

ROBERT R. HERMANN RESIGNS AS CHAIRMAN OF ICTE ADVISORY BOARD

Robert (Bob) R. Hermann has stepped aside as Chairman of the ICTE's Advisory Board and will be succeeded in this position by **Hal A. Kroeger** (see page 2). Bob Hermann played an instrumental role in the formation of the ICTE when he observed that the Biology Department at the University of Missouri-St. Louis had strengths in tropical ecology and conservation. He worked with **Dr. Peter Raven** and then UM-St. Louis **Chancellor Marguerite Barnett** to combine these assets with those of the research faculty at the **Missouri Botanical Garden** to form the ICTE in 1990.

Bob Hermann was born in St. Louis and attended Country Day School and Princeton University. In the Second World War, he served in the US Navy and saw action in the southwest Pacific on the flight deck of the *Savo Island*, a small aircraft carrier. In addition to running Hermann Companies Inc., Bob Hermann is a civic leader and was recognized for his services to the St. Louis community when named *Citizen of the Year* in 1999. He has been active in philanthropy since 1957 when he helped organize the first charity polo match in Ladue. He was a founder of the original *Veiled Prophet Fair* (now *Fair St. Louis*) in 1981.

In 2000 he helped lead a \$100 million drive for the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and the \$55 million drive for the Saint Louis Zoo's River's Edge. He has served on the boards of the Missouri Botanical Garden, the former Barnes Hospital and the Muscular Dystrophy Association and was a founder of Operation Brightside, the clean-up program in St. Louis, and served terms as president of the boards of the Saint Louis Zoo and of the Municipal Theater Association, which oversees the Muny in Forest Park. He led the \$20 million fund-raising drive that allowed the Missouri Botanical Garden to build its \$14 million Ridgway Center in 1983 and make other major improvements.

Bob Hermann was instrumental in the formation of the North American Soccer League, which included the former St. Louis Stars. He was the league's first commissioner and created a major national award (that bears his name) for the top college soccer players in this country. He was inducted into the National Soccer Hall of Fame in 2001.

With Bob's leadership and encouragement, the International Center for Tropical Ecology now has the largest concentration of tropical ecologists in the world and is the premier institution for graduate studies in tropical ecology and conservation. He developed the World Ecology Award that is presented annually by the Center to eminent ecologists and environmentalists. Recipients of this prestigious award include: **John Denver, Captain Jacques Cousteau, Dr. Paul Ehrlich, Prince Sadruddin Aga Khan, President José Figueres, Dr. Richard Leakey, Dr. Jane Goodall, Ted Turner, Dr. Gro Harlem Brundtland, Harrison Ford, Conservation International** and, most recently, **Teresa Heinz** (see article on page 2). This distinguished list is fine testament to the support that the Center has received from its Advisory Board under Robert Hermann's guidance.



Hal A. Kroeger, ICTE Advisory Board Chair presents Robert R. Hermann with a memento depicting World Ecology Award recipients in recognition of his service to the Center as Founding Chair of the ICTE's Advisory Board.



HAL A. KROEGER TO CHAIR ICTE'S ADVISORY BOARD

Hal A. Kroeger, Jr. has assumed leadership of the ICTE's Advisory Board. He received his B.A. from Princeton and M.B.A. from Harvard and moved to St. Louis in 1965. He founded Distribix, Inc. a national paper distributor and is now Chairman of Capital Private Wealth Management Equities and President of Halak, Inc. He serves on the Board of Trustees for the **Missouri Botanical Garden** and the **Saint Louis Zoo** and has served as President of the Saint Louis Zoo Association. He is an avid skier and serves on the Board of Trustees for the U.S. Ski and Snowboard Team Foundation. **Carole Kroeger** has joined the ICTE's Development Board. Carole is a trustee for **The Nature Conservancy (Missouri Chapter)** and has served for many years as a Trustee for Churchill School.



ICTE Development Board member Carole Kroeger and ICTE Advisory Board Chair Hal A. Kroeger.

This biannual 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 academic, international environment for graduate education in tropical ecology, evolution, systematics and conservation. The Center supports undergraduate education in conservation biology and promotes awareness within the St. Louis community of the importance of conservation and environmentally sustainable policies and practices.

TERESA HEINZ RECEIVES WORLD ECOLOGY AWARD

The International Center for Tropical Ecology presented its World Ecology Award to **Mrs. Teresa Heinz** at a gala dinner held at the **Missouri Botanical Garden** on Wednesday, April 23, 2003. Teresa Heinz chairs the Heinz Family Philanthropies and the Howard Heinz Endowment, which are considered among the nation's most innovative philanthropic institutions. She is also the creator of the prestigious Heinz Awards, an annual



program recognizing outstanding vision and achievement in the arts, public policy, technology and the economy, the environment, and the human condition.

Teresa Heinz is recognized as one of the premier environmental leaders in the United States. In 1995, she announced what was at that time, one of the largest grants ever made to the environment, a \$20 million gift to create the H. John Heinz III Center for Science, Economics and the Environment. This Center brings together leaders in business, government, the scientific community and the environment to collaborate in developing mutually acceptable, yet scientifically sound, environmental policies. In addition to serving on the Center's board, she is Vice Chair of the Environmental Defense Fund and was one of ten representatives from non-governmental organizations attached to the U.S. Delegation to the U.N. Conference on Environment and Development (Earth Summit) in Brazil in 1992.

As a member of the Advisory Board for the Earth Communications Office, she helped to pioneer an internationally acclaimed public service campaign promoting citizen environmental action in countries around the globe. She helped to conceptualize and launch *Second Nature*, a nonprofit organization with a mission to support the development of an environmentally literate citizenry. She is a co-founder and board member of the Alliance to End Childhood Lead Poisoning and a trustee of the Winslow Foundation, which is active primarily in the environment.



Dr. Patrick Osborne (ICTE Executive Director), Mr. Hal A. Kroeger (Chair, ICTE Advisory Board), Dr. Bette Loiselle (ICTE, Director), Dr. Elson Floyd (President, University of Missouri), Mrs. Teresa Heinz (2003 World Ecology Award recipient), Mr. Robert R. Hermann (outgoing Chair, ICTE Advisory Board) and Dr. Donald Driemeier (Interim Chancellor, University of Missouri-St. Louis) at the World Ecology Award ceremony held at the Missouri Botanical Garden on Wednesday, April 23, 2003.

Teresa Heinz, formerly Teresa Simões-Ferreira, is married to U.S. Senator John Kerry. Born and raised in Mozambique, she received a Bachelor of Arts degree in romance languages and literature (French, Portuguese and Italian) from the University of Witwatersrand in Johannesburg, South Africa. In 1963, she graduated from the Interpreters School of the University of Geneva. Fluent in 5 languages, she served as a full-time consultant to the United Nations Trusteeship in New York City. She has been awarded honorary doctorate degrees from Beloit College (Wisconsin), Bank Street College of Education (New York), Clarke University (Massachusetts), Carnegie Mellon University (Pennsylvania), Drexel University (Pennsylvania), the University of Massachusetts (Boston), the Medical College of Pennsylvania and Pine Manor College (Massachusetts).

As a staunch advocate for the environment, Mrs. Heinz has emphasized the need to align

environmental and economic interests based on sound science, economics, technology, innovative thinking, and partnerships between business and the environmental community.

The dinner was sponsored by **Mr. and Mrs. Leo A. Drey, Dula Foundation, Fox Family Foundation, Hermann Foundation, Kroeger Family Charitable Trust, Mr. and Mrs. E. Desmond Lee, Mr. and Mrs. Sanford N. McDonnell and Mr. and Mrs. John C. McPheeters.** Supporting **Mr. and Mrs. Hal Kroeger** as Gala Dinner co-chairs were **Mr. and Mrs. Van Lear Black III** and **Mr. and Mrs. Lee Liberman.**

ACCEPTANCE ADDRESS EXCERPTS

“I am truly honored to be the recipient of this distinguished award. Yet, in accepting it, I am mindful that this is not a time for any of us in the environmental community to be celebrating or



patting ourselves on the back. Today, we are losing ground worldwide, not gaining it, in spite of the amazing efforts of so many people. This award may be a tribute but it is also a challenge—to me, to all of you, and to everyone who cares about the future of our environment, of our planet.”

“As a nation, we have extraordinary responsibilities, but we also have tremendous opportunities. A great nation such as ours can improve an imperfect Kyoto protocol treaty, not just declare it dead. A great nation such as ours can treat international diplomacy as a chance to convey and personify what is best for and about us without boasting.”

“The environment must again be front and center in our national dialogue. It must again be a rallying cry, which is how we got the Clean Air Act, the Clean Water Act, and the creation of the Environmental Protection Agency itself during the Nixon Administration. The health of our planet depends on it. But so does the health of our democracy. To show how we genuinely care about this great tree called America, this tall and fragile American elm, this proud colossus of the forest, we must do more than sing its praises. We must nurture the soil in which it is planted. That is our mission, and I urge you to join together in pursuing it with the passion and fervor it deserves.”



Mrs. Teresa Heinz delivering her acceptance address after receiving the World Ecology Award.

THE CHRISTENSEN FUND FELLOWSHIP PROGRAM

The Christensen Fund Fellowship Program in Plant Conservation has awarded fellowships to **Corneille Ewango** and **Monica Carlsen**. Corneille is from the Democratic Republic of Congo and will begin

his master's in August. He has worked as a botanist with the Okapi Wildlife Reserve, a program supported by the Wildlife Conservation Society. WCS biologists, **John** and **Terese Hart** have tracked Okapi and other wildlife in the Ituri forest for nearly 20 years and Corneille has played a key role in documenting the plants within this significant reserve. Corneille's graduate advisor will be **Peter Stevens**. **Monica Carlsen** will complete her M.S. in May and will immediately transition into the Ph.D. program. Monica is from Venezuela and has studied plants from the genus *Anthurium*. *Anthurium* species are characteristically found as epiphytes growing on the trunks and branches of New World tropical trees and belong to the Araceae family. Monica has a strong interest in the special conservation problems of epiphytes, which tend to be locally restricted and often heavily collected. Her advisor will be **Peter Stevens**. She will be co-advised by **Tom Croat**, P.A. Schulze Curator of Botany, **Missouri Botanical Garden**, and the world's expert on Araceae.

COMPTON FOUNDATION FELLOWSHIPS

Compton Foundation Fellowships have been awarded to **Karina Boege** (Mexico), **Cintia Cornelius** (Chile), **Beto Vicentini** (Brazil), **Cynthia Watson-Rodney** (Guyana) and **Alejandro Masis** (Costa Rica).

Karina Boege is completing the fourth year of the Ph.D. program and will soon complete her fieldwork. She has studied the role of insect herbivores and nutrient supply on plant growth in a Mexican dry tropical forest. She is particularly interested in understanding how forest management and habitat alteration affect ecological processes in these systems. Karina is a member of the Marangola A.C. Association, which focuses on environmental policy and resource management in Xalapa, Veracruz.

Beto Vicentini is undertaking research into the evolutionary history, biogeography and evolution of morphological and ecological traits (e.g., breeding systems) in *Pagamea* (Rubiaceae) species that grow on nutrient-poor soils in tropical South America. In 2002, Beto was a participant in the Guyana Shield Conservation Priority Setting Workshop held in Paramaribo, Suriname organized by Conservation International, the International Union for the Conservation of Nature and the United Nations



Development Programme.

Cintia Cornelius will spend the next year in the field and will study the effects of habitat fragmentation and degradation on birds in Chilean rain forests. Her study will focus on bird movements in relation to landscape connectivity; the influence of habitat area, degree of isolation, and degradation and on the maintenance of populations in these forest fragments. Cintia has received research support from the ICTE, the St. Louis Audubon Society (2002) and was awarded the Mickey Scudder Scholarship for field biology by the **Webster Groves Nature Study Society**.

Cynthia Watson-Rodney is enrolled in the M.S. program and is interested in the effect of small-scale gold mining on aquatic food chains in tropical streams of Guyana. She will be studying sexual selection in poecilid fishes in Guyana over the summer. Cynthia co-founded the Guyana Nature Foundation, a group dedicated to the education of Guyanese, by Guyanese, about Guyana's biodiversity.

Alejandro Masis is interested in plant-herbivore interactions in the Guanacaste forests of Costa Rica. He has championed the protection and restoration of these tropical dry forests and has a keen interest in promulgating conservation policy. He is a founding member of the *Asociacion BioGuanacaste*, and a member of the Board of Directors. The *Asociacion BioGuanacaste* aims to protect the Area de Conservacion Guanacaste in Costa Rica.

ORGANIZATION FOR TROPICAL STUDIES

Jim Hunt has stepped aside after seven years of service to the **Organization for Tropical Studies (OTS)**. Throughout this time, Jim was a member of the Education Committee and also served for two years on the Research Fellowships Advisory Committee, which he chaired in 2002.

Our graduate students continue to be active participants in OTS programs. **Marcos Maldonado** is enrolled in the OTS *Tropical Biology: An Ecological Approach* course and **Steve Mitten** will participate in *Tropical Marine Ecology* offered jointly by OTS and the Smithsonian Tropical Research Institute in Panama. **Grace Servat** is once again teaching the OTS Amazon course in Peru.

2003 JANE AND WHITNEY HARRIS LECTURE

The 2003 Jane and Whitney Harris Lecture will be presented by **David Quammen**, author of *The song of the Dodo: Island biogeography in an age of extinctions*, which won the 1997 New York Public Library Helen Bernstein Book Award for Excellence in Journalism. Educated at Yale and Oxford Universities, David Quammen is a renowned science and nature writer. He is a two-time National Magazine Award winner for his science essays and columns in *Outside* magazine and has received an Academy Award in Literature from the American Academy of Arts and Letters and the Lannan Literary Award for nonfiction. His other books include: *The flight of the iguana: A sidelong view of science and nature*; *Natural acts: A sidelong view of science and nature* and *Wild thoughts from wild places*. The lecture will be held in the Shoenberg Auditorium, **Missouri Botanical Garden** on Wednesday, October 22, 2003.

TIBETAN ETHNOBOTANY AND CONSERVATION OF *MENRI* – MEDICINE MOUNTAINS

The eastern Himalayas are renown for biological and cultural diversity and endemism. Tibetan people (*Kham*) have lived for millennia in this area, conserving, using, managing and enhancing this diversity. Diversity and endemism originated in the eastern Himalayas because of monsoonal rains, precipitous topography dissected by great rivers and the interplay of major tropical and temperate floras. Tibetan culture flourished in this diversity and evolved conservation and management techniques to protect it. Outstanding among this biological and cultural diversity is an area known to Tibetans as *Menri* or Medicine Mountains. The sacred geography of this area is profound, protecting and conserving the natural biodiversity among which the medicinal biodiversity gave rise to the Tibetan name of the range.

Ethnobotany, the study of plants and people, is employed to document the useful biodiversity of the Medicine Mountains and indigenous methods of conservation and management. Native plants are used by Tibetans to provide foods, medicines, fibers, construction materials and much more. Sacred geography, through sanctification, protects



natural resources on scales from large areas to individual trees.

Nature conservation can learn from and reinforce indigenous Tibetan practices at many levels from landscapes to plant populations and supporting these indigenous plant management systems is crucial to the conservation of biodiversity in Tibetan Yunnan. Tibetans have been successful stewards of this plant diversity for millennia. However, modern pressures brought on by improved transportation, markets and interests in herbal medicines are threatening traditional land stewardship and, in the process, threatening the plants themselves.

By incorporating traditional local knowledge with modern Western scientific methods to develop conservation recommendations to protect *Menri* – Medicine Mountains, the **Missouri Botanical Garden** is working with **The Nature Conservancy (TNC)** and **Deqin County** on the *Menri* Ethnobotany Research and Conservation Program (a part of the Yunnan Great Rivers Project). For impoverished Tibetans, non-timber products are a major source of income and we are monitoring local marketing of non-timber products for prices, sources, collectors, quantity and availability. Other organizations are monitoring world trade in threatened and endangered plants and animals, but little information is available from the local sources.

Partnering with local Tibetans is key not only to ethnobotany but also, more importantly, to conservation. *Menri* offers some tremendous local partners, especially Tibetan doctors who are all trained in indigenous plant biology, identification and pharmacology. They recognize plants in their natural habitats, know how and where they grow and appreciate modern threats to these valuable medicinal resources. Tibetans live in the villages and interact daily with local people by whom they are esteemed and revered. Tibetan doctors are the most powerful advocates and leaders for which conservation could hope.

Cooperation among institutions and with Tibetan doctors and local citizens has been overwhelmingly positive. Additional efforts in educating ethnobotanists, conservationists and local people in *Menri* on ethnobotany in general and this project in particular will increase the success of our research goals and conservation efforts. The success of our efforts in *Menri*, Medicine Mountains, will ultimately depend on government and local people

working together towards the long-term conservation management of non-timber products and biodiversity. In a larger context, these conservation goals for the Medicine Mountains are important because *Menri* falls within the global biodiversity hotspot of the eastern Himalayas (Hengduan Mountains) described as being the most biologically diverse temperate ecosystem on earth!

*Jan Salick, Curator of Ethnobotany
Missouri Botanical Garden*

TROPICAL ECOLOGY IN THE TEMPERATE ZONE REVISITED: HIGH SPECIES DIVERSITY OF LEAF-CHEWING INSECTS ON MISSOURI OAKS

Tropical habitats are famous for their high numbers of species compared with regions further north and south of the equator. Because species numbers are generally low in temperate regions for many kinds of organisms, we might also expect the number of interacting species also to be low. For the past 15 years, my laboratory group has been studying interactions between oak trees (the genus *Quercus*) in Missouri and their leaf-feeding insects. My interest is to understand the ecological factors that influence the abundance of these insects and in so doing determine their impact on tree growth.

The goal of the Missouri Ozark Forest Ecosystem Project (MOFEP), sponsored by the Missouri Department of Conservation, is to determine the impact of alternative timber harvesting regimes on the biodiversity and integrity of Ozark forests. We have monitored populations of insects on black and white oaks in MOFEP forests in which timber is either removed by clearcutting small stands or taking a similar timber volume by thinning the forest.

We census the leaves of approximately 800 understory and canopy trees four times during the growing season for the insects. On the one hand, we would like to know if cutting threatens the existence of certain insect species. On the other, a particular cutting regime might actually increase the abundance of certain damaging insects, and thus have an economic impact on timber production.

One exciting, and at the same time, challenging result of this study is that oak trees harbor a very high diversity of leaf-chewing insects. Our tally is



now over 260 species for black and white oak. This number is much higher than that reported for any other system, temperate or tropic. Most of these insects are moth caterpillars, but we also find walking sticks, beetles, a few butterfly caterpillars, katydids, grasshoppers and sawflies.



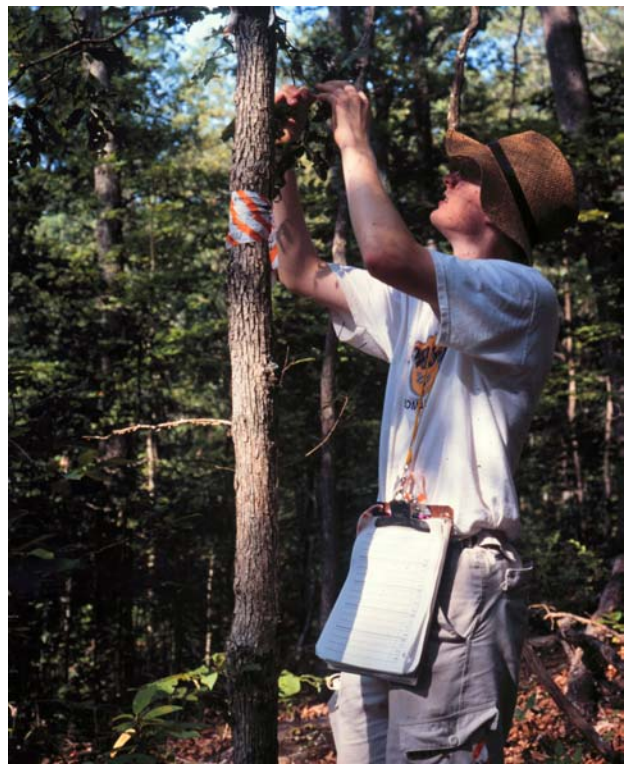
Emily Mohl

Caterpillars provide a particularly difficult problem for field identification because almost all scientific descriptions of these species in the past has been based on adults moths with only limited information available for the caterpillar stage. In addition, many caterpillar species change form and color dramatically as they go from one growth stage to another. In the upcoming year, with the support of Missouri Department of Conservation and the U.S. Forest Service, we expect to publish a photographic field guide to the caterpillars that feed on Missouri oaks.

We work as a team of 3-5 persons in our censuses of insects in the MOFEP study. Each census requires 8-10 days to complete. **Dr. Rebecca Forkner**, a postdoctoral associate in my lab, has been leading these censuses for the last three years. High school, undergraduate and graduate students make up the rest of the team. As

such, a number of the graduate students in the UM-St. Louis Biology graduate program gain field experience in temperate forests. In addition, high school students may be involved in their first field research experience. Two local students were team members last year. **Emily Mohl** (Kirkwood High, Grinnell College) spent last year teaching English in Beijing China, while **Kevin Chase** (University City High) just completed his freshman college year at Truman State University.

*Robert J. Marquis, Professor,
Department of Biology*



Kevin Chase

ICTE RESEARCH NEWS

Hyosig Won and his advisor, **Susanne Renner**, have made a particularly exciting discovery: the first evidence for natural horizontal gene transfer across groups of seed plants. Hyosig, nearing the completion of his Ph.D., has undertaken a phylogenetic study of *Gnetum*, a gymnosperm in the Gnetophyta. The Gnetophyta are a bizarre group of seed plants that include three genera: *Ephedra*, *Gnetum* and *Welwitschia*. By studying genetic sequences (mitochondrial, two nuclear, and three chloroplast loci) and by comparing them to a large number of sequences from other seed plants,



Hyosig and Susanne were able to demonstrate horizontal transfer of one piece of mitochondrial DNA from an asterid to *Gnetum*.

Deborah and **David Clark**, Adjunct Research Professors with the Department of Biology at UM-St. Louis and ICTE Associates, were featured in a two-page article in *Science* (April 25, 2003): *An intimate knowledge of trees*. The article discussed their lives' work at La Selva Biological Station in Costa Rica and their latest research on the potential contribution of tropical trees to global warming. A paper they co-authored with **S.C. Piper** and **C.D. Keeling** of the Scripps Institution of Oceanography entitled: *Tropical rain forest tree growth and atmospheric carbon dynamics linked to interannual temperature variation during 1984-2000* appeared in the April 22, 2003 online version of the *Proceedings of the National Academy of Sciences* and in hard copy on May 13. In this paper, the Clarks and their co-workers found that canopy tree growth in the old-growth tropical rain forest at La Selva, Costa Rica, varied more than 2-fold among years during the period 1984 and 2000. The trees' annual diameter increments in this 16-yr period were negatively correlated with annual means of daily minimum temperatures. Tree growth slowed during the record-hot 1997-1998 el Niño and the authors inferred large releases of CO₂ to the atmosphere occurred. These and other recent findings are consistent with decreased net primary production in tropical forests in the warmer years of the last two decades. Such a sensitivity of tropical forest productivity to on-going climate change would accelerate the rate of atmospheric CO₂ accumulation and potentially promote global warming. The results of the research were also featured in *Rain forests release carbon dioxide in response to warmer temperatures* that appeared in the April 22 online version of *Scientific American*.

Renata Durães has co-authored a paper published in the *Journal of Field Ornithology* (74(3): 270-280, 2003) entitled: *An evaluation of the use of tartar emetic in the study of bird diets in the Atlantic Forest of southeastern Brazil*. Tartar emetic is frequently used to force regurgitation in birds, allowing the study of diet while minimizing mortality. This study evaluated the efficiency and drawbacks of the method for several species and families and found that the incidence of regurgitation was lower and mortality was higher in the early hours of the day. The authors concluded

that tartar emetic should be used with caution and alternative methods should be favored for those species presenting unsatisfactory responses to the emetic. They also recommended that the use of this substance should be avoided in the first hours of the day before birds have had time to forage.

2003 ICTE SCHOLARSHIP AWARDS

Tanya Patricia Montenegro Armijos: *Christensen Fund in Plant Conservation Scholarship* (Population analysis of *Ecuadendron Acosta-Solisianum* D. A. Neill (Fabaceae: Caesalpinioideae) for *in situ* conservation); **Beatriz Baker:** *Christensen Fund Program in Plant Conservation Scholarship* (Effects of fire on *Ouratea hexasperma*: Population dynamics and its biotic interactions); **Jennifer L. Bollmer:** *Jane and Stanley Birge Tropical Research Scholarship* (MHC variability in native Galapagos bird species: The selective effect of avian pox); **Daniel Cadena:** *Parker-Gentry Tropical Research Fellowship* (Ecology, evolutionary history, and the distribution of *Buarremon* brush-finches); **Elizabeth R. Congdon:** *Henry B. Cowhey Scholarship in Tropical Conservation* (Dispersal and new group formation in capybaras, *Hydrochaeris hydrochaeris*); **Cintia Cornelius:** *Goldie Millstone Scholarship* (Reproductive success and genetic structure of two endemic birds of the southern South American rain forest: Dispersal and habitat limitations in a fragmented landscape); **Teresa Patricia Feria:** *Jorie Butler Kent Scholarship* (Influences of species characteristics and environment on predicting species distributions); **Jorge Luis Hurtado-Gonzales:** *Faucett Family Foundation Research Scholarship in Neotropical Ornithology* (Does polyandry drive sexual selection in an Andean Cock-of-the-Rock lek system?); **Kathryn P. Huyvaert:** *ICTE Development Board Scholarship* (The role of philopatry in the mating system of the waved albatross: Testing and assumption of the "related cuckold" hypothesis); **David Kenfack:** *Christensen Fund in Plant Conservation Scholarship* (Systematics and evolution of *Carapa* (Meliaceae)); **Andrea Loayza:** *Christensen Fund in Plant Conservation Scholarship* (The role of isolated vegetation patches as recruitment foci in a tropical savanna in Beni, Bolivia); **Rosa del C. Ortiz-Gentry:** *Jane Harris Scholarship in Tropical Botany* (Phylogeny and



evolution of endocarp and seed features in Menispermaceae, and systematics of *Sciadotenia* Miers); **Zachary Rogers**: *John Denver Memorial Scholarship in Tropical Ecology* (A taxonomic revision of the genus *Stephanodaphne* (Thymelaeaceae)); **Heidi H. Schmidt**: *Burton and Ilene Follman Scholarship* (Taxonomic revision of *Agarista* sect. *Agauria*); **Kimberly A. Schultz**: *Mallinckrodt Graduate Scholarship in Tropical Ecology* (Implications of variability in arbuscular mycorrhizal fungi communities for tree seedling establishment in tropical montane pastures); **Marisol Toledo de Vroomans**: *Stokes Family Scholarship in Tropical Conservation* (Diversity, use and management of secondary forests of Eastern Bolivia); **Cynthia Watson-Rodney**: *ICTE Development Board Scholarship* (Costs and benefits of boldness and shyness in the fish, *Poecilia parae*); **Noah K. Whiteman**: *Stephen Mitchell Doyle Scholarship in Tropical Ecology* (Host-parasite evolution on the Galapagos Islands).

VISITORS FROM MADAGASCAR

Three researchers from Madagascar visited the ICTE, **Missouri Botanical Garden** and the **Saint Louis Zoo** in March. **Jose Myriel Ralison**, a graduate student at the **University of Antananarivo** is studying the effects of habitat fragmentation on population dynamics and genetic structure of lemurs. His work aims to determine the conservation status of lemur species. **Bernard Richardson Lambana** has worked for several years in the Betampona Reserve with **Ingrid Porton** and others from the **Saint Louis Zoo** on a project focused on the reintroduction of lemurs. **Mahefasoa Raherison** is a Ph.D. student interested in forest structure and productivity. He analyzed a series of recent satellite images of a site in southwest Madagascar and identified areas exhibiting particularly rapid change in vegetation cover. This visit was made possible through collaborative funding from **USAID**, **Missouri Botanical Garden**, **International Center for Tropical Ecology** and the **Saint Louis Zoo**.

NEWS OF FACULTY, STUDENTS, AND ALUMNI

Jim Hunt will spend the 2003-2004 academic year as a Fellow of the **Wissenschaftskolleg zu Berlin**. This residential scholarly community of about 40 fellows drawn primarily from the humanities and

social sciences has representatives from academic institutions around the globe. Each year there are also a few biologists, and over the past decade these have included a number of social insect biologists. Jim will devote his time in Germany to work on a book about the evolution of social wasps.

Jan Salick (Curator of Ethnobotany, **Missouri Botanical Garden**) conducts research supported by a National Science Foundation biocomplexity grant (*Intellectual imperatives in ethnobotany*), a grant from The Nature Conservancy (*Tibetan ethnobotany*) and a Ford Foundation grant for *Capacity building and policy formation in Tibetan Yunnan* (see article on page **). Jan is now co-authoring a paper (C.C. Hamlin and J. Salick (2003): Yanesha agriculture in the upper Peruvian Amazon: Persistence and change fifteen years down the "road". *Economic Botany* 57) which quantitatively compares indigenous agricultural practices before and 15 years after an Amazonian spur road was constructed. Their work shows that after experiencing severe agents of change during more than a decade of guerrilla, military, Ashaninka and drug-trafficking activities, the survival of this small group of indigenous people in the Palcazu Valley is still based on biodiverse traditional practices that have helped them weather other periods of change and disruption.

Sonia Sandoval, who completed her master's in biology in 1994, has been appointed Director of the Museum of Natural Sciences of Ecuador. This is a public institution, and the director is a permanent government post. **Homero Vargas**, who completed his master's at UM-St. Louis in December 2002, is now Director of the National Herbarium of Ecuador, a section of the Museum of Natural Sciences. Homero is working closely with **David Neill** (Curator, **Missouri Botanical Garden**) and together they have coordinated a training course for students from Peru, Bolivia and Ecuador. During the summer, Homero will visit the Real Jardin Botanico in Madrid and attend the Herbarium Techniques Course at the Royal Botanic Gardens in Kew. **Sonia Sandoval** and **Homero Vargas** are now leading two of the most important biological research institutions in Ecuador. Their success is a testament to the achievements of the ICTE and the successful collaboration between **UM-St. Louis** and the **Missouri Botanical Garden**.

Lorena Calvo, ICTE alumna, is the Director of the National Museum of Natural History,



Guatemala. She is also Coordinator of Wildlife Preservation Trust International, Guatemala and Director of the Centro para Conservación de Biodiversidad de Guatemala (CCBG). In her capacity as Director, CCBG, Lorena received a prestigious **Whitley Laing Award for Conservation**. The presentation ceremony was held at the Royal Geographical Society, London and the winners of the conservation awards were announced by **HRH The Princess Royal (Princess Anne)**. CCBG is a private organization in Guatemala City dedicated to promoting environmental conservation through education and research.



Lorena Calvo (ICTE alumna) speaks with HRH The Princess Royal (Princess Anne) at the Royal Geographical Society, London.



Lorena Calvo (ICTE alumna) receives the Whitley Laing Award for Conservation from HRH The Princess Royal (Princess Anne) at the Royal Geographical Society, London.

Kevin Matson received a grant from the Field Research for Conservation Program of the **Saint Louis Zoo** to collect blood, plasma and other samples from birds in the Galapagos Islands. Kevin

is comparing immune function and disease prevalence in island and mainland species pairs. He will also collect samples from birds in Hawaii and Bermuda. Kevin also received the Trans World Airlines Scholarship from the University of Missouri system.

Ana Cristina Villegas (Ph.D., 1997) and **Evan Notman** (M.S., 1996 and Ph.D., Miami University, 2000) will be moving to Washington D.C. in September. Evan has received an Ecological Society of America Congressional Fellowship to work in Washington D.C. during 2003-2004. The fellowship provides public-policy learning experience to fellows and brings technical and scientific perspectives to decision-making in the U.S. government. Evan will work as legislative assistant on the staffs of Members of Congress or congressional committees. Ana will also spend a year in Washington D.C. as an AAAS diplomacy fellow in the Office of Ecology and Terrestrial Conservation (ETC) at the U.S. Department of State. ETC coordinates the development of U.S. foreign policy related to conservation and sustainable use of the world's ecosystems. ETC also represents the US in national and international forums such as the UN Forum on Forests, the Convention on Biological Diversity and the Convention on International Trade in Endangered Species. Evan and Ana have both been teaching the OTS undergraduate semester abroad program in Costa Rica during the last three years. Evan also coordinated an NSF-funded Research Experience for Undergraduates (REU) program at La Selva and this year is also coordinating a sister program for Costa Rican students funded by the CRUSA foundation. They have also been working together on research of palm seed ecology at La Selva Biological Station.

EARTH DAY 2003 CELEBRATION

The EarthLinks: Ecology in Transit program participated in Earth Day 2003 held in Forest Park on Sunday, April 27 with the addition of a third bus to the ICTE's fleet of mobile art. **Tim Frank** and **Doris Webster**, students in the Department of Art and Art History at UM-St. Louis, produced the designs for this year's bus. The theme for Earth Day 2003 was *Passport to a Healthy Planet*. EarthLinks is an educational outreach program developed by the ICTE in collaboration with the **Missouri Botanical Garden, Missouri Department of**



Conservation, the **Green Center** and **Arts-in-Transit** (Bi-State Development Agency). The program is coordinated for the ICTE by Development Board member, **Ilene Follman**.

CONSERVATION EDUCATION IN GUATEMALA

Elma Kay, a Ph.D. student at Saint Louis University completed her Graduate Certificate in Tropical Biology and Conservation at UM-St. Louis with an internship with the Centro para Conservación de Biodiversidad de Guatemala (CCBG). CCBG is a private organization in Guatemala City dedicated to promoting environmental conservation through education and research. The organization is directed by UM-St. Louis and ICTE alumna, **Lorena Calvo**.

The objectives of the internship were to translate Elma's research to levels appropriate for children. Four modules were produced on *Interacciones entre*

Plantas y Animales (Plant/Animal Interactions): *Polinización* (Pollination), *¿Sabes que es herbivorismo?* (Do you know what herbivory is?) *Un banquete de frutas* (A fruit banquet) and *Las plantas y sus pequeños compañeros* (Plants and their tiny companions). Teaching materials included an information sheet, separate work sheets for children 2-4 years old and for children 5-12 years old, an art project such as making finger puppets and masks and a game based on the course topic.

Elma also assembled a slide set from professional and amateur photographers of tropical organisms and has made copies (with photographer permission) available, together with other course materials, to Non-Governmental Organizations in Indonesia, Cuba, Belize and Jamaica. Elma worked with ICTE alumna **Lorena Calvo**, now a leader in conservation biology in Central America.



School children in Guatemala with their toucan masks.



FRIENDS OF THE INTERNATIONAL CENTER FOR TROPICAL ECOLOGY

The ICTE gratefully acknowledges the following for their generous support from July 1, 2002 to June 30, 2003.

Jaguar Club

The Christensen Fund
Compton Foundation
Mrs. Jorie Butler Kent
US Fish and Wildlife Service

Puma Club

Allen-Birge Charitable Trust
Mr. and Mrs. Van Lear Black III
Dr. and Mrs. John B. Blake
Mrs. Dorothy M. Doyle
Ms. Helen J. Doyle
Ms. Susan Doyle and Mr. David Goo
Mr. and Mrs. Leo A. Drey
Faucett Family Foundation
Mr. and Mrs. Burton E. Follman
Fox Family Foundation
The Harry and Flora D. Freund Memorial Foundation
Hermann Foundation
Mr. Wesley M. Jones and Ms. Nancy J. Ylvisaker
Mr. and Mrs. Kenneth S. Kranzberg
Mr. and Mrs. Hal A. Kroeger
Mr. and Mrs. E. Desmond Lee
Mr. and Mrs. Lee M. Liberman
Mr. and Mrs. Sanford N. McDonnell
Ms. Maureen McGrath
Constance and John McPheeters
Mr. and Mrs. I.E. Millstone
Mr. and Mrs. James R. Moog
Gordon and Betty Moore Foundation
Northwestern Mutual Life Foundation
David and Lucile Packard Foundation
Mr. and Mrs. David L. Shores
Mr. and Mrs. Frank J. Stokes
Mr. and Mrs. Orrin S. Wightman III

Ocelot Club

Dr. and Mrs. Robert S. Bader
Mr. and Mrs. Joseph J. Baldassare
Dr. and Mrs. Walter F. Ballinger II

Dr. and Mrs. Roger Beachy
Mr. and Mrs. Frank C. Bick
Dr. and Mrs. Clifford A. Birge
Dr. John G. Blake and Dr. Bette A. Loiselle
Mrs. Cindy Brinkley
Ms. Charlene Bry
Dr. Mark A. Burkholder
Dr. Gerardo Camilo
Dr. Sheilah F. Clarke-Ekong
Mr. and Mrs. Thomas J. Cohn
Ms. Julie F. Cowhey
The Hon. and Mrs. John C. Danforth
Dr. William Danforth
Mr. and Mrs. Charles Disbrow II
Dr. Jerry D. Durham
Mr. and Mrs. Gary Giessow
Mr. and Mrs. James H. Grove Jr.
Mr. and Mrs. Whitney R. Harris
Mr. and Mrs. Kit E. Heffern
Mr. and Mrs. Wells Hobler
Dr. and Mrs. Thomas R. Hoerr
Mr. and Mrs. Charles P. Hughes
Mr. John Kauffman and Ms. Catherine Doyle
Ms. Gerry Kessler
Dr. and Mrs. Dixie Kohn
Ms. Lydia A. Kroninger
Mr. Jay Ku
Ms. Ann Mack
Mrs. William E. Maritz
Mr. and Mrs. Theodore R.P. Martin
Merrill Lynch & Company Foundation Inc.
Dr. R. Eric Miller
Ms. Olga Martha Montiel
Mr. and Mrs. Ronald Munson
Dr. Patrick L. Osborne and Mrs. Nancy Birge-Osborne
Dr. and Mrs. F. Thomas Ott
Mr. and Mrs. Gordon W. Philpott
Dr. Paul A. Roth
Ms. Susan E. Ruland
Ms. Sherrill A. Schoepe
Mr. Howard I. Schwartz and Barbara Kalikow-Schwartz

Dr. and Mrs. Luis Schwarz
Ms. Jane Sutter
Mrs. Mary Tallarico
Mr. and Mrs. Sherida E. Tollefsen
Mrs. Georgia D. Van Cleve
Mr. and Mrs. Virgil V. VanTrease
Mr. and Mrs. Joseph G. Werner
Dr. and Mrs. James R. Wiant
Donna Wilkinson
Mr. and Mrs. Robert Wood
Margay Club
Mr. and Mrs. Frank T. Armstrong Jr.
Mr. and Mrs. Quentin E. Baker
Mr. Robert S. Barrett and Ms. Karen G. Lucas
Ms. Margaret Batchelor
Rebecca S. Beckner and Valerie Goodrich
Mr. and Mrs. Greg Berra
Mr. and Mrs. Daniel Bingaman
Ms. Georgia L. Binnington
Mr. and Mrs. Edgar L. Brown
Ms. Mary Lou Bryson
Mrs. Ella R. Chapman
Mr. and Mrs. Edward A. Corich
Ms. Joan Corwin
Mr. and Mrs. Dwight S. Crandell
Dr. and Mrs. Lawrence H. Davis
Mr. and Mrs. Charles Doyle
Ms. Jeanne F. Eichhorn
The Hon. and Mrs. Charles Foster Jr.
Ms. Karen E. Grace
Mr. David J. Griesdieck
Mr. and Mrs. Emery E. Griffin
Dr. Arnold Grobman
Mr. and Mrs. Jack L. Heller
Mr. and Mrs. Steven H. Hippe
Dr. James H. Hunt
Ms. Annette Isselhard
Dr. Alice D. Kitchen
Mr. and Dr. Joseph Kleeman
Mr. Christopher Lammert
Ms. Doris Lembke
Ms. Peggy Lents
Mr. and Mrs. William G. Madsen



Mr. Peter Marshall
Ms. Karen Meldrum
Mr. and Mrs. Joe A. Moreland
Mr. James C. Nicholson
Dr. and Mrs. Jeffrey S. Osburg
Pasadena Garden Club
Mr. and Mrs. Forrest H. Pollard
Dr. and Mrs. David Robertson
Dr. Jack B. Rosen
Saint Peter's Episcopal Church
Dr. Vicki L. Sauter and Dr. Joseph
S. Martinich

Mr. and Mrs. Robert Schulte
Mr. and Mrs. Dale Singer
Mr. and Mrs. James E. Skonicki
Mr. and Mrs. Joseph J. Smoltz
Mr. and Mrs. Jerome B. Spector
Mr. and Mrs. Walter Stark
Ms. Joanne Stern
Ms. Carole Stone
Ms. Bonnie B. Summers
Mr. Stuart and Dr. Janey
Symington

Ms. Zuleyma Tang-Martinez and
Ms Arlene Zarembka
Mr. and Mrs. Joseph L. Tucker
Mrs. Terrill D. Walters
Ms. Anne Webb
Mr. Cordell J. Williams
Dr. Jane L. Williamson
Mr. and Mrs. James D. Wilson
Ms. Eleonore M. Zimmermann
Ms. Lana Zinkon

ADVISORY BOARD

Hal A. Kroeger, Chairman
 Chairman, Halak, Inc.
 John Gavin
 Former U.S. Ambassador to Mexico
 Earle H. Harbison, Jr.
 President, Harbison Walker, Inc.
 Robert R. Hermann
 CEO, Hermann Companies
 Jorie Butler Kent
 International Chairman, Friends of
 Conservation, England
 Sanford N. McDonnell
 Chairman Emeritus
 McDonnell Douglas Corporation
 Thomas H. O'Leary
 Burlington Resources
 Roy Pfautch
 Consultant, Washington, D.C.
 Dr. Peter H. Raven
 Director, Missouri Botanical Garden
 Richard S. Sackler, M.D.
 President, Purdue Pharma
 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. Rodolfo Dirzo, Director,
 Center for Ecology, Universidad
 Nacional Autónoma de México
 Dr. Robin Foster, Research Biologist,
 Smithsonian Tropical Research
 Institute
 Dr. Gary Hartshorn,
 President and CEO,
 Organization for Tropical Studies
 Dr. Kathryn Kennedy
 President and Executive Director,
 Center for Plant Conservation
 Dr. Elizabeth Losos
 Director, Center for Tropical Forest
 Science, Smithsonian Institution
 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. Ariel Lugo, Director, USDA, Forest
 Service, International Institute of
 Tropical Forestry, Puerto Rico
 Dr. Ernesto Medina
 Director of Plant Physiology,
 Research Instituto Venezolano
 De Investigaciones Científicas

SCIENTIFIC BOARD

Dr. Russell Mittermeier
 President, Conservation
 International
 Dr. Gordon H. Orians
 Professor Emeritus of Zoology,
 University of Washington
 Dr. Peter H. Raven
 Director, Missouri Botanical Garden
 Dr. Ira Rubinoff, Director,
 Smithsonian Tropical
 Research Institute
 Dr. Donald E. Stone, Professor Emeritus,
 Duke University
 Dr. Margaret M. Symington
 Director, Latin America and the
 Caribbean, World Wildlife Fund
 Dr. John Terborgh, James B. Duke
 Professor of Environmental Science
 and Biology, Duke University
 Dr. Amy Vedder
 Director, Living Landscapes Program,
 Wildlife Conservation Society

DEVELOPMENT BOARD

Mr. David Shores, Chairman
 Ms. Kathy Bernard
 Ms. Barbara L. Behrens
 Ms. Sally Cohn
 Ms. Julie Cowhey
 Mr. Leo Drey
 Mrs. Ilene Follman
 Mrs. Dudley Grove
 Ms. Susan Harris
 Mr. and Mrs. Whitney Harris
 Mr. Kenneth Kranzberg
 Mrs. Carole Kroeger
 Mr. Irv Logan, Jr.
 Ms. Ann Mack
 Ms. Maureen McGrath
 Ms. Olga Martha Montiel
 Mr. and Mrs. Jim Moog
 Mr. Matt Moynihan
 Ms. Anna Navarro
 Ms. Rosa Schwarz
 Mr. Douglas R. Wolter
FOR INFORMATION:
 International Center for Tropical
 Ecology
 University of Missouri-St. Louis
 8001 Natural Bridge Road
 St. Louis, MO 63121-4499
Phone: (314) 516-5219
FAX: (314) 516-6233
E-mail: icte@umsl.edu
On the Internet:
<http://icte.umsl.edu>
<http://www.mobot.org>

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. Patricia Parker,
 Chair, 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
 Dr. Zuleyma Tang-Martinez
 Biology, UM-St. Louis



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

If you do not wish to continue receiving this
 newsletter, please contact the ICTE office
 Telephone: 314-516-5219
 Email: icte@umsl.edu