

Tupper seminar

Tue, Mar 15, 4pm seminar speaker will be Teresa Cerveira, University of Algarve, Portugal
Fisheries impact in the South Coast of Portugal (Algarve)

Bambi seminar

Thu, Mar 17, Bambi seminar speaker will be Uwe Raschers, Research Centre Jülich

Drought effects on tropical rainforest photosynthesis: a case-study to scale leaf physiology to the ecosystem level, using fluorescence and hyperspectral reflectance techniques

Arrivals

Arriving for STRI's fellowship meetings are: Jeremy Jackson, Nancy Knowlton, Mar 13-20; Dolores Piperno, Mar 14-19; Stanley Rand, Mar 14-20; William Eberhard, Mar 16-18; Mary Jane West-Eberhard, Mar 16-23.

Jean-Christophe Domec, Oregon State University, Mar 12 - Apr 5, to study functional convergence and constraints in regulation of transpiration and carbon assimilation in tropical forest canopy trees, on BCI.

Katherine McCulloh, Oregon State University, Mar 12 - Apr 30, to study the functional convergence and constraints in regulation of transpiration and carbon assimilation in tropical forest canopy trees, on BCI.

Joseph Mendelson, Zoo Atlanta, Mar 13-15, to participate in the Amphibian Recovery Project, at Tupper and El Copé.

Garald Borries, Princeton University, Mar 13 - Apr 3, to participate in the Automated Radio Telemetry System, on BCI.

Brandon Munk, University of Wyoming, Mar 14-28, to study specialized cognition and the evolution of a mating system, in Gamboa.



Smithsonian Tropical Research Institute, Panamá

www.stri.org

March 11, 2005



BCI: from green hell to green Hilton

Before a packed audience from every STRI facility, STRI director Ira Rubinoff remembered the difficulties of doing research on BCI in the early days, in his Bambi of Thursday, March 10. When Rubinoff visited BCI for the first time, women were already allowed to overnight on the island, but racial segregation was still on.

Showers came from stored rainwater, mail arrived weekly, and a generator helped maintain refrigeration for the kitchen. Transportation to mainland was by launch to Frijoles, then by train to Panama or Colon. Travel to Ancon, where STRI had offices in the Court House was necessary to book a call to the US or send a telegram. "Since this could take hours, you could catch up in your

reading... if static of the short wave radio connected to Barro Colorado would allow it!"

Thanks to a grant from the National Science Foundation, electricity arrived on BCI in the 60's allowing for the growth of the library and air conditioned laboratories. The electricity begat telephones, fax machines and finally internet service. Now, BCI allows visitors to spend most of their waking time on research, with everything at hand.

Rubinoff expresses confidence in the future of BCI. Most forests are shrinking due to human activity, but BCI has a powerful ally, the Panama Canal. The Canal operates with fresh water and thus the protection of the watershed has a direct economic value to Panama. As for the future of research, investigators will

define its course, though STRI expects completion of a series of projects.

As for the physical plant, it will be modernized from time to time, but expansion will be confined to Gamboa, since much research doesn't require the scientists to reside on BCI. "Nothing, however, will replace the more than 80 years of research that this island has supported and the enormous boost that you have in your studies by standing on the shoulders of your scientific predecessors" concluded the Director, who had been invited by BCI residents to talk about their future.

Rubinoff is seen by the scientific community as responsible for their intellectual freedom, and for obtaining tens of million of dollars for tropical research at STRI.

Ante una nutrida concurrencia de todas las instalaciones de STRI, el director Ira Rubinoff

recordó las dificultades de hacer estudios en BCI en los primeros tiempos, en su Bambi

del jueves, 10 de marzo. Cuando Rubinoff visitó BCI por primera vez, ya era

More arrivals

Bjorn Rogell and Carl Rudh, Upsala University, Sweden, Mar 15-30, to study the immunogenetic variation and amphibian decline, on Bocas.

Alex Monro, Natural History Museum of London, Mar 15, to participate in a *Flora Mesoa-mericana* trip to Cerro Fábrega.

Leonida Fusani, University of Sienna, Mar 15 - Apr 30, to study the evolution of manakin displays, in Gamboa.

Melissa Roth, Scripps, Mar 16 - 30, to study the effect of reef fish size on herbivory, on Bocas.

Wendy Marussich, University of Arizona, Mar 16 - May 17, to study the ecology and evolution of non-pollinating fig wasps, on BCI.

Peter Duerre, University of Ulm, Mar 17-25, to visit STRI and collaborate with Elisabeth Kalko, on BCI.

Departures

Ben Turner to Costa Rica, Mar 13-16, to present seminar at La Selva Station and consult with colleagues.

New publications

Chaparro, O.R., Saldivia, C.L., Pereda, S.V., Segura, C.J., Montiel, Y.A., and Collin, Rachel. 2005. "The reproductive cycle and development of *Crepipatella fecunda* (Gastropoda: Calyptraeidae) from southern Chile." *Journal of the Marine Biological Association of the United Kingdom* 85: 157-161.

Didham, Raphael K., Ewers, Robert Mark, and Gemmell, Neil J. 2005. "Comment on "Avian extinction and mammalian introductions on Oceanic Islands"." *Science* 307(5714): 1412-1413.

permitido que mujeres pasaran la noche en la Isla, pero la segregación racial se mantenía.

Se duchaban con agua recogida de lluvia, el correo llegaba una vez por semana, y el generador mantenía una refrigeradora en la cocina. El transporte a tierra firme era por lancha hasta Frijoles y de ahí en tren a Panamá o Colón. Viajar a Ancón era necesario para hacer una llamada a EU o enviar un telegrama. Ya que esto tomaba varias horas, leer era una opción, si la estática del radio conectado con BCI lo hubiera permitido.

Gracias a la *National Science Foundation*, la electricidad llegó a BCI en los 60, permitiendo que la biblioteca creciera y hubiera laboratorios con aire acondicionado. La electricidad

trajo teléfonos, máquinas de fax, y finalmente el internet. Ahora, BCI permite que los visitantes puedan dedicar la mayor parte de su tiempo a la investigación, con todo a la mano.

Rubinoff expresa gran confianza en el futuro de BCI. Muchos bosques están desapareciendo debido a la actividad humana, pero BCI tiene un aliado poderoso, el Canal de Panamá. El Canal opera con agua dulce así que la protección de la cuenca tiene un valor económico directo para Panamá. El futuro de las investigaciones las definirán los propios investigadores, aunque hay varios proyectos que se espera completar.

En cuanto a las instalaciones, serán modernizadas de tiempo

en tiempo, pero la expansión se confinará probablemente a Gamboa, ya que gran parte de los estudios no requieren que el científico resida en BCI.

"Sin embargo, nada reemplazará los más de 80 años de investigación que se ha llevado a cabo en esta Isla, y la enorme ventaja que ustedes tienen para sus investigaciones al estar parados sobre los hombros de sus predecesores científicos" concluyó Rubinoff, quien fue invitado por los residentes de BCI para que les hablara de su futuro.

Rubinoff es visto por la comunidad científica como el responsable de su libertad intelectual, y por obtener decenas de millones de dólares para la investigación tropical en STRI.

Science: "Avian extinction and mammalian introductions on Oceanic Islands"

STRI's postdoctoral fellow Robert M. Ewers from New Zealand, with colleagues Raphael Didham and Neil J. Gemmell from the University of Canterbury published an article in the March 4 issue of *Science* (307: 1412-1413) to comment the article "Avian extinction and mammalian introductions on Oceanic Islands" authored by Tim M.

Blackburn, Phillip Cassey, Richard P. Duncan, Karl L. Evans, Kevin J. Gaston.

In their article, published also by *Science* (September 24, 2004) Blackburn *et al*, showed a positive correlation between avian extinctions and numbers of predatory mammal introductions on oceanic islands. Didham, Ewers and Gemmell now show that

habitat conversion rates also correlate with observed extinctions, leaving uncertain the absolute causality between introduced predators and avian extinctions. A response from Blackburn *et al*. also appeared last week.

All articles can be seen at <http://www.sciencemag.org> from any SI computer.

Nature: Snap responses

Recently, The Royal Society's Biology Letters released an online version of the article "Coordinated group response to nest intruders in social shrimp" authored by STRI's postdoctoral fellow Eva Tóth visiting scientist J. Emmett Duffy working on Bocas del Toro. In its issue of March 3 (434: 36), *Nature* reviews the article in their research highlights section: "Eusocial animals exhibit such characteristics as division of reproductive labour between castes, cohabiting generations and cooperative behaviour. There are plenty of examples

among the insects; naked mole rats are an instance among the vertebrates. Some species of shrimp also show eusocial characteristics. Eva Tóth and J. Emmett Duffy now describe a further aspect of shrimp eusociality, that of a collective response of members of a colony in the face of threats. They looked at species of *Synalpheus*, tiny inhabitants of sponges in the tropics that are fiercely territorial and mark their displeasure by snapping their 'fighting claw'. Tóth and Duffy observed the behaviour of *Synalpheus* when confronted by an alien shrimp of the same

species. The initial one-to-one confrontation elicited a snap response from the defender. But if the intruder was brazen enough to push its luck, other colony members joined in with a cacophony of snapping. The aim of this collective sabre-rattling, say the authors, is not to enlist physical help against attack but to provide an unequivocal signal that the sponge is already colonized."

Tim Lincoln, *Nature*

Available at:

www.pubs.royalsoc.ac.uk
www.nature.com

Friend of STRI and Galeta leaves Panama

US ambassador Linda Watt leaves Panama this month, after three years in this country. Ambassador Watt has been a close friend to STRI and a concerned official towards the education in Panama. In her first visit to Galeta in 2002, the Ambassador liked the fact that its small library was used by STRI's nature guides and teachers from Colon, and decided to make a donation to increase the book holdings of the library, through Fundación Smithsonian. On Thu, Mar 10, the Ambassador made her last official visit to Galeta with Stanley Heckadon, Helena Fortunato and Anna Lisa Porras. In the photo, ambassador Watt shows one of the new books to students from Colon's Arab Academy.

La embajadora de EU Linda Watt deja Panamá este mes, luego de tres años en este país. La embajadora Watt ha sido una amiga cercana de STRI, y una funcionaria preocupada por la educación en Panamá. En su primera visita a Galeta en 2002, le agradó saber que la pequeña biblioteca del Laboratorio era usada por los guías naturalistas



de STRI, y también por maestros de Colón, y decidió hacer una donación para aumentar la colección, a través de la Fundación Smithsonian. El jueves 10 de marzo, la Embajadora hizo su última

visita oficial a Galeta con Stanley Heckadon, Helena Fortunato y Anna Lisa Porras. En la foto, la embajadora Watt le muestra uno de los nuevos libros a estudiantes de la Academia Árabe de Colón.

PNAS: JH, reproduction, and worker behavior in a neotropical social wasp

Former STRI postdoctoral fellow Tugrul Giray from the University of Puerto Rico, Manuela Giovanetti, from Università degli Studi di Milano, Italy, and STRI's Mary Jane West-Eberhard just published the article "Juvenile hormone, reproduction, and worker behavior in the neotropical social wasp *Polistes canadensis*" in this month issue of the *Proceedings of the National Academy of Sciences* (PNAS). Highly

eusocial insects are characterized by the evolution of two kinds of adult females with contrasting life histories and morphologies: the reproductive queen and the sterile worker castes. In addition, the workers of many hymenopteran (wasp, ant, and bee) societies show an age-related division of labor, or age polyethism, in which workers of different ages have different probabilities of performance of

particular tasks. In their article, Giray, Giovanetti and West-Eberhard experimentally address the question of the origin of the worker age polyethism, a key element for understanding the evolution of social organization, by examining two alternative hypotheses that have been proposed to explain it.

Available at:
www.pnas.org

More publications

Fornara, D.A., and Dalling, James W. 2005. "Seed bank dynamics in five Panamanian forests." *Journal of Tropical Ecology* 21(2): 223-226.

Franke, T. H., Sainge, M. N., and Agerer, R. 2004. "A new species of *Afrothismia* (Burmanniaceae: Thismiaceae) from the western foothills of Mount Cameroon." *Blumea* 49(2-3): 451-456.

Giray, Tugrul, Giovanetti, Manuela, and West-Eberhard, Mary Jane. 2005. "Juvenile hormone, reproduction, and worker behavior in the neotropical social wasp *Polistes canadensis*." *Proceedings of the National Academy of Sciences* 102(9): 3330-3335.

Lincoln, Tim. 2005. "Snap responses." *Nature* 434: 36.

Toth, Eva, and Duffy, J. Emmett. 2005. "Coordinated group response to nest intruders in social shrimp." *Biological Letters Online*.

Van Bael, Sunshine A., and Brawn, Jeffrey D. 2005. "The direct and indirect effects of insectivory by birds in two contrasting Neotropical forests." *Oecologia* 143(1): 106-116.

Wuerth, Mirjam K. R., Riedl, Susanna Pelaez, Wright, S. Joseph, and Korner, Christian. 2005. "Non-structural carbohydrate pools in a tropical forest." *Oecologia* 143: 11-24(1): 11-24.

Miscellaneous

For rent: duplex in Diablo: 3bedr, 2 1/2 bath, laundry, maid's, central alarm. Gas, water and internet. Large fenced-in yard, 2 parking spaces \$1200, tel. 617-8521, 232-8521 ask for Ximena.

science in progress:

No markings, no captures, no collection: just watch and listen...

Galeta, on the Caribbean entrance to the Panama Canal, maintains an ecosystem of rain and mangrove forests that results in great biodiversity. Galeta holds at least 200 species of birds.

Ghislain Rompre, graduate student from the University of Laval in Canada, studies the effect of forest fragmentation on bird populations and species. He uses no other method than bird censuses via point counts and random walk. No marking, no captures, no collection, no environmental impact. He has also gathered information from BCI, Cocoli and Achote.

Rompre aims to determine how bird species richness is distributed across the Panama Canal corridor, derive a series of habitat loss scenarios that may affect bird species richness, and forecast how loss of forests in central Panama will affect the geographic distribution and regional extinction of bird diversity.

Galeta mantiene un ecosistema de bosques lluviosos y manglares que resultan en una enorme biodiversidad. Por lo menos 200 especies de aves están presentes en Galeta, situada en la entrada caribe del Canal de Panamá

Ghislain Rompre, estudiante graduado de la Universidad de Laval en Canadá, estudia los efectos de la fragmentación de bosques en poblaciones y especies de aves. No usa ningún otro método que no sean censos de aves usando puntos de conteo y caminatas al azar. Nada de marcas, capturas, colectas ni impacto en el ambiente. Todo lo que hace es caminar en el bosque buscando las aves visualmente y por el sonido. También obtuvo información de BCI, Cocoli y Achote.

Rompre busca determinar cómo la riqueza de las especies de aves está distribuida en el corredor del Canal de Panamá, derivar una serie de escenarios de pérdida de hábitat que pueden afectar la riqueza de las especies, y pronosticar cómo la pérdida de bosques en Panamá central afectaría la distribución geográfica y la extinción regional de la diversidad de aves.

