STRI news 2006

Smithsonian Tropical Research Institute, Panamá www.stri.org January 27, 2006

Tupper noon seminar

Tuesday, January 31, noon seminar speaker will be Jefferson Hall
Director for Applied Ecology job talk

Bambi seminar

Please check GroupWise for information on the next Bambi seminar on BCI.

Arriving next week

Regina Camacho, James Cook University, to study stream leaf litter processing in two tropical regions: comparing shredder diversity and efficiency, at Tupper.

Luz Boyero, James Cook University, to conduct the project "Is tropical stream functioning really different? Evidence from leaf litter breakdown and shredders in Panamanian streams."

John Klicka and Garth Spellamn and Jeffrey and Mathew DaCosta, University of Nevada, and Kevin P. Johnson, Illinois Natural History Survey, to conduct comparative studies of the phylogeography of Meso-American birds, at Naos Island Laboratories.

Douglas Robinson and Randall Moore, Oregon State University, to study avian community dynamics, on BCI.

Ghislain Rompre, University of Laval, Canada, to monitor the dynamics of avian communities and population in central Panama and Fortuna.

Safety number: 212-8211

Science: Nature encourages diversity

BCI plot´s sixth census team, 2005.

Equipo del sexto censo de la parcela de BCI, 2005.

An analysis of seven tropical forests around the world has found that nature encourages diversity by selecting for less common trees as the trees mature. The landmark study "Nonrandom processes maintain diversity in tropical forests" was conducted by 33 ecologists from 12 countries and published in today's issue of *Science*. The work, authored by Christopher Wills and colleagues from STRI and around the world, conclusively demonstrates that diversity matters and has ecological importance to tropical forests.

The study was conducted on seven undisturbed forest plots, or "tropical forest observatories," maintained and studied by research institutions in Borneo, India, Malaysia, Panama, Puerto Rico and Thailand, under the coordination of STRI's Center for Tropical Forest Science. The first ever established "tropical forest observatory" was BCI´s 50-hectare Forest Dynamic Plot, censussed for the fist time in 1981-1983.

"The great scientific value of these tropical forest observatories is that each of them has undergone a complete census more than once, so that the researchers know what has happened to hundreds of thousands of trees from one census to the next," says Stuart Davies, recently appointed CTFS´director. "These tropical forest observatories, along with others in our network, represent some of the most important, detailed and long-running ecological studies in the world today." After a few hours of being released by *Science*, the article had been reviewed by the major news services around the planet.

The figure in the following page, taken from *Science*, shows the locations and species diversities of the seven Forest Dynamics Plots included in this analysis. Shown in parentheses are the host-country institutions that manage the plots for STRI´s CTFS.

Un análisis de siete bosques tropicales alrededor del mundo encuentra que la naturaleza promueve la diversidad, al seleccionar los árboles menos comunes mientras éstos maduran. El estudio hito "Nonrandom processes maintain diversity in tropical forests" [Procesos no aleatorios mantienen diversidad en bosques tropicales] fue realizado por 33 ecólogos de 12 países y publicado en el número de *Science* de hoy. El trabajo, publicado por Chistopher Wills y colegas de STRI y alrededor del mundo, demuestra de manera concluyente que la diversidad importa y tiene relevancia ecológica para los bosques tropicales.

El estudio fue llevado a cabo en siete parcelas u "observatorios

More arrivals

Alexander Lang, Karl-Franzens-Universitat, to Work on several articles covering research activities at STRI

Miguel Angel Muñoz Marinez, Universidad de Granada, to work with Joe Wright, on BCI.

Scott Connelly, University of Georgia, to study the response of tropical stream ecosystem structure and function to amphibian extinctions, at Fortuna.

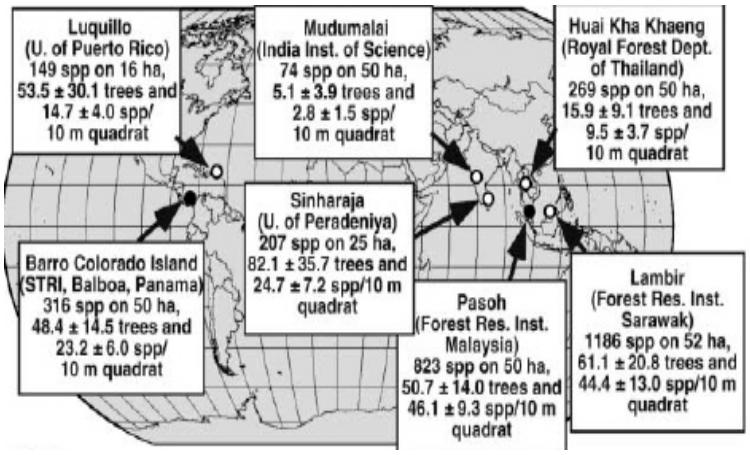
Matt Whiles and Michael Lelevier, Southern Illinois University, to study the tropical amphibian declines in streams TADS, at Fortuna.

Jeremy Niven, University of Cambridge, to study the evolution of the insect nervous system, at Tupper.

Kathy Milton, University of California at Berkeley, to study the genetics of the spider monkey population, on BCI.

John Best, Clarkson University, to study the seed dispersal by wind and plant recruitment in tropical forests –an interdisciplinary investigation across multiple scales, on BCI.

Fourteen international participants of the II Workshop on Neogastropod Origins and Evolution, Panama, being held from January 26 through February 7, organized by STRI´s Helena Fortunato, and Jerry Haraswwych, from SI´s National Museum of Natural History in Washington DC.



de bosques tropicales "que son mantienidos y estudiados por centros de investigación en Borneo, India, Malaysia, Panamá, Puerto Rico y Tailandia, bajo la coordinación del Centro de Ciencias Forestales del Forestales del Trópico (CTFS) de STRI.

"El inmenso valor científico de estos observatorios de bosques tropicales es que cada uno de ellos ha sido completamente censado más de una vez, de manera que los investigadores saben qué ha ocurrido a cientos de miles de árboles de un censo al otro" dijo Stuart Davies, director del CTFS recién nombrado. "Estos observatorios de bosques tropicales, junto con otros de nuestra red, representan algunos de los estudios más importantes, detallados y a más largo plazo en el mundo de hoy." Luego de pocas horas de haber sido publicado por *Science*, el artículo ha llamado la atención de los servicios noticiosos más importantes del planeta.

La ilustración de arriba, tomada de *Science*, muestra las ubicaciones y diversidades de especies de las siete Parcelas de Dinámica de Bosques incluidas en este análisis. En paréntesis aparecen las instituciones de países anfitriones que administran estas parcelas para STRI.

Voleyball season is back!

STRI's Volleyball League, Summer 2006 opened on Friday, January 20, at the Tupper parking lot. Everybody in the STRI community is invited to participate. STRI's children must come with an adult wearing a STRI ID. To join a team, you must contact your facility coach: Enrique Moreno at Ancon, Joana Madera for Gamboa-Prorena, Erick Lam for Tupper, Oris Acevedo for BCI and Axel Calderón for Naos. Bring your STRI ID!

La liga de Volleyball de STRI, Verano 2006 se inició el viernes 20 de enero, en los estacionamientos del Tupper.

Todos los miembros de la comunidad de STRI están invitados. Los hijos de miembros de la comunidad deberán venir con un adulto que porte una identificación de STRI. Para unirse a un equipo, deberá ponerse en contacto con el representante en su lugar de trabajo: Enrique Moreno en Ancon, Joana Madera para Gamboa-Prorena, Erick Lam en Tupper, Oris Acevedo en BCI y Axel Calderón para Naos. Recuerde su identificación de STRI.

STRI on TV

"Cracking the ocean code" Join J. Craig Venter and Biff Bermingham on a globe-circling ocean voyage, seeking new life forms and genetic secrets that could help solve the planet s most urgent energy and climate challenges, from Feb 2-4, Science Channel

STRI in the news

"Tropical rainforest biologist," with William F. Laurance". *New Hrizons in Eucation* (January 6). Listen to the program at: **http://radio.boisestate.edu/stations/npr/NewHorizons.asp**

New publications

Davies, Stuart James, and Semui, Hardy. 2006. "Competitive dominance in a secondary successional rain-forest community in Borneo." *Journal of Tropical Ecology* 22(1): 53-64.

Diaz, Maria Cristina. 2005. "Common sponges from shallow marine habitats from Bocas del Toro region, Panama." *Caribbean Journal of Science* 41(3): 465-475.

Dominici Arosemena, Arturo, and Wolff, Mathias. 2005. "Reef fish community structure in Bocas del Toro (Caribbean, Panama): Gradients in habitat complexity and exposure." *Caribbean Journal of Science* 41(3): 613-637.

Guzman, Hector M., Barnes, Penelope A.G., Lovelock, Catherine E., and Feller, Ilka C. 2005. "A site description of the CARICOMP mangrove, seagrass and coral reef sites in Bocas del Toro, Panama." *Caribbean Journal of Science* 41(3): 430-440.

More publications

Lovelock, Catherine E., Feller, Ilka C., McKee, Karen L., and Thompson, Ricardo C. 2005. "Variation in mangrove forest structure and sediment characteristics in Bocas del Toro, Panama." *Caribbean Journal of Science* 41(3): 456-464.

Opresko, Dennis M., and Sanchez, Juan A. 2005. "Caribbean shallow-water black corals (Cnidaria: Anthozoa: Antipatharia)." *Caribbean Journal of Science* 41(3): 492-507.

Rodriguez, Irene Teresa, Hernandez, Gonzalo, and Felder, Darryl. 2005. "Review of the Western Atlantic Porcellanidae (Crustacea: Decapoda: Anomura) with new records, systematic observations, and comments on biogeography." *Caribbean Journal of Science* 41(3): 544-582.

Schwartz, Megan L., and Moremburg, Jon L. 2005. "Three new species of *Micrura* (Nemertea: Heteronemertea) and a new type of heteronemertean larva from the Caribbean Sea." *Caribbean Journal of Science* 41(3): 528-543.

West-Eberhard, Mary Jane. 2005. "Phenotypic accommodation: Adaptive innovation due to developmental plasticity." *Journal of Experimental Zoology Part B (Molecular and Developmental Evolution)* 304B: 610-618.

West Eberhard, Mary Jane. 2005. "The behavior of the primitively social wasp *Montezumia cortesioides* Willink (Vespidae, Eumeninae) and the origins of vespid sociality." *Ecology, Ethology and Evolution* 17: 51-65.

STRI´s III Guide Day

STRI´s third celebration of the Naturalist Guide Day was held at the Galeta Marine Laboratory, on Saturday, January 21. The event was organized by guide coordinators Oris Avecedo, Inez Campbell and Benjamín Ordóñez. Three guides received awards for excellent services to more than 50,000 visitors to our public programs. Congratulations to Karla Aparicio, BCI, Aura Watson, Culebra and Jairo Castillo, Galeta.

STRI celebró por tercera vez el Día del Guía Naturalista en el Laboratorio de Galeta, el sábado, 21 de enero. El evento fue organizado por los coordinadores de guías Oris Acevedo, Inéz Campbell y Benjamín Ordóñez. Tres guías recibieron premios por excelentes servicios brindados a mas de 50,000 personas que visitaron nuestros programas públicos. Felicitaciones a Karla Aparicio, BCI, Aura Watson, Culebra y Jairo Castillo, Galeta.

Charles Darwin Foundation seeks Head of Marine Sciences

The Head of Marine Sciences will lead the marine research team at the Charles Darwin Research Station, Galapagos. He/she will be responsible for the prioritization and effective and efficient implementation of marine baseline studies, monitoring, priority ecological studies, experimental management, developing scientific alliances and scientific dissemination. For additional information on the marine research activities at the CDF, see see **www.darwinfoundation.org**

El Jefe de Ciencias Marinas dirigirá el equipo de investigación marina en la Estación Científica Charles Darwin, Galápagos. El/ella será responsable de la priorización e implementación efectiva y eficiente de los estudios de líneas base marinas, monitoreo, estudios de prioridades ecológicas, manejo experimental, desarrollo de alianzas científicas y diseminación científica. Para obtener mayor información sobre las actividades de investigación marina de la FCD, visite: **www.darwinfoundation.org**

February b´days

Fernando Santos-Granero	1
Catherina Caballero	4
Diogenes Ibarra	5
Mireya Correa	6
Dafne Ruiz	6
Gilberto Batista	6
Ernesto Cordovez	7
Gloria Jovane	7
Karl Kaufmann	8
Ana E. de Tejada	8
Roberto Borrell	10
Luis Carlos Lopez	10
Isis Estribi	12
Santos Lemos	13
Georgina de Alba	15
Edwin Andrades	16
Gilberto Murray	16
Elias Murillo	16
Stephen Hubbell	17
Walter C. Dillon	18
Geraldino Perez	19
Mark Torchin	21
Rigoberto Blake	23
Ernesto Camarena	26
Carlos Jimenez	26
Vielka Chang-Yau	29

Miscellaneous

For rent: Duplex in Diablo Heights, 3 bedrooms, 2 ½ bathrooms, laundry room/maid's quarters, central alarm, A/C, utilities (gas, water, trash, internet) included. Gardener, washer and dryer, Large fenced-in yard 2 parking spaces. Ask for Ximena 6617-5386.

For rent: furnish house in Gamboa, 3 bedrooms, $375 per month or $100 per week. Includes water, electricity, telephone, cleaning and maintenance. Available immediately. Interested please call 665-95347 or e-mail: **sayere@si.edu**

For sale: Montero Mitsubishi 1999 6V-24 3500, full options, automatic, gasoline, Alpine sound system, good condition, $10,000 negotiable. Contact: **kristel.kleinhesselink@gmail.com.**

science in progress:

Soils: the final frontier

Story: Ben Turner
Edited by ML Calderon
Photos: MA Guerra

In many ways, the ground beneath our feet is as alien as a distant planet, or so said *Science* magazine in 2004. This is remarkable, given that processes operating in the top few centimeters of soil are the basis of all terrestrial life. Soils are home to a staggering diversity of organisms—a typical garden soil contains more individuals than humans—but we are far from understanding them.

Soils also contain large amounts of carbon—more than three times the amount in the atmosphere and more than four times in the biosphere—so even small changes can have a major impact on global climate.

Soil is the most complicated biomaterial on the planet, so modern soil science is increasingly dependent on a high level of analytical technology.

At STRI's Soil Analytical Laboratory, staff scientist Ben Turner and assistant Tania Romero measure element concentrations in soils using an inductively- coupled plasma optical-emission spectrometry (ICP-OES) that quantifies many elements in seconds, by measuring the light emitted from atoms at 10,000˚C in an argon flame (inset). The results provide important information on elements such as phosphorus, which plays a key role in regulating the productivity and composition of tropical forests.

El suelo bajo nuestros pies, es, en muchas formas, tan desconocido como un planeta distante, de acuerdo a la revista *Science*, en 2004. Esto es sorprendente, ya que los procesos que se realizan más arriba, a unos cuantos centímetros del suelo, son la base de toda la vida terrestre. Los suelos son el hogar de una increíble diversidad de organismos—el suelo de un jardín común contiene más individuos que humanos—pero estamos muy lejos de entenderlos.

Los suelos también contienen grandes cantidades de carbono—más del triple de lo que hay en la atmósfera y cuatro veces más que en la biosfera—así que aún cambios pequeños pueden acarrear grandes impactos en el clima global.

Los suelos son el biomaterial más complicado del planeta, por lo tanto, la ciencia de suelos moderna es cada vez más dependiente de un alto nivel de tecnología analítica.

En el Laboratorio Analítico de Suelos de STRI, el científico Ben Turner y su asistente Tania Romero miden concentraciones de elementos en los suelos usando un espectrómetro de emisión óptica de plasma unido inductivamente que cuantifica muchos elementos en segundos, al medir la luz que se emite de átomos a 10,000 grados centígrados en una llama de argón (recuadro). Los resultados suministran información importante sobre elementos como el fósforo, que juega un papel clave en la regulación de la productividad y composición de los bosques tropicales.