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CERC notes

SUMMER 2003

CENTER FOR ENVIRONMENTAL RESEARCH AND CONSERVATION

In this Issue

Letter from the Director

DON MELNICK

When I was a little boy, my mother went off to the hospital to give birth to my sister. For reasons I can't quite remember, I stayed home from school with my grandmother, while my older brothers did not. My grandmother seemed very old to me (she was in her 70's) and I didn't like the way she made oatmeal. But we had fun playing cards and after some time, as only a child could do, I asked her if she was afraid to die. She said she wasn't afraid to die, she was afraid of being forgotten. This was a silly notion to me. She was a formidable figure who came to America from Europe at the beginning of the 20th century after a youth of political activism. She was strong-willed, focused, kind, and sage in her advice. People were attracted to her, young and old, family or not. She would not be forgotten, I was sure of that. And to this day, almost 30 years after her death, she comes up in conversation almost every week. Her legacy is in us, her family, and she is not forgotten.

I've thought about that episode a great deal in recent months. Sadly, since February, three friends, ranging in age from 49 to 58 passed away – one from Asia, one from Latin America, and one from Africa – one a botanist, one a zoologist, and one a pathologist. Each had a significant impact on the world around them, two specifically on nature and one more directly on rural people. On the facing page, you will be able to read about my friends and what they did for us. I use "my" because I knew each one personally in very special ways, but actually through their extraordinary work they were everyone's friends.

Dr. Nengah Wirawan was one of the first scientists to show the connection between severe human alteration of tropical forests, El Niño, and massive forest fires. He did this while investigating the devastating fires on Borneo in the 1980's, and became a strong advocate for forest conservation in Indonesia. Dr. Marcio Ayres made a Herculean effort to save a major part of the Brazilian Amazon, after studying one of its unusual inhabitants, the Uacari monkey. He linked the Amazon's future with the future of its people, hand in hand, one mutually benefiting from the other. Dr. Neville Colman, while still a student in South Africa, discovered that the anemia suffered in many rural communities was in fact due to a folate deficiency. This discovery led to the adoption of folic acid as a food additive (check your breakfast cereal) by the World Health Organization, saving millions of lives.

The world, from which they departed far too soon, is a different place because they were among us. They were committed to a greater good for everyone. They didn't just talk about doing good, they actually did it, often at great personal cost, often with great personal danger.

We can derive at least two important lessons from their lives. First, individuals can make a difference. It sounds almost trite, but indeed few people believe it. Individuals can make a difference, if they are capable, committed, and prepared to sacrifice for a larger purpose. Second, each of us leaves a legacy, the glow of which can be quite powerful.

In Nengah, Marcio, and Neville's legacies, we can find new meaning in our efforts to help conserve nature and its inhabitants, including humans. We can find new meaning in the distinction between doing and talking about doing. And we can find new meaning in helping others to reach their goals and make their contribution to the world at large.

This is their legacy. We at CERC are inspired by it. I'm sure you will be too. They will not be forgotten.

Have a safe and enjoyable summer,

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In Memorium

Noted Brazilian zoologist and conservationist **Dr. José Márcio Ayres** passed away on March 7 in New York City from lung cancer. Through his creation of the Mamirau and Aman Sustainable Development Reserves in Brazil, Dr. Ayres is widely credited with creating the world's largest swath of protected rain forest. These reserves, which are part of 20,000 acres of rain forest, provide habitat for thousands of bird, fish and mammal species. Dr. Ayres is renowned not only for the breadth of his conservation successes but also for establishing a conservation model inclusive of indigenous human populations. He and his colleagues worked closely with people living within the preserves - most of them *caboclos*, Amazonians of mixed white and Indian blood - to develop conservation methods that sustained both the livelihood and traditions of native inhabitants. Dr. Ayres earned his PhD in primatology from Cambridge University in 1986 while studying the white uakari monkey of the upper Amazon. Dr. Ayres' long, tireless campaign to preserve the environment of his native country is a legacy as rich as the Amazon's ecosystems; and one for which he will always be greatly admired. Just 49 at the time of his death, Ayres served as senior conservation biologist at the Wildlife Conservation Society and was a CERC Environmental Leader in 2000. He is survived by his wife, Carolina Diniz Ayres; two sons, Daniel and Lucas; a brother, Manuel and sister, Helena, and his parents, Manuel and Iza Ayres.

Renowned hematologist and forensic DNA expert **Dr. Neville Colman** passed away on February 13 of gastric cancer. Dr. Colman was chief of diagnostic pathology and clinical medicine for a conglomerate of St. Luke's-Roosevelt and Beth Israel Hospitals. Dr. Colman received doctorates in medicine and pathology in his home city of Johannesburg at the University of the Witwatersrand; he did postgraduate work at New York's Mount Sinai. His first appointment in the United States was as a research pathologist at Columbia; he became a full professor in 1994. Early in his career, Colman's research in his native South Africa on folate or folic acid and the results of its deficiency attracted attention around the world. His technique for increasing the folic acid content of foods before they went to consumers encouraged the folate fortification of cereals; this process is now endorsed by the World Health Organization and the USFDA, and is believed to have saved millions of lives worldwide. Colman also formulated a self-administered nasal gel supplement of B-12 for sufferers of Crohn's disease. Dr. Colman's significant 1990 article for *Scientific American* encouraged quality controls in crime labs and advanced the recognition of DNA as an important forensic tool. The National Academy of Sciences published its policies on quality control in forensic science two years later. Just 57 at the time of his death, Dr. Colman is survived by his wife, Dr. Glenys Lobban Colman; his mother, Pearl Colman; two children, Jessica and Stephen; and two brothers, Martin, and Robin.

Internationally known botanist and conservationist **Dr. Nengah Wirawan** passed away on March 14 from liver failure. Dr. Wirawan, a native of Bali, earned his PhD in botany from the University of Hawaii. Dr. Wirawan gained worldwide recognition when he linked forest degradation, El Niño and the massive fires on Borneo in the 1980's. After his work on Borneo, he labored tirelessly on the conservation of Lore Lindu park, located in Central Sulawesi, Indonesia. The park, a world biosphere reserve, encompassing mountain and hill rainforest in Central Sulawesi, is home to tens of thousands of species of plants and animals and many small villages in valley areas. Through Dr. Wirawan's research, he and The Nature Conservancy identified two key issues threatening the park's conservation efforts - agricultural encroachment and illegal resource extraction. These issues, compounded by a lack of resources available to the surrounding human population and adversarial political/market forces, became the stimulus for a strategy for park protection. Working with the Indonesian government, Dr. Wirawan's team influenced government policies to allow local residents to earn incomes via monitored extraction and eco-friendly tourist endeavors. Dr. Wirawan was also formerly the Executive Director of KEHATI, a bi-lateral Indonesian-US trust fund for conservation, and was a CERC Environmental Leader in 1999. He is survived by his wife, Sarah and his daughter Sarilani.

CONGRATULATIONS TO THE CLASS OF

PH.D. PROGRAM

The Doctoral program in Ecology and Evolutionary Biology (EEB) was launched in 1996, and CERC is delighted to announce the first four Ecology, Evolution, and Environmental Biology (E3B) Ph.D. recipients.

Ana Luz Porzecanski

How did the current patterns of avian diversity evolve in the non-forest regions of South America? This is the question that Ana tackled over the course of her Ph.D. Ana's interest in the non-forest regions came naturally - she grew up in the Uruguayan Pampas and the Brazilian Pantanal. Her research focused on several poorly known groups of birds through fieldwork in Bolivia and Uruguay and morphological and molecular work in the AMNH laboratories. After revising the number of species and generating evolutionary trees for her study groups, Ana found evidence for both unique and common episodes of speciation within this singular avifauna. Her research provided a more accurate estimate of avian biodiversity - in some cases increasing the number of species recognized and updating their known distributions. Ana plans to continue to pursue research in evolutionary biology and biogeography and to become involved with international conservation education.

Mike Russello

Mike moved to New York for the tremendous opportunity provided by CERC. During the graduate program, he interacted with leaders in the fields of systematics and conservation genetics, while working alongside a gifted group of graduate students at both CU and AMNH. Mike's doctoral research in São Paulo, Brazil involved sequencing several Brazilian Amazona species as well as additional genera of Neotropical parrots at six gene regions, rounding out the character and taxon sampling for the phylogenetic analysis of the genus Amazona. Mike's work will further our understanding of the evolutionary history of Neotropical parrots, as well as provide new information relevant to conservation efforts. Following his defense in June, Mike will be moving to a postdoctoral associate position in the Ecology and Evolutionary Biology department at Yale University.

Robin Sears

Robin began her studies in plant science in the New England forest, where she first became interested in floristics and forest ecology. An early interest in ethnobotany led her to villages in the rainforest and high grasslands of Ecuador where she studied house gardens for her senior thesis at the University of Massachusetts – Amherst. With a joint graduate appointment at CERC and The New York Botanical Garden, Robin studied timber production on the seasonal floodplain in Amazonia. Her doctoral dissertation dealt with timber management by rural farmers in Peru and Brazil. Robin will spend the next two years putting into practice her ecological and environmental policy training at Columbia by working with Don Melnick on the United Nations Millennium Task Force on Environmental Sustainability.

Andrea Wetterer

Andrea's interest in the E3B program grew from her appreciation for the institutions cooperating in CERC. Andrea's primary interest was in the description of anatomical characteristics of bats. Over the years at CERC, she began to focus on evolutionary questions, such as "how do changes in diet or roosting behaviors alter diversification rates?", a question she addressed in her dissertation research. Following graduate studies, Andrea will collaborate with her husband to examine the impact of invasive ants on native ant faunas; they will continue their research on the ants of Atlantic Islands this summer with visits to the Canary and Cape Verde Islands. In the fall, they will move - with children Sarah and Jack - to Trinidad and Tobago to finish Jim's Fulbright Fellowship. While there, Andrea will identify the ants they collect and organize an "Ant Course" to teach students to collect, identify, and preserve.

Pictured above: Our relieved new doctors

Camila Sibata with family and friends

THE 2003 M.A. IN CONSERVATION BIOLOGY GRADUATES

The M.A. in Conservation Biology focuses on biological sciences with the addition of a basic foundation in environmental policy and economics.

J. Marion Adeney
Jessica Forrest
Deborah Kleinstein
Danielle Labruna
Stephanie Lamster
Sage Margraf
Adrienne Romanski
Kirsten Sauer
Camila Sibata
Erin Willigan

Mimi Osei-Agyemang and family

THE 2003 B.A. IN ENVIRONMENTAL BIOLOGY GRADUATES

The undergraduate Environmental Biology major provides students with a foundation in organismal biology, as well as exposure to the economics and policy issues of conservation.

Chris Duerkes
Batsheva Glatt
James Hayden
Liz Hemond
Kevel Lindsay
Pete Macchia
Amelia Moore
Daniel Narey
Peter Neofotis
Mimi Osei-Agyemang
Diana Petri
Jacob Sheppard
Amelia Smith
Tania Sosa

I O N S 2 0 0 3 !

CERTIFICATE IN CONSERVATION BIOLOGY GRADUATES

CERC fulfills its mission to foster an environmentally literate citizenry via the Morningside Institute, which administers non-degree programs. Largest is the Certificate Program, which is aimed at an audience of adult professionals interested in becoming more involved in conserving nature and biological diversity, either professionally or through civic engagement. Students complete a series of 5-week evening modules. This year's certificate recipients are:

Patricia Auro
Lorraine Cohen*
Bethanne Deuel*
Marilynn Donini*
Mary Fischer
Dominique Gilbert
Patricia Janes*
Kevin Mathewson
Elizabeth J Murphy*
Monica J. Neal*
Sarah Pacyna*
Lucia Pizzani De Fugueredo
Christina Ojar*
Julia Rellou
Jordana Rubin
Heidi Ruffler*
Stephen Sloan*
Pamela Tan*
Gillian Woolmer

**Pictured below*

PHOTOS – BOB DINICCO

SUMMER INTERNSHIPS

CERC's summer internship program for E3B undergraduates offers a range of research projects through scientists working at CERC consortium institutions. The project supervisor becomes the student's mentor in this process, assisting the student in the field and providing advice and guidance as he/she writes up a senior thesis. Not only do the students have an opportunity to develop a working relationship with a respected researcher, they experience firsthand the realities of field work and the challenges of conducting original research under real world constraints.

This year's summer interns have been placed all around the world - as far as Malaysia and as close as New York City - to research the conservation of threatened species.

Student: Christina Baranetsky
Project: The Mannahatta Project: reconstructing the ecology of Manhattan Island in 1609 using a combination of history, ecology and GIS
Mentor: Eric Sanderson, WCS

Student: Tim Bean
Project: Investing the human footprint with conservation meaning: a GIS comparison of human influence and indicators of social and biological well-being
Mentor: Eric Sanderson, WCS

Student: Brian Cabezas
Project: Invasive Species and Coral Reefs
Mentor: James Danoff-Burg, CU

Student: Aleksei Chmura
Project: Fruit bat surveys in Malaysia
Mentor: Peter Daszak, WT

Student: Kate Gluzberg
Project: Ecological Risk of West Nile Virus Invading Hawaii
Mentor: Peter Daszak, WT

Student: Ben Greenfield
Project: Behavioral Enrichment at the Central Park Zoo
Mentor: John Rowden, WCS

Student: Emma Hoyt
Project: Tree Mensuration, Forest Growth, and Carbon Storage on the Long-Term Plots at Black Rock Forest, Cornwall, NY
Mentor: Peter Bower, CU

Student: Kwana Lewis
Project: Is leaf nitrogen concentration a good predictor of leaf respiration?
Mentor: Kevin Griffin, CU

Student: Ryan Maynard
Project: The Interactive Role of Inorganic and Organic Nutrients in Controlling Coral Health and Bioeroding and Algal Communities
Mentor: Tim McClanahan, WCS

Student: Rachel Neugarten
Project: Conservation of threatened species on Margarita island, Venezuela
Mentor: Jon Paul Rodriguez, WT

Student: Medora Pashmakova
Project: Walrus Self-recognition
Mentor: Diana Reiss, WCS

Student: Marnie Rackmill
Project: Investigations into the Nutritional Requirements of Captive Jellyfish
Mentor: Ellen Dierenfeld, WCS

Student: Emily Seidman
Project: The Interactive Role of Inorganic and Organic Nutrients in Controlling Coral Health and Bioeroding and Algal Communities
Mentor: Tim McClanahan, WCS

Student: Elizabeth Vickerman
Project: Behavioral Enrichment at the Central Park Zoo
Mentor: John Rowden, WCS

Student: Justin Westrum
Project: Fruit bat surveys in Malaysia
Mentor: Peter Daszak, WT

CERC'S INAUGURAL

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PHOTOS - JOE PINERO

CERC's Inaugural Awards Dinner and Ceremony on May 19 at the New York Athletic Club was by all measures a smashing success. Hosted by award-winning anchorwoman Jane Pauley and Jeffrey Sachs, the dinner brought together over 240 guests to honor the accomplishments of Professor Edward O. Wilson and William T. Golden. The night also raised over $160,000 in funds for future conservation efforts and research – more than double CERC's original goal.

The evening's silent auction elicited some fierce (but quiet) bidding for prizes ranging from a cruise in the Galapagos Islands to an Amazon adventure to a handmade violin from the Tarahumara Indian tribe of Mexico. CERC is indebted to the auction's generous donors, whose contributions were instrumental to generating a pre-dinner buzz and competitive bidding throughout the night.

Of special interest was the dinner's drawing for a Toyota Prius, a hybrid electric/gas car that gets up to 52 miles per gallon and boasts a Super Low Emission rating. This next-generation vehicle went to a friend of CERC who was not actually in attendance – but was reached via cellphone by Ms. Pauley from the podium, to his surprise and to the delight of the event's attendees.

The dinner's success guarantees that this inaugural event was just the first of many such evenings honoring the lifetime achievements of both citizens and scientists devoted to environmental conservation. CERC's faculty, students and staff extend their sincere thanks to everyone whose efforts and donations made the dinner, drawing and silent auction a success.

First Photo: (l-r) Prof. Edward O. Wilson, Prof. Don Melnick, Garry Trudeau, Jane Pauley
Second Photo: William T. Golden and his wife Prof. Jean Taylor
Third Photo: Wendy Kaplan, Prof. Jeffrey Sachs and Doug Johnston of Toyota
Fourth Photo: Sally Blinken and Dr. Mary Pearl

AWARDS DINNER

CERC COUNCIL

Paul R. Dolan
Joseph H. Ellis
Sibyl R. Golden
Robert L. Hoguet III
Raymond D. Horton
Martin S. Kaplan
Theodore W. Kheel
Lawrence H. Linden
E. Robert Roskind

DINNER COMMITTEE

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Committee Chair
David Blinken
Carolyn Hansard
Karen Hobson
Meg Hirschfeld
Liza Murphy
Don Offinger
Julia Rellou
Stephen Sloan
Lorre White
Eric Wittenberg

HYACINTH MACAW Donors *(gifts of $25,000 or more)*:

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Lawrence and Dana Linden Foundation

TONKEAN MACAQUE Donors *(gifts of $10,000 or more)*:

Toyota Motor Sales, USA
Robert and Laura Hoguet

CELEBES TOADS Donors *(gifts of $5,000 or more)*:

Lewis W. Bernard and the Mariposa Foundation
Mr. and Mrs. Theodore W. Kheel and Task Foundation
Michael Vranos and the Vranos Family Foundation
Mrs. and Mrs. John P. White

5

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Auction & Drawing Donors

Amazonia Expeditions
American Museum Of Natural History
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Copper Canyon Guide
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Faculty House and Jeffrey D. Sachs
Galapagos Network
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Giorgio Armani –
Armani Jeans Collection
The Hoguet Family
Holbrook Travel
Ray Horton and Jackie Dinan
Barbara Kingsolver
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Longitude Books
North Flats Guiding and
Captain David Blinken
"One More Cast" Charters and
Captain John Mcmurray
Open Gates Bed and Breakfast
Stephen Sloan
Richard Speedy
Toyota Motor Sales, U.S.A., Inc.
The Sports Club/LA
U2 and Bono
Wildlife Conservation Society

Special thanks to Dell Computers
for providing the evening's audio-visuals

Fifth Photo: Swati Sharma and Anand Gajjar
Sixth Photo: CERC, EI and E3B event volunteers

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PHOTOS - BOB DEMICCO

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WORKSHOP ON MARKET-BASED APPROACHES TO BIODIVERSITY CONSERVATION BUILDS CRITICAL BRIDGE BETWEEN ECONOMIC AND ENVIRONMENTAL OBJECTIVES

The world is losing biodiversity at an unprecedented rate, with consequences that are likely to be far-reaching, unpredictable and negative. It is by now clear that most conventional responses to this loss are insufficient to even slow it significantly. The need to investigate new approaches and develop new constituencies, as well as new sources of funding for conservation is critical.

Increasingly, conservation finance mechanisms - such as conservation trust funds, tourism user fees, and debt-for-nature swaps - have been shown to be remarkably powerful tools for achieving certain economic aims by joining natural and social scientists, policy-makers, and business leaders around weighty conservation goals. For conservationists and environmental economists, the question becomes, how can these mechanisms provide a new source of incentives for conservation, generate new funding, and develop a new constituency of business people who have an interest in conservation?

CERC and a second group headquartered at Columbia University - the Center for Environment, Economy and Society (CEES), run by economist Geoffrey Heal - agreed in 2002 to establish a program to investigate the scope for Market-Based Approaches to Biodiversity Conservation. During a May 9-10 workshop hosted by the Carriage House Center for Global Issues, nearly 40 biologists, economists, policy analysts, foundation representatives, and business people sought to answer important questions about the impact that market-based mechanisms can have on maintaining biodiversity. A white paper is currently being produced based on the discussions; for more information, please e-mail us at cerc@columbia.edu.

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First Photo: Liza Murphy, Catherine Klema, Carolyn Hansard and other attendees

Second Photo: Theodore Kheel

Third Photo: A small breakout group

Fourth Photo: Professors Don Melnick and Geoffrey Heal

in brief...

CERC is grateful to the **National Fish and Wildlife Foundation** for their grant of $25,000 to the Science Teacher Environmental Education Program (STEEP). The grant must be matched by $137,000 in contributions raised by CERC specifically for STEEP.

May graduate **Mimi Osei-Agyemang** will play for Ghana in the 4th FIFA Women's World Cup. The Women's World Cup will be held in the United States from late September through early October 2003.

John Waitaka, a 2002 Environmental Leader, was appointed the Interim Director of the **Kenya Wildlife Service** (KWS) on May 26. KWS's mission is to "work with others to sustainably conserve, protect and manage Kenya's invaluable biodiversity for the benefit of the people of Kenya and as a world heritage".

Praveen Bhargav, another 2002 Environmental Leader and Managing Trustee for **Wildlife First**, helped to win a landmark case to safeguard India's Kudremukh National Park against mining. In this decision, the Court upheld the sanctity of the Park by terminating mining operations by July 2004. This is a milestone in protecting depleted wildlife habitats of India.

Christine Padoch, NYBG scientist and E3B Adjunct Professor, was highlighted in a *New York Times* article titled "Wild Cities: It's a Jungle Out There" by Alexander Stille. The article discussed an intriguing field of conservation biology: urban ecology.

CERC scientist **Gareth Russell** was quoted by United Press International (UPI) about a *Nature* article by Eric Post and Mads Forchhammer regarding evidence that a shift in climate can identically influence varied and geographically-distant animal species.

SEE-U EXPANSION
into the Dominican Republic

Starting June 2003, students in the Summer Ecosystem Experiences for Undergraduates (SEE-U) Program will be able to study in the marine and coastal ecosystems of the Caribbean, as well as the Atlantic Forests of Brazil. SEE-U is offered by CERC and Columbia University; the 5-week field ecology course introduces students to the breadth of field and digital ecological methods and theories and their applications to conservation biology.

For a number of years, SEE-U has been conducted at IPÊ, a conservation organization based in Brazil's Atlantic Forest, the country's most endangered ecosystem. With the generous assistance of Mr. Theodore Kheel and the Punta Cana Resort and Club (PCRC), CERC was able to expand SEE-U to the Caribbean in 2003. The course will be conducted in Punta Cana, Dominican Republic with the Punta Cana Ecological Foundation and the Biodiversity Laboratory as partners.

Punta Cana is one of the most beautiful areas of the Caribbean, and because of the foresight and conservation efforts of the PCRC, several ideal field sites for ecological study exist. The dormitory and laboratory space at the Biodiversity Laboratory are "home" for the SEE-U course and the surrounding nature preserves will be the location for fieldwork. For SEE-U, Columbia University, and CERC this is an exciting opportunity to not only offer courses in the Caribbean, but to continue to develop a relationship with Punta Cana - including research to further local ecological knowledge and conservation research.

Increasing Profitability While Protecting the Environment

Mrs. Ann Kheel & Former President Bill Clinton

Former President Bill Clinton and Senator Hillary Rodham Clinton were on-hand to open a meeting of the Carribbean's top tourism leaders at the Punta Cana Resort & Club in the Dominican Republic. The April 26-28 meeting provided a critical forum for the area's most influential tourism players to discuss innovative ways to preserve the environment, which is the backbone of their business in the Caribbean.

The Caribbean's enormous popularity has posed a serious threat to its ecosystems. Only 10 percent of the region's original vegetation survives in pristine condition, and its 1500 species of fish and coral are threatened. The area's natural beauty and biological diversity are unparalleled, but unchecked tourism will compromise the very things that draw visitors each year. With this in mind, the meeting's participants - representatives from the public, private, academic and governmental sectors - identified areas in which to concentrate their efforts:

- Identifying and protecting areas substantially affected by tourism,
- Educating workers and officials about the importance of biodiversity,
- Promoting collaboration between the public and private sectors,
- Introducing sustainability criteria in contracts for tourism services, and
- Undertaking tourism zoning.

CERC was joined by Conservation International's Center for Environmental Leadership in Business and Center for Applied Biodiversity Science, the Punta Cana Ecological Foundation and the Punta Cana Resort and Club in organizing the event.

First Twelve CERC-Overbrook Latin American Conservation Fellows Selected

In recognition of the accomplishments and promise of twelve conservationists from around Latin America, the first six CERC-Overbrook Latin American Conservation Fellows were selected in December 2002 and the second six in June 2003. CERC-Overbrook Fellows receive $20,000 over two years to pursue career building activities, including research, education, and writing. Fellows are selected for their potential as leading conservationists and their ability to leave a lasting influence on conservation in their home countries.

The December selection of CERC-Overbrook Fellows marked the start of a five-year joint effort by CERC and the Overbrook Foundation to further conservation in Latin America by supporting the next generation of conservation leaders. CERC has partnered with the Overbrook Foundation to further enhance initiatives to train conservation professionals. CERC Executive Director and chair of the Fellowship Selection Committee, Don Melnick commented, "CERC is involved in many conservation projects in Latin America, but for these efforts to succeed it is essential to have strong local partners - this program helps to build that local strength."

The 2002 CERC-Overbrook Conservation Fellowships were awarded to:

Tasso Azevedo (Brazil) will write a book about certification and sustainable forest management in Brazil, and study non-profit management.

Pablo Bordino (Argentina) will continue his research on coastal marine biodiversity in the Buenos Aires Province, and conduct public outreach by writing a guide on Buenos Aires biodiversity.

Carlos Chacon (Costa Rica) will write a comprehensive book addressing private lands conservation in Latin America.

Elisa I. Corcuera Vliegenthart (Chile) will develop and disperse research on tourism-based private lands conservation projects.

Narel Paniagua Zambrana (Bolivia) will study the ecology, distribution, and ethnobotany of palms (*Arecaceae*) in the humid mountain forests of Madidi, Bolivia.

Silvia Purata (Mexico) will found a resource center for sustainable forest management in Mexico.

The 2003 CERC-Overbrook Conservation Fellowships were awarded to:

Patricia Gerez-Fernandez (Mexico) will evaluate the impact of forest certification in oaxca and write on the contribution of communal forestry enterprises to conservation.

Carlos Valério Aguiar Gomes (Brazil) will study cattle ranching expansion among rubber tapper communities in the Chico Mendes Extractive Reserve in southwestern Brazilian Amazonia.

Luis Humberto Gómez Cerveró (Bolivia) will study White-Lipped Peccary conservation and sustainable hunting systems in Northern Tropical La Paz.

Oswaldo Rigoberto Contreras González (Mexico) will identify regions for the establishment of sustainable tourism, community development, and education programs.

Pedro Solano (Peru) will be writing and lecturing on laws and regulations for conservation in Peru.

Lusi Videla (Venezuela) will be enhancing development, language, and academic skills for conservation in Venezuela.

Each June, a committee of experienced conservation professionals will choose six additional fellows from a group nominated by organizations with extensive programs in Latin America. For more information on the Overbrook Fellowship and the Fellows, please visit **http://www.cerc.columbia.edu/training/overbrook**

Biological Scientists chosen as EI Fellows

The Fellows Program was designed to provide innovative young scholars the chance to build a foundation in one of the Earth Institute's (EI) core disciplines. Fellows are guided by a multi-disciplinary team of outstanding, committed, senior scientists from a diverse group of EI research units and departments. Two Biological Sciences Fellows were chosen for academic years 2003 and 2004 and will be resident at CERC.

DR. KATE JONES

Kate has recently been working at Imperial College, Institute of Zoology, London and University of Virginia examining patterns of mammalian speciation and extinction. During the next two years, she will be using a model - based on biological data such as geographic distribution and morphology - that predicts species extinction in bats, the second largest order of mammals. The research will be used to set conservation priorities and inform global conservation initiatives. Kate will also be developing and refining this model by including anthropogenic data and new taxonomic information to improve its predictive power. Kate will also be collaborating with Wildlife Trust to explore the prediction of future emerging infectious disease outbreaks from bats. Kate is also interested in developing web-based interfaces that give global access to species geographic and trait data.

DR. BEN EVANS

Ben will examine the distribution of genetic diversity in multiple organisms in tropical sub-Saharan Africa. Rather than being evenly distributed over the earth's surface, biodiversity is concentrated in "hotspots". Within a hotspot, the distribution of genetic variation can be influenced by specific characteristics of an organism, such as dispersal and social structure. Genetic variation can also be influenced by abiotic factors which universally impact all organisms that share a habitat. Rainforest habitat in Africa contracted considerably during the Pleistocene, and this event is expected to have left a genetic signature in local organisms. By examining how diversity is distributed in multiple organisms on a fine geographic grain, scientists and policy makers can allocate conservation efforts that protect complementary, rather than redundant biodiversity. In this way, an understanding of the patterns of diversification can assist in the allocation of conservation efforts.

Perspectives:
A BAT'S WORTH

RODRIGO A. MEDELLÍN
ADJUNCT SENIOR RESEARCH SCIENTIST, CERC, COLUMBIA UNIVERSITY,
AND INSTITUTO DE ECOLOGÍA, NATIONAL UNIVERSITY OF MÉXICO, UNAM

PHOTOS - ARPAT OZGUL

Who has not heard stories or watched movies in which bats are blood-thirsty beasts? Their unfortunate luck puts them right there with other animals equally victimized and blamed for the worst injustices that our culture has produced. Hollywood, profiting from the myths inherited through generations, has fostered an infamous reputation for sharks, birds, killer whales, ants, tarantulas, piranhas, grizzly bears, and gorillas, by producing dozens of movies that have instilled irrational terror towards these animals. In reality, they are extraordinarily important for our well-being, our economy, and for healthy ecological processes. They are also completely innocent of these exaggerated, supernatural, and absurd legends of which they are accused.

None have been more unfairly defamed or suffered worse consequences than bats. As a result of all the Dracula, plagues, genetically-engineered evil bats and other stories, hundreds of thousands, if not millions of bats have been destroyed around the world.

Aside from being among the most important ecological agents for their roles as seed dispersers and pollinators of ecologically and economically important plants, bats have been identified as some of the most important insect pest controllers. Economists and ecologists agree that environmental services provided by biological diversity are invaluable assets for human welfare. Policy makers are only beginning to recognize and digest this hard-to-quantify fact. These ecosystem services have no price tags that could alert society to changes in their supply or to the degradation of the underlying ecological systems that generate them. The value of these services becomes evident only when they have been degraded or eliminated.

Bats are very abundant in most tropical and temperate ecosystems. The Mexican free-tailed bat (*Tadarida brasiliensis mexicana*) gathers every summer in maternity colonies numbering in the millions in all of northern Mexico and the southern United States. Caves like Eagle Creek, Bracken, Carlsbad, La Boca, and El Tigre, figure in the scientific literature as huge roosts that represent an important percentage of the bats' populations. Some recent estimates suggest that in the northeastern corner of Mexico

and southern half of Texas there may be as many as 150 million Mexican free-tailed bats.

The Mexican free-tailed bat is a 14-gram animal that has high energy requirements, especially when females are nursing their single baby. These bats can consume up to two-thirds of their body weight in insects every night. They feed on insects that are captured in flight. A large proportion of these insects are represented by Noctuid moths, which are a significant agricultural pest. Conservatively, a single colony of 1 million bats can consume as much as ten metric tons of insects every night, much of it composed of pests.

As part of the activities of the Program for the Conservation of Bats in Mexico, we have organized and participated in several meetings with the objective of calculating and modeling the economic value of these bat colonies for agriculture in northeastern Mexico and southern Texas. Some key collaborators include Bat Conservation International, Boston University, and the University of Tennessee. The group includes agronomists, entomologists specializing in pest control, meteorologists, bat biologists, economists, and mathematical modelers from several institutions in Mexico and the U. S. Some of the variables that determine the value include the surface area being planted and the type of crop used, the price of the crop in previous years, the timing and amount of rain in the region, the proportion of females and young, the growth rate of the young, incidence, type, and amount of pesticides used, and others. Using pesticides affects bats negatively, and it also increases the overall costs of growing a crop. It also creates health hazards along the nearby waterways.

The model includes opportunity costs of not protecting the bats and also the additional pesticide costs that represent not having the bats around. Given their very high abundance and the large amounts of insect pests they destroy every year, bats are an important ally of agriculture. The precise value of these bats is very dynamic and is related to a series of factors that are themselves subjected to a series of other dynamic factors. The group will soon produce the first model of this kind designed to estimate the monetary value of the pest-control service provided by the bats to the agroecosystems of northeastern Mexico and southern Texas. This will hopefully contribute to the proper appreciation and conservation of these misunderstood but vital agricultural allies.

Prelude to a Course

Professor David Helfand

For the first time in its 84-year history, the Columbia College core curriculum will include a science course designed to expose undergraduates to critical modes of scientific thinking at the outset of their collegiate education. Columbia's core presents the foundational texts, art and music of Western civilization; the new course will focus on current scientific research in cutting-edge areas such as global warming and nanoscience, and discuss scientific techniques employed across different disciplines.

Professor David Helfand, chair of the Astronomy Department, was the driving force behind the class. A longtime advocate for a core science course, Professor Helfand spear-headed a pilot class in academic year 2002-2003 which consisted of enormously popular Monday night lectures at Miller Theater, given by leading science faculty.

As part of the pilot, Don Melnick gave a lecture titled "Darwin, Mendel and the Diversity of Life" on March 3. The success of the pilot lectures has led the organizers to mount a complete version of the course for one-third (about 350 students) of the College's first-year students in Fall 2003.

Professor Helfand will lead off with an introduction to the course followed by three inter-related lectures on evolution, genetics, and biological diversity by Professor Melnick. These will be followed with additional 3-lecture modules by professors Wallace Broecker, Donald Hood, Horst Stormer, and Nicholas Turro.

For more information, visit **www.sciencecore.columbia.edu**

The time has come when scientific truth must cease to be the property of the few, when it must be woven into the common life of the world. **Jean Louis Rodolphe Agassiz, *Methods of Study in Natural History***

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