STRI news 2008

Smithsonian Tropical Research Institute, Panamá www.stri.org April 11, 2008

Tupper 4pm seminar

Tuesday, April 15, 4pm
seminar speaker will be Andy Jones, STRI
The ecology of gene dispersal in tropical trees

Bambi seminar

Please check your e-mails to learn about the next Bambi seminar, on BCI.

Arrivals

Stephanie Wright, US, to carry out the project,"Do lianas cause chronic disturbance and alter successional trajectories in tropical forests?", on BCI.

Paola Pulido, Universiad Javeriana, to study the historical biogeography of Mesoamerica, at Naos.

Tiffany Troxler, Florida International University, Stephen Davis, Texas A & M University, and Vic Engel, National Park Service, to quantify relationships between resource heterogeneity and plant community structure in a coastal freshwater swamp of Panama, on Bocas.

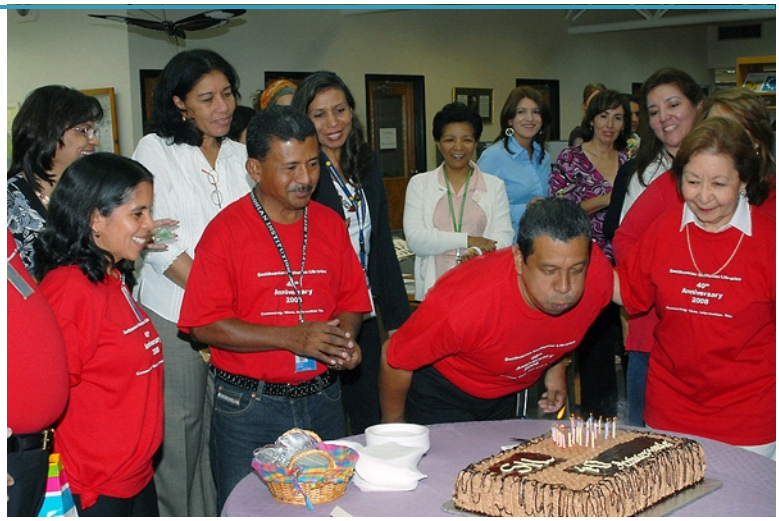
German Bayona, Corporación Geológica Ares, to join studies on Netropical biostratigraphy, at the CTPA.

Tammy Hartke and Casey Hamilton, Northeastern University, to study parasites, pathogens and the breeding strategies of social insects, in Gamboa.

Randall Moore, Oregon State University, to study avian community dynamics, on BCI

Safety number:
212-8211

SIL: Forty years serving humanity



The staff of the STRI Library organized a get together on Tuesday, April 8, to celebrate the 40th anniversary of the Smithsonian Institution Libraries (SIL). Acting deputy director William T. Wcislo welcomed the attendants and branch chief librarian Vielka Chang-Yau read a letter from Nancy E. Gwinn, SIL director, thanking STRI for their appreciation and support to the Library staff.

The Earl S. Tupper Library, located on Luis Felipe Clemente Ave is one of 20 of the Smithsonian Institution Libraries. This research library, has in its holding 72,000 volumes of scientific literature dating back to the late 19th century, and is one of the most comprehensive resources in tropical biology in the world. The Library was founded on Barro Colorado Island, in 1925.

Forty years ago, SI secretary S. Dillon Ripley led the reorganization of 80 libraries in different places in the US and Panama into an efficient Library System to support research, scholars, docents and the general public, including children.

The STRI Library has grown parallel to the Institute and has survived several events, from nearly sinking on Gatun Lake while moving to Ancon in 1968, to the military action 'Just Cause' to overthrow Manuel Antonio Noriega in 1989. The current building was finished in 1983 and the annex was completed in 1994. It has had four chief librarians, Alcira Mejía (1963-1980) Carol Joplin (1981-1984) Sylvia Churgin (1984-1989 and Vielka Chang-Yau (1989 to present). Bernadette French, Roberto Sarmiento, Shirley Echelman and Tina Lesnik served as acting librarians during transition periods. Its more loyal staff member, Angel Aguirre joined the Library in 1979. Ricardo Beteta was hired in 1986, Eleuterio Santos in 1987, Elizabeth Sanchez in 1989, and Apolinar Guerrero in 1996.

El personal de la Biblioteca de STRI organizó una reunión informal el martes 8 de abril para celebrar el 40 aniversario de la Red de Bibliotecas del Smithsonian (SIL, por sus siglas en inglés). El subdirector encargado de STRI, William T. Wcislo dio palabras de bienvenida a los asistentes y Vielka Chang-Yau, bibliotecaria en jefe, leyó una carta de Nancy E. Gwinn, directora de SIL, donde agradecía el aprecio y apoyo de STRI al personal de la Biblioteca.

La Biblioteca Earl S. Tupper en Ciencias Tropicales, localizada en la Avenida Luis Felipe Clemente, es una de las 20 bibliotecas de la Red de Bibliotecas del Smithsonian. Esta biblioteca de investigación tiene 72,000 volúmenes de literatura científica que data desde el siglo 19 y es uno de los recursos más completos en biología tropical del mundo. La Biblioteca de STRI fue fundada en la Isla de Barro Colorado en 1925.

New publications

Basset, Yves, Missa, Oliver, Alonso, Alfonso, Miller, Scott E., Curletti, Gianfranco, De Meyer, Marc, Eardley, Connal D., Mansell, Mervyn W., Novotny, Vojtech, & Wagner, Thomas. 2008b. "Faunal turnover of arthropod assemblages along a wide gradient of disturbance in Gabon." *African Entomology* 16(1): 47-59.

Basset, Yves, Missa, Olivier, Alonso, Alfonso, Miller, Scott E., Curletti, Gianfranco, Meyer, Marc De, Eardley, Connal, Lewis, Owen T., Mansell, Mervyn W., Novotny, Vojtech, & Wagner, Thomas. 2008a. "Choice of metrics for studying arthropod responses to habitat disturbance: one example from Gabon." *Insect Conservation and Diversity* 1(1): 55-66.

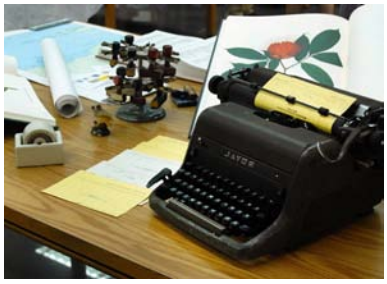
Dudley, T. Robert, & Srygley, Robert B. 2008. "Airspeed adjustment and lipid reserves in migratory Neotropical butterflies." *Functional Ecology* 22(2): 264-270.

Freymann, Bernd P. 2008. "Physical properties of fungal rhizomorphs of marasmioid basidiomycetes used as nesting material by birds." *Ibis* 150(2): 395-399.

Gagliardo, Ronald W., Crump, P., Griffith, Edgardo J., Mendelson, III, Joseph R., Ross, H., & Zippel, Kevin C. 2008. "The principles of rapid response for amphibian conservation, using the programmes in Panama as an example." *International Zoo Yearbook* 42(1): 125-135.

Hace 40 años, el entonces secretario del Smithsonian S. Dillon Ripley, asumió la responsabilidad de liderar la reorganización de 80 bibliotecas en diferentes puntos de EU y Panamá en un sistema eficiente para dar apoyo a la investigación, académicos, docentes y público en general, incluyendo niños.

La Biblioteca de STRI ha crecido de manera paralela junto con el Instituto y ha sobrevivido varios incidentes, desde casi naufragar en el Lago Gatún cuando se mudaba a Ancon en 1968, hasta la acción militar 'Causa Justa' de los Estados Unidos para derrocar a Manuel Antonio Noriega en 1989. El edificio actual se terminó en 1983 y el anexo se completó en 1994. Ha tenido cuantro bibliotecarias en jefe, Alcira Mejía (1963-1981) Carol Joplin (1981-1984) Sylvia Churgin (1984-1989) y Vielka Chang-Yau (1989-presente). Bernadette French, Roberto Sarmiento, Shirley Echelman y Tina Lesnik fungieron como bibliotecarios encargados en



períodos de transición. Su empleado de mayor antiguedad, Angel Aguirre, se unió a la biblioteca en 1979. Ricardo Beteta en 1986, Eleuterio Santos en 1987, Elizabeth Sanchez en 1989 y Apolinar Guerrero en 1996.

PNAS: Genetic royal cheats

Far from being a model of social co-operation, the ant world is riddled with cheating and corruption –and it goes all the way to the top, according to scientists from the Universities of Leeds and Copenhagen .

Ants have always been thought to work together for the benefit of the colony rather than for individual gain. But Bill Hughes from Leeds ' Faculty of Biological Sciences and Jacobus Boomsma from the University of Copenhagen, doing research at STRI in Gamboa, report that certain ants are able to cheat the system, ensuring their offspring become reproductive queens rather than sterile workers, in the April 1 issue of the *Proceedings of the National Academy of Sciences.*

"The accepted theory was that queens were produced solely by nurture: certain larvae were fed certain foods to prompt their development into queens and all larvae could have that opportunity," explains Dr Hughes. "But we carried out DNA fingerprinting on five colonies of leaf-cutting ants and discovered that the offspring of some fathers are more likely to become queens than others. These ants have a 'royal' gene or genes, giving them an unfair advantage and enabling them to cheat many of their altruistic sisters out of their chance to become a queen themselves."

But what intrigued the scientists was that these 'royal' genetic lines were always rare in each colony. Says Hughes: "The most likely explanation has to be that the ants are deliberately taking steps to avoid detection. If there were too many of one genetic line developing into queens in a single colony, the other ants would notice and might take action against them. So we think the males with these royal genes have evolved to somehow spread their offspring around more colonies and so escape detection. The rarity of the royal lines is actually an evolutionary strategy by the cheats to escape suppression by the altruistic masses that they exploit."

A few times each year, ant colonies produce males and new queens which fly off from their colonies to meet and mate. The males die shortly after mating and the females go on to found new colonies. The researchers are keen to study this process, to determine if their hypothesis is correct and the mating strategy of males with royal genes ensures their rarity, to keep their advantages undetected by their commoner' counterparts.

However, the scientists' discovery does prove that, although social insect colonies are often cited as proof that societies can be based on egalitarianism and cooperation, they are not quite as utopian as they appear. "When studying social insects like ants and bees, it's often the cooperative aspect of their society that first stands out," says Dr Hughes. "However, when you look more deeply, you can see there is conflict and cheating –and obviously human society is also a prime example of this. It was thought that ants were an exception, but our genetic analysis has shown that their society is also rife with corruption– and royal corruption at that!"

More publications

Heckadon Moreno, Stanley. 2008. "Recuerdos del naturalista Watson M. Perrygo sobre Panamá, 1946-1953." *Épocas (Tercera Era)* 23(3): 10-11.

Hugues, William O.H., & Boomsma, Jacobus J. 2008. "Genetic royal cheats in leaf-cutting ant societies." *Proceedings of the National Academy of Sciences* 105(13): 5150–5153.

Leather, Simon R., Basset, Yves, & Hawkins, Bradford A. 2008. "Insect Conservation and Diversity - a new journal for the Royal Entomological Society." *Insect Conservation and Diversity* 1(1): 1-1.

Matsubara, Shizue, Krause, G. Heinrich, Seltmann, Martin, Virgo, Aurelio, Kursar, Thomas A., Jahns, Peter, & Winter, Klaus. 2008. "Lutein epoxide cycle, light harvesting and photoprotection in species of the tropical tree genus Inga." *Plant, Cell & Environment* 31(4): 548-561.

Mestre, Luis Augusto Macedo, & Gasnier, Thierry Ray. 2008. "Populações de aranhas errantes do gênero Ctenus em fragmentos florestais na Amazônia Central. Populations of Ctenus wandering spiders in Amazonian forest fragments." *Acta Amazonica* 2008(1): 159-164.

Yanoviak, Stephen P., Kaspari, Michael, Dudley, T. Robert, & Poinar, Jr., G. 2008. "Parasite induced fruit mimicry in a tropical canopy ant." *The American Naturalist* 171(4): 536-544.

STRI in the news

"Even by parasite standards, these worms stand out" by Henry Fountain. 2008. *The New York Times*: April 8.

ELTI completes land use course for sustainable development at Bocas

The Environmental Leadership and Training Initiative, a joint effort by STRI and Yale University, and the Organization for Tropical Studies completed the course "Ordenamiento Territorial para el Desarrollo Sostenible" at STRI's research station in Bocas del Toro, from March 25-29, 2008.

The course aimed at strengthening the capacity of government officials and non-government organizations in Panama and Peru, to lead, promote and participate in efforts contributing to the development of projects protecting the environment and human welfare.

The participants included staff members from Panama's Environmental Authority (ANAM), the Attorney General's Office, the Ministry of Economy and Finances, the Ministry of Housing, Agriculture Development, Land Management National Program, the National Assembly, Environmental Incidence Center, the Chiriqui Municipality and the Marine Resources Authority. Peruvian participants included representatives from the regional government in the departments of San Martin, Amazonas, Cajamarca, Ucayali, non-government and Amazonian peoples.

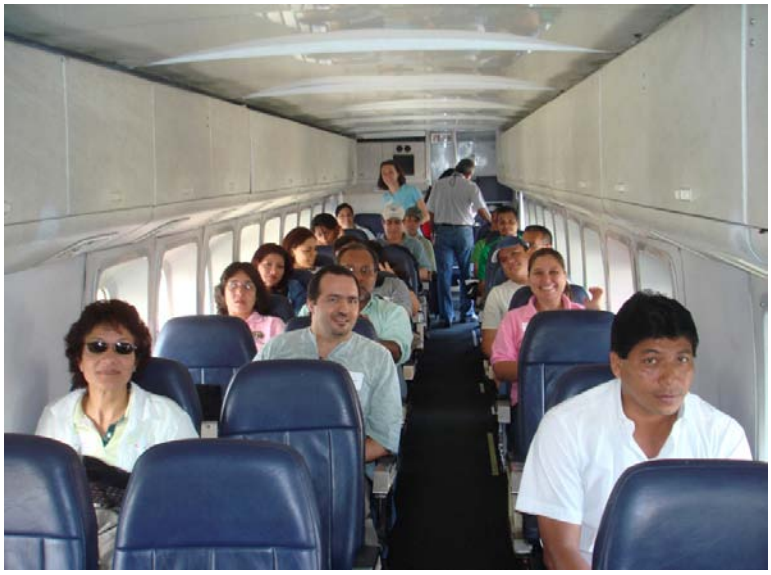
The photos show groups of the participants in Bocas del Toro.

La Iniciativa de Liderazgo y Capacitación Ambiental (ELTI, por sus siglas en inglés) del Instituto Smithsonian de Investigaciones Tropicales y de la Universidad de Yale, conjuntamente con la Organización para Estudios Tropicales (OET), impartieron el curso de campo, "Ordenamiento Territorial para el Desarrollo Sostenible" en la Estación de Investigaciones del Smithsonian en Bocas del Toro, Panamá del 25 al 29 de marzo.

El curso tuvo como objetivo fortalecer las capacidades de representantes gubernamentales y de organizaciones no gubernamentales de Panamá y Perú para dirigir, impulsar y participar en esfuerzos de ordenamiento territorial que contribuyan a orientar el desarrollo de estos países e impulsen la protección de la naturaleza y el bienestar humano.

Los participantes incluyeron miembros del personal de la Autoridad Nacional del Medio Ambiente (ANAM), la Oficina del Procurador General, los Ministerios de Economía y Finanzas, Vivienda y Desarrollo Agropecuario, el Programa Nacional de Administración de Tierras, la Asamblea Nacional, el Centro de Incidencia Ambiental, el Municipio de Chiriquí Grande y la Autoridad de los Recursos Acuáticos. Los participantes peruanos representaron a los Gobiernos Regionales de los Departaentos de San Martín, Amazonas, Cajamarca, Ucayali y del sector no gubernamental y de la Amazonía.

Las fotos muestran grupos de los participantes en Bocas del Toro.



A story in a tree

Story: Annette Aiello
Photos Annette Aiello and J. Douglas
Edited by M Alvarado & ML Calderon

Thirty years ago (2 May 1979) on Barro Colorado Island's Burunga Point, STRI staff scientist Annette Aiello observed a large tree of Panama, *Sterculia apelata* (family Malvaceae) growing between the stump and log (see arrows) of a Guayacan, *Tabebuia guayacan* (family Bignoniaceae). She thought about that unusual configuration often over the years and wondered whether anything could possibly remain of either tree. Given the size of the *Sterculia*, obviously both had been there for a long time already. Then, late last year she decided to try and locate the site. It took several trips to Burúnga Point to succeed, but finally on 12 December 2007, there they were, at Harvard Trail-19 plus 150 paces.

To Annette's amazement, the three elements were still there, the stump, the tree, and the log.

"You would expect that after so many years the Sterculia would have fallen or the guayacan stump and log would have decomposed completely. Guayacan sure does take a long time to rot, and *Sterculia* takes a long time to grow so large."

The inset photo shows the Guayacan stump and the *Sterculia* tree clearly, and the log less clearly (to the far right). The photo in the background shows how tall the *Sterculia* has grown.

Judging from the condition of the stump and log and the size of the *Sterculia*, 29 years ago versus now, Annette guesses that the two have been there for at least 50 years.

Hace treinta años, el 2 de mayo de 1979, la científica de STRI, Annette Aiello observó un árbol panameño grande de *Sterculia apelata* (Familia Sterculiaceae) creciendo entre un raigión de Guayacán, *Tabebuia guayacan* (Bighoniaceae) en Punta Burunga, Isla de Barro Colorado. Ella pensó sobre esta configuración tan poco común durante años y se preguntaba si algo podría quedar de alguno de los árboles. Tomando en cuenta el tamaño de *Sterculia*, es obvio que ambos han estado allí por años.

Luego, a finales del año pasado decidió trata de localizar el sitio. Le tomó varios viajes a Punta Burunga hasta que el 12 de diciembre de 2007 tuvo éxito, y ahí estaban, en Harvard Trail-19 más 150 pasos.

Para la sorpresa de Annete, los elementos aún están allí.

"Usted esperaría que después de tantos años, el Sterculia se hubiera caído o que el raigón y el tronco del Guayacán se hubieran descompuesto completamente. Es obvio que el Guayacán toma bastante tiempo para descomponerse. Y que el *Sterculia* toma bastante tiempo para crecer.

La foto en el recuadro muestra al raigón y al Sterculia claramente, y al tronco (en la extrema derecha) con menos claridad. La foto más grande muestra qué tan alto ha crecido el *Sterculia*.

. A juzgar por la condición del raigón y el tronco hace 29 años versus como está ahora, y el tamaño del Sterculia, el cálculo de Annette es que éste ha estado allí por lo menos por 50 años.

Smithsonian Tropical Research Institute, April 11, 2008