

## Tupper 4pm seminar

Tuesday, June 26, seminar speaker will be Inge Jonckheere, Geomatics Engineering Group, Katholieke Universiteit, Leuven:

**Structural description of forest canopies: Status and perspectives for close-range remote sensing measurements**

## Bambi seminar

There will be no Bambi seminar on BCI, due to STRI's Science Symposium.

## STRI science symposium

STRI's annual Science Symposium will be held from Thursday, June 28 through Friday, June 29 starting at 8:30am. Please see the program in page five.

## Book presentation

On Thursday, June 28, STRI will present the book *Ecología y Evolución en los Trópicos*, edited by Egbert Giles Leigh, Jr., E. Allen Herre, Jeremy B.C. Jackson and Fernando Santos-Granero. Translation and redaction by Nérida Gómez. See invitation on page three.

## STRI in the news

"Colour drives hamlet speciation." 2007. *Practical Fishkeeping*, June 19.

"For the angler, a flash of color among the freighters" by Dave Sherwood. 2007. *New York Times*: June 19, 2007.

"Dyrenes Big Brother" by Jeanette Hyldal Vollmer, Fotos: Christian Ziegler. 2007. *Illustreret Videnskab*, 9: 48-49.



Smithsonian Tropical Research Institute, Panamá

[www.stri.org](http://www.stri.org)

June 22, 2007

## Knowlton appointed marine chair at SI's National Museum of Natural History

The *Associated Press* reported on June 7 that STRI staff scientist and "leading biologist at the Scripps Institution of Oceanography has been named to the first endowed chair in marine sciences at the Smithsonian's National Museum of Natural History.

Nancy Knowlton, founding director of the Center for Marine Biodiversity and Conservation and a professor of marine biology at Scripps, will hold the Sant Chair for Marine Science at the museum.

"We are confident that under her leadership, the Smithsonian's status as a leading forum for the advancement of scientific knowledge about oceans will continue to grow", said Hans-Dieter Sues, associate director for research and collections at the museum. Knowlton is known for studies of the complexity of ocean life. She has suggested that estimates of marine biodiversity are probably too low by a factor of 10.

While the new post is full time, she expects to maintain ties to Scripps as well the Smithsonian Tropical Research Institute in Panama.

The natural history museum is scheduled to open a new ocean hall next year. Its ocean initiative will include research fellowships, international symposia and collaborations among Smithsonian scientists and their peers at institutions around the world."

*Associated Press* informó el 7 de junio que la científica de STRI y "bióloga líder en la Institución Scripps de Oceanografía había sido seleccionada como la primera directora de ciencias marinas en el Museo Nacional de Historia Natural del Smithsonian [NMNH en Washington DC.]

Nancy Knowlton, directora fundadora del Centro de Biodiversidad y Conservación Marinas y profesora de biología marina en Scripps, ocupará la Posición Sant para Ciencias Marinas del NMNH.

"Confiamos que bajo su liderazgo, la posición del Smithsonian como foro líder para el avance del conocimiento científico sobre los océanos seguirá creciendo," expresó Hans-Dieter Sues, director asociado para investigación y colecciones en el Museo.



Nancy Knowlton

Knowlton es conocida por sus estudios en la complejidad de la vida oceánica. Ella ha sugerido que los estimados de biodiversidad marina son probablemente muy bajos, por un factor de 10.

Aunque esta nueva posición es de tiempo completo, Knowlton espera mantener lazos con Scripps y STRI en Panamá.

El NMNH tiene planeado abrir un nuevo salón para los océanos el próximo año. Esta iniciativa oceánica incluirá becas de investigación, simposios internacionales y colaboración entre científicos del Smithsonian y sus colegas en instituciones alrededor del mundo."

## Departures

Francisco Rivera to Los Angeles, CA, to attend Cisco Networkers 2007.

## New publications

Bernal, Ximena E., Rand, A. Stanley, and Ryan, Michael J. 2007. "Sex differences in response to nonconspecific advertisement calls: receiver permissiveness in male and female *Túngara* frogs." *Animal Behaviour* 73(6): 955-964.

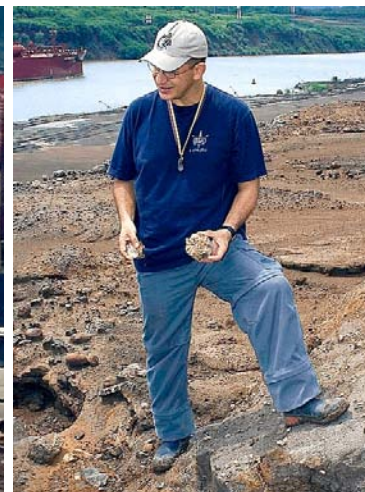
Dick, Christopher W., Bermingham, Eldredge, Lemes, Maristerra R., and Gribel, Rogerio. 2007. "Extreme long-distance dispersal of the lowland tropical rainforest tree *Ceiba pentandra* L. (Malvaceae) in Africa and the Neotropics." *Molecular Ecology Online*.

Kicklighter, Cynthia E., and Hay, Mark E. 2007. "To avoid or deter: interactions among defensive and escape strategies in sabellid worms." *Oecologia* 151(1): 161-173.

Laurance, William F. 2007. "Forest destruction: The road to ruin." *New Scientist* (2607): 25.

Marks, Christian O., and Muller-Ladau, Helene C. 2007. "Comment on: From plant traits to plant communities: A statistical mechanistic approach to biodiversity." *Science* 316(5830): 1425.

Sun, I. Fang, Chen, Yu-Yun, Hubbell, Stephen P., Wright, S. Joseph, and Noor, Md. Nur Supardi. 2007. "Seed predation during general flowering events of varying magnitude in a Malaysian rain forest." *Journal of Ecology* 95(4): 818-827.



## STRI representatives meet with ACP officials alongside the Panama Canal

Officials from the Panama Canal Authority (ACP) Gladys Saarinem, Soils Administration manager and assistant manager Daniel Veliz; Pastora Franceshi, geologist at the Geotectonic Department; and members of STRI administration, the Office of External Affairs, the Public Information Office, the Office of BioInformatics and the Security Office visited Formación Cucaracha and Lirios Empire alongside the Panama Canal with STRI's stratigrapher Carlos Jaramillo (photo at right), Javier Luque, specialist in crab evolution and Andrés Bustamante, postdoctoral visitor participating in the project "Panama Canal Salvage Paleontology", from the Center for Tropical Paleocology and Archaeology. Both Cucaracha and Emperador y Lirios are important sites for learning about the geology of Central Panama. With the excavations to widen the Panama Canal already in progress, STRI

scientists, along with specialists from ACP, will have the opportunity, to study fossils and geological strata to be exposed.

This visit was a follow-up to a talk given by Jaramillo to ACP staff, in which he described his paleontology project of collecting terrestrial and marine fossils in these areas to study how the Panamanian biota was before, during and after the emergence of the Isthmus.

Representantes de la Autoridad del Canal de Panamá (ACP) Gladys Saarinem, gerente de Administración de Tierras y el subgerente Daniel Véliz, Pastora Franceshi, geóloga del Departamento de Geotectónica y miembros de la Administración de STRI, la Oficina de Asuntos Externos, la Oficina de Seguridad, la Oficina de BioInformática y la Oficina de Divulgación visitaron la Formación Cucaracha y Lirios Emperador en las riberas del Canal de Panamá con el

estratígrafo de STRI, Carlos Jaramillo (foto a la derecha), Javier Luque, especialista en evolución de cangrejos y Andrés Bustamante, académico visitante quien participa en el proyecto "Salvamento Paleocológico del Canal de Panamá" del Centro de Paleocología y Arqueología Tropical. Ambos, Cucaracha y Emperador y Lirios son importantes sitios para conocer la geología de Panamá Central.

Con los trabajos del ensanche del Canal que se encuentran en proceso, los científicos de STRI, junto con especialistas de la ACP, tendrán la oportunidad de estudiar fósiles y la composición de los estratos geológicos que serán expuestos durante las excavaciones. Esta visita fue organizada como seguimiento a una charla de Jaramillo en la ACP donde describió su proyecto paleontológico de colecta de fósiles marinos y terrestres para estudiar cómo era la biota panameña antes, durante y después del surgimiento del Istmo.

June 25 - July 1 <sup>st</sup> , 2007		Smithsonian Tropical Research Institute			Special Calendar	
Monday 25	Tuesday 25	Wednesday 27	Thursday 28	Friday 29	Sat 30	Sun 1
			STRI Symposium 8:30am-6pm			
			Book presentation, after symposium			



## STRI's marine star continues to shine

*Jackson honored at Aquarium gala*

*Long Beach Press Telegram* reported on June 16, 2007 that the Aquarium of the Pacific honored oceanography professor Jeremy Bradford Cook Jackson along with an engineering firm, citing their leadership roles in protecting the environment.

The award ceremony was held during the aquarium's Ocean Conservation Gala. The event raised \$300,000 to support the Aquarium's education and conservation initiatives.

Jackson's current research includes the long-term ecological consequences of historical overfishing on coastal ecosystems and the ecological and evolutionary consequences

of the gradual formation of the isthmus of Panama about three million years ago.

Jackson is the author of more than 100 scientific publications and five books. His work on overfishing was chosen by *Discover* magazine as the outstanding discovery of 2001.

*Long Beach Press Telegram* informó el 16 de junio de 2007 que el Acuario del Pacífico honró al profesor de oceanografía Jeremy Bradford Cook Jackson, junto con una firma de ingeniería, por su papel protagónico en la protección del ambiente.

La ceremonia de premiación se llevó a cabo durante la cena de

gala del Acuario para la Conservación del Océano. El evento recaudó \$300,00 para apoyar las iniciativas de educación y conservación del Acuario.

Las investigaciones actuales de Jackson incluyen las consecuencias ecológicas a largo plazo de la pesca excesiva histórica en los ecosistemas costeros y las consecuencias evolutivas de la formación gradual del Istmo de Panamá cerca de tres millones de años atrás.

Jackson es autor de más de 100 publicaciones científicas y cinco libros. Su trabajo sobre la pesca excesiva fue seleccionada por la revista *Discover*, como el



**Jeremy B.C. Jackson, STRI staff scientist emeritus, 2006, Panama Científico emérito de STRI**

descubrimiento más sobresaliente en 2001.

## Marks and Muller-Landau respond to Shipley et al in *Science*

Christian O. Marks, from the University of Minnesota and Helene C. Muller-Landau (photo at right), recently appointed staff scientist at STRI, published "Comment on: From plant traits to plant communities: A statistical mechanistic approach to biodiversity" in *Science* (June 8) in response to an article by Bill

Shipley, Denis Vile and Eric Garnier, "From plant traits to plant communities: A statistical mechanistic approach to biodiversity" also in *Science* (November 3, 2006).

According to Marks and Muller-Landau, "Shipley *et al.* predicted plant community composition and relative abundances with a

high level of accuracy by maximizing Shannon's index of information entropy (species diversity), subject to constraints on plant trait averages. We show that the entropy maximization assumption is relatively unimportant and that the high accuracy is due largely to a statistical effect."



**Ecología y Evolución en los TRÓPICOS**

Smithsonian

El Instituto Smithsonian de Investigaciones Tropicales

le invita a la presentación del libro

**"Ecología y Evolución en los Trópicos"**

en el Auditorium del Centro de Conferencias Earl S. Tupper el jueves 28 de junio, a las 5:20 p.m.

R.S.V.P. 212-8000

### Presentación de Libro

*Ecología y evolución en los trópicos* es una gran herramienta de estudio y de consulta, pues contiene artículos que abordan el tema de la biodiversidad desde varios aspectos: adaptación, comportamiento, cooperación, genética, cambios ambientales, diversidad, e impacto humano.

La mayoría de los artículos han sido contribuciones de

científicos jóvenes, que ha estado en el Smithsonian realizando sus doctorados y postdoctorados. A esto se suman las contribuciones de los científicos del Smithsonian en Panamá.

El libro *Ecología y evolución en los trópicos* es parte de una serie de libros en español sobre estos temas que el Smithsonian viene publicando desde 1982.

El libro está a la venta en la Librería Corotú de STRI, tel. 212-8029.



# Tough little guys

SMITHSONIAN TROPICAL RESEARCH INSTITUTE, JUNE 22, 2007

Story: Doug Woodhams  
& Louise A.  
Rollins-Smith  
Edited by M Alvarado,  
ML Calderon & Beth King  
Photo: MA Guerra



Populations of frogs and salamanders in Panama are declining as an emerging fungal disease sweeps through Central America.

By investigating innate immune defenses against the fungus, *Batrachochytrium dendrobatidis* (Bd), we predicted the relative disease resistance of nine species at El Copé National Park.

As we predicted, based on effectiveness of antimicrobial peptide defenses—small proteins abundant in amphibian skin glands—one species, the glass frog *Centrolene prosoblepon*, is persisting throughout Panama even after disease emergence.

The Lemur leaf frog, *Hylomantis lemur* (in the photo) had

intermediate skin peptide defenses. We isolated skin peptides from mixtures of skin secretions from this species.

Two new peptides, Dermaseptin-L1 and Phylloseptin-L1, will be described in an article in *Toxicon* (Conlon et al. 2007). These peptides are active against the Gram-negative bacterium *Escherichia coli* or the against the Gram-positive bacterium *Staphylococcus aureus* at very low concentrations. Both peptides could inhibit the growth of Bd.

It is clear that antimicrobial skin peptides are an important part of amphibian immune defense. Many medically beneficial compounds still remain to be discovered.

Poblaciones de ranas y salamandras en Panamá disminuyen en número mientras que una enfermedad las barre a través de Centroamérica.

Al investigar las defensas innatas de inmunidad contra el hongo *Batrachochytrium dendrobatidis* (Bd), anticipamos la resistencia relativa a la enfermedad de nueve especies en el Parque Nacional El Copé.

De acuerdo a nuestras predicciones que se basan en la efectividad de las defensas antimicrobiales péptidas—pequeñas proteínas que abundan en las glándulas de la piel de los anfibios—

una especie, la rana de cristal *Centrolene prosoblepon* persiste a través de Panamá aún después de que surgiera la enfermedad.

La rana de hojas Lemur, *Hylomantis lemur* (en la foto), tiene defensas péptidas de piel de acción intermedias. Aislamos los péptidos de piel del resto de las secreciones de la piel de esta especie.

Dos nuevos péptidos, Dermaseptin-L1 y Phylloseptin-L1 se describirán en un artículo en *Toxicon* (Conlon et al. 2007). Estos péptidos presentan actividad contra la bacteria Gram-negativa *Escherichia coli* o contra la bacteria Gram-positiva *Staphylococcus aureus* en concentraciones muy bajas. Ambos péptidos podrían inhibir el crecimiento de Bd.

Estas investigaciones demuestra que los péptidos de la piel de los anfibios son parte importante del sistema inmunológico de los anfibios y que muchos compuestos medicamente beneficiosos están aún por descubrirse.



# STRI Science Symposium Schedule

Thursday June 28, 2007, 8:30 am

**Mike Ryan**, University of Texas: Sexual selection drives speciation in one tungara frog (*Physalaemus petersi*) but not another (*P. pustulosus*)

**Annette Aiello**, STRI: *Pierella luna* (Nymphalidae: Satyrinae), males are from Lineland, females are from Flatland.

**Hermógenes Fernández**, STRI: With or without you: The dilemma of the fungus-growing ants and their symbiotic bacteria

**Adam Smith**, STRI: Social competition, body size, and parasitism influence the expression of helping behavior in the bee *Megalopta genalis*.

**Coffee Break: 10:30-10:45 am**

**Ben Turner**, STRI: TBA

**Eloisa Lasso**, University of Illinois at Urbana Champaign: Asexual reproduction: a critical regeneration pathway for small-seeded species that can persist in the understory?

**Mike Kaspari**, University of Oklahoma: TBA

**Luis D'Croz**, STRI: Variability in upwelling along the Pacific shelf of Panama: implications for the distribution of nutrients and phytoplankton

**Lunch, 12:30-1:30 pm**

**Rachel Page**, University of Texas: Foraging flexibility in the frog-eating bat, *Trachops cirrhosus*

**Pablo Ribeiro**, STRI: Sexual and non-sexual function of structure-building in a fiddler crab

**Susan Laurance**, STRI: TBA

**Jorn Scharlemann**, STRI: Trade-off between wildlife habitat and agriculture: a Brazilian case study

**Coffee Break 3:10-3:30pm**

**Catherine Potvin**, McGill University: Land-use, carbon and the international agenda.

**Lucas Cernusak**, STRI, Oxygen isotope composition of CAM and C3 *Clusia* species growing in a common garden in Panama

**Sunshine Van Bael**, STRI: Foliar endophytic fungi and herbivory in tropical plants

**Jefferson Hall**, STRI: Understanding ecosystem services in the Panama Canal watershed: the development of a long term research platform

Friday, June 29, 2007, 8:30 am

**Diana Carvajal**, University of Calgary: Fishing, salting and smoking fish at Cueva Los Vampiros: a contextual and archeofaunal evaluation of a purported pre-columbian fishing camp near Parita Bay

**Ivania Ceron Souza**, University of Puerto Rico: Dispersal limitations and genetic structure in two mangrove species

**Corey Tarwater**, University of Illinois at Urbana Champaign: Life history implications of the post-fledging period in a neotropical passerine

**Grace Chen**, Michigan State University: Premating floral isolation between *Costus allenii* and *C. villosissimus*

**Coffee Break 10:30-10:45am**

**Holly Jessop**, University of Hawaii at Hilo: sibling sea urchin species of the genus *Echinothrix* in Hawaii: Unification of morphological characters with genetic clades

**Justin Touchon**, Boston University: Evolution of reproductive mode: phenotypic plasticity and selection on aquatic and terrestrial breeding in a neotropical treefrog

**Mary Hart**, University of Kentucky: Sex allocation and egg trading strategy in a simultaneous hermaphrodite: examining sexual conflicts in a mating system

**Dominique Roche**, McGill University: Panama, a melting pot of introduced aquatic species? Research on some important invaders in the Canal Watershed

**Lunch: 12:30-1:30pm**

**Myra Hughey**, Boston University: Predator disruption of natural hatching: Consequences of plasticity in hatching time

**Axel Concepción**, University of Panama: Influencia de los compuestos polifenólicos en la dieta de los monos aulladores de la Isla de Barro Colorado

**Jeffrey Barnes**, Carleton University: Changing status and availability of cacao: A cultural keystone species among the Kuna of San Blas

**Julio Agujetas**, Heriot-Watt University: Ocean conditions, production and El Niño at the Gulf of Panama from in situ and satellite data

**Coffee Break 3:10-3:30 pm**

**Katie Cramer**, University of California at San Diego: Recent changes in Caribbean coral communities and the land use connection

**Kelley Andersen**, University of Illinois at Urbana Champaign: Soil-based resource partitioning in understory palms

**Silane da Silva**, Instituto Nacional de Pesquisas da Amazonian: Was there an Amazonian seaway during the Miocene?

**Maria Gabriela Doría**, Universidad Nacional de Colombia: Menispermaceae fossils from the Paleocene Cerrejón Formation, northern Colombia

**Dinner plus reception following the last talk  
Please R.S.V.P. to 212-8000**