



STRINEWS

JUNE 01, 2012

How long have Native Americans lived in Panama?



Photo by Nate Bassan

Native American peoples in Central and South America descend from Northeast Asians who traveled down the Pacific Coast 20,000-15,000 years ago, settling in Chile by 14,500 years ago.

If migrants travelled along the coast, their camps in Panama were submerged as sea levels rose when the last ice age was ending, leaving no trace.

Nor did humans make any impact on forests near La Yeguada (Veraguas) until 13,200 years ago when clearing and burning began. At this time Clovis hunters camped at the Vampiros rock shelter (Coclé) and made Clovis stone spear points and hide scrapers at nearby Sarigua (Herrera). They probably hunted mastodons and giant ground sloths.

By 6,000 years ago maize, manioc and squash had arrived from their respective domestication centers in Mexico and South America. Farming expanded and settlements

became larger and more permanent.

Panamá's seven Native American peoples descend from earlier populations living on or near the Isthmus for thousands of years.

¿Desde cuando viven los pueblos autóctonos americanos en el Istmo de Panamá?

Todos los pueblos autóctonos americanos de Sur y Centro América son descendientes de asiáticos del noreste que viajaron desde las costas del Pacífico hace 20,000 a 15,000 años y se asentaron en Chile alrededor de 14,500 años atrás.

Si los migrantes viajaron a lo largo de las costas, sus asentamientos en Panamá quedaron sumergidos sin dejar rastros a medida que los niveles del mar aumentaban al final de la última edad de hielo.

Tampoco los humanos tuvieron impacto alguno en los bosques cerca de La Yeguada en Veraguas, Panamá, hasta hace 13,200 años cuando empezó la "roza y quema". Para esta época, los cazadores Clovis acamparon en el área conocida como la Cueva de los Vampiros en Coclé e hicieron en piedra puntas de flecha Clovis y raspadores para separar la carne del cuero en Sarigua, provincia de Herrera. Posiblemente cazaron mastodotes y perezosos terrestres gigantes.

Hace 6,000 años el maíz, la yuca, y la calabaza llegaron de sus respectivos centros domésticos en Méjico y Sur América. La siembra se expandió y los asentamientos se volvieron más grandes y más permanentes.

Los 7 pueblos autóctonos americanos de Panamá descienden de antiguas poblaciones que vivían en o cerca del Istmo por miles de años.

▶ 80% of modern Panamanians have a Native American woman as their original female ancestor.

El 80% de los panameños modernos tienen como ancestro femenino original a una mujer autóctona americana.

SEMINARS

GAMBOA SEMINAR

Mon., June 4, 4 pm
Emilie Andre
Université Catholique de Louvain-la-Neuve
Gamboa schoolhouse

Leaf-mining coleoptera and their interactions with neotropical premontane vegetation

TUPPER SEMINAR

Tues., June 5, 4 pm
Ronald Rutowski
Arizona State University
Tupper auditorium

Iridescent color signals in animals: interactions among production, perception, and functions

BEHAVIOR DISCUSSION GROUP MEETING

Tues., June 05, 2 pm
Justin Touchon, PhD
NSF & STRI Postdoctoral Fellow Smithsonian
Tropical Research Institute
Tupper Large Meeting Room

The evolution of reproduction in *Dendropsophus* treefrogs
<http://people.bu.edu/jtouchon>

observe an event that will not happen again for more than "100 years"

VENUS BETWEEN THE SUN & THE EARTH

JUNE 5TH FROM 4 PM AT PUNTA CULEBRA

→ ARRIVALS

Wylliam Wagoner

Conflicts among members of interacting symbioses
Butler University
Tupper, Gamboa

Aaron Burnham, Armando Collins, Brittany Copeland Robert Cuba, Iuri Herzfeld Heather Judkins, Joseph Kimmel, Rachael Moran, Krishna Nayak, Kelly Connell Jamison Tarter, Erin Walters Lena Wray

Field Course - Biogeography of the Panama Gap/University of South Florida, St. Petersburg 2012
Bocas del Toro, Gamboa

Liz Chambers

University of St. Thomas

David Fowler

University of Tennessee
Toward a stoichiometric theory of ant ecology—from colony performance to community composition
Barro Colorado Island

Alejandro Garcia-Chinchilla, Jennie Chiu, John Rippe Jonathan Stocking, Emma Hollowell, Matthew Reidenbach

University of Virginia
Mariam Trejos
Universidad de Panama
Influence of climate change on wave dissipation over panamanian coral reefs and subsequent effects on beach morphology - new phase
Bocas del Toro

Henry Bart

Tulane University
Ecology and evolution of color polymorphism in the strawberry dart frog
Bocas del Toro

Kristina Cohen

Boston University
Anuran hatching mechanisms and their role in plasticity
Tupper, Gamboa

Stephen Yanoviak

University of Arkansas
Ecology and behavior of arboreal arthropods
Barro Colorado Island

A Virtual Field Trip to Barro Colorado Island

By August you'll be able to click on the STRI web site for a total-immersion multimedia experience of Barro Colorado Island. The Virtual Field Trip, created with funds from the Smithsonian Womens' Committee by a team from Arizona State University and STRI, will draw you into 360-degree jungle views. Click on a Cuipo tree to see staff scientist Joe Wright explain why its soft wood is perfect for model airplanes but doesn't store much carbon. Or click on a liana to hear about a big experiment that eliminates these aggressive woody vines from the forest.

STRI thanks ASU's talented VFT-makers: Geoffrey Bruce, Charles Kazilek, Penelope Moon and Dave Pearson and Scientists Sara Neihaus, Lucia Torrez, Camilo Zalamea, Carolina Sarmiento, Ignacio Quintero, Stefan Schnitzer, Geertje van der Heijden, Laura Martinez, Ioana Chiver, Alex Cheesman, Dave Roubik, Kate Ihle, Mariam Trejos, Sofia Gripenberg, John Christy and Joe Wright for interviews. Thanks to Sonia Tejada, Audrey Smith and the BCI Staff and Boat Drivers for coordinating the logistics.

For an example of a Virtual Field Trip, see <http://vft.asu.edu>

Gira de campo virtual en Isla Barro Colorado

En agosto usted podrá acceder la página web del Smithsonian en Panamá para una experiencia multimedia de inmersión total en la Isla Barro Colorado. La gira de campo virtual, creada con fondos del Smithsonian Womens' Committee por un equipo de la Arizona State University y el Smithsonian, le permitirá recorrer vistas de la jungla en 360 grados. Haga "click" a la imagen de un árbol Cuipo para ver a Joe Wright, científico de planta, explicar por qué su madera suave es perfecta para hacer modelos de aviones pero no almacena mucho carbono, o haga "click" a la imagen de una liana para escuchar sobre un gran experimento que elimina del bosque a estas agresivas enredaderas leñosas.

El Smithsonian agradece a los talentosos creadores de esta gira de campo virtual: Geoffrey Bruce, Charles Kazilek, Penelope Moon y a Dave Pearson además de los científicos Sara Neihaus, Lucia Torrez, Camilo Zalamea, Carolina Sarmiento, Ignacio Quintero, Stefan Schnitzer, Geertje van der Heijden, Laura Martinez, Ioana Chiver, Alex Cheesman, Dave Roubik, Kate Ihle, Mariam Trejos, Sofia Gripenberg, John Christy y a Joe Wright por las entrevistas. Gracias a Beth King, Sonia Tejada, Audrey Smith y el personal de la Isla Barro Colorado y los operadores de lanchas por coordinar la logística.

Para un ejemplo de la gira de campo virtual vea: <http://vft.asu.edu>

→ ARRIVALS

Donald H. Feener Jr.

University of Utah
Chemical ecology of host specificity in ant parasitoids: experimental analysis and phylogenetic reconstruction
Barro Colorado Island

Ellie Bergstrom, Jennifer Powers

University of Minnesota
Do lianas alter community and ecosystem dynamics in tropical forests? A large-scale experimental test
Barro Colorado Island

Amelia Weiss

University of California - Berkeley
Abiotic influences on the distributions of tropical cave-dwellers
Bocas del Toro

Ashley Winker

University of Wisconsin - Oshkosh
Rat ectoparasites

James Crall

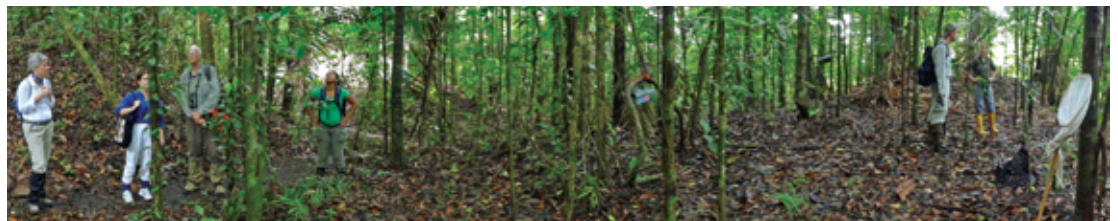
Harvard University
Orchid bee movement in heterogeneous environments
Barro Colorado Island

Erin Raboin

Yale University
Ecosystem services in the Panama canal watershed

Liza Comita, Kara Salpeter

Genetic diversity, resistance genes, and negative density dependence in tropical tree seedling dynamics
Ohio State University
Barro Colorado Island



The team from ASU used the GigaPan technology developed by Carnegie Mellon University and NASA to shoot extremely high resolution panoramic images. They also captured 360 spherical and video panoramas as well as HD video clips. L to R: Penelope Moon, Beth King, Dave Pearson, Mariam Trejos, Geoffrey Bruce, Kate Ihle. Photo by Charles Kazilek

El equipo de la Arizona State University (ASU) utilizó la tecnología GigaPan, desarrollada por la Carnegie Mellon University y la NASA para tomar imágenes panorámicas de muy alta resolución. También capturaron panoramas esféricos en 360 grados y videos en formato de alta definición. De izq. a der.: Penelope Moon, Beth King, Dave Pearson, Mariam Trejos, Geoffrey Bruce y Kate Ihle. Foto por Charles Kazilek

DEPARTURES

Jefferson Hall

Washington D.C.
To participate in the
NGEE Tropics Workshop

Sergio Dos Santos

Merida, Mexico
To attend the Sea Level Operators
Course

Benjamin Turner

Orlando, Florida
To give an invited presentation at
the INTECOL conference.

Eric Botello and Ron Herzig

Washington, DC
To meet with Mr. Andrew Zino, SI
Comptrollers office and participate
in other official business meetings
with the Office of Planning,
Management & Budget (OPMB),
on FY13-15 Budget-related topics.

Stuart J Davies

Manaus, Brazil
To attend a workshop on the
taxonomy of CTFS-SIGEO plot
species in South America and
to attend meetings on the future
direction of CTFS-SIGEO in the
Neotropics.

Carlos Jaramillo

Bogota, Colombia
To attend the premiere of the
movie *Titanoboa* in Maloka for
the Asociacion de Petroleros
and to meet with Ingeominas to
plan exhibits for the Geological
Museum Jose Royo.

NEW PUBLICATIONS

Heckadon-Moreno, Stanley.
2012. Armageddon Hartman y
A. Wetmore, de Volcan a Rio
Sereno, 1955. *Epocas*, 27(2): 10-11.

Laliberte, E. Turner, B. L., Costes,
T., Pearse, S. J., Wyrwoll, K.,
Zemunik, G. and Lambers, H.
2012. Experimental assessment
of nutrient limitation along
a 2-million-year dune
chronosequence in the south-
western Australia biodiversity
hotspot. *Journal of Ecology*, 100(3):
631-642. doi:10.1111/j.1365-
2745.2012.01962.x

Rowcliffe, J.M., C. Carbone, R.



Monica Alvarado Takes Advisory Role

After 23 years at STRI, Monica Alvarado will transition from Director of Public Information and Media Relations to external counsel for Public Relations on June 1.

Joining STRI's administrative staff in 1988, Monica demonstrated her strength as manager of complex programs time and time again. Her administrative talents were essential during the reorganization preceding the Panama Canal Treaty in 1999.

As information director, she skillfully communicated STRI science to many audiences. Monica coordinated outreach efforts during STRI's five-year association with the HSBC Climate Partnership and co-directed STRI's Centennial celebrations.

She holds an MBA from the University of New Orleans and completed the Advanced Management Program for Innovation at the Haas School of Business, University of California at Berkeley.

"Monica has been an exceptional promoter of STRI's mission," said director Eldredge Bermingham. "We thank her for many contributions, and I look forward to her continuing wise counsel as we work to make STRI science better known in Panama and the region."

Mónica Alvarado toma el rol de asesora

Luego de 23 años en el Smithsonian en Panamá, Mónica Alvarado hará una transición de Directora de Información Pública y Medios de Comunicación a Consultora Externa para Relaciones Públicas a partir del 1 de junio.

Iniciando como miembro de nuestro personal administrativo en 1988, Mónica demostró su fortaleza como encargada de programas complejos una y otra vez. Sus talentos administrativos fueron esenciales durante la reorganización que precedió a los Tratados del Canal de 1999.

Como Directora de Información, comunicó con gran habilidad las ciencias del Smithsonian a muchas audiencias. Coordinó esfuerzos de extensión comunitaria durante nuestra asociación de cinco años con el HSBC *Climate Partnership* y codirigió las actividades de nuestro centenario.

Cuenta con un máster en gestión de empresas de la *University of New Orleans* y luego de haber completado el *Advanced Management Program for Innovation* en la *Haas School of Business* en la *University of California* en Berkeley EEUU.

"Mónica ha sido excepcional fomentando la misión del Smithsonian," comenta el Director Eldredge Bermingham. "Le agradecemos por sus muchas contribuciones y anticipamos contar con sus sabios consejos en la medida que trabajamos para hacer que la ciencia del Smithsonian sea más conocida en Panamá y la región."

Kays, B. Kranstauber & P.A. Jansen. 2012. Bias in estimating animal travel distance: the effect of sampling frequency. *Methods in Ecology and Evolution*. doi: 10.1111/j.2041-210X.2012.00197.x

NEW PUBLICATIONS

Miguel Pinto, C., Kalko, Elisabeth K. V., Cottontail, Iain, Wellinghausen, Nele and Cottontail, Veronika M. 2012. TcBat a bat-exclusive lineage of *Trypanosoma cruzi* in the Panama Canal Zone, with comments on its classification and the use of the 18S rRNA gene for lineage identification. *Infection, Genetics and Evolution*, doi:10.1016/j.meegid.2012.04.013

Ochoa, D., Hoorn, C., Jaramillo, C., Bayona, G., Parra, M. and De la Parra. 2012. The final phase of tropical lowland conditions in the axial zone of the Eastern Cordillera of Colombia: Evidence from three palynological records. *Journal of South American Earth Sciences*, doi:10.1016/j.jsames.2012.04.010

Puerta-Pinero, C., Brotons, L., Coll, L. and Gonzalez-Olabarria, J. R. 2012. Valuing acorn dispersal and resprouting capacity ecological functions to ensure Mediterranean forest resilience after fire. *European Journal of Forest Research*, 131(3): 835-844. doi:10.1007/s10342-011-0557-6

Saltonstall, Kristin and Lambertini, Carla. 2012. The value of repetitive sequences in chloroplast DNA for phylogeographic inference: A comment on Vachon & Freeland 2011. *Molecular Ecology Resources*, doi:10.1111/j.1755-0998.2012.03146.x

What if trees drop more litter?

Garbage isn't a problem in Panamá's Barro Colorado Nature Monument but leaf litter may be accumulating. Burning fossil fuels spews carbon dioxide into the atmosphere. Carbon dioxide is what trees "eat." As atmospheric carbon dioxide increases, trees may drop more, thicker leaves.

Armed with pizza pans and bowie knives, Sara Neihaus and field assistant Lucia Torrez set out to ask if there's more leaf litter, what difference it will make.

Their project is the latest in a 10-year effort led by Ed Tanner at the University of Cambridge to understand how global change affects tropical forests. In an experiment on Gigante Peninsula, they raked the leaves off of some areas and sprinkled more leaves over the ground in neighboring areas.

Pizza-pan-sized collections of leaf litter from each of the areas are washed, dried and weighed to determine the amount of carbon and nutrients that will be released as the leaf litter decomposes.



Sara's leaf litter samples drying in the lab on Barro Colorado Island.

Las muestras de hojarasca de Sara secándose en un laboratorio en Isla Barro Colorado



¿Qué sucedería si los árboles produjeran más hojarasca?

En el Monumento Natural Barro Colorado la basura no es un problema pero la hojarasca se puede estar acumulando. Al quemar combustibles fósiles, arrojamos a la atmósfera el dióxido de carbono que es el alimento de los árboles. A medida que el dióxido de carbono atmosférico aumenta, los árboles pueden desprenderse de hojas de mayor cantidad y grosor.

Armada con sartenes para pizzas y cuchillos de caza, Sara Neihaus y su asistente de campo, Lucia Torrez se preparan para averiguar si hay más hojarasca y qué diferencia puede ésta hacer.

Su proyecto es lo más reciente en un estudio de 10 años liderado por Ed Tanner en la *University of Cambridge* en el Reino Unido para comprender cómo los cambios globales afectan a los bosques tropicales. En un experimento en la Península de Gigante en Panamá, rastrillaron las hojas de algunas áreas y depositaron más hojas en áreas cercanas.

La hojarasca colectada de las distintas áreas con las dimensiones del sartén para pizza, se lavan, secan y pesan para determinar la cantidad de carbono y nutrientes que serán liberados una vez que éstas se descompongan.

Photo by Charles Kazilek

Questions/comments
Preguntas/comentarios
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