

## **GRO HARLEM BRUNDTLAND TO RECEIVE WORLD ECOLOGY AWARD**

**Dr. Gro Harlem Brundtland** will receive the World Ecology Award from the International Center for Tropical Ecology on Wednesday, June 27, 2001. Dr. Brundtland was born in Oslo, Norway, on April 20, 1939. As a young mother and newly qualified doctor, Dr. Brundtland won a scholarship to the Harvard School of Public Health. She returned to Oslo and the Ministry of Health in 1965 to work on children's health issues including breast-feeding, cancer and other diseases.

In 1974, Dr. Brundtland became Norway's Minister of the Environment. During the 1970's she acquired international recognition in environmental circles and a political reputation at home. In 1981, at the age of 41, she was appointed Prime Minister of Norway for the first time. Dr. Brundtland was the youngest person and the first woman ever to hold the office of Prime Minister. As Prime Minister from 1986-1989 and 1990-1996, Dr. Brundtland was Head of Government for more than 10 years.

Throughout her political career, Dr. Brundtland developed a growing concern for issues of global significance. In 1983 the then United Nations Secretary-General invited her to establish and chair the World Commission on Environment and Development. The Commission, which is best known for developing the broad political concept of sustainable development, published its report *Our Common Future* in April 1987 (commonly referred to as the Brundtland Report). The Commission's recommendations led to the Earth Summit—the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992.

Dr. Brundtland was nominated Director-General of the World Health Organization by the Executive Board of WHO in January 1998 and the World Health Assembly elected her to the position in May 1998. As Director-General of the World Health Organization her many skills as doctor, politician, environmentalist, activist and manager have come together. In her acceptance speech for the World Health Assembly, Dr Brundtland said: "What is our

Key mission? I see WHO's role as being the moral voice and the technical leader in improving health of the people of the world. Ready and able to give advice on the key issues that can unleash development and alleviate suffering, I see our purpose to be combating disease and ill-health—promoting sustainable and equitable health systems in all countries".



**Dr. Gro Harlem Brundtland**

This Newsletter describes recent activities of the **International Center for Tropical Ecology**. Established in cooperation with the **Missouri Botanical Garden**, the Center promotes research and education in biodiversity conservation, and the sustainable use of tropical ecosystems. The Center provides an interactive, international environment for graduate education in tropical ecology, evolution, systematics, and conservation. Furthermore, the Center supports undergraduate education in conservation biology, focusing on Missouri and temperate ecosystems. The Center also promotes awareness within the St. Louis community of the importance of conservation and environmentally sustainable policies and practices.



## PETER RAVEN RECEIVES NATIONAL MEDAL OF SCIENCE



**Dr. Peter H. Raven,**  
**Director, Missouri Botanical Garden**

**President Clinton** honored **Dr. Peter H. Raven**, Director of the **Missouri Botanical Garden** and Englemann Professor of Botany at Washington University by naming him to receive the National Medal of Science, the nation's highest scientific honor. Peter Raven, a member of the ICTE's Advisory and Scientific Boards, is a pre-eminent scientist in plant systematics and evolution, and has published over 550 books and papers. He introduced, with his colleagues, the concept of co-evolution, which helped refocus much subsequent evolutionary research based on co-adaptation between plants and animals. Peter Raven is active in worldwide efforts to raise the visibility of science and to protect the environment. He is a member of President Clinton's Committee of Advisors on Science and Technology and is the chairman of the National Geographic Society's Committee for Research and Exploration. He is president-elect of the American Association for the Advancement of Science, the world's largest organization of

professional scientists, and serves on the academies of science in more than 15 countries. He has directed the Missouri Botanical Garden into a position of national and international prominence as a center for the study of plant diversity and conservation education.

## SHARON MATOLA AWARDED FIRST CONSERVATION ACTION PRIZE

The International Center for Tropical Ecology has established the **Conservation Action Prize** to be awarded to individuals who are particularly active in the frontline of biological conservation. The prize will recognize and honor individuals involved in seeking solutions to conservation problems, developing conservation strategies, implementing programs that conserve natural habitats and biodiversity, educating the public on issues pertaining to biological conservation, or providing leadership through example.

**Sharon Matola** was presented with the first Conservation Action Prize by **Dr. Peter H. Raven** at the Conservation Forum held at the **Missouri Botanical Garden** on Wednesday, October 11, 2000. Sharon grew up in Baltimore, Maryland, USA. Now a citizen of Belize, she has created one of the world's most remarkable zoos. Shortly after graduating from high school in the United States, she joined the Air Force, which included a jungle-survival course in Panama. Always fond of animals, she found the abundance of life in the tropics compelling. She returned to the U.S. and studied biology in Florida. In 1980, a project on fish taxonomy took her to Belize, where, again, she was enchanted by the tropical wildlife.

Sharon joined a circus hoping to travel to exotic places, but transferred from the small Mexican circus to a large international one that performed primarily in large cities. In 1982 she was invited to care for the animals that would be used in a nature film in Belize. Funding for the film ran out and Sharon was left with the animals. Realizing they could not safely return to the wild, she put up a sign reading "Belize Zoo" and began to raise money for their care.

Sharon found that many Belizeans knew little about their own wildlife and had never seen most of the animals that inhabit their country. Natural history books used in Belizean schools described



animals found in Great Britain; none taught about the local fauna. Sharon wrote two children's books about the animals of Belize, and both have become popular throughout the country. She broadcasts a weekly radio program that is conservation-based and has influenced attitudes of children as well as top levels government officials. She has been instrumental in getting laws passed to protect the natural resources of Belize and in 1991, a new 30-acre zoo and its Tropical Education Center opened to the public.



**Dr. Peter H. Raven and Conservation Action Prize recipient Sharon Matola**

Her work in Belize goes beyond the zoo's limits, as she has been involved in field research on tapirs and in aiding many scientists from Belize, as well as those visiting Belize. Sharon chairs the IUCN/SSC Tapir Specialist Group and wrote the chapter on Baird's tapirs in the Action Plan for tapirs and now faces the task of implementing the plan in tropical America and south-east Asia. She is a member of the CITES Review Committee for the Government of Belize and recipient of the Iris Darnton Award for Conservation (1998) and the Milwaukee Zoological Society Annual Award for Conservation Achievement (1996). She has received research support from the MacArthur Foundation, World Wildlife Fund-US, Conservation International, The Nature Conservancy, Wildlife Preservation Trust International, Inter-American Foundation, and the United States Agency for International Development.

Sharon, together with other environmentalists, are opposing the construction of the Chalillo hydroelectric power reservoir on the upper Macal River which will flood some of the richest

rainforest habitat remaining in Belize. Matola has said that development of the 2,700-acre site would be "an environmental crime of the highest degree" and extremely detrimental for many endangered species, including a sub-species of the Scarlet Macaw, Baird's tapir, Morelet's crocodile and the jaguar. Anyone wishing to learn more about this issue can obtain an analysis of the Environmental Impact Assessment undertaken by the Conservation Strategy Fund by visiting their website at <http://www.conservation-strategy.org>.

## CONSERVATION FORUM 2000

The International Center for Tropical Ecology co-sponsored Conservation Forum 2000 with **The Nature Conservancy (Missouri Chapter)**, **Saint Louis Zoo** and the **Missouri Botanical Garden**. This annual event provided an opportunity to exchange information between local, national and international conservation organizations through a series of lectures and displays. Conservation Forum 2000 was held on Wednesday, October 11, 2000 at the Ridgway Center, Missouri Botanical Garden with over 200 participants. **Dr. Peter H. Raven** presented the keynote address entitled: *Saving the Plants of the World: How Can it be Done?* **Sharon Matola**, Director, The Belize Zoo also delivered a keynote address: *Journey to Belize: A tropical world of natural treasures under threat*.

ICTE graduate associates **Lucio Malizia**, **Chris Collins** and **Kate Huyvaert** addressed challenges facing the protection of tropical ecosystems in a session chaired by **Dr. Bette Loiselle**. The afternoon program also included talks by **Dr. Cheri Asa**, Director of Research, Saint Louis Zoo: *MesoAmerican conservation action plans*; **Lisa Heimos**, Volunteer Coordinator Wild Canid Survival and Research Center: *Conservation efforts on the reintroduction of wild canids*; **John George**, Urban Wildlife Biologist, Missouri Department of Conservation: *Oh deer!! Wildlife conflicts in urban areas*; **Dr. Jane Fitzgerald**, Midwest Regional Coordinator, Partners in Flight: *Land bird conservation: The Partners in Flight approach* and **Mike Cooke**, Assistant Director, World Bird Sanctuary: *Controlling bird problems with birds*.

## NEWS OF STUDENTS, FACULTY AND ALUMNI

**Gilbert Barrantes** defended his doctoral dissertation entitled: *Ecology and evolution of*



*Phainoptila melanoxantha* (*Bombycillidae*, *Aves*) in the highlands of Costa Rica and western Panama. Gilbert's dissertation explored how climate change during the Pleistocene and Costa Rica's volcanic activity have shaped genetic and morphological variation in the Black and Yellow Silky Flycatcher, a bird found only on the upper slopes of mountains in Costa Rica and western Panama. His research suggests that this species was more widespread during glacial periods, but later became isolated when montane forests retreated up mountains as temperatures rose. There is also evidence that populations on some mountains may experience large reductions in size (bottlenecks) owing to volcanic eruptions. Gilbert Barrantes returns to Costa Rica in January 2001 where he will resume his academic position at the Universidad de Costa Rica. He will also co-ordinate, for the fourth time, the prestigious two-month long field course on tropical biology for Latin American graduate students organized by the Organization for Tropical Studies (OTS).

**Sylvain Razafimandimbison** defended his doctoral dissertation entitled: *Tribal delimitation of the tribe Naucleaeae (Rubiaceae): Inference from molecular and morphological data sets and a revision of Breonia A. Rich. (Naucleaeae)*. Sylvain's long term plans are to study all of the Rubiaceae of Madagascar. However, before returning to Madagascar, he will have a postdoctoral research position with **Birgitta Bremer** in Uppsala, Sweden. Sylvain worked in Uppsala in the summer of 1999. His postdoctoral research will extend his studies to take in the Asian and tropical American members of the subtribe.

**Zacharia Magombo** has recently visited herbaria in Japan, Singapore, Vietnam, Indonesia and Sri Lanka. He was able to collect material of all Asian species in the moss family Diphysciaceae: *Diphyscium longifolium*, *D. mucronifolium*, *D. fasciculatum*, *D. satoi*, *D. suzuki*, *D. perminutum*, *D. fulvifolium*, *D. foliosum*, *D. unipapillosum*, *Theriotia lorifolia* and *T. kashmirensis*. In addition, mosses from other families relevant to his taxonomic revision were also collected. He is now working on DNA extractions and analysis in the E. Desmond Lee Laboratory for Molecular Systematics.

**Godfrey Bourne** has been invited to be one of five plenary speakers at *The Biodiversity of Guyana: A Global Perspective for the Future*,

symposium to be held in Georgetown, Guyana, 11-16 March 2001. The symposium is sponsored by the Center for the Study of Biological Diversity, the University of Guyana, and the Smithsonian Institution's Biological Diversity of the Guianas Program. The other plenary speakers are **Thomas Lovejoy**, **Russ Mittermeier**, **Ghillean Prance**, and **Joseph Singh**. Bourne's talk is entitled *Establishment and Role of CEIBA Biological Center in Deciphering Biological Diversity Linkages in Guyana*. Students from his lab, **Teri C. Bergquist** and **A. Chris Collins** will be presenting posters describing their dissertation research conducted in Guyana.

**Kate Huyvaert** recently presented results from studies conducted from March to July 2000 at the Waterbirds Society Meeting in Plymouth, Massachusetts. Her work focuses on the extra-pair copulation behavior and its genetic consequences in the waved albatross, a large seabird endemic to the Galápagos Islands in Ecuador.



**Waved albatross**

**Stan Braude's** work with naked mole-rats in Kenya has been funded for two years by the **Saint Louis Zoo's** Field Research for Conservation Program. He kicked off the KMOX/Saint Louis Zoo Lecture series on November 29, 2000 with a talk on *The naked mole-rats of Meru, Kenya*. The fifteenth year of monitoring this wild population of over 8000 animals will continue in May 2001. This is becoming one of the best studied rodent populations in the world and research clearance from the Kenya Government has been extended to at least 2003. Braude's recent paper on outbreeding in this population, published in the journal *Behavioral Ecology*, has completely changed our understanding



of which forces of nature led to the evolution of eusociality (the social system with queens and workers seen in honeybees) in this rodent. The ecological forces uncovered in this study appear far more important than the previously cited genetic forces. Braude's recent paper on the interactions between wild naked mole-rats and ants, coauthored in the *African Journal of Ecology* with **Klaus Schilder** of the University of Wurtzburg and **Julius Muli** of the Kenya National Museum, points to predation and interspecific competition as important ecological forces shaping naked mole-rat behavior. Work is continuing on the effects of the East African drought cycle and intraspecific competition on mole-rat behavior.

**Michelle Crenshaw** completed an internship for the Certificate in Conservation Biology at Lake Naivasha, Kenya in summer 2000. Her research focused on sediment deposition patterns, especially the relationship between epiphytic and planktonic diatom deposition, to investigate features of ecosystem function and change. Her research was supported through an ICTE Internship Travel Award. Lake Naivasha lies about 100 km northwest of Nairobi and is the only freshwater lake on the floor of the Rift Valley in Kenya; all others are saline. Lake area varies with water level from 102 km<sup>2</sup> during dry periods to 150 km<sup>2</sup> in wet periods. A diversity of large mammals and more than 350 species of birds, including 74 species of water birds live around the lake. The fragility of this ecosystem is threatened by rapid growth in human activity in the catchment area and the conflicting demands placed on the lake's natural resources. Lake Naivasha supports intensive irrigation-based flower plantations, geothermal power generation, tourism, livestock production and fishing.

In 1995 Lake Naivasha was declared a Ramsar site, a wetland of international importance. The Lake Naivasha Riparian Association (LNRA), an organization formed by riparian landowners, was presented with the Ramsar Wetland Conservation Award in 1999 for the development of the Lake Naivasha Management Plan. This plan focuses on the wise and sustainable use of freshwater resources and in improving the equity of local people while conserving biological diversity. Threats to the sustainable utilization of Lake Naivasha's freshwater resources include: water abstraction from the main lake and river inflows; pollution from agricultural runoff and an inadequate sewage

treatment facility for Naivasha Town; and the presence of exotic species (*Salvinia molesta*, an aquatic weed, and the Louisiana crayfish).

## DR. IRBY LOVETTE VISITS CENTER

**Dr. Irby Lovette**, post-doctoral fellow at the Center for Tropical Research, San Francisco State University, visited the Center at the invitation of the Biology Graduate Student Association. Dr. Lovette obtained his doctorate at the University of Pennsylvania with a dissertation focused on New World warblers. He has recently accepted an assistant professorship at Cornell University where he will continue his work on island biogeography and adaptive radiation. Dr. Lovette presented a seminar entitled: *Phylogenetic studies of New World Warblers*.

## WORLD ECOLOGY DAY 2000

World Ecology Day was celebrated on Friday, October 27, 2000 with the theme: *Meat-eaters: Predators and their Prey*. The keynote address was given by **Dr. Alan Rabinowitz**, Director of Science and Exploration, Wildlife Conservation Society who spoke on *Saving the world's great cats: Jaguars in the new millennium*. Dr. Rabinowitz manages the Global Carnivore Program for the Wildlife Conservation Society and has traveled extensively, concentrating his research efforts in Belize, Borneo, Taiwan, Thailand, Laos and Myanmar (Burma) where he has studied jaguars, leopards, tigers, Sumatran rhinos, and other large mammals. His work has led to the establishment of the Cockscomb Jaguar Preserve in Belize, Myanmar's first marine park (Lampi Island National Park), Mt. Hkakaborazi National Park, Myanmar's largest protected area and the Tawu Nature Reserve in Taiwan. **Dr. Kimberly Smith**, Department of Biological Sciences, University of Arkansas presented a paper entitled: *Black Bears in the Ozarks: The most successful reintroduction in the world*. Dr. Smith's interests are in community, tropical, and vertebrate ecology, conservation biology, and GIS technology. His research has focused on plant-animal relationships, vertebrate community dynamics, life history characteristics of vertebrate populations, role of food in structuring vertebrate communities, vertebrate reproductive ecology, habitat selection of vertebrates, Neotropical migratory warblers, black bears,



periodical cicadas, and gypsy moths. Dr. Smith has worked in Belize, South Korea, Bolivia, and Costa Rica. **Dr. Kay Holekamp**, Department of Zoology, Michigan State University described her research on spotted hyenas: *Growing up at the top of the food chain: Problems of food acquisition faced by young spotted hyenas*. Dr. Holekamp lived full-time in Kenya from 1988 to 1993, studying the behavioral ecology of wild spotted hyenas. Her studies of spotted hyenas still continue year-round in Kenya, but her graduate students now handle most of the fieldwork, but Dr. Holekamp still spends two to six months in the African bush each year. Following the morning talks, an afternoon mini-symposium was held at the **Saint Louis Zoo**.



**Spotted hyena, Serengeti National Park**

## **DEVELOPMENT BOARD NEWS**

The ICTE Development Board, under the chairmanship of **David Shores**, met on September 15, 2000. The Board noted the resignations of **Georgia Van Cleve**, **John Huhn** and **Sally Cohn** and thanked them for the enormous support that they had given to the ICTE as members of the Board. The Board received reports from **Patrick Osborne** and **Bette Loiselle** on graduate enrollments, budgets and recent ICTE developments. The Board discussed proposals for future fund-raising events and were informed of the significant progress that had been made with the EarthLinks: Ecology in Transit program. To conclude the meeting, **Dr. Patricia Parker**, E. Desmond Lee and Family Fund Endowed Professor

in Zoological Studies described her research into the breeding biology of Galapagos hawks.

**Julie Cowhey** recently returned from Kenya where she participated in an African Masterclass organized by the Earthwatch Institute. This program introduces participants to the major conservation issues facing African wildlife and projects visited included studies of elephant migration at Taita-Rukinga Conservancy, black rhino conservation at Sweetwater Ranch and the impacts of agriculture on the biodiversity of Lake Naivasha and Hell's Gate National Park. Julie visited **Joseph Mutangah**, Biodiversity Coordinator at the National Museums of Kenya who visited the ICTE in April 1997.

Congratulations to **David** and **Janet Shores** on the birth of their daughter: Julia on Tuesday, December 5, 2000.

## **CLIMATRON EXTRAVAGANZA**

Please join us for a spectacular family night in the tropics at the Missouri Botanical Garden featuring the tropical climate and vegetation of the Climatron® in the middle of a Missouri winter.

**When:** Wednesday, January 31, 7:00-9:30 p.m.

**Where:** Ridgway Center, Missouri Botanical Garden, 4344 Shaw Boulevard.

**What:**

- an intimate, nocturnal trek through the rain forest jungle of the Climatron®, led by international, naturalist guides;
- a leisurely stroll through the botanical garden's world-class orchid show in the Orthwein Floral Display Hall;
- a film show featuring tropical plants and animals;
- tropical treats and drinks

Further details and registration form can be accessed through the ICTE web site: <http://icte.umsl.edu/nightinthetropics.html>.

Proceeds will benefit the ICTE's scholarship program. For further information, contact Bernadette Dalton at 314-516-6203 or by email: [bdalton@umsl.edu](mailto:bdalton@umsl.edu).

## **CENTER FACULTY PARTICIPATE IN STARS PROGRAM**

**Dr. Elizabeth Kellogg** mentored **Anya Vykopal**, a high school student, as a participant in the SOLUTIA/National Science Foundation Students and Teachers as Research Scientists (STARS) program. STARS introduces high school juniors



and seniors and their teachers to aspects of the scientific enterprise as practiced by successful scientists in academic, private and governmental research institutions. To complete this program, students are required to present a scholarly paper based on their research findings. **Dr. Kenneth Mares**, co-director of the STARS program presented Anya with the E. Reuben and Gladys Flora Grant Charitable Trust Award for excellence in research. Anya worked in the E. Desmond Lee Laboratory for Molecular Systematics on a project focused on mapping the structure of a grass grain as part of an effort to develop more productive grasses with the aim to increase food production, particularly in the Third World.

### **EARTH LINKS: ECOLOGY IN TRANSIT**

In collaboration with the **Missouri Botanical Garden (Litzinger Road Ecology Center)**, **Bi-State Development Agency (Arts in Transit)**, **Missouri Department of Conservation (Confluence Greenway)**, the International Center for Tropical Ecology has coordinated the EarthLinks-Ecology in Transit program. More than 600 school children in St. Louis are producing transit car placards with a focus on the common trees of the bi-state region. Each card will include information about a selected tree with illustrations downloaded from the internet as well as original drawings by the school children. Nineteen teachers at eleven schools, both public and private, are participating in this project.

Also as part of this program, students and faculty in the Art and Art History Department at the University of Missouri-St. Louis are developing a design for a bus painting to be carried out on Earth Day on April 22, 2001. Earth Day will be celebrated in Forest Park with the theme *Our Rivers, Our Water*.

ICTE Development Board member **Ilene Follman** has provided the leadership for this project and other members of the project development team

are: **Celeste Prussia** (Director, Litzinger Road Ecology Center), **Sarah Smith** (Director, Arts in Transit), **Jennifer Strayer** (Program Manager, Arts in Transit), **Stephanie Grossgloss** (St. Louis Public Schools, Ames Visual and Performing Arts), **Martha Schermann** (Litzinger Road Ecology Center), ICTE Development Board members: **Dudley Grove**, **Irv Logan**, **Matt Moynihan** and **Frank Susman** and ICTE Graduate Student associates **Karina Boege** and **Frank Wolff**.

### **DISCOVER ONE OF THE BEST KEPT SECRETS IN BIRDING**

Bird Guyana, South America, with **CEIBA Biological Center, Inc** and get a tax write-off while supporting its research, education, and conservation programs. Join Guyanese born ornithologist and ICTE Faculty Associate **Dr. Godfrey R. Bourne** on a 10-day (18-27 May 2001) expedition to coastal wetlands, white sand rainforests, inland savannas, Amazonian rainforests (Iwokrama International Rainforest Program), and tepui forests of Kaieteur Falls National Park. Good chance of seeing hoatzin, harpy eagle, rufous-winged ground-cuckoo, capuchinbird, Guyana cock-of-the-rock, spangled cotinga and lots more. Small groups, of no more than 15 people. \$2,630 from Miami. Call Godfrey or **Carol Bourne** 314-389-3347 or e-mail: [enruobgr@aol.com](mailto:enruobgr@aol.com). Check out CEIBA's web page at <http://www.ceibabiologicalcenter.org>.

#### *From the Editor*

*We thank all who contributed to this newsletter. Send future contributions to the editor, Patrick L. Osborne, International Center for Tropical Ecology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, MO 63121 (Email: [posborne@jinx.umsl.edu](mailto:posborne@jinx.umsl.edu); FAX: 314-516-6233). If you do not wish to continue receiving this newsletter, please contact the ICTE office: 314-516-6203, email [icte@umsl.edu](mailto:icte@umsl.edu). For further information on the ICTE you can visit our web site: <http://icte.umsl.edu/>*

**ADVISORY BOARD**

Robert R. Hermann, Chairman  
CEO, Hermann Companies

John Gavin  
Former U.S. Ambassador to Mexico

Earle H. Harbison, Jr.  
President, Harbison Walker, Inc.

Jorie Butler Kent  
President, Friends of Conservation,  
London, England

Sanford N. McDonnell  
Chairman Emeritus  
McDonnell Douglas Corporation

Thomas H. O'Leary  
CEO, Burlington Resources

Roy Pfautch  
Consultant, Washington, D.C.

Dr. Peter H. Raven  
Director, Missouri Botanical Garden

Richard S. Sackler, M.D.  
President, Purdue Frederick Company

Jack Taylor, Chairman  
Enterprise Leasing

**SCIENTIFIC BOARD**

Dr. Bette Loiselle, Director,  
ICTE

Dr. Patrick L. Osborne  
Executive Director, ICTE

Dr. Bráulio Ferreira De Souza Dias  
Coordinator of the National  
Programme of Biological Diversity

Dr. Robin Foster,  
Research Biologist, Smithsonian  
Tropical Research Institute

Dr. Gary Hartshorn,  
President and CEO, Organization for  
Tropical Studies

Dr. Thomas Lovejoy  
Counselor to the Secretary for  
Biodiversity and Environmental  
Affairs Smithsonian Institution

Dr. Margaret Lowman  
Director of Research and  
Conservation, The Marie Selby  
Botanical Gardens

Dr. Ernesto Medina  
Director of Plant Physiology,  
Research Instituto Venezolano  
De Investigaciones Cientificas

Dr. Russell Mittermeier  
President, Conservation  
International

Dr. Gordon H. Orians  
Professor Emeritus of Zoology,  
University of Washington

**SCIENTIFIC BOARD**

Dr. Peter H. Raven  
Director, Missouri Botanical Garden

Dr. Ira Rubino, Director  
Smithsonian Tropical  
Research Institute

Dr. Donald E. Stone, Chair, Department  
of Botany, Duke University

Dr. Margaret M. Symington  
Director, Latin America and the  
Caribbean, World Wildlife Fund

Dr. Amy Vedder  
Director, Africa Program  
Wildlife Conservation Society

**EXECUTIVE COMMITTEE**

Dr. Bette Loiselle, Director,  
ICTE

Dr. Patrick L. Osborne, ICTE

Dr. Cheryl Asa, Saint Louis Zoo

Dr. John Blake,  
Biology, UM-St. Louis

Dr. Elizabeth Kellogg,  
Biology, UM-St. Louis

Dr. Robert Magill,  
Missouri Botanical Garden

Dr. P. Mick Richardson,  
Missouri Botanical Garden

Dr. Eduardo Silva,  
Political Science, UM-St. Louis

**DEVELOPMENT BOARD**

Mr. David Shores, Chairman

Ms. Barbara L. Behrens

Ms. Julie Cowhey

Ms. JoAnn Dignan

Mr. Leo Drey

Mrs. Ilene Follman

Mrs. Dudley Grove

Mr. and Mrs. Whitney Harris

Mr. Kenneth Kranzberg

Ms. Peggy Lents

Mr. Irv Logan, Jr.

Mr. Paul Lux

Ms. Maureen McGrath

Ms. Olga Martha Montiel

Mr. and Mrs. Jim Moog

Mr. Matt Moynihan

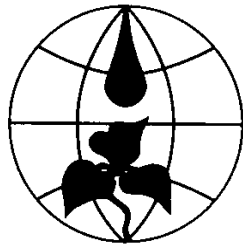
Ms. Rosa Schwarz

Mr. Roger Still

Mr. Frank Susman

Mr. Douglas R. Wolter

**FOR INFORMATION:**  
Bernadette Dalton  
International Center for Tropical  
Ecology  
University of Missouri-St. Louis  
8001 Natural Bridge Road  
St. Louis, MO 63121-4499  
**Phone:** (314) 516-6203  
**FAX:** (314) 516-6233  
**E-mail:** ictc@umsl.edu  
**On the Internet:**  
<http://ictc.umsl.edu>  
<http://www.mobot.org>



**ICTE**  
International Center  
for Tropical Ecology

NONPROFIT ORG.  
U.S. POSTAGE  
PAID  
ST. LOUIS, MO  
PERMIT NO. 3

INTERNATIONAL CENTER FOR TROPICAL ECOLOGY  
at the University of Missouri-St. Louis  
DEPARTMENT OF BIOLOGY  
8001 NATURAL BRIDGE ROAD  
ST. LOUIS, MO 63121.

