STRI news 2006

Smithsonian Tropical Research Institute, Panamá www.stri.org March 3, 2006

Tupper 4pm seminar

Tue, Mar, seminar speaker will be Emily DuVal, Max Planck Institute of Ornithology
Adaptive advantages of cooperative courtship for subordinate males in the lance-tailed manakin

Paleo-talk

Wed, Mar 8, Paleo-talk speaker will be Marcela Montoya Jiménez, STRI
Paleoherbivoría en el Paleoceno Tardío de un morfotipo de angiosperma de la flora fósil del Valle del Río Ranchería, Minas del Cerrejón (Guajira, Colombia)

Bambi seminar

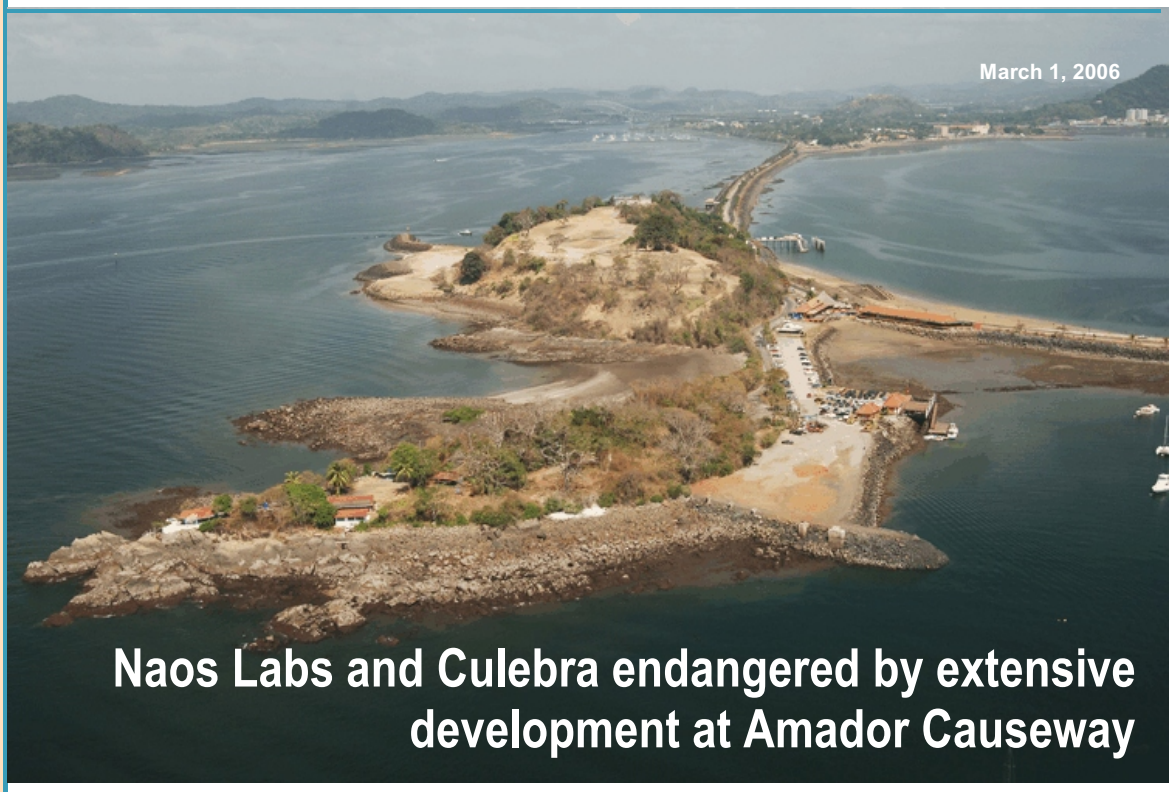
Thu, Mar 9, Bambi seminar speaker will be Piet Verburg National Center for Ecological Analysis and Synthesis
Climate warming effects on large lakes

Arriving next week

Frauke Barthold, Ian Baillie, Alexander Polster and Rosina Grimm, University of Potsdam, to continue working on a soil mapping survey of the Barro Colorado Nature Monument, on BCI.

Rachel Page, University of Texas at Austin, to study the sensory ecology of the frog eating bat, *Trachops cirrhosus*, on BCI.

Peter Glynn, Ian Enochs, Rebecca Albright, Derek Manzello, and Adrienne Romanski from the University of Miami, and Peggy Fong and Lisa Max from the University of California in Los Angeles, to participate on a research cruise to study the effects of El Niño on coral reefs. They will be stationed at Naos.



Naos Labs and Culebra endangered by extensive development at Amador Causeway

Extensive development projects at the Amador Causeway, surrounding STRI facilities on Naos Island and Culebra Point, have the STRI community worrying about the future of STRI´s research, educational and recreational activities at the Pacific entrance to the Panama Canal.

A historically protected forest, the Crabs' Beach—famous for behavioral studies by John H. Christy and colleagues—facilities left by the US military during the II World War, the small clubhouse abandoned by overthrown general Noriega at Culebra, as well as a turtle pond donated by IPAT, are threatened by contamination from landfills and on-going construction projects. On the other hand, as the above photo reveals, a landfill, road and deforestation at the west side of Naos facing the entrance to the Panama Canal, endanger STRI's Naos Island Laboratories, the Molecular Labs, and dock facilities.

Official statements by STRI and Fundación Smithsonian de Panamá were published on Friday, February 24 in *La Prensa*, highlighting the importance of keeping an ecological balance in the area, that not only supports scientific studies and a 50,000 visitor-per year educational program, but also maintains terrestrial and coastal ecosystems responsible for natural attractions on Naos Island and Culebra Point.

Proyectos de desarrollo extensivo en la Calzada de Amador, en los alrededores de las instalaciones de STRI en Isla Naos y Punta Culebra, mantienen a la comunidad de STRI preocupada sobre el futuro de las actividades de investigación, educación y recreación del Instituto en la entrada del Pacífico del Canal de Panamá.

More arrivals

Gretchen Goodbody, Harvard University, to study the western Atlantic corals *Montastraea cavernosa* and *Favia fragum*, on Bocas del Toro.

Roland Kays, New York State Museum, to continue with the Automated Radiotelemetry Project, on BCI.

Grace Chen, Michigan State University, to study the effects of biotic interactions and abiotic stress on plant adaptation in the tropics, on BCI and Gamboa.

Ralph Saporito, Florida International University, to study chemical defense of the dendrobatid frog, *Dendrobates pumilio*, and its relationship to diet, color/pattern, and forest structure, on Bocas del Toro.

Jeffrey Brawn, University of Illinois Urbana-Champaign, to monitor the dynamics of avian communities and population in Central Panama, in Gamboa. To work with him are Iciar Izquierdo, Spain, and Elizabeth Koutsos, University of California in Norfolk.

Tommaso Zillio, to conduct theoretical and statistical studies of tree distributions, on BCI.

Natalia Biani, University of Texas at Austin, to study the sensory systems of nocturnal and diurnal bees, at Tupper.

Last month

Nagela Newton, British Museum of Natural History, to work on a Darwin Initiative Project, with Noris Salazar.

Condolences

To Allen Herre and his family, for the loss of his mother, Rebecca Allen Webster, on February 27, in Aiken, SC.

Un bosque históricamente protegido, la Playa de los Cangrejos—famosa por estudios de comportamiento de John H. Christy y colegas—instalaciones militares de la II Guerra Mundial dejadas por el Ejército de EU y la pequeña casa club del derrocado general Noriega en Culebra, así como un estanque para tortugas, donado por el IPAT, se encuentran amenazados por contaminación producto de rellenos y proyectos de construcción. Por otro lado, como muestra la foto en primera página, el relleno, el camino y la deforestación en la parte oeste de Naos frente al Canal de Panamá, ponen en peligro los Laboratorios de Isla Naos, los Laboratorios Moleculares, y las instalaciones del muelle.

Comunicados oficiales de STRI y la Fundación Smithsonian de Panamá se publicaron el viernes, 24 de febrero en *La Prensa,* destacando la importancia de mantener el balance ecológico en el área, que no solo apoya estudios científicos y un programa de educación con 50,000 visitantes al año, sino que también mantiene ecosistemas terrestres y costeros, responsables por los atractivos naturales de Isla Naos y Punta Culebra.

Article by D. King, J. Wright and J. Connel highlighted by *Science* in their Editorial´s Choice

The article "The contribution of interspecific variation in maximum tree height to tropical and temperate diversity" recently published in the Journal of Tropical Ecology (22: 11-14) by David A. King from Harvard, STRI´s S. Joseph Wright and Joseph H. Connell from the University of California at Santa Barbara, was highlighted by Andrew M. Sugden in Science (February 10). The comment "Making space for all types and sizes" is printed below:

"Tree species in tropical rain forests vary widely in their maximum height at adulthood and thus occupy many levels in the forest. In contrast, trees in temperate forests tend to concentrate in the upper canopy, and there is a relative scarcity of understory or subcanopy species. King et al. tested a recent forest dynamics model indicating that greater diversity in adult stature in tropical forests as compared to temperate forests reflects the reduced exclusion of smaller species by canopy species. Measurements of the relative abundances of adult subcanopy species and saplings of canopy species in temperate, subtropical, and tropical forests indicate that there are greater rates of recruitment and establishment of subcanopy species in low-latitude habitats. The underlying mechanism that allows the greater diversity in tree stature in tropical forests may be a combination of varying crown geometries, the length of the growing season, and the extent of light penetration to lower levels in the forest through gaps in the upper canopy."

The article by King, Wright and Connell, recently distributed by Neal G. Smith, can be obtained from:
calderom@si.edu

Luis Polanco gives a hand to Culebra

The personnel of STRI's Marine Exhibition Center at Culebra wishes to thank Luis Polanco, from the Office of the Comptroller, for his efforts in the implementation of an Access database that maintains electronic information necessary to keep the flow of visitors to the Center.

More than 50,000 visitors come to Culebra each year. The coordination of these visits requires hundreds of telephone calls and information records. For the last three years, Polanco volunteered know-how, time and enthusiasm to design and implement the database, adapting it to the ever changing needs of the Center. Thanks to his dedication and collaboration with Culebra's Dayra Navarro, it is now possible to access all necessary information for the visitor's program with a single click. Thank you Luis!

El personal del Centro de Exhibiciones Marinas de Culebra agradecen a Luis Polanco, de la Oficina del Contralor, sus esfuerzos en la puesta en marcha de una base de datos Access para obtener información necesaria para mantener el flujo de visitantes.

Más de 50,000 visitantes llegan a Culebra cada año. La coordinación de estas visitas requiere cientos de llamadas telefónicas y registros de información.

Durante los últimos tres años, Luis Polanco ofreció sus conocimientos, su tiempo libre y entusiasmo en diseñar y poner en marcha una base de datos, adaptándolas a las necesidades siempre cambiantes del Centro.

Gracias a su dedicación, y en conjunto con Dayra Navarro de Culebra, el personal puede obtener toda la información necesaria para el programa de visitantes, con un sólo "click". ¡Muchas gracias Luis!

New publications

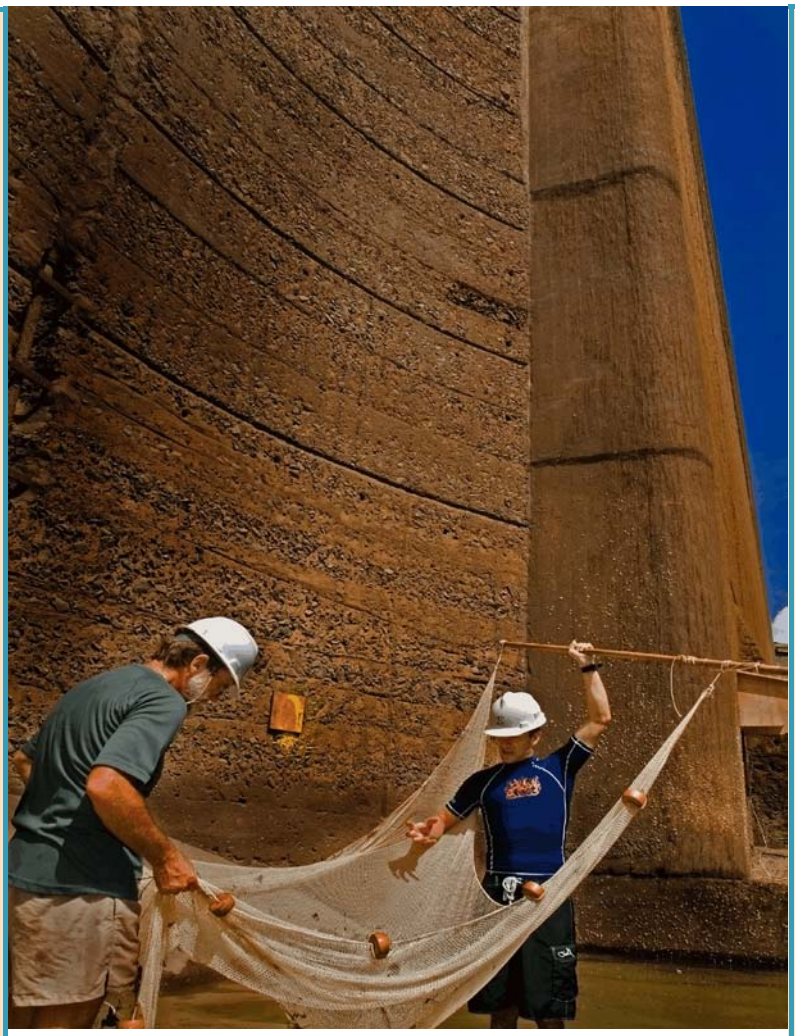
Aronson, Richard B., Macintyre, Ian G., Lewis, Staci A, and Hilbuna, Nancy L. 2005. "Emergent zonation and geographic convergence of coral reefs." *Ecology* 86(10): 2586-2600.

Lessios, Harilaos A. 2005. "Echinoids of the Pacific waters of Panama: status of knowledge and new records." *Revista de Biologia Tropical* 53(Supl. 3): 147-170.

Lorenzo, Manuel, Cueto, Mercedes, D'Croz, Luis, Mate T., Juan L., San-Martin, Aurelio, and Darias, Jose. 2006. "Muriceanol, a 24(28)-epoxide sterol Link in the carbon flux toward side-chain dealkylation of sterols." *European Journal of Organic Chemistry* 2006: 582-585.

Milton, Katharine, and Hopkins, Mariah E. 2005. "Growth of a reintroduced spider monkey (*Ateles geoffroyi*) population on Barro Colorado, Panama: Distribution, Ecology, Behavior and Conservation." In: Alejandro Estrada, Garber, Paul A., Pavelka, Mary, and Luecke, Leandra (Eds.), *New perspectives in the study of Measoamerican primates*: 417-435. New York: Springer.

Nascimento, Henrique E.M., Andrade, Ana C.S., Camargo, Ana C.S., Laurance, William F., Laurance, Susan G., and Ribeiro, Jose Eduardo L. 2006. "Effects of the surrounding matrix on tree recruitment in Amazonian forest fragments." *Conservation Biology* Online.



STRI photo "Divers in Hard Hats" wins SI Photo Contest

The photograph "Divers in Hard Hats" published on Friday, September 9, 2005, to illustrate the Science in Progress column of the STRI news chosen as one of the best photographs in the research category (professional) of SI´s photographic contest.

The photo, taken by Marcos Guerra, shows staff scientists D. Ross Robertson and Mark Torchin collecting specimens at the bottom of the Miraflores Locks at the Panama Canal, when the locks were drained for maintenance. This, and the rest of the 30 best photos of last year´s contest were announced on February 28 and exhibited in the public area of the Smithsonian´s Dillon Ripley Center in Washington DC.

La fotografía "Divers in Hard Hats" publicada el viernes 9 de septiembre de 2005 para ilustrar la columna "Science in Progress" del STRI news, fue escogida como una de las mejores fotos en la categoría de investigación (profesional) en el concurso fotográfico de SI.

La foto, tomada por Marcos Guerra, muestra a los científicos de STRI, D. Ross Robertson y Mark Torchin colectando especímenes en el fondo de las Esclusas de Miraflores del Canal de Panamá, cuando éstas se vaciaron para mantenimiento. Esta, y el resto de las 30 mejores fotografías del concurso de SI del año pasado se anunciaron y exhibieron en el área pública del Dillon Ripley Center del Smithsonian, en Washington DC.

More publications

Salazar-Allen, Noris, and Korpelainen, Helena. 2006. "Notes on neotropical *Cyathodium*." *Cryptogamie, Bryologie* 27(1): 85-96.

Schulze, Ana. 2006. "Phylogeny and genetic diversity of palolo worms (Palola, Eunicidae) from the tropical north Pacific and the Caribbean." *Biological Bulletin* 210(2): 25-37.

Van Houtan, Kyle S., Pimm, Stuart L., Bierregaard, Jr., Richard O., Lovejoy, Thomas E., and Stouffer, Philip C. 2006. "Local extinctions in flocking birds in Amazonian forest fragments." *Evolutionary Ecology Research* 8: 129-148.

Zartman, Charles E., and Shaw, Jonathan. 2006. "Metapopulation extinction thresholds in rain forest remnants." *American Naturalist* 167(2): 177-189.

STRI in the news

"Rellenos ponen en peligro Punta Culebra" by Víctor Arosemena. 2006. *La Prensa* (February 25): 1A.

"Desarrollo turísitco depreda área de Amador" by Urania Cecilia Molina. 2006. *La Prensa* (February 23): 1A.

"Ambientalistas denuncian devastación" by Urania Cecilia Molina. 2006. *La Prensa* (February 23): 6A.

"A rainforest divided" by Laura Naranjo. 2005. *NASA: Supporting Earth System Science* 2005: 27-30.

"Corn, arrowroot fossils in Peru change views on Pre-Inca culture" by Nicholas Bakalar. 2006. *National Geographic News* (March 2): **http://news.nationalgeographic.com/news/2006/03/0302_060302_peru_corn.html**

science in progress:

Beyond reasonable doubt

Story: Jamie Lynne Voyles
Edited by ML Calderon
Photo: MA Guerra

Increasingly alarmed about the declines of wild frog populations, scientists are asking a crucial question: "What is causing the frogs to disappear?"

Many possible causes have been discussed. The prime suspect is *Batrachochytrium dendrobatidis* a fungus known to cause disease in captive frogs. But how can scientists be sure they have the right culprit?

Jamie Lynne Voyles, Ph.D candidate from the University of Colorado (in the photo, with Doug Woodham, from Vanderbilt) and other scientists doing research at STRI, set out to determine if the fungus is indeed responsible for the mortality in Panamanian frog populations.

To do so, overwhelming evidence from monitoring wild frog populations was coupled with a rigorous laboratory tests known as Koch's postulates.

Koch's postulates, named for pathologist Robert Koch, is a multi-step assessment that involves isolating a pathogen, infecting otherwise healthy animals and re-isolating the pathogen in question.

The data leave little room for doubt about the culpability of the fungus. This new information offers great insight into the biology of disease and the repercussions for remaining frog populations.

Ante la creciente alarma por la disminución de las poblaciones silvestres de ranas, los científicos se hacen una pregunta fundamental: ¿Cuál es la causa de la desaparición de las ranas?"

Muchas posibilidades se discutieron. El sospechoso número uno es *Batrachochytrium dendrobatidis* un hongo que se sabe causa enfermedades en ranas en cautiverio. Pero, ¿cómo pueden estar seguros los científicos de que tienen al verdadero culpable?

Jamie Lynne Voyles, candidata a doctorado de la Universidad de Colorado (en la foto, con Doug Woodham de Vanderbilt) y otros colegas que hacen investigaciones en STRI, decidieron asegurarse que en realidad, el hongo sí es el responsable por la mortandad de poblaciones de ranas en Panamá.

Para ello, se examinó gran cantidad de evidencia producto del monitoreo de poblaciones de ranas con exámenes de laboratorio conocidos como los postulados de Koch.

Los postulados de Koch, bautizados en honor al patólogo Robert Koch, son mediciones con pasos múltiples que incluyen aislar al patógeno, infectar a animales saludables para luego re-aislar al patógeno.

La información no deja lugar a dudas sobre la culpabilidad del hongo. Esta nueva información arroja muchas luces a la biología de la enfermedad, y a las repercusiones para el resto de las poblaciones de ranas.