

## Science Symposium

STRI's Science Symposium 2005 will be held at Tupper from Tue, Jul 12 to Wed, Jul 13, starting at 9am. See p 3.

## Bambi seminar

Thu, Jul 14, Bambi seminar speaker will be Eldredge Bermingham, STRI Invasion, speciation and extinction in Mesoamerica

## Arrived this week

Christoph Meyer, University of Ulm, to continue research on Gatun Islands to study the effects of habitat fragmentation in bat communities, on BCI.

Thomas De Vries, Institut für Tierphysiologie, Germany, to photograph moths and insects in Fortuna.

Silvia Dorn and Nina Buchmann, ETH Institute of Plant Sciences, Zurich, to work with the Sardinilla Project

Patricia Hansell, Temple University, to study long-term history of native American people of Panama and neighboring areas, at Naos.

Jeffrey Brawn, University of Illinois, to continue monitoring the dynamics of avian communities and population in Central Panama, in Gamboa.

Silvia Alvarez, University of Florida, to study functional bases for the trade-off between growth and survival of tree seedlings, on BCI.

Cecilia Blundo, Argentina, to conduct the project "Do differential responses to desiccation, herbivory and light determine the habitat specializations of rainforest trees along a rainfall gradient?" on BCI.



Smithsonian Tropical Research Institute, Panamá

www.stri.org

July 8, 2005

## Tropical rainforests: past, present, and future

The University of Chicago Press just published the book *Tropical rainforests: past, present, and future*, edited by STRI deputy director Eldredge Bermingham, Christopher Dick, STRI postdoctoral fellow from the University of Michigan, and Craig Moritz, from the University of California at Berkeley.

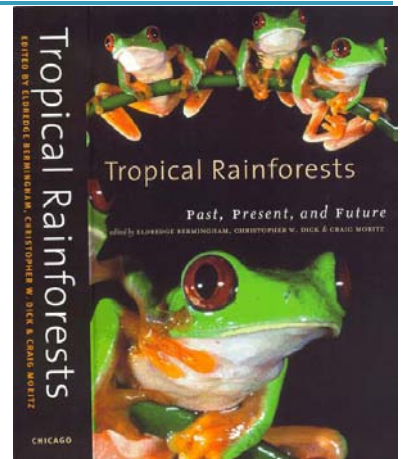
"Synthesizing theoretical and empirical analyses of the processes that help shape these unique ecosystems, *Tropical Rainforests* looks at the effect of evolutionary histories, climate change, and ecological dynamics on the origin and maintenance of tropical rainforest communities. Featuring advances in paleoecology, climatology, geology, molecular systematics, biogeography, and community ecology, the volume also offers insights from these fields into how rainforests will endure the impact of anthropogenic change. With more than sixty contributors, *Tropical Rainforests* will be of great interest to students and professionals in tropical ecology and conservation."

The 745-page book includes papers by STRI researchers

Bermingham and Dick, Steve Hubbell, Egbert Giles Leigh, Jr. and Ira Rubinoff, Richard Condit, Salomón Aguilar, Andrés Hernández, Rolando Pérez, Suzane Lao and Christopher R. Pyke; S. Joseph Wright, and William F. Laurance with colleagues from STRI's Biological Dynamics of Forest Fragments Project, among others. It sells for \$45 at STRI's Corotu Bookstore.

University of Chicago Press acaba de publicar el libro *Tropical rainforests: past, present, and future* [Bosques lluviosos tropicales: pasado, presente, y futuro], editado por el subdirector de STRI, Eldredge Bermingham, Christopher Dick, becario postdoctoral de STRI de la Universidad de Michigan, y Craig Moritz, de la Universidad de California en Berkeley.

"Sintetizando análisis teóricos y empíricos de los procesos que ayudan a darle forma a estos ecosistemas únicos, *Tropical Rainforests* se adentra en los efectos de las historias evolutivas, el cambio climático, y la dinámica ecológica sobre el origen y mantenimiento de comunidades de bosques lluviosos tropicales. Publicando



avances en paleoecología, climatología, geología, sistemática molecular, biogeografía, y ecología de comunidades, el volumen también ofrece introspecciones desde estos campos sobre cómo los bosques lluviosos resistirán el impacto de los cambios antropogénicos. Con más de 60 autores, *Tropical Rainforests* será de gran interés para estudiantes y profesionales en conservación y ecología tropical.

El libro, de 745 páginas, incluye capítulos por investigadores de STRI Bermingham y Dick, Steve Hubbell, Egbert Giles Leigh, Jr. y Ira Rubinoff, Richard Condit, Salomón Aguilar, Andrés Hernández, Rolando Pérez, Suzane Lao y Christopher R. Pyke; S. Joseph Wright, y William F. Laurance con colegas del Proyecto de Dinámica Biológica de Fragmentos de Bosques de STRI (BDFFP), entre otros. De venta por \$45 en STRI.

## More arrivals

Angie Bonnema, University of California at Berkeley, to study spatial foraging patterns at ranging behavior of the mantles howler monkey, on BCI

Chris Hayden, Sacha Ferguson, Ginevra Ryman, Daniel Schmidt, University of California at Berkeley, to work with Wayne Sousa, in Galeta.

## Arriving next week

Ximena Bernal, University of Texas at Austin, to study the acoustic preferences of blood-sucking flies, in Gamboa.

Sandra Namoff, Florida International University, to study the relationship between diet and toxicity in the poison frog *Dendrobates pumilio*, on Bocas del Toro.

Rachelle Adams, University of Texas at Austin, to study the evolution of social parasitism in *Megalomyrmex* ants, in Gamboa and BCI.

David Lin, University of California in Los Angeles, to assess nutrient enrichment from shrimp aquaculture in Panama, at Naos Island Laboratory.

Emma Sayer, STRI postdoctoral fellow, to conduct the project "Will increased primary production turn tropical forest soils into a carbon source?" on BCI.

Carolyn Stubenrauch, University of Wuerzburg, to study land bridge islands in Panama as a model for studying the effects of habitat fragmentation on Neotropical bat communities, on BCI.

Safety number: 212-8211



## VI Latin American Congress of Malacology

STRI, the University of Panama and an organizing committee hosted the VI Latin American Congress of Malacology at the Tupper Center from Monday, July 4 to Thursday, July 7. The congress, presided by STRI's Helena Fortunato, included a visit to BCI, and field trips to Galeta on the Caribbean and

Venado Beach on the Pacific coast, to appreciate the diversity of mollusks in Panama. Seventy specialists attended the event.

STRI, la Universidad de Panamá y un comité organizador llevaron a cabo el VI Congreso Latino-Americano de Malacología, del lunes 4 al

jueves 7 de julio en el Centro Tupper. El congreso, presidido por Helena Fortunato, de STRI, incluyó una visita a BCI y viajes de campo a Galeta en el Caribe y Playa Venado en la costa Pacífica para apreciar la biodiversidad de moluscos en Panamá. Setenta especialistas asistieron al evento.

## The Río Chagres, Panama

Springer's new book *The Río Chagres, Panama: A multidisciplinary profile of a tropical watershed*, edited by Russell S. Harmon from the US Army, compiles 23 papers, most of them based on a scientific symposium held at the Gamboa Resort and Conference Center in February, 2003. The symposium was sponsored by STRI, the Panama Canal Authority, the Technological University of Panama and the US Army.

The book includes chapters authored solely or jointly by STRI researchers Salomón Aguilar, Eldredge Bermingham, Stephanie Bohlman, Clara Camargo, Richard Condit, Christopher W. Dick, Stanley Heckadon-Moreno, Roberto Ibáñez, Suzanne Lao, Rolando Pérez and Robert Stallard.

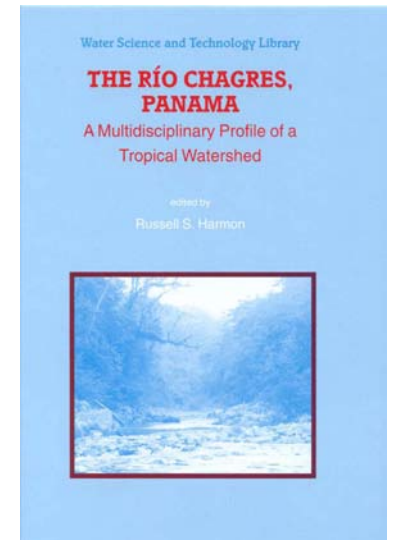
This book calls the attention of the scientific community, government organizations and

non-government agencies and the general public to one of the most important and complex tropical rainforest regions on Earth, the Panama Canal Watershed. The broad objective of the book is to characterize and understand the physical and ecological components of an isolated and largely pristine rainforest, and describe how different nature components interact in a tropical rainforest responsible for the operation of the Panama Canal.

El nuevo libro de Springer, *The Río Chagres, Panama: A multidisciplinary profile of a tropical watershed* [El Río Chagres, Panamá: Perfil multidisciplinario de una cuenca hidrográfica tropical], editado por Russell S. Harmon de la Armada de EU, compila 23 artículos, la mayoría basados en un simposio científico celebrado en el Gamboa Resort y el Centro de Conferencias en febrero de 2003. El simposio

fue patrocinado por STRI, la Autoridad del Canal de Panamá, la Universidad Tecnológica de Panamá y la Armada de EU.

El libro incluye capítulos de investigadores de STRI Salomón Aguilar, Eldredge Bermingham, Stephanie Bohlman, Clara Camargo, Richard Condit, Christopher W. Dick, Stanley Heckadon-Moreno, Roberto Ibáñez, Suzanne Lao, Rolando Pérez y



## Leaving this week

Rachel Collin to Costa Rica, to join the *RV Urraca* for a research cruise.

Mireya Correa to Vienna, to participate in the XVII International Botanical Congress: the meeting of the Nomenclature Section.

Klaus Winter to Vienna, to attend the XVII International Botanical Congress, and take a short vacation following the meetings.

## New publications

Dick, Christopher W., Condit, Richard G., and Bermingham, Eldredge. 2005.

"Biogeographic history and the high beta diversity of rain-forest trees in Panamá." In: Russell S. Harmon (Ed.) *The Rio Chagres, Panama: A multidisciplinary profile of a tropical watershed series*. Water Science and Technology Library Vol. 52: 259-268: Springer.

Harmon, Russell S. (Ed.). 2005. *The Rio Chagres, Panama: A multidisciplinary profile of a tropical watershed series* (First ed.) Water Science and Technology Library vol 52. New York: Springer.

Perez, Rolando, Aguilar, Salomon, Somoza, Agustin, Condit, Richard G., Tejada, Israel, Camargo, Clara, and Lao, Suzanne. 2005. "Tree species composition and diversity in the upper Chagres river basin, Panama." In: Russell S. Harmon (Ed.) *The Rio Chagres, Panama: A multidisciplinary profile of a tropical watershed series*. Water Science and Technology Library Vol. 52: 227-235: Springer.

Robert Stallard, como un solo autor, o en grupos.

Este libro hace un llamado de atención a la comunidad científica, organizaciones gubernamentales y no gubernamentales, y al público en general sobre una de las regiones de bosques lluviosos tropicales más importantes y complejos de la Tierra, la Cuenca del Canal de

## International Book's fair

STRI contributed a stand to the International Book's Fair in Panama from Wednesday, June 29 to Sunday, July 3, at ATLAPA Convention Center.

Docents from STRI's Marine Exhibition Center at Culebra, accompanied the stand with information on STRI, a TV set showing related videos, and a selection of books from the Institute's Bookstore. More than 80,000 visitors were registered at this event.

STRI participó con una exhibición en la Feria Internacional del Libro, del miércoles 29 de junio al domingo 3 de julio en el Centro de Convenciones ATLAPA.

## STRI's Science Symposium 2005

STRI's Science Symposium will include a wide range of topics and researchers, from BCI to Bocas: marine and terrestrial habitats; ecological and physiological approaches, conservation, paleontology, anthropology, genetics, behavior, evolution, etc.; people, monkeys, insects, corals, trees, fungi, bacteria, etc.

According to staff scientist Allen Herre, "This is the best chance to learn the most about the widest range of topics and people that anyone is going to see for a long time."

Panamá. El objetivo principal del libro es caracterizar y entender los componentes ecológicos de un bosque lluvioso aislado y en su mayoría prístino, y describe cómo los diferentes componentes naturales se relacionan en un bosque lluvioso responsable por la operación de esta vía interoceánica.



Docentes del Centro de Exhibiciones Marinas de STRI en Culebra acompañaron la exhibición, un televisor con videos sobre STRI y muestras de la Librería del Instituto. Más de 80,000 visitantes fueron registrados en este evento.

Barbeque dinners do not come at a charge beyond e-mailing an RSVP to Audrey Smith confirming your assistance. This can also be done at Tupper Reception Desk by signing up the registration sheet. Participants must provide their own lunches.

For BCI and Gamboa residents: the taxi (bus) leaves at 7:15 am from STRI's dock to Tupper and from Tupper to STRI's dock at 20:15 hrs. The late boat leaves to Barro Colorado from STRI's dock at 21:00 hrs.

## More publications

Robertson, D. Ross, Ackerman, James D., Choat, J. Howard, Posada, Juan M., and Pitt, J. 2005. "Ocean surgeonfish *Acanthurus bahianus*. I. The geography of demography." *Marine Ecology Progress Series* 295(1): 229-244.

Robertson, D. Ross, Choat, J. Howard, Posada, Juan M., Pitt, J., and Ackerman, James D. 2005. "Ocean surgeonfish *Acanthurus bahianus*. II. Fishing effects on longevity, size and abundance?" *Marine Ecology Progress Series* 295(1): 245-256.

Vencl, Fredric V., Nogueira-de-Sa, Flavia, Allen, Bengt, Windsor, Donald M., and Futuyama, Douglas J. 2005. "Dietary specialization influences the efficacy of larval tortoise beetle shield defenses." *Oecologia* at: <http://dx.doi.org/10.1007/s00442-005-0138-9>

Warkentin, Karen M. 2005. "How do embryos assess risk? Vibrational cues in predator-induced hatching of red-eyed treefrogs." *Animal Behaviour* 70(1): 59-71.

Warren, Ben H., Bermingham, Eldredge, Prys-Jones, Robert P., and Thebaud, Christophe. 2005. "Tracking island colonization history and phenotypic shifts in Indian Ocean bulbuls (*Hypsipetes*: Pycnonotidae)." *Biological Journal of the Linnean Society* 85(3): 271-287.

Wright, S. Joseph. 2005. "The El Niño Southern Oscillation influences tree performance in tropical rainforests." In: Eldredge Bermingham, Christopher W. Dick, and Craig Moritz (Eds.) *Tropical rainforests: Past, present, and future* 295-310. Chicago and London: University of Chicago Press.

science in progress:

# Looking for the perfect cocktail

(one of three)

There's no perfect species to reforest Panama. While exotic teak or pine plantations be economically productive in some areas, large-scale ecological restoration in the tropics requires that reforestation be successful across a huge variety of soils and climates, satisfy land owner cultural, economic, and social needs, provide habitat for wildlife, pollinators and domestic animals, maintain biodiversity, humidity and shadow, recycle carbon dioxide and avoid erosion and unwanted invasive species.

STRI's Project for Reforestation with Native Species (PRORENA) studies which species are more suitable for the different soils, climate and landscapes in Panama, with more than 12 study sites including Soberanía National Park, Río Hato, Los Santos, Las Lajas in Chiriquí and satellite research sites important to local collaborators.

The majority of these research sites are located along Panama's extensively deforested Pacific slope.

For researchers and technicians experimenting with 75 native trees, every detail counts: viability of seeds, the components of the soil where seedlings are to develop; light, water, drainage, how much time the species take to grow... even how many seedlings a person can effectively carry.

"Finding the seeds doesn't always come easy" explains José Deago (see photo below). "Nobody is selling these seeds. We travel across the Isthmus gathering seeds, identifying seed trees, collecting information about when trees will produce their fruit. We follow bats and birds to their nests to collect seed they have dropped or defecated, and prepared for germination."

No hay una especie perfecta para reforestar Panamá. Mientras que plantaciones exóticas de teca o pino son económicamente productivas en algunas áreas, restaurar a gran escala en los trópicos requiere que la reforestación sea exitosa en una gran variedad de suelos y climas; debe satisfacer las necesidades culturales, económicas y sociales de los usuarios; suministrar un hábitat para polinizadores, animales salvajes y domésticos, mantener la biodiversidad, humedad y sombra, reciclar el dióxido de carbono y evitar la erosión y especies invasivas no deseadas.

El Proyecto de Reforestación con Especies Nativas de STRI (PRORENA) estudia qué especies son más adecuadas para diferentes suelos, climas y paisajes en Panamá, con más de 12 sitios de estudio incluyendo el Parque Nacional Soberanía, Río Hato, Los Santos, Las Lajas en Chiriquí, y puntos de investigación satélites importantes para colaboradores locales. La mayoría de estos sitios están localizados a lo largo de la extensa pendiente deforestada del Pacífico de Panamá.

Para investigadores y técnicos que experimentan con 75 especies nativas de árboles, cada detalle cuenta: la viabilidad de la semilla,

los componentes del suelo donde los plántones se han de desarrollar, luz, agua, drenaje, cuánto tiempo toman las especies en crecer... aún cuántos plántones puede una persona cargar de forma efectiva.

"Encontrar las semillas no es siempre fácil" explica José Deago (foto abajo). "Nadie vende estas semillas. Nosotros viajamos a través del Istmo identificando árboles, recogiendo semillas e información sobre cuándo los árboles producirán su fruto. Seguimos a murciélagos y aves hasta sus nidos para coleccionar semillas que han dejado caer o defecado, y preparado para la germinación."

