

Liana

ORGANIZATION FOR TROPICAL STUDIES

where science and
nature converge

NEWS FROM THE

li·a·na \lē-'än-ə, 'an-ə\ n. **1** : A climbing herbaceous or woody vine especially of tropical rain forests that roots in the ground, **2** : The quarterly newsletter published for friends of the Organization for Tropical Studies.

The Organization for Tropical Studies is a nonprofit consortium of universities and research institutions in the U.S., Costa Rica, Peru, Mexico, South Africa, and Australia.

Founded in 1963, OTS is dedicated to providing leadership in education, research and the responsible use of natural resources in the tropics. To this end, OTS offers graduate, undergraduate and professional education, facilitates research, participates in conservation activities, conducts environmental education programs and maintains three biological stations in Costa Rica: La Selva Biological Station in the Atlantic lowland rainforest; Palo Verde Biological Station in the Pacific deciduous dry forest; and Las Cruces Biological Station in the premontane cloud forest near the Panamanian border.

 **Organization for
Tropical Studies**

www.ots.duke.edu

The World is Our Classroom

News from the Field: South Africa

With funding from the Andrew W. Mellon Foundation, OTS partnered with Duke University, the University of Witwatersrand and University of Cape Town to launch the undergraduate semester abroad in South Africa on January 22 with 11 U.S. students and 10 South African students. International scientists from key partner institutions are participating throughout the program and offering the students strong academic experiences. Following are excerpts from updates sent to students' families and friends from Program Director Deedra McClearn.

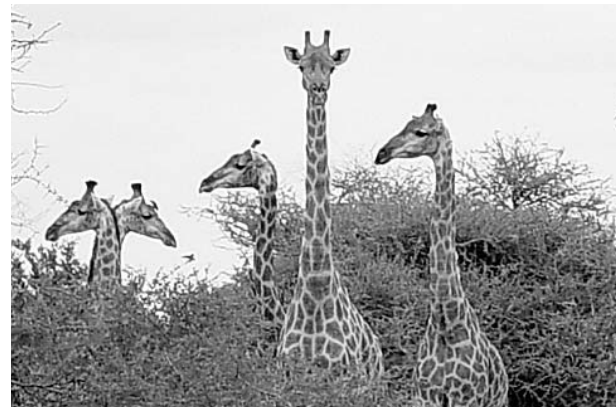
4 FEBRUARY 2004

As of tomorrow, the program will have been in the field for two weeks. We drove to Nylsvley (a beautiful high elevation savanna site) in a pounding rainstorm. Our week there was a combination of fieldwork (chasing grasshoppers and identifying plants) and talks on the history and culture of South Africa (including the apartheid years, musical traditions and rural development). The students are now finishing up their last day at the Wits Rural Facility, a field station in the area of a large rural community near the Kruger Park. Students actively participated in daily village activities (hauling water, collecting firewood, and helping prepare food). They also had lectures on local resource use, migration and refugees, HIV/AIDS and the area's new Biosphere Reserve.

Students have formed committees to keep things organized and secure (locking up at

night) and the mechanics of the student organization seem to be working very well. On most days we have 2 or 3 lectures and then the rest of the day is spent in the field. Everyone got up at 5:30 this morning to work on a project looking at vegetation structure and animal presence in areas of savanna with different burn histories. Tonight we start a project on bats. Earlier in the week students went out looking for frogs at night with Vincent Carruthers (who

DEEDRA MCCLEARN



literally, wrote the book on frogs of South Africa). Every day is packed with scheduled events, on top of which students are working on their first independent research projects this week.

25 FEBRUARY 2004

Students are wildly busy today finishing up their data collection for the first independent research project.

continued on back cover

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looking ahead

Deadlines

- COSTA RICA SEMESTER ABROAD SPRING 2005 - NOVEMBER 1, 2004
 - SOUTH AFRICA SEMESTER ABROAD SPRING 2005 - NOVEMBER 1, 2004
 - ECOLOGIA TROPICAL Y CONSERVACION (2005-2) - JUNE 11, 2004
- ADDITIONAL INFORMATION AND APPLICATIONS: WWW.OTS.DUKE.EDU



STUDENTS TRAINED IN TROPICAL COASTAL ECOSYSTEMS AND MANAGEMENT

For the second year in a row, the Ecología de Ecosistemas Costeros Tropicales intensive field course in Spanish was offered in collaboration with the Instituto de Ecología, A.C. (INECOL) and Louisiana State University (LSU) and funded by the Oak Foundation.

A diverse group of 17 students from 10 different countries participated. Students were introduced to the ecology and management of tropical coastal ecosystems of the Gulf of Mexico, from the wetlands of the coastal lowlands to the seashore. This year the course was divided into two basic modules. The first three week module, coordinated by Patricia Moreno of INECOL, emphasized small group and independent field research projects in more terrestrial coastal environments including sandy beaches and dunes, coastal forests and wetlands. The second module, coordinated by Alejandro Yáñez of INECOL and John Day of LSU, dealt with ecosystem modeling and large group projects in mostly aquatic coastal environments, including mangroves, estuaries, and coastal lagoons. A large



Faculty lead group field problems employed experiments to test hypotheses.

number of INECOL and LSU associated faculty joined the course as visiting professors for short periods of time.

At the graduation ceremony on March 5, an emotional high accompanied the announcement of the 10 post-course research award recipients, each of whom received \$500 to carry out a coastal zone research project in their home countries.

Students were introduced to the ecology and management of tropical coastal ecosystems in Veracruz and Xalapa on the coast of Mexico



How inappropriate to call this planet earth when it is clearly ocean.

Arthur C. Clarke,
English Writer



Each student conducted independent research in the field, analyzed and presented the results.

Tropical Biology: an ecological approach (04-1)

"... it starts with an earthquake, birds and snakes, an aeroplane..."

by Erika Deinert, Coordinator

The opening line of REM's popular song "It's the end of the world as we know it" is also now the opening line of the 04-1 course song "It's our OTS course as we know it." The song, written and sung by Kris Kaiser and Michael Olson, made its debut at the course farewell party on 18 March, 2004 and received rave as well as nostalgic reviews.

In fact, the 04-1 Winter



Students Phil Allman and Jason Luscier ask the question "do snail kites feed preferentially on larger snails."

Fundamentals course did start with an earthquake at 5:59 am on the day that the course headed for the field. It was an exciting beginning to an exciting course. The course, funded by the Andrew W. Mellon Foundation, ran from 02 February until 19 March with 22 students. Students and faculty alike benefited from a cadre of inspiring resource people including Craig Guyer (Auburn U.), Cesar Nufio (Colorado U.), Dena Smith (Colorado U.), Lucinda McDade (Academy of Natural Sciences), Jennifer Powers (SUNY, Stony Brook), Orlando Vargas (Reserva Bijagual), Jim Ackerman (U. Puerto Rico), Don Wilson (Smithsonian Institute),

James "Eddie" Watkins (U. Florida), Victor Carmona (U. Arkansas), Jon Piper (Bethel College), John Cozza (U. Miami), Deborah Letourneau (U.C. Santa Cruz), Larry Gilbert (U. Texas), Damond Kylo (STRI), Mariamalia Araya (Tirimbina Rainforest Center) - as well as many OTS notables such as Eugenio González, Jorge Jiménez, and Luis Diego Gómez.

The course traveled to Palo Verde, La Selva, Cuerici Biological Station, Las Cruces, Corcovado, and Las Alturas. After the course 13 participants journeyed by bus to Panama for a three-day stay on Barro Colorado Island, hosted by the Smithsonian Tropical Research Institute. OTS also awarded 5 post-course fellowships for projects that will be conducted in La Selva/Palo Verde; Las Cruces/Monteverde; Cuerici (2), and Corcovado.

For many participants the Independent Projects (IPs) formed the heart of the course. These projects reflected the impressively diverse interests of the students. Topics included "canopy arthropod diversity in nitrogen and non-nitrogen treated plants", "assessing rapid ecological assessment methods using leaf litter herpetofauna", "the influence of soil type on mycorrhizal abundance in *Pentaclethra macroloba* seedling roots", "the functional significance of juvenile distress calls in *Crocodylus acutus*", "risk sensitive behavioral decisions in hermit crabs", "corolla length as a predictor of nectar abundance in 3 *Heliconia* species", and "abiotic factors determining *Acacia* distri-

bution." Several students plan to submit their IPs for publication as notes. Others plan to use their IP work as information that will lead to, or complement, dissertations.

But the value of the 04-1 course experience goes beyond these immediate goals. As one course participant expressed it: "It was great to see how others approach research topics. This really made me consider how I think about things, and how I define myself as a scientist." Another student wrote: "OTS education rocks. Thanks for an unforgettable experience."

Faculty: Coordinator: Erika Deinert (OTS, Duke University); Co-coordinator: Mahmood Sasa (University of Costa Rica); Teaching Assistant: Ruth Salas (University of Costa Rica).
Participants: Phil E. Allman, Ohio University; Joshua R. Auld, University of Pittsburgh; Jocelyn E. Behm, University of Wisconsin-Madison; Abram J. Bickler, University of Illinois-Urbana-Champaign; Martha Bonilla Moheno, University of California-Santa Cruz; Sara G. Bothwell,



22 students participated in the flagship course that has trained the next generation of tropical biologist in research methods for more than 40 years

University of California-Santa Cruz; Letitia B. Brown, University of California-Berkeley; Jennifer L. Harden, Arizona State University; Gwynne Johnston, Arizona State University; Kristine Kaiser, University of Miami; Akito Y. Kawahara, University of Maryland; Stacey A. Leicht, University of Connecticut; Jason D. Luscier, University of Arkansas; Michael M. Olson, Tulane University; Maria G. Palacios, Iowa State University; Bret S. Pasch, University of Arizona; Jeanine M. Refsnider, University of Minnesota; Jennifer C. Rupnow, Arizona State University; Leticia G. Sanchez, University of Colorado-Boulder; James M. Sobel, Michigan State University; Henry M. Streby, Ohio University; Patricia A. Townsend, University of Washington.

Erika Deinert (OTS) and Damond Kylo (STRI) discuss the *Heliconius - Passiflora* system with students in Corcovado National Park





News from the field: Nicaragua

by Karin Gastreich, Program Director

This semester, OTS/Duke Semester Abroad Program students ventured into Nicaragua for the first time and spent seven days on Ometepe Island. Resident professor Zak Zahawi led the expedition, with invited professor JB Heiser (Cornell University) running an intensive unit on fresh water tropical fish. The module included a critical look at the brand new Tilapia industry developing on the lake. Additional activities included a brief introduction to Nicaraguan history by station manager Alvaro Molina and a tour of the island's petroglyphs and archeological museum. The visit to Nicaragua proved very rewarding both academically and culturally, and provided students with an excellent point of comparison to better understand tropical biology and the challenges of conservation in the broader context of Central America.

Legend has it that when the Spanish conquistadors came upon Lake Nicaragua, its restless blue expanse fooled them into thinking it was an ocean – until their horses started drinking from the waves.

This panoramic lake that tricked the conquistadors spreads eastward from the port of San Jorge, in southern Nicaragua. Over its liquid plains rise the two majestic volcanos of Ometepe Island. Concepción, called Omeyateyte by indigenous tribes, stands at a smoldering 1610m. In the words of invited professor JB Heiser, this is a “rock with an attitude”. It last erupted in the 1950s, and its uppermost slopes are bare, rocky and dotted with fumaroles. Maderas, called Omeyatecigoat by pre-Columbian societies, is older and much quieter; its somewhat eroded slopes rising to 1494m under a thick cover of misty forest. Ometepe Biological Station, our destination on the island, sits next to Lake Nicaragua and at the foot of Maderas Volcano.

With just a short hop over the border from Palo Verde National Park, students got a close look at the largest tropical freshwater lake outside of Africa. About 1/5 the size of Costa Rica, the lake formed approximately 3 million years ago over uplifting seafloor and volcanic sediments. This makes it middle-aged in comparison to its African counterparts, which range from 9 million to 100,000 years in age. This means Lake Nicaragua is a very appropriate site for studying the evolution and diversity of freshwater tropical fish. What little is known about the fauna of Lake Nicaragua has revealed striking similarities to patterns of diversity in the African lakes; including numerous remarkable cases of convergent evolution between distantly related species. Lake Nicaragua also has a couple unique surprises, including 2 endemic species of cartilaginous fish, the bull sharks and sawfish, that have adapted to life in a freshwater environment.

With an area of about 270km², the island of Ometepe supports tropical dry forest on the lower slopes. The upper elevations (above 800m) are under chilly mists and clouds almost year round, resulting in a thick subtropical humid forest. On the high ridges of Maderas, one encounters plants reminiscent of the Talamancas, including wild avocado (Lauraceae), wild blueberry (Ericaceae), a small chusquea-type bamboo, and a variety of stunning orchids. Army ants abound, as do butterflies, parrots and howler monkeys. But the vast majority of the flora and fauna of this unique island habitat – and the lake that surrounds it – remains undocumented and unstudied.

A rigorous hike up Maderas Volcano rewarded students with a magnificent view of a peaceful crater lake nestled in elfin forest.



JB Heiser (Cornell University) conducted an intensive unit on fresh water tropical fish, including a critical look at the new Tilapia industry.



A dedicated and groups of 22 students from US institutions are participating in the Costa Rica semester abroad this spring.



Park Managers Benefit from 4-Week Training Course

The 5th Tropical Wildlands Management course was held in Costa Rica with generous support from the U.S. Fish and Wildlife Service and U.S. AID. There were 14 participants from protected areas across Latin America. This year's course was substantially shortened to make it more accessible to higher-level staff who find a longer absence from their duties prohibitive. This edition was also marked by collaboration with Conservation International, which supported two participants, provided three expert instructors who gave feedback on a newly revised curriculum from their perspective of working with protected areas in Latin America and worldwide.

Legislators Receive Training, Make Resolutions

La Selva Biological Station hosted two editions of a short course for Central American legislators and advisors. The 4-day courses entitled Biodiversity, Natural Capital and Sustainability are supported by the Department of State's Bureau of Oceans and International Environmental and Scientific Affairs (OES) and coordinated through the U.S. Embassy's Environmental Hub in San José. Many thanks also go to the Central American Institute for Legislative Studies (ICEL), which was instrumental in attracting the 30 participants from Belize, Costa Rica, Dominican Republic, El Salvador, Honduras and Nicaragua. Response to the courses has been very positive – both produced resolutions that are likely to inform the 2004 work plan of the Forum of Central American Legislative Presidents (FOPREL).



Central American legislators and advisors were immersed in 4-day programs to examine a range of issues related to the balance of economic development and the use, management and conservation of nature.

Twelve advisors of the Peruvian congress and government agencies worked together to understand the impact of management and conservation policies and practices on biodiversity and ecosystems.



Training for Decision-Makers Launched in Peru

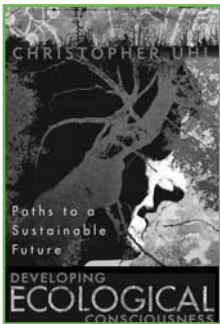
The first Peruvian decision makers course, Conservation Corridors as Regional Planning Tools for Development and Biodiversity Management, was held in October 2003. Jointly supported by Conservation International and the Hewlett Foundation, the 12 participants traveled to the Association for the Conservation of the Amazon Watershed's (ACCA) Los Amigos field station in Madre de Dios, Perú. The

participants, from the Peruvian congress and government agencies, came to grips with what constitutes biodiversity and threats to it, as well as some of the tools available for protecting it while accommodating development. In addition to faculty from Peru and neighboring Bolivia renowned tropical biologist John Terborgh was also able to join us. Having long worked in nearby Manu National Park and been honored recently by an award from the Peruvian congress John was a key draw for many participants, some who had never been to a real forest before, let alone the Amazon.

Special thanks are in order to the **U.S. Fish and Wildlife Service** for their long standing commitment to the courses training US decision-makers, Latin American decision-makers and wildland managers. These important training programs are only possible because of their sustained financial support.

Chris Uhl, 1978-1
Tropical Biology Alumnus

Uhl, faculty in the Penn State Biology Department, recently published *Developing Ecological Consciousness: Path to a Sustainable World* (available at www.rowmanLittlefield.com). In the words of Terry Link, Director of the Office of Campus Sustainability at Michigan State University:

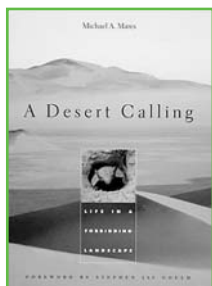


“This book evolved out of Chris' search for sustainability and trying to teach 400 non-majors about biology basics. The personal awakening that this journey took is covered beautifully in the preface to the book. What we have then is

not simply a handbook on basic ecology, but it does offer that, but a magnificently weaved cloth of not only what a sustainable world might look like, but also how we might get there.”

Michael Mares, 1970-1
Tropical Biology Alumnus

Mares published *A Desert Calling: Life in a Forbidding Landscape* with forward by Stephen Jay Gould in 2002. Mares is currently Curator of Mammals and Director of the Sam Noble Oklahoma Museum of Natural History. The book received the 2003 Oklahoma Book Award in the Non-Fiction Category and the 2002 ForeWord Magazine Book of the Year Award Environment Category. One section is devoted to Mares' OTS experience in Costa Rica, where he acknowledges that “OTS was all that I had hoped it would be and much more.” According to the publisher, Harvard University Press:



“Filled with the seductions and trials that such adventures entail, *A Desert Calling* affords an intimate understanding of the biologist's vocation. As he astonishes us with the range and variety of knowledge to be acquired through the determined investigation of little-known habitats, Mares opens a window on his own uncommon life, as well as on the uncommon life of the remote and mysterious corners of our planet.”

Marc Tatar, 1982-3
Tropical Biology Alumnus



The SAGE KE (Science of Aging Knowledge Development) and Science's career development web site recently featured Marc Tatar and his research. In this feature, Tatar says of his OTS course “That's where I really learned how to do research—and loved it.” Tatar is currently Associate Professor of Biology in the Department of Ecology and Evolutionary Biology at Brown University. His research focuses on aging and longevity using fruit flies, butterflies, beetles and grasshoppers.

Alejandra Vasco, 2001-18 *Sistématica de Plantas Tropicales Alumna*

Vasco was given a full 5-year scholarship by the New York Botanical Garden to do a phylogenetic study and monograph of a fern genus for her doctoral degree. Only one such scholarship is awarded each year.



The following 6 OTS alumni and friends were included in the 20 Scientists Selected as 2004 Aldo Leopold Leadership Fellows. These Fellowships provide scientists with intensive communications and leadership training to help them communicate scientific information effectively to non-scientific audiences, especially policy makers, the media, business leaders and the public.

Peter Alpert, OTS faculty and former Assembly member

Department of Biology, University of Massachusetts

Sharon Collinge, 1993-1
Tropical Biology Alumna

Department of Ecology and Evolutionary Biology and Environmental Studies Program, University of Colorado.

Lisa Curran, former OTS Assembly member

Tropical Resources Institute, Yale School of Forestry and Environmental Studies.

Thomas Litwin, OTS faculty

Clark Science Center and Department of Biological Sciences and Environmental Science & Policy, Smith College.

John McCarty, 1989-1
Tropical Biology Alumnus

Department of Biology and Director, Environmental Studies Program, University of Nebraska.

Nalini Nadkarni, 1979-3 *Tropical Biology Alumna, fellowship recipient and faculty*

Department of Environmental Studies, Evergreen State College.



Fragrance-collecting orchid bees in La Selva

by Charlotte Skov, Ph. D. candidate, University of Florida, OTS 2001-3 Alumna

Ever since Dan Janzen introduced orchid bees on OTS courses in the late 1960's, more than 30 reports have been published on the topic in OTS course books. Their unique biology, their spectacular metallic colors, and the fact that baits employing fragrant chemicals can attract hundreds of males in a day make the orchid bees popular study organisms.



Euglossa imperialis, a 1.5cm long metallic green orchid bee. Notice the long tongue protruding behind the body as well as the inflated, kidney-shaped hind tibiae where the male stores fragrant compounds.

Costa Rica hosts about one third of the world's 200 species of orchid bees, and the region Costa Rica-Panama is considered one of the hot spots for orchid bee diversity, with several endemic species as well as species that range from Mexico to Brazil.

Orchid bees (Hymenoptera: Apidae: Euglossini) are characterized by extremely long tongues (implied by the Latin name) and by an unusual morphology and behavior of the males that have resulted in the common name. The orchid bees live primarily in forests where they are important pollinators of plants as diverse as understory herbs, trees, vines, and epiphytes. The most fascinating

attribute of orchid bees is that male bees collect terpenes and aromatics from their environment and store the fragrant compounds in highly modified hind tibiae. The natural sources of volatile compounds include flowers of hundreds of species of orchids and several other plant families in addition to fungus-infested wood and rotting vege-

tation. Synthetic compounds like eucalyptus oil, clove oil, wintergreen oil, and vanillin are routinely employed by researchers and OTS-students alike to attract ("bait") males of a variety of species, but despite 40 years of scientific interest, the purpose of the collection remains an enigma.

My dissertation research centers on two aspects of the collection of chemicals by males: 1) Each species is attracted to only a subset of compounds, i.e., has specific preferences; and 2) Each species collects a unique mixture of compounds in their hind tibiae.

In various ways, OTS has facilitated my research greatly during the last three years:

While I was a student on the OTS 2001-3 course, I carried out an individual project with Mario Vallejo-Marin (Mexico) on the pollination biology of a fragrant orchid (*Stanhopea ecomuta*) in La Selva. We showed that of 20 species of orchid bees attracted to synthetic compounds in the Arboretum, only four species were attracted to the flowers, and of those four, only *Eufriesea schmidtiana* had the appropriate size to act as pollinator. In August 2001, I returned to La Selva with a post-course Emily Foster grant. In two weeks, I learned to identify most of the 20 species in the field as well as making some critical observations on scent preferences that led to my first dissertation research project a year later.

Late September 2002, I returned to La Selva on a "mission impossible": My plan was to catch 30 male orchid bees of each of two species with different scent preferences for use in an electrophysiological study of olfaction. However, since the experiment was to take place in a laboratory in the US equipped for Gas Chromatographic-Electro Antennographic Detection, I had to train the males to feed from artificial flowers so they could survive transportation followed by several weeks in a flight cage. For a couple of days, I was hand-feeding individual bees in 4x2 hour bouts from 5:30 am till 6 pm. Eventually, they learned to feed on their own, and I managed to bring back 60 males that survived in captivity long enough for me to complete the study. It turned out that both

species could detect compounds that did not attract them in the field, I concluded therefore that species-specific preferences are not receptor-based, but rather a function of how neurons interact in the central nervous system.

My current research focuses on identification of the compounds that male orchid bees store in their hind tibiae. This summer, I plan to study six species of the seasonal genus *Eufriesea* in the cloud forests of Central Panama, followed by a study of resource partitioning in a community of ten species of orchid bees in the tropical deciduous forest of Pacific Mexico.



Tropical Biology Database Hits 25,000

The OTS maintained BINABITROP (National Bibliography in Tropical Biology) database reached 25,000 registries in January this year. This database contains published literature related to agricultural, forestry, environmental sciences, natural resources and veterinary medicine about Costa Rica, including references to theses, dissertations, monographs, journals and congresses. You can search the database at <http://www.ots.ac.cr/en/rdmcnfs/binabitrop.shtml>

Disappearing Amphibians Focus of La Selva Training Event

by Bruce Young, *International Zoologist, Natureserve*

For 15 years, scientists have known that amphibian populations have mysteriously declined and disappeared in many parts of the world, even where habitats remain intact. Recent research has narrowed down the list of possible causes, but a smoking gun remains elusive. One reason scientists have not made more progress is a lack of on-the-ground research in decline-prone areas, such as Latin America.

To address this problem, two international amphibian research networks, the Research and Analysis Network for Neotropical

Amphibians (RANA) and a group studying Host-Pathogen Biology and the Global Decline of Amphibians teamed up to sponsor a course on Advanced Training in Amphibian Population Decline Research at La Selva and the University of

Costa Rica in January. An international faculty, representing 14 research institutions, provided hands-on instruction in techniques for studying the influence of contaminants, diseases, and climate change to 30 advanced graduate students from the US, Puerto Rico, and ten Latin American countries.

This course made good use of the new educational facilities at La Selva. Over forty people, and a small booth for a simultaneous translator, squeezed into the classroom "Jaguar." Students used microscopes set up in the teaching lab to examine the histological effects of pesticides on amphibian gonad development as well as fungal diseases of amphibian skin. The chemistry lab served as a capable venue for teaching live culturing techniques of a

chytrid fungal disease on agar plates. Students used GIS maps of land cover and the trail system to design their amphibian sampling protocol. And in true OTS fashion, when the course coordinators discovered that herpetologist Stan Sessions (Hartwick College) and climate change scientist Deborah Clark (University of Missouri-St. Louis) were in residence, they recruited both to give impromptu talks about their research.

Students learned not only new approaches to their research but also new possibilities for international collaboration. After the course ended, the students set up an email listserv to maintain communication. They promptly used the listserv to develop a proposal for an international, all-student symposium, "The Next Generation of Research on Amphibian Declines" at the 2005 annual meeting of the American Society of Ichthyologists and Herpetologists. Student Fernando Nogales also organized a seminar at the Technical University of Loja (Ecuador) to share with his local colleagues the techniques he learned on the course. One student summed up the experience saying "I don't think I've ever learned so much in a week and a half, or met a more intelligent and enthusiastic group of people."



ROBERT PUSCHENDORF

Once known from 100 localities in Costa Rica, *Atelopus varius*, the Harlequin Toad, had disappeared from all of them by 1994. A relict population was discovered in 2003, but the causes of declines and disappearances in this and many other species remain unknown.

The course coordinators are appreciative of financial support from the Pan-American Studies Institute (with funding from both the National Science Foundation and the Department of Energy). For more information about RANA and a list of the amphibians and reptiles seen during the course, visit <http://rana.biologia.ucr.ac.cr>. For more information about the project on Host-Pathogen Biology and the Global Decline of Amphibians, visit <http://svl.la.asu.edu/irceb/amphibians/>.

Wilson Botanical Garden Excursion

Six-day group tours, highlighted by a two-day excursion to the Robert & Catherine Wilson Botanical Garden, part of the 657 acre Las Cruces Biological Reserve in Costa Rica, are now being offered from the U.S. A well-balanced tour itinerary includes time for travel, relaxing at the beach or the pool, shopping, touring and exploring the garden and

reserve, sightseeing, entertainment and other educational activities. These tours make it easy for you to visit or re-visit this remote botanical wonder in southern Costa Rica. For more information, prices, itinerary and available dates visit www.crbgtours.com or e-mail groupinfo@crbgtours.com. A portion of the proceeds benefit Las Cruces / Wilson Botanical Garden.

BRUCE E. YOUNG



Southern Illinois University Professor Karen Lips points out field identification techniques for amphibians to students.

Construction nears completion on Richard H. Simons Center

Inaugural Set for May 14, 2004

The Richard H. Simons Center, the Academic and Science Center of the Organization for Tropical Studies, will be our new home on the University of Costa Rica research campus in San José. Named in recognition of the lead gift by the estate of Richard Simons, a Florida philanthropist, it will give OTS an invaluable presence in the capital of Costa Rica to complement three field stations and fulfill the mission of leadership in education, research and the responsible use of natural resources in the tropics.

The inauguration of the Center is set for May 14, 2004 and all friends of OTS are invited to attend. Special recognition will be extended to Dr. Gabriel Macaya at that time. Dr. Macaya, University of Costa Rica Rector and OTS alum, was instrumental in

bringing this project to fruition. During his tenure, the University donated the land, the architectural design and the oversight of construction. The Simons Center would not be nearing completion without his support.

The completed building is projected to cost \$1.2 million. Fundraising continues and gifts of \$100 or more will be permanently acknowledged on a donor wall in the lobby of the new center. Naming opportunities are also available for the Center's offices and classroom. The library will be known as the Walter and Barbara Hodge in recognition of their support.

The Simons Center will provide a much-needed classroom, library, offices and computer center in San José for the hundreds of

U.S. and Latin American students and researchers who come to Costa Rica each year. It will also enable OTS to conduct seminars and round-table discussions with legislators and other important decision-makers.

It is an exciting time to be a part of OTS and the Simons Center is a vital and integral part of the organization's future, especially in light of the hundreds of students, researchers and visitors who will use its facilities to improve the world's understanding of the natural resource issues facing the tropics. For further information, contact Jonathan Giles at (919) 684-6188 or jgiles@duke.edu.

HARTSHORN HONOR FUND

Thank You

Many thanks to the following people for their support of the Hartshorn Honor Fund. The Hartshorn Honor Fund was established to pay tribute to former OTS CEO Gary Hartshorn for his longstanding contributions to the organization and to provide operating support for La Selva Biological Station, Gary's favorite place on earth. The following donors will be included on a special certificate of honor to be presented to Gary at the OTS mixer at the Ecological Society of America meeting in Portland Oregon, August 2, with another to be displayed at La Selva. Contact Christina at the contact information listed on page 2 if your name was inadvertently omitted or listed incorrectly. Complete the form on the back page to contribute to the Hartshorn Honor Fund (deadline is June 1, 2004).

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DEEDRA MCCLEARN



Mist-netting bats

The projects include such diverse and fascinating topics as orientation of dung beetles rolling their dung balls, diversity of mammal foot-

sizes, placement of

weaverbird nests in trees, nitrogen-fixing nodules in roots of plants in different savanna areas, and behavior of fig wasps inside the figs. Students have been very creative and hard working on these projects. This is a particularly difficult part of a field course...working through all the mental and logistical snags of the first independent research project. The students have displayed incredible initiative and energy.

P.S. The tracks-at-waterholes group saw a cheetah and wild dogs this week when they were out driving around! There are only 200 cheetahs in the whole park and many people live here for years without seeing one. Lucky, eh?

14 MARCH 2004

The last three weeks of the program were action-packed. We drove up to the northern end of the Park to a camp called Shingwedzi. The drive through the park was good for game-viewing: mother lion with cubs, lots of

elephants, a couple of rhinos, hippos in the Letaba River, a big python on the road, dwarf mongooses sitting on a termite mound, buffalo. And all the usual impalas, zebras, and giraffes. With the recent rain the vegetation is amazingly green and the grasses are flowering. There are more butterflies than I've ever seen before.

Shingwedzi was a site for studying, taking exams, and doing oral presentations of projects. Students took three written midterm exams (history and culture, ecology, and conservation). They also did their oral presentations, their independent research projects, and the faculty research projects. They turned in the first written drafts of their independent projects. It was a very intense week for them, but they held up remarkably well.

We (the resident lecturers and the visiting lecturers) are very impressed with these students. They are serious about the academic aspects of the program. So far they have put in more effort on all projects than we had anticipated. Many of the independent research projects were quite ambitious. I was worried that they might have over-extended themselves on the problems they tackled, but the oral presentations last week were truly outstanding. Several of the projects were at the level that I see for the graduate programs in Costa Rica.

Things are going extremely well. You all should be proud of the students for their great

spirits and whole-hearted engagement with the intellectual aims of this program. I can't imagine a better group to start off the OTS involvement in South Africa.

Blanchie Asberry, Birmingham Southern College

Tammy Baudains, University of Cape Town

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Carla Staver, Columbia University

Simon Thomson, University of Witwatersrand

Ben Wigley, University of Cape Town

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Students working on field problem and armed park guard (necessary in areas with large carnivores).



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