse effect and it keeps the average temperature of the earth at about 59 degrees F.

If the greenhouse effect is responsible for keeping the planet at a bearable temperature, what has happened to cause the experts to be so concerned about it? The problem is population growth and the technological advances that accompany it, resulting in an alarming increase of trace gases. Analysis of air trapped in bubbles in polar ice about 10,000 years ago reveals that the amount of carbon dioxide in the atmosphere at the end of the last Ice Age was 260 parts per million. About 1700 A.D., the level began to rise and the rate of increase has grown steadily. The most recent count is 350 parts per million and rising at 1/2% per year. Levels of methane, nitrogen oxides, and chlorofluorocarbons (CFCs) are also increasing.

These additional trace gases in the atmosphere trap more of the heat energy that is reflected by the earth and the result is that both the atmosphere and the planet become warmer — hence, global warming. How much warmer? Not a lot, but it doesn't take much to make a *big* difference. About 120,000 years ago, when the earth was at its warmest, the average temperature was about 63.5 degrees F., or 4.5 degrees F. warmer. At that time, southern England was *semitropical*. The slightest change in



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temperature can have a dramatic effect on climate conditions.

In May of 1990, a United Nations science panel reported that the global temperature will increase 3-8 degrees F. if the amount of greenhouse gases released into the atmosphere is not reduced by 60%. Such a temperature change will cause changes in wind patterns, ocean currents, and the frequency of hurricanes. The rise in temperature will also melt some of the ice at the poles, raising the level of the oceans about 2 to 6 feet. A large part of Florida will be underwater, and other parts of the state will have no fresh water as the salt water intrudes in the aquifers. At the same time, most of the Great Plains will become a desert.

What causes all of the greenhouse gases in the atmosphere? Some of them occur naturally, however, the increased amounts are directly related to human activities. Burning fossil fuels such as coal and oil release most of the greenhouse gases into the air. In every city in the world, people in overwhelming numbers drive automobiles, which burn gasoline or diesel fuel resulting in gaseous fumes which permeate the air.

Each year we are burning rain forests at the rate of 1.2 billion acres and the smoke from fires burning in the jungles is so thick, that great palls of it drift for miles. At least one billion tons of carbon dioxide are released into the air every year by burning rain forests.

How can we avoid the disastrous effects of global warming? We must reduce the amount of greenhouse gases we put into the atmosphere. One way to do that is to reduce the amount of fossil fuel we burn by conserving electricity, gasoline, and manufactured goods. More importantly, we *must stop burning the rain forests*. No one benefits from the destruction of such an intricate ecosystem, and their loss will affect all of us. Our only alternative is to develop the rain forest as a sustainable resource.

People like the Yanomami of Brazil have inhabited the Amazon rain forest for thousands of years. They live in harmony with the forest by harvesting it at a rate that allows for regeneration. This is sustainable use, which relies on using resources no faster than nature can renew them — and the rain forest offers resources in abundance!

Dozens of rain forest fruits, including bananas and pineapples, are already a regular part of our diets. There may be as many as 2,000 more varieties of fruit in the forest, waiting to be commercially harvested. Rice, sugar cane, peanuts, and sweet potatoes are among the vegetable crops that originated in the tropical forest, and at least 1,650 more plants have been identified as food sources. Tropical forests have also provided us with coffee, tea, coca, and vanilla. Researchers are currently working with several rain forest plants to develop natural sweeteners without the health problems caused by sugar or synthetics.

Not only can the forests provide new food crops, they can also supply the genetic material necessary to develop plants that are resistant to disease and pests (2% of the world's food supply is lost to insects every year). Organic pesticides, without the toxins we now use, are being developed from rain forest plants. Rubber, rattan, tropical hardwoods, and many other resources can be harvested without destroying the forests — in fact, they can only be harvested if we do not destroy the rain forest.

Tropical rain forests are still disappearing fast, but if we stop the destruction *now*, we can save this precious habitat and still maintain and augment our own standards of living.

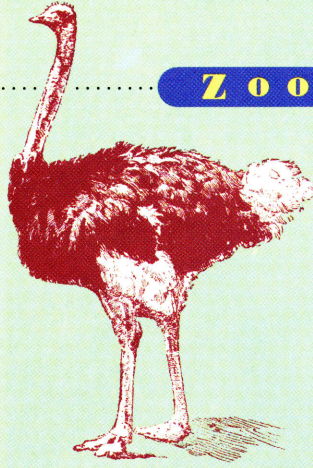
In our next issue, we will explore the heart of the rain forest — the plants and trees that sustain all of its living things.

**Zoolife: the new membership option**

**Z**oolife magazine, a quarterly publication, will be available to members as a subscription option when renewing next year's membership. It will replace the Wildlife Conservation magazine offered in the past.

Members will enjoy informative articles about world conservation concerns as well as exciting adventures of parks and aquariums in our own continental backyard.

Supporting level memberships or higher automatically receive *Zoolife* as a benefit. For more information, please contact membership services at 255-5551.



**Don't forget your membership card**

If you visited the zoo lately, you probably noticed that your membership card is being checked more carefully for entry into the zoo.

If you forget your card, a \$3.00 fee will be charged for a temporary one day pass. In order to avoid problems at the gate, please have photo identification ready to accompany your Society membership card. This will ensure the protection of your membership privileges.

If you have any questions, please call membership services before you plan your next trip to the zoo.

**IN LOVING MEMORY**

The Zoological Society lost a very good friend this past summer. Russ Hopkins, a dedicated volunteer and former staff member passed away on June 14th. Russ began his volunteer career in 1984 and ultimately contributed over 1,700 hours. In Metrozoo's early growth years, he showed his commitment by helping sell hundreds of memberships. For a short period, he was part of staff in membership sales. He was immensely proud of Metrozoo and never tired of introducing it to zoo visitors from the information booth and aviary.

Russ was a kind, gentle man who was always ready to lend a hand. We will remember you, dear friend, with gratitude and affection.



**President's Message**

*My final message to you is one of optimism and excitement in this turbulent year of "unknowns." Despite the tension of the Gulf war and the current economic crisis, your generosity enabled the Society to proceed with its mission to help Metrozoo grow and develop.*

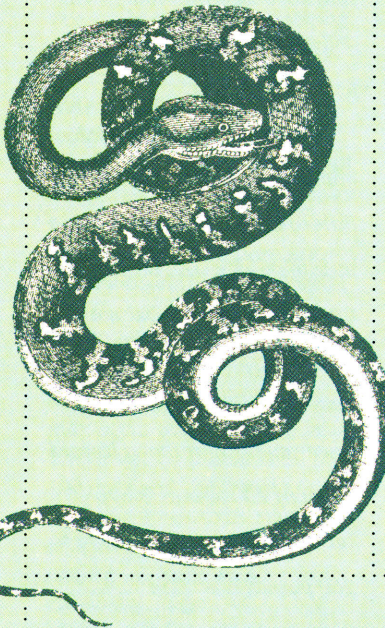
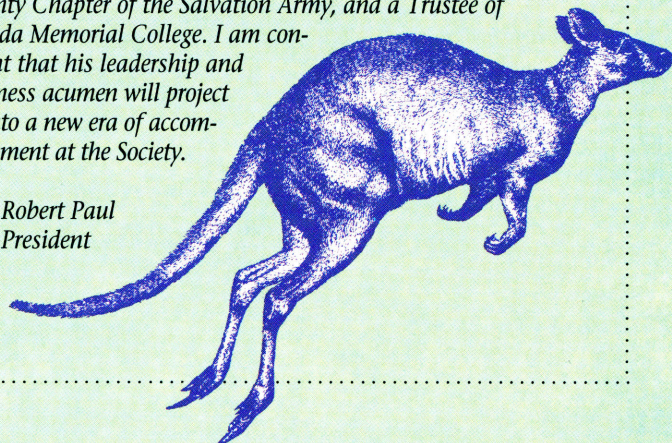
*We look forward to the construction of our Rain Forest Exhibit, made possible by the Batchelor Foundation, Inc. They have magnanimously donated \$1,382,000, which is one half the cost of the exhibit, and will advance an equal amount to the Society which must be repaid to the Foundation. The planning and development process is on schedule and we expect to open this unique and innovative project within two years. The Rain Forest Exhibit will not only protect and defend exotic animals threatened by habitat destruction, but will provide a very special educational and recreational experience to millions of visitors who stand in the shadow of its trees.*

*Fund raising continues for the Amenities Program. Most of the benches and water fountains have sponsors. Thanks to the generosity of Texaco/Latin America, the 60 mature shade trees have been selected and planting will take place in September. Three plazas are included in the program. Funds are being raised for the Cuban Poet's Plaza and our development committee is working vigorously to obtain sponsorship for the Japanese garden and the Australian mini-park. When all the components of this program fall into place, Metrozoo will have a new, comfortable, patron-friendly look that will add to the pleasure of your visit.*

*As I pass the gavel to Sherrill Hudson, your new president, I have many people to thank for this very gratifying year. I thank you, our members and donors who through your financial support, recognize the value of our beautiful zoo in this time of environmental crisis. I would like to extend sincere appreciation to Bill Bird, Director of Dade County's Park and Recreation Department, Bob Yokel, Director of Metrozoo and his staff, and our Board of County Commissioners for their staunch support of the Society. I thank my Executive Committee, Board of Directors, and Board of Trustees for their teamwork and dedication. I extend special thanks to our wonderful corps of volunteers, the backbone of this organization with their unselfish donations of time and love.*

*In closing, I would like to welcome Don Estes, the Society's new Executive Vice President. Don comes to us after more than 30 years with Ryder System, Inc., where he served as President of the National Truck Leasing Division. He is also Immediate Past President, Dade County Chapter of the Salvation Army, and a Trustee of Florida Memorial College. I am confident that his leadership and business acumen will project us into a new era of accomplishment at the Society.*

*Robert Paul  
President*



**Calling all volunteers**

If you have seen our volunteers give their Ecology Theater presentation at the zoo, an Animal Encounters in South Florida schools, or introduce new animal acquaintances at a special event, then you have seen the manpower of our behind-the-scenes Animal Resource Center (ARC).

If you have always had a secret desire to be a zookeeper and care for animals, you may have your chance at the zoological Society. We are looking for a few good men and women to help care for our collection of educational program animals.

Our ARC specialists are a dedicated group of volunteers who give two days a month to feed, exercise and train our educational program stars. Following a short training program and some on the job training, you could qualify to become one of the most important members of our volunteer program. For more information, please call the Director of Volunteer Services at 255-5551.



*C*ats are among the most admired and most feared of all wild animals. They figured prominently in the folklore and mythology of many ancient civilizations and have been the subject of countless works of art. They range in size from the domestic house cat to the Siberian tiger, but all have one thing in common — they are predators. The agile, well-muscled body combined with sharp teeth and claws make the feline a formidable hunter.

Generally, cats are divided into two categories — big cats and little cats — but the division has little to do with size. Big cats are those which can roar but not purr, little cats purr but do not roar. This system is confusing when you consider that a leopard weighing 230 pounds is a “big” cat and a puma weighing 200 to 260 pounds is a “little” cat. Both groups of cats have several things in common: They are carnivores, they have excellent senses of hearing and smell, and they see colors. In tropical rain forests, cats are major predators.

Four neotropical (New World) cats are being considered for the rain forest exhibit and each is profiled here.

# CATS

**Jaguar** (*Panthera onca*) The jaguar is the only "big" cat found in the Americas. Like leopards, jaguars may have spotted coats or dark, nearly black coats. They are very powerful and have been observed dragging animals much larger than themselves for long distances. Jaguars are very agile climbers and strong swimmers. They hunt on the ground, in trees, and in the water. Their prey includes tapirs, capybaras, caiman, turtles, sloths, and other small mammals. In areas where their habitat has been replaced by ranches, they have been known to prey on cattle and horses.

Like most cats, the jaguar is solitary most of the time. Males and females come together for breeding which may occur at any time of year. The gestation period is 90 to 100 days and the female may give birth to as many as four kittens. The young remain with the mother for about two years.

These beautiful cats once ranged from the southwestern part of the United States south through Uruguay. Destruction of their forest habitat has caused them to retreat to a much smaller area. Jaguars are endangered due to the destruction of their habitat, persecution by ranchers, and hunting for the fur trade.

**Ocelot** (*Felis pardalis*) Active mainly at night, the ocelot hunts on the ground for rodents, birds, lizards, and small mammals. Heavier than the margay at 24 to 35 pounds, the ocelot generally climbs into a tree only to rest. A male and female may share a territory, but usually hunt alone. Mating may occur at any time and the gestation period is about 70 days. The female gives birth to a litter of 2 to 4 kittens in a secure den in a hollow log or thick vegetation.

The ocelot's beautiful spotted coat is one of the most sought after furs for the fashion trade and it has been wiped out over most of its original range. Laws have been passed to protect the remaining populations, but such laws are difficult to enforce when black market prices remain high.



**Jaguarundi** (*Felis yagouaroundi*) This relatively small cat (10 to 20 pounds) is the most varied in color of any wild cat. Colors range from reddish-brown to black, with no spots or bands. The darkest coats are found on animals that live deep in the rain forest.

Generally a solitary animal, the jaguarundi has a specific breeding season, usually giving birth in spring or summer. Two to four kittens are born after about 70 days gestation. They are weaned at about two months and are independent by four months.

Though it is not widely hunted for its fur, the jaguarundi is endangered due to habitat loss. This cat may still be found in the United States in southern Arizona, along the Rio Grande river to southern Texas.



**Margay** (*Felis wiedii*) This small cat (7 to 20 pounds) spends so much of its time in the trees that it is sometimes called a tree ocelot. Its paws are very wide and flexible and its ankle joints rotate far enough to enable the margay to run down a tree head first. Rarely does it descend to the forest floor. The margay's diet is made up of birds, mammals and reptiles that are found in its arboreal habitat.

Margays are mostly nocturnal and have been observed only rarely in the wild. They do not adapt well to human disturbance of their environment. Already endangered by destruction of their forest habitat, margays are also seriously threatened by the fur trade.



# ONE LAST STEP FOR RHINOS

*"In this nuclear age, there are no national boundaries to the environment. The rhino will live or die because of us."*

Michael Werikhe

Michael Werikhe came to North America this past April on behalf of endangered rhinos. With the co-sponsorship of the American Association of Zoological Parks and Aquariums (AAZPA) and the Discovery Channel, Werikhe's strategy was to walk 1,500 miles throughout North America and spread his conservation message to raise money for and awareness of the perilous future of the endangered rhino. He has walked in 33 cities, 18 states and in the Canadian province of Ontario. His goal is to raise \$2,000,000 to ensure the future protection of rhinos and parks in Africa and help fund Species Survival Programs for rhinos in North American zoos. Still far from the goal, Michael's Rhino Walk here has ended and he asks for our help.

The cause is critical. Michael has seen firsthand the appalling destruction that poaching for rhino horn has wrought and has devoted much of his life to stopping this senseless slaughter. As recently as two decades ago, the black rhino roamed across most of Africa in the tens of thousands. Today, only remnants of the species remain.

Michael has sacrificed much in bringing this message to us. Even though he does not enjoy walking, he has crossed Africa, Europe, and a large portion of North America on foot. Michael states "Being a poor man, walking is my only way to get this message across to people."

Michael is a family man who works 10 hours a day, 7 days a week at an automobile assembly plant in Mombasa so that his employers will allow him to take the travel time he needs. During his five-month trek, he could not see his wife and two young daughters. In June, his father died. Michael kept walking...

*Please help Michael Werikhe*

*and the world's rhinos. To*

*learn more about the Rhino*

*Walk project, write to:*

*The Rhino Walk Fund*

*c/p CPA Conservation Center*

*7970-D Old Georgetown Road*

*Bethesda, Maryland 20814*



September/October, 1991

**H**ere we are at the beginning of fall and a new school year. That signals the return of several of our most popular programs. Many of these programs have limited space and some must have a minimum number of participants in order to run. Please — insure your space in the programs by registering by mail or phone before the program date. Thank you!

## PROGRAMS FOR TEACHERS

### T.E.C. Workshops

We offer a series of professional workshops for teachers through the Teacher Education Center. There is no fee when you register through the T.E.C. office. Consult T.E.C.'s schedule for dates, times, and subjects.

### F.I.U. at Metrozoo

This very popular course for elementary and preschool teachers is through F.I.U.'s College of Education. The course runs for 13 weeks and introduces educators to Metrozoo as well as teaching some basic life science. Registration is through F.I.U.'s Dr. Ed Reichbach. There is a fee for materials.

### SPECIAL REMINDER:

The November WCS will feature Alan Rabinowitz, a noted expert on jungle cats.



**PROGRAMS FOR CHILDREN**

*(Please observe age limits)*

**Planning Day Mini Camp**

Dade County teachers have a planning day scheduled for Wednesday, September 18 and Friday October 18, 1991 and kids will be out of school. We will hold one-day camps both dates.

Games, films, crafts, and snacks for students currently in grades 1 through 4. Campers must bring lunch; a snack is provided.

Dates: Wednesday, Sept. 18, Friday, Oct. 18

Hours: 8:30am - 3:30pm

Fee: Members \$25.00  
Non-members \$30.00

**A.I.R. Scouting Program (Grades 1-12)**

This program is designed to help scout groups and their leaders learn about the functions of modern zoos, conservation of wildlife, and the animals at Metrozoo. Participants receive the A.I.R. (Awareness, Interest, Respect) patch. Scout leaders, contact the education department to reserve space for your group.

Dates: Saturday mornings, Sept. through June

Hours: 9:00-11:30am

Fee: \$12.00 per person (1 chaperone per 8 scouts is free)

**PROGRAMS FOR FAMILIES**

**Weekend Adventure: Reptiles**

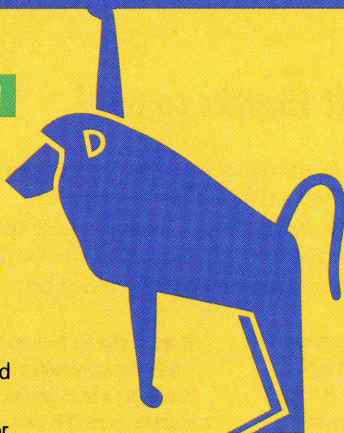
*(Age 10 to adult)*

This workshop on how to select and care for a reptile pet was so full last spring we had to turn people away. This is your chance to sign up to learn everything you ever wanted to know about snakes, turtles, and lizards. Space is limited.

Date: Saturday, Sept. 21

Hours: 9:30am - Noon

Fee: Members \$5.00  
Non-members \$8.00



**Weekend Adventure: Respecting our Animal Friends**

*(Ages 3-7; children must be accompanied by an adult)*

This hands-on workshop is designed to teach youngsters to respect animals. We will look at some animals that make good pets and some wild animals that are good to watch, but not touch (or tease). Space is limited.

Date: Saturday, Oct. 26

Hours: 10:00am - Noon

Fee: Members \$5.00 one adult and one child; additional child \$2.00  
Non-members \$8.00 one adult and one child; additional child \$3.00.

**Family Film Festival**

*(Not recommended for pre-school children; children must be accompanied by an adult)*

Bring the family to our air conditioned classrooms for a special showing of wildlife films and some educational activities. We supply the popcorn and soft drinks. Call the Education Department at 255-5551 for specific titles.

Date: Sunday, Sept. 29 or Sunday, Oct. 27

Hours: 12:30 - 2:30pm

Fee: Members \$3.00, Children \$1.00  
Non-members \$4.00, Children \$2.00

**PROGRAMS FOR ADULTS ONLY**

*(No children, please!)*

**Wildlife Conservation Seminar (WCS)**

This series of monthly lectures, followed by refreshments and discussion, is designed to provide information about wildlife and the environment in an informal setting.

**SEPTEMBER:**

**A Keeper Talk**

Join us for a visit with an experienced zookeeper who will teach you about exotic animals and entertain you with stories of personal experiences.

Date: Saturday, Sept. 28

Hours: 6:30 - 8:30pm

Fee: Members \$10.00  
Non-members \$15.00

**OCTOBER:**

**A Rain Forest Tasting Party**

The tropical rain forests abound with fruits, vegetables, and nuts! We are already familiar with many of them; now come out and try some new taste treats and learn about harvesting the rain forest.

Date: Saturday, Oct. 19

Hours: 6:30 - 8:30pm

Fee: Members \$12.00  
Non-members \$17.00



**Programs may be cancelled without sufficient enrollment. Please call for reservations.**

**Register Here**

*Please send registration form and a check or money order with a self-addressed envelope to:*

**Education Department, Zoological Society of Florida  
12400 S.W. 152 Street, Miami, Florida 33177-1499 • (305) 255-5551**

Participant's name .....

Street address .....

City ..... State ..... Zip .....

Home phone ..... Business phone .....

Program(s) ..... Date ..... Fee \$ .....

..... Date ..... Fee \$ .....

Member membership # .....  Non-Member ..... Fee \$ .....

Mastercard  Visa  American Express

Expiration Date (important!) .....

Card # ..... Signature .....

*For children's programs, please complete the following:*

Parent's name .....

Student's age ..... Grade in school (as of Sept. 1991) .....



**Registration policy:** Advance registration is required for all programs. Registration is by mail or telephone. Program information may be obtained over the telephone, however a reservation is contingent upon payment. Fees may be paid by check, money order, cash, or Visa/Mastercard/American Express. A confirmation letter will be sent upon receipt of payment.

**Cancellations:** All fees are non-refundable. Cancellation notices must be received at least 3 business days prior to the actual program date in order for credit to be accrued. Fees then may be transferred to another program. You may transfer to another program only once without losing your payment and the transfer must occur within 2 months.





## 1991 development goal reached: Our heartfelt thanks to you!

As the 1991 development campaign comes to a close, we would like to recognize and thank the many individual and corporate contributors whose generosity enables the Society to continue its efforts on behalf of Metrozoo.

Our development goal this year of \$925,000 was an ambitious one. Nonetheless, even in these difficult economic times, the spirit of giving was evident. Inspired by the leadership of Sherrill Hudson, Chairman of the Development Committee, and with the strong support of committee members and our generous donors, that objective was reached.

*We extend our sincere thanks to the following corporations who made this possible:*

A. Abramson Law Office  
ATC Long Distance  
American Bankers Insurance Group  
Bacardi Imports Inc.  
Backus, Turner & Partners  
Burger King Corporation  
C&S Bank  
Citibank  
City National Bank  
Coopers & Lybrand  
Deloitte and Touche

Eastern National Bank  
Ernst & Young  
Florida International Bank  
Friedman & Bilzin  
gingiss formalwear  
Goodebodies  
Hill's Pet Products  
Holland & Knight  
International Acura  
J.C. Penney  
Jordan, Schulte & Burchette  
Knight Ridder, Inc.  
Kodak  
Luria's  
Miami Herald  
Miami Jai-Alai

McDonald's Corporation  
Northern Trust Bank  
Paul, Landy, Beiley & Harper  
Paul Mitchell Systems  
Perrine Cutler Ridge Rotary  
Racal Milgo  
Rose Poster Printing  
Rubin Baum Levin Constant  
Scheckner, Berezin & Tiegens  
Shutts & Bowen  
Silver Eagle Distributors  
Southern Bell  
Sun Bank  
Texaco Latin America/West Africa  
Vernon Construction  
Wometco

*We would also like to thank the following individuals and foundations who so generously contributed to our 1991 campaign:*

Lee Bynum and Betty Miller  
Murray and Julie Gaby  
Colonel Walter Godfrey  
Barbara Gomez  
Beatrice Goodman  
Jerrold and Jane Goodman  
Molle and Ed Grad  
Frank and Inge Hawkins  
Mitch Mitchell  
Donna Shofstall  
Edward Soto

Cliff Stamler  
Mr. & Mrs. Harris B. Stewart  
Mark Vogel  
Mrs. Peyton L. Vogel  
Abraham Foundation  
Batchelor Foundation  
Cobb Foundation  
Dunspaugh-Dalton Foundation  
Frohning Foundation  
Goldsmith Family Foundation  
Graham Foundation  
Janet Hooker Foundation  
Ida Hutzler Foundation  
Knight Foundation  
Miot Family Foundation  
Woodruff Foundation

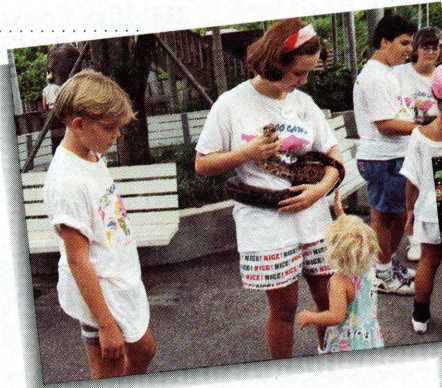
## Toucan Trader's Choice

Each year, at least 50 million acres of rain forest are destroyed. At this rate, our rain forests will be destroyed by the year 2000!

The Toucan Trader staff wants to do what we can to help conserve our precious rain forests. We sell products that directly contribute to that cause, such as Rain Forest Crunch, a delicious cashew and Brazil nut toffee candy, and tropical fruit and nut mix. We have posters and t-shirts on our "Wall of the Wild" and your purchase contributes directly to the Rain Forest Alliance.

We offer some excellent educational material including *Into the Amazon*, a book depicting the struggle for the rain forest. We also have several books describing the wildlife and vegetation that survive in the rain forest.

If you are looking for a very special gift, or just want to help save our rain forests, please be sure to stop in at the Toucan Trader gift shop and browse through our wonderful selection of merchandise.

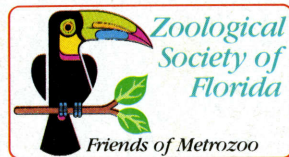


Teen zoo campers Chris Dinio and Jackie Stetson introduce a young visitor to a boa constrictor.



Zoo campers admire the white Bengal tiger.

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**Zoological Society of Florida**  
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Miami, Florida 33177  
(305) 255-5551

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Miami, Florida

**Become a volunteer at Metrozoo!**

**Call 255-5551 for details.**