

## Special seminar

No seminar is scheduled for Tue, Feb 25. We will have a special noon seminar on Wed, Feb 26, by Marlene Zuk from the University of California at Riverside

**Singing and scales:  
variation in sexual signals  
of crickets subject to  
phonotactic parasitoids**

## Bambi seminar

Thu, Feb 27, Bambi seminar speaker will be John Rotenberry, University of California at Riverside

**Twenty-year retrospective  
of shrubsteppe bird  
communities: the failure of  
basic models of habitat  
relationships**

## Arrivals

Robert Stallard, US Geological Survey, Colorado, Feb 23, to continue long-term monitoring biochemical cycles in watersheds on BCI.

Mark Wishnie, Yale University, Feb 23 - Jul 29, to work with CTFS's PRORENA, at Tupper.

Ilka Feller, Rachel Boggart and Karen McKee, Smithsonian Environmental Research Center (SERC), Maryland, Feb 24 - Mar 7, to work on ESP Mangrove Research program at Bocas del Toro.

Robert Lesnay, Rose Laughter, Doug Collwell and Mariah Hopkins, University of California at Berkeley, Feb 24 - Mar 3, to work with Katherine Milton, on BCI.

Ulrike Schweinger, University of Ulm, Germany, Feb 24 - Apr 30, to study the social behavior of the little big-eared bat (*Micronycteris microtis*, Phyllostomidae), on BCI.



Smithsonian Tropical Research Institute, Panamá

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

February 21, 2003

## New book by West-Eberhard

Oxford University Press just published the book entitled *Developmental plasticity and evolution* by STRI staff scientist Mary Jane West-Eberhard. According to Fred Nijhout, biology professor at Duke University, "For the past century, evolutionary biology has focused almost exclusively on the ways in which genes and traits are propagated or lost, and has had surprisingly little to say about how new traits originate. In this masterful book, West-Eberhard provides a detailed explanation of how the origins of novelty can be understood in the light of recent insights from development, physiology and behavior. This is a book of immense scope, full of interesting and exciting biology, in which West-Eberhard shows that the origins of novelty are both diverse and infinitely more interesting than what can be provided by random mutation. It will cause many to see evolution with completely new eyes, and may prove to be the most important and insightful book about evolution since *The origin of species*." It will soon sale at the STRI bookstore.

DEVELOPMENTAL  
PLASTICITY  
AND EVOLUTION



MARY JANE WEST-EBERHARD

Oxford University Press acaba de publicar el libro *Developmental plasticity and evolution* [Evolución y plasticidad del desarrollo] de la científica de STRI Mary Jane West-Eberhard. De acuerdo a Fred Nijhout, profesor de biología en Duke University, "... Durante el siglo pasado, la biología evolutiva se enfocó casi exclusivamente en las formas en que los genes y características se propagan o se pierden, y sorpresivamente se ha dicho muy poco sobre cómo se originan las nuevas características. En esta obra maestra, West-Eberhard ofrece una explicación detallada de cómo se pueden entender los orígenes de las novedades, a la luz de conocimientos recientes sobre desarrollo, fisiología y comportamiento. Este libro es inmensamente abarcador, está lleno de biología interesante y excitante, y West-Eberhard muestra que las novedades tienen orígenes muy diversos e infinitamente mucho más interesantes que lo que puede resultar de mutaciones al azar. El libro logrará que muchos vean la evolución con nuevos ojos, y en su género, puede llegar a ser el más importante y profundo sobre el tema, desde *El origen de las especies*."

## Information system for tropical fish in the Pacific by Robertson and Allen

STRI staff scientist D. Ross Robertson and Gerald R. Allen from Western Australian Museum produced the CD *Shorefishes of the tropical eastern Pacific: An information system* in English and Spanish. The tool allows identification, description and geographical distribution of fishes, their size, diet, depth, habitat and reproduction with 1,195 species from Mar del Cortéz, México, to Cabo Blanco, Perú, Galapagos, and more. The program allows users to enter a few characteristics of the fish to retrieve an array of possibilities, thus finding the species and its full description and image. This powerful tool is not only intended for the scientific community, but also for the fishing industry and sports, divers, aquaria, and the general public. It sells for \$10 at the STRI bookstore.



## More arrivals

Anne Chamberlain and Melissa McCormick, SERC, Maryland, to work with Ilka Feller, at Bocas del Toro.

Manuela Geowanetti, Universidade degli Studi di Milano, Italy, Feb 25 - Mar 18, to study the location of *Cerceris* (Hymenoptera: Sphecidae) nesting sites, on BCI and Gamboa.

Thomas Eltz, Peter Mullen and Georg Pohland, University of Duesseldorf, Germany, to study the fragrance biology of euglossine bees, on BCI and Gamboa.

Marlene Zuk, senior scholar from the University of California at Riverside, Feb 26 - Mar 10, to visit STRI facilities and present seminar. She will be at Naos.

Gerhard Zotz, University of Basel, Switzerland, Feb 27 - Apr 10, to continue studies on the ecology of tropical epiphytes, on BCI.

Culum Brown, University of Edinburgh, UK, Feb 28 - Mar 21, to work with Victoria Braithwaite, on the variation in learning and memory ability: the role of predation pressure and other ecological variables, in Gamboa.

## Departures

Richard Condit, Feb 26 - Mar 12, to California, to continue censuses of the breeding population of northern elephant seals.

S. Joseph Wright, Feb 27 - Mar 4, to Washington DC, to meet with officials of the Association for Tropical Biology and Conservation.

D. Ross Robertson, científico de STRI y Gerald R. Allen de Western Australian Museum produjeron el CD *Peces costeros del Pacífico oriental tropical* en inglés y español. Esta herramienta permite obtener información sobre la identidad y distribución geográfica de los peces, su tamaño, dieta, profundidad, hábitat y reproducción, con 1,195 especies desde Mar del Cortéz, México, hasta Cabo Blanco, Perú, Galápagos y más. Con el programa, los usuarios pueden introducir algunas características de los peces, y obtener una amplia gama de opciones hasta encontrar la especie buscada, su descripción y fotografía. Esta poderosa herramienta no solo está dirigida a la comunidad científica, sino también para la industria pesquera y deportiva, buzos, acuaristas, y público en general. Se vende por \$10 en la librería de STRI.



## The Rio Chagres: A Multidisciplinary Profile of a Tropical Watershed

Fifty seven local and international scientists from Panama, the US, The Netherlands, Germany and Canada, will gather in Panama to contribute to an open international scientific symposium "The Rio Chagres: A Multidisciplinary Profile of a Tropical Watershed," sponsored by STRI, The Panama Canal Authority, the Technological University of Panama and US Army Yuma Proving Ground Tropic Regions Test Center, from February 24-26 in Gamboa. These specialists are scheduled to discuss the watershed's geology, biogeochemistry, physics, soil composition, species composition, diversity, forests' carbon uptake capacity, management, etc. Registration fee is \$75 (includes field excursions, reception and official dinner).

Speakers from co-sponsoring organizations in Panama (STRI, ACP, UTP) will receive a registration waiver. Symposium presentation co-authors from these organizations may attend the symposium paper presentations and receive copy of the abstract volume (proceedings volume, field excursions, reception and dinner excluded) for \$25 for full symposium or \$10 for a single day to cover the cost of the refreshments. Please see the third page of this newsletter for the program.

## Becas en Europa

El nuevo programa AIBan para estudiantes, licenciados, postgraduados y profesionales de América Latina, tiene como objetivo aumentar las oportunidades de educación en Europa, para latinoamericanos. Mayor información y aplicaciones en: [europa.eu.int/comm/europeaid/projects/AIBan](http://europa.eu.int/comm/europeaid/projects/AIBan)

## New publications

Basset, Yves, Novotny, Vojtech, Miller, Scott E., and Kitching, Roger L. 2003. "Canopy entomology, and expanding field of natural science." In Basset, Yves, Novotny, Vojtech, Miller, Scott E., and Kitching, Roger L. (Eds.), *Arthropods of tropical forests: Spatio-temporal dynamics and resource use in the canopy:* 4-6. Cambridge: Cambridge University Press.

dos Santos Silva, Tania Regina, and Correa A., Mireya D. 2002. "Drosera peruvensis, a new species from Peru." *Novon* 12(4): 543-545.

Mate T., Juan L. 2003. "Ecological, genetic, and morphological differences among three *Pavona* (Cnidaria: Anthozoa) species from the Pacific coast of Panama. I. *P. varians*, *P. chiriquensis*, and *P. frondifera*." *Marine Biology* 142(3): 427-444.

Wcislo, William T., and Schatz, Bertrand. 2003. "Predator recognition and evasive behavior by sweat bees, *Lasioglossum umbrinum* (Hymenoptera: Halictidae), in response to predation by ants, *Ectatomma ruidum* (Hymenoptera: Formicidae)." *Behavioral Ecology and Sociobiology* 53(3): 182-189.

Zigler, K.S., and Lessios, Harilaos A. 2003. "Evolution of bindin in the pantropical sea urchin *Tripneustes*: Comparisons to bindin of other genera." *Molecular Biology and Evolution* 20(2): 220-231.

## For sale

Nissan X-trail diesel 2002. Standard. Interested please contact Cristián Samper.

**International Scientific Symposium**  
**The Rio Chagres - A multidisciplinary profile of a tropical watershed**  
**Gamboa Rainforest Resort and Conference Center, Panama**  
**Monday-Wednesday, February 24-26**

**Sunday, 23 February 2003**

1400-2000 Registration - Gamboa Rainforest Resort and Conference Center

**Monday, 24 February 2003**

0800-1230 Pre-meeting field excursion to Panama Canal (ACP)

0900-1230 Registration

1400-1500 Session #1. Chair: Cristián Samper (STRI)

1400 Opening remarks: Russell Harmon (ARO)

1405 Official welcome: representatives of UTP, ACP, & STRI

1430 Keynote address: Juan Hector Diaz (ACP): The Panama Canal - Outlook for the 21<sup>st</sup> century

**1500 Refreshment Break**

1530-1710 Session #2. Chair: A. Hassell (UTP)

1530 Stanley Heckadon M. (STRI): The Chagres: The River of interoceanic communication

1600 Eugene Palka: A geographic overview of the Republic of Panama: Pathway to the continents and link between the seas

1630 Russell Harmon: The geologic development of Panama

1650 Carlos Vargas: Panama Canal water resources management

**1900-2100 Reception**

**Tuesday, 25 February 2003**

0900-1020 Session #3. Chairs: Eldredge Bermingham & Richard Condit (STRI)

0900 David Kinner, Helena Mitasova, Laura Toma, Robert Stallard, & Russell Harmon: GIS database and stream network analysis for Panama and the Rio Chagres watershed

0920 Gerhard Wörner, Russell S. Harmon, Gerald Hartmann, & Klaus Simon: Lithology and geochemistry of Chagres River basin igneous rocks: Implications for the architecture and origin of the subsurface rocks

0940 Kyle K. Nichols, Paul R. Bierman, Robert Finkel, & Jennifer Larsen : Long-term erosion and sedimentation rates of the Rio Chagres Basin based on cosmogenic <sup>10</sup>Be

1000 J. Bruce J. Harrison, David Vega, Lucas E. Calvo G., and Jan M.H. Hendrickx: Soil variability in two steep first order drainage basins in a lowland tropical rainforest, Chagres National Park, Panama

**1020 Refreshment Break**

1050-1210 Session #4. Chair: Carlos Vargas (ACP) & K. Georgakakos (HRC)

1050 Jan M.H. Hendrickx, David Vega, J. Bruce J. Harrison, Lucas E. Calvo G., & Timothy W. Miller: Soil hydrology along steep hillslopes in the Rio Chagres watershed

1110 Lucas E. Calvo G., Jan M.H. Hendrickx, and Fred Ogden: Variability of infiltration and runoff characteristics in the upper Rio Chagres watershed

1130 Robert Stallard: The biogeochemistry and physics of weathering and hillslope erosion in the upper Rio Chagres system

1150 Justin Niedzialek and Fred Ogden: Runoff production in the Rio Chagres catchment, Panama

**1210-1330 Lunch break**

1330-1450 Session #5. Chairs: D. Cedeno & M. Carrera (UTP)

1330 Ellen Wohl & Susan Howe: Downstream hydraulic geometry along a tropical mountain river

1350 Susan Howe, Ellen Wohl, & Jorge A. Ramirez: The role of geology in network evolution modeling of the Rio Chagres, Panama

1410 Jan M.H. Hendrickx, Wim G.M. Bastiaanssen, Sung-Ho Hong, & Lucas E. Calvo G.: Estimation of regional evapotranspiration in the former Canal Zone region using SEBAL

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| <p>1430 Konstantine Georgakakos: real-time rainfall estimation and forecast system for the Panama Canal watershed</p>   |
| <p><b>1450 Refreshment Break</b></p>  |
| <p>1530-1730 Session #6. Chair: G. Wörner (U Göttingen) &amp; S. Rowher (U Washington)</p>  |
| <p>1530 Rolando Pérez, Richard Condit, Salomón Aguilar, Augustín Somoza, Israel Tejada, Suzanne Lao: Tree diversity and composition of the upper Chagres basin contrasted with forests along the Panama Canal</p>         |
| <p>1550 Stephanie Bohlman &amp; David Lashlee: High spatial and spectral resolution remote sensing of Rio Chagres forests: An applied example of mapping tropical tree species, phenology, and carbon uptake capacity</p> |
| <p>1610 David Lashlee: A tropical chameleon: simulating hyperspectral landscapes in Panama</p>  |
| <p>1630 Christopher Dick, Mireya Correa, &amp; Eldredge Bermingham (STRI): Historical biogeography of tree communities in the Panama Canal watershed</p>  |
| <p><b>1900-2100 Symposium dinner</b></p>  |
| <p>Keynote speaker, Cristián Samper (STRI deputy director). Master of Ceremonies: S. Rodriguez (UTP rector)</p>   |

**Wednesday , 26 February 2003**

0900-1040 Session #7. Chairs: J. Hendrickx (NMT) & R. Stallard (USGS)

0900 Eldredge Bermingham, Scott Smith, Neilan Kuntz, & Andrew Moeser: The fishes of the Chagres River, with notes on the evolutionary assembly of freshwater communities in central Panama

0920 Roberto Ibáñez D.: The amphibians and reptiles at the Rio Chagres - Rio Chagrecito confluence

0940 Robert C. Faucett and Sievert A. Rohwer: World holdings of avian tissues from panama with notes on a collection from the upper Rio Chagres

1000 Joe Wright: Poachers alter mammal abundance and early plant regeneration throughout the Rio Chagres watershed

1020 Scott Smith & Eldridge Bermingham: Invasion increases the richness of local communities?

**1040 Refreshment Break**

1100-1440 Session #8. Chair: W.C. King (USMA-West Point)

1100 Daniel Muschett and Marilyn Diéguez: Políticas, estrategias y objetivos de manejo de la cuenca del Río Chagres hacia un modelo de gestión integral - estudio de caso: Manejo de la subcuenca del Río Gatuncillo

1120 Amelia Sanjur and José Tuñón: Historia y poblamiento de la cuenca del Río Chagres. Mención especial: La comunidad Emberá Drua

1140 Jaime Massot and Alejandro Veces: El Río Chagres, a través de los años, desde el punto de vista hidrológico y de calidad de agua

1200 Raúl Martínez and Magnolia Calderón: Estudios del Alto Chagres. A: Levantamiento cartográfico del Alto Chagres mediante métodos no tradicionales. B: Cobertura vegetal y uso del suelo en la región del Alto Chagres (sistema hidrológico del Lago Alhajuela)

1220 Vicente L. Lopez: An integrated approach to natural resource management

1240 J.E. de Steiguer: The analytic hierarchy process as a means for integrated watershed management in the Arco Seco region of Panama

watershed management

1300-1315 Closing Session. Chair: Eldredge Bermingham (STRI)

1300 Publication Information: Russell Harmon (ARO)

1305 Closing Remarks: A. Hassell (UTP)

1430-1630 Post-meeting rainforest excursion at Gamboa Rainforest Resort