

## Tupper 4pm seminar

Tuesday, March 30, Tupper seminar speaker will be Stuart Altman, Princeton University  
**The monkey and the fig: A socratic dialogue on evolutionary themes**

## Bambi seminar

Please check your e-mails for information on the next Bambi seminar on BCI.

## Arrivals

Laura May-Collado, University of Puerto Rico, to study marine communities using novel acoustic remote monitoring technology, at Bocas.

Mirjam Knoernschild, University of Ulm, Germany, to study local dialects in social vocalizations of the greater sac-winged bat *Saccopteryx bilineata*, on BCI and Bocas.

Lukasz Mitko, University of Duesseldorf, to study the fragrance biology and reproductive genetics of orchid bees, in Gamboa.

Markus Metz and Martina Nagy, University of Erlangen, Germany, to study local dialects in social vocalizations of the greater sac-winged bat *Saccopteryx bilineata*, on BCI and Bocas.

Thibault Lengronne, University of Lausanne, to study nest drifting behavior in paper wasps, at Galeta.

Paul-Luis Schmidt Yáñez, Freie Universitaet Berlin, to make comparative analysis of invertebrate sex change, at Naos Island Laboratories.

**Safety number:**  
212-8211



Smithsonian Tropical Research Institute, Panamá

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

March 26, 2010

## Sanjur appointed associate director for Science Administration

### *From the Director's Office*

—I am very pleased to announce that Oris Sanjur has been promoted to the position of associate director for Science Administration (ADSA). This new position supports the 2010-2015 strategic plan for the Smithsonian Institution as it specifically aims to strengthen the partnership between the research mission of STRI and the mission-enabling functions of the Institution.

Oris will work with staff scientists and research support staff, and closely with the Academic Dean, Deputy Director and Director to establish and maintain high standards of operational support for STRI research programs. In collaboration with the Office of the Director, the ADSA will set the goals and objectives and provide direct supervision for the following functions: scientific coordinators, the scientific visitors' program, Bioinformatics and scientific collections. The ADSA will also work closely with the Deputy Director to ensure Information Technology (OIT) is meeting the diverse needs of the complete STRI portfolio of scientific programs in a timely and well-planned manner.

Oris began her relationship with STRI as an Exxon fellow working on her undergraduate thesis project, and graduated with highest honors from the University of Panama in 1991. In 1998, she earned her doctorate in Cell and Development Biology at Rutgers University in New Jersey.

Oris was President of the Panamanian Association for the Advancement of Science (APANAC) during the period of 2006 to 2009. The mission of APANAC is to enhance science and technology as the basis for national development. Oris is the Co-Chair for the Bioscience and Health Science Committee for developing the Strategic Plan for Science and Technology for the Republic of Panama (2010-2014). She serves on the boards of the Coiba National Park Biological Center for Sustainable Development (CIDES), the National Phytogenetics Committee (MIDA Panama). Please join me in congratulating Oris on her new position.

*Eldredge Bermingham*

Me complace anunciar que Oris Sanjur fue promovida como directora asociada para Administración Científica. Esta nueva posición se basa en el



plan estratégico del Smithsonian donde uno de sus objetivos es el reforzar la asociación entre la misión investigativa de STRI y la misión de facilitar las funciones en la Institución.

Oris trabajará con los científicos y, junto con el director, el decano y el subdirector, establecerá y mantendrá altos estándares de apoyo operativo para los programas científicos. Junto con la Oficina del Director, Sanjur determinará los objetivos y supervisará a los coordinadores científicos, el programa de visitantes, BioInformática y colecciones científicas. También trabajará de cerca con el subdirector para asegurarse que la Oficina de Informática cumpla con todas las necesidades del diverso portafolio de STRI en cuanto a programas científicos.

## More arrivals

Frank Aylward, University of Wisconsin - Madison, to study the microbial community assembly in the refuse dumps of the leaf-cutter ant, *Atta colombica*, in Gamboa.

Randall Moore and Guangna Zhang, Institute of Applied Ecology, Chinese Academy of Sciences, to join the soil nutrient dynamics project, on BCI.

J.- Alan Clark, Fordham University, to study the vocalizations of the stripe-throated wren (*Thryothorus leucopogon*): an ecological and evolutionary approach to form and function.

## New publications

Fonseca, Ana C., Guzman, Hector M., Cortes, Jorge, and Soto, Carlomagno. 2010. "Marine habitats map of "Isla del Caño", Costa Rica, comparing Quickbird and Hymap images classification results." *Revista de Biología Tropical* 58(1): 373-381.

Kim, Tae Won, Christy, John H., Rissanen, Jade Rebecca, Ribeiro, Pablo D., and Choe, Jae Chun. 2010. "Effect of food addition on the reproductive intensity and timing of both sexes of an intertidal crab." *Marine Ecology Progress Series* 401: 183-194.

Laurance, William F., Koh, Lian P., Butler, Rhett, Sodhi, Navjot S., Bradshaw, Corey J.A., Neidel, J. David, Consunji, Hazel, and Mateo-Vega, Javier. 2010. "Improving the performance of the roundtable on sustainable palm oil for nature conservation." *Conservation Biology* 24(2): 377-381.

Oris empezó su relación con STRI como becaria Exxon para hacer su trabajo de graduación. Se graduó con honores en la Universidad de Panamá en 1991. Obtuvo su doctorado en Biología Celular y de Desarrollo en Rutgers y The State University of New Jersey.

En Panamá fungió como presidenta de la Asociación Panameña Nacional para el Avance de la Ciencia (APANAC) de 2006 a 2009 y actualmente es parte del cuerpo directivo del Comité de Ciencias de la Salud y Biología para desarrollar el plan estratégico en

Ciencia y Tecnología, de la República de Panamá 2010-2014. También es parte de la directiva de la Estación en Coiba, CIDES y MIDA. Le damos una calurosa bienvenida a esta nueva posición.

*Eldredge Bermingham*



## Annual Fellowship Meeting

STRI's annual fellowship meeting was held on Wednesday, March 17 at the Tupper Exhibit Hall. Staff scientists and members of the Director's Office began the selection process on January 15. After one day of deliberations, main advisors and co-advisors of potential fellows returned the applications to project manager Adriana Bilgray, with the following awarded list:

### 2010 Tupper 3-year fellow:

Luis Mejía: Genetic and molecular basis of tree leaf-endophyte symbioses, with Allen Herre.

### SI postdoctoral fellows:

Eloisa Lasso: The role of somatic mutation, frequency-dependent mortality and mating patterns in generating and maintaining genetic diversity in clonal populations, with Eldredge Bermingham, at Naos.

Michael Caldwell: Beyond sound: the role of substrate vibrations produced during the

sexual advertisement and aggressive calls of the red-eyed tree frogs, with John Christy, in Gamboa.

Simon Tierney: Photosensitivity in nocturnal foraging bees, with Bill Wcislo, at Naos and Tupper.

### SI predoctoral fellows

Brian Sedio: Plant-herbivore community assembly and the problem of specificity: do insect herbivores specialize among sympatric, congeneric plants in tropical forests?, with Joe Wright, on BCI.

Mingzi Xu: Wing patch as an honest signal in contest resolution in the giant damselfly, with Bill Wcislo, on BCI and Gamboa.

Megan Eckles: A critical test of stingless bee referential communication, with Dave Roubik, in Gamboa.

Laura Schreag: A Pancontinental study linking soil carbon and phosphorus cycles in the lowland tropics: Does

carbon sorbed to soil surfaces increase plant available phosphorus?, with Ben Turner.

La Reunión Anual de Becas se llevó a cabo el miércoles 17 de marzo, en el Salón de Exhibiciones del Centro Tupper. Los científicos del personal de STRI y miembros de la Oficina del Director empezaron el proceso de selección el 15 de enero. Luego de un día de deliberaciones, los asesores principales de becas y los co-asesores devolvieron las aplicaciones a Adriana Bilgray, administradora del proyecto, con la siguiente lista de ganadores:

### Beca Tupper de 3 años:

Luis Mejía

### Becas de Postgrado de SI

Eloisa Lasso, Michael Caldwell, Simon Tierney.

### Becas de predoctorado de SI:

Brian Sedio, Mingzi Xu, Megan Eckles y Laura Schreag.

Los títulos de los proyectos aparecen en la versión en inglés de esta noticia.

## New publications

Riehl, Christina. 2010. "Egg ejection risk and hatching asynchrony predict egg mass in a communally breeding cuckoo, the Greater Ani (*Crotophaga major*)."  
*Behavioral Ecology Online*.

Smith, Adam R., Seid, Marc A., Jimenez, Lissette C., and Weislo, William T. 2010. "Socially induced brain development in a facultatively eusocial sweat bee *Megalopta genalis* (Halictidae)."  
*Proceedings of the Royal Society B: Biological Sciences Online*.

## STRI in the news

"Research to deal with weed problem in Panama will benefit the Australian sugarcane industry" by Jason Ramsey. 2010. *TopNews* March 24.

"Social bees have bigger brain region for learning, memory."  
*Little About* March 24.

"Tropical ants use their legs as rudders to glide to safety from predators."  
*Sifi News* March 17.

"Actuemos rápido" por Nayli Williams. 2010. *Día a Día*. March 22: page 20.

"Analizarán mecanismo de plantas con estrés" 2010. *Hora Cero.com*: March 23.

"El día de la rana" 2010. *La Estrella de Panamá*: March 17, page 9C.

"Rana dorada tendrá su día" by Judith Requena. 2010. *El Siglo*: March 19, page 34.

"Machiavellian insects evolve bigger, social brains" by Rowan Hooper. 2010. *New Scientist*: March 24.

## CAM International Workshop



Researchers from eight countries (above, in the photo) discussed a system that plants use to cope with stress at the 2010 International Workshop on Crassulacean Acid Metabolism (CAM), hosted by STRI at Tupper, from March 22-24. They presented new information about sources of biofuels, plants' abilities to adapt to extreme temperatures and drought, and models of flexible plant gene expression in response to environmental change.

Some of the most conspicuous tropical plants, the orchids and bromeliads, grow high on exposed tree branches where water is scarce even during the rainy season. A key innovation that makes it possible for these plants to occupy such stressful environments is their water-conserving form of photosynthesis. By taking in atmospheric carbon dioxide at night when it's cool outside, —plants that have CAM, lose less water in carbohydrate production than do plants that use the more standard C3 photosynthesis.

Because they are so diverse, CAM plants provide excellent systems for understanding the range of ways that plants photosynthesize and how these systems evolved. STRI staff scientist and conference

organizer Klaus Winter presented his latest findings on highly specialized plants that are able to switch back and forth between CAM and C3 photosynthesis depending on rainfall. Biofuel proponents usually focus their attention on corn or sugar cane as new sources of energy. To produce biofuels without cutting down rainforest or competing with crop plants, one solution is to grow agave, a CAM plant, on marginal land. Joe Holtum of James Cook University, Australia, talked about turning agave, usually grown to produce tequila, into alcohol to fuel cars.

Investigadores de ocho países (arriba, en la foto) discutieron un sistema que usan las plantas para soportar el estrés en el Taller Internacional sobre Metabolismo de Ácido Crasuláceo (CAM) patrocinado por STRI en Tupper, del 22 al 24 de marzo. Los participantes presentaron nueva información sobre el origen de la habilidad de las plantas que produce bio-combustible para adaptarse a temperaturas extremas y a las sequías, y modelos de expresión genética de plantas flexibles en respuesta al cambio ambiental.

Algunas de las plantas tropicales más conspicuas, orquídeas y bromelias, crecen en lo alto de ramas de árboles expuestas donde el agua escasea incluso

durante la estación lluviosa. La clave para que sea posible que plantas ocupen estos ambientes de gran estrés es la forma de fotosíntesis que ahorra agua. Al obtener dióxido de carbono por la noche, cuando es más fresco, las plantas que usan CAM pierden menos agua en la producción de carbohidratos que las que usan la fotosíntesis más estándar de C3.

Al ser tan diversas, las plantas CAM ofrecen sistemas excelentes para entender el rango de formas que las plantas usan en la fotosíntesis y cómo evolucionan estos sistemas. El científico de STRI, Klaus Winter, presentó sus últimos hallazgos sobre plantas altamente especializadas que pueden ir y venir entre las fotosíntesis CAM y C3, de acuerdo a las lluvias. Los científicos que se ocupan de plantas para combustibles se centran generalmente en maíz y caña de azúcar como nuevas fuentes de energía. Para producir combustibles sin tumbar todo el bosque o competir con plantas de cultivo, la solución es sembrar agave, una planta CAM, en los bordes de bosques. Joe Hultom, de James Cook University, habló sobre convertir el agave, una planta que se cultiva para producir tequila, en combustible para autos.

# Advancing archaeology in the Pearl Islands...

## Part III: The oldest habitation site yet discovered on Central American Islands

Story: Richard Cooke  
Edited by M Alvarado  
and ML Calderon  
Photo: MA Guerra

It was on San Fernando Island where we found the oldest habitation site yet discovered on Central American islands. It is a small midden (ca. 1300 m2) located alongside a beautiful beach, Playa Don Bernardo. We have not yet reached the bottom of the deposit. Six radiocarbon dates, however, indicate that the domestic refuse was deposited between about 6000 and 5600 calendar years ago.

The upper part of the midden consists mostly of marine shells collected for food. But the deeper one digs, the more vertebrate bone appears. The large amount of charcoal in the earliest levels suggests that

the colonists, who must have arrived by sea, rapidly burnt the forest.

STRI research assistant Irene Holst (in the photo) identified starch grains and phytoliths (silica bodies) from domesticated maize and an unidentified tuber on the surface of a grinding stone found in the midden.

This discovery confirms data accumulated by SI senior scientist Dolores Piperno, which shows that native Central Americans had brought many of the staple tropical American food crops under cultivation before they learnt how to fire clay pots.

El grupo de arqueólogos liderado por Cooke encontró

el sitio habitado más antiguo de las islas de América Central, en Pedro González. Se trata de un pequeño basurero (1300 m2) a orillas de la playa Don Bernardo. Aún no se ha llegado al fondo de los depósitos culturales, sin embargo, seis fechas radiocarbónicas indican que los desechos de origen doméstico son de 6000 a 5600 años atrás.

La zona superior del basurero incluye muchas conchas marinas recogidas para comer. Cuanto más profunda es la excavación, tanto mayor es la proporción de huesos de vertebrados. La gran cantidad de carbón vegetal en los estratos más antiguos sugiere que los inmigrantes, que

deben haber llegado por mar, quemaron rápidamente el bosque.

Irene Holst, de STRI, (en la foto) identificó granos y fitolitos de maíz y de algún tubérculo en la superficie de una piedra de moler hallada en el basurero.

Este descubrimiento amplía el acervo de datos que la investigadora senior de STRI, Dolores Piperno, ha venido armando con tanta paciencia desde hace 30 años, el cual demuestra que los indígenas centroamericanos cultivaron muchas de las plantas básicas en la dieta del trópico americano antes de aprender a quemar vasijas de barro.

