STRI newsletter

March 31, 1995

SMITHSONIAN TROPICAL RESEARCH INSTITUTE - Apartado 2072, Balboa, Panamá

No. 13

TUPPER CENTER SEMINARS

Tuesday, April 4, noon seminar speaker will be Michael Retzer, Illinois Natural History Survey

The Diversification of Neotropical Fishes

Abstract

From geological, fossil, and fish distribution data, I have proposed a hypothesis of the evolution of the major drainages of South America including a scenario in which the Amazon River flowed through the Magdalena Valley of Colombia and the Orinoco drainage of Venezuela before reversing flow and draining through its present course. Phylogenetic information from three clades of fishes support the typology of the hypothesis, and preliminary molecular clock data indicate that the timing of the events are correct.

BAMBI SEMINAR

Thursday, April 6, Bambi seminar speaker will be Tara Robinson, University of Illinois, Barro Colorado Island, 7:30pm

Delayed Dispersal and Evolution of Family Living in Birds

Transportation and dinner reservation, before Thursday noon, are essential.

PEOPLE

Arrivals

- Bergit Ehmer, Biozentrum, Germany, Apr 3-Jun 30, to study the foraging behavior in Odontomachus, at BCI.
- William Schulz, SI Office of Public Affairs and editor of the *Smithsonian Institution Research Reports*, Apr 4-11, to interview members of the scientific and administrative staff at several facilities.

From the Corotú Restaurant

Del Restaurante "Corotú"

On Thursday, April 13, the day before "Good Friday" the Corotu Restaurant will remain closed ••• *El juves 13 de abril, víspera del Viernes Santo, el Restaurante Corotú se mantendrá cerrado.*

On Mon, Mar 27, the 2nd Part of the Marine Sciences Environmental Education Seminar, organized by the Ministry of Education and STRI was initiated at the Tupper Center. In the photo, Argelis Ruiz-Guevara, instructor and coordinator for STRI, welcomes the group of teachers from schools in Panama's coastal areas. ••• *El lunes 27 de marzo, en instalaciones del Centro Tupper, tuvo lugar la apertura de la II Parte del Seminario de Educación Ambiental en Ciencias Marinas, coordinado por el Ministerio de Educación y STRI. En la foto, podemos apreciar a Argelis Ruiz-Guevara, instructora y coordinadora del programa, por parte de STRI, quien se dirige al grupo de maestros participantes de diversas áreas costeras.* (Foto: A. Montaner

Departures

- Anthony Coates, Mar 30-10 Apr, to Paris and Brussels, for meetings with officials of UNESCO, the European Commission and Ecosystems, Ltd. Then to Basel, to consult with colleagues.
- Elena Lombardo, Mar 30-7 Apr, to Paris and Brussels, for meetings with officials of UNESCO, the European Commission and Ecosystems, Ltd.

Next "Get Together"

The next informal "get together" for the STRI community will be on Friday, March 31, from 4:30 to 6:30 at the Tupper Center Corotu Cafeteria. It will be on a cash basis, offering wine, beer, soft drinks, and snacks for sale. Don't miss this opportunity to strengthen the relationship and the exchange of ideas among colleagues ••• *La próxima reunión informal para la comunidad de STRI será este viernes 31 de marzo, de 4:30 a 6:30 en la cafetería del Centro Tupper. Se venderán vino, cerveza, sodas y boquitas. No se pierda esta oportunidad para estrechar su relación con sus compañeros e intercambiar ideas con sus colegas.*

Por Eric Amado González

Eric Amado, hijo de Jorge Luis González, de BCI, necesita urgentemente de un trasplante de riñón. Con el objeto de recaudar fondos para esta operación, los empleados de STRI han organizado un Gran "Happy Hour" Bailable el día viernes 21 de abril de 5-10pm en el Sótano del Hotel Continental, donde habrán regalos, entretenimiento, boquitas y bebidas 2x1. Donación $5.00. Haga sus reservaciones en la recepción del Centro Tupper y en BCI con Vielka Rodríguez.

Delegation of Authority

During the absence of Fernando Pascal, ODC/STRI Branch Director, from Apr 3-17, Edmundo Rodríguez will serve as Acting Director of ODC/STRI.

THINGS YOU SHOULD KNOW

At the Tupper Center

Tue, Apr 4
- Noon seminar by Michael Retzer, Illinois Natural History Survey, AUD
- Short-Term fellowship meeting, Small Meeting Room, 1:30pm.

Wed, Apr 5
- *Seminario Ambiental de las Naciones Unidas* Conference Hall, 8am.

Thu, Apr 6
- *Seminario Ambiental de las Naciones Unidas* Conference Hall, 8am.

Fri, Apr 7
- *Seminario Ambiental de las Naciones Unidas* Conference Hall, 8am.

At the Culebra Marine Reserve

Tue, Apr 4	*Colegio Judas Tadeo*
Wed, Apr 5	Howard Elementary School
Thu, Apr 6	Fort Clayton School
Fri, Apr 7	International School
Sat, Apr 8	Scouts Group #43 and Fort Davis School

At Barro Colorado Island Station

Sat, Apr 1	*Universidad de Panamá-Comunicación Social* and *Grupo Conservacionista de Penonomé*
Sun, Apr 2	*Departamento de Capacitación del Banco de Desarrollo Agropecuario*
Sat, Apr 8	*Instituto Enrico Fermi*
Sun, Apr 9	*Docentes del Instituto Bilingüe Las Cumbres*

Alejandro Caballero's New Office and Extension

Nueva Oficina de Alejandro Caballero y Extensión

Alejandro Caballero has been assigned to the new Electronic Imaging Laboratory at the Photo Department, office No. 510. His new telephone extension number is 313 • • • *Alejandro Caballero ha sido asignado al nuevo laboratorio de imágenes electrónicas. Su nueva oficina en el Laboratorio de Fotografía es la #510 y su nueva extensión telefónica es la 313.*

From the Office of Design and Construction

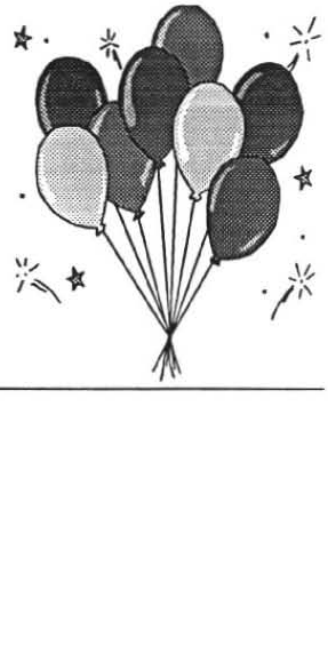
The Purchase and Installation of a new back up Generator has already been awarded to Constructora V&G S.A. The contract, awarded on 30 Jan 95 has a completion date of 30 Sept 95. We are at this time reviewing all the required documentation regarding equipment type and materials. As soon as all this paperwork is completed, the contractor may proceed to order the new Generator equipment. Activity at the site is not expected at least for several weeks since most of the time of construction of block walls, foundations, etc, is minimal.

Our office also completed recently the renovation of Bldg 352 at Naos (1st and 2nd floors) and the new Library addition. We are about to complete the construction of the new BCI Laboratory building, new dock, workers' dormitory building, oil/paint Storage Shed, and one 2-unit dormitory building for scientists. Another construction project underway is the renovation of Bldg. 235 at Ancon. We are anticipating a completion by early Oct 95.

On the drafting table: 3 additional project are being designed at this very moment. Graves & Klein Architect/Engineers Co. is designing 2 docks, one at Naos (to replace the old) and one at BCI to replace the boathouse for small crafts. HHB Engineers is designing a new Lab building for Galeta along with dormitory units. Other projects soon to begin design: a new Gamboa dock (at PCC's Dredging Division), improvements to Naos Seawater System, and additional dormitory units for scientists at BCI.

April STRI Birthdays

Nelson Hernández	1
Diomedes Abrego	1
Axel Calderón	2
Neal G. Smith	3
Mercedes Arosemena	3
Dolores Piperno	7
Gabriel Martínez	9
Marcela Vargas	10
Efraín Domínguez	12
Vielka Liao	12
América Staff	14
Ismael Gonzalez	23
Marcos Guerra	27



OPORTUNIDAD DE ENTRENAMIENTO

VI Curso Corto Especial "Manejo de Areas Silvestres y Areas Protegidas"

del 14 de julio al 13 de agosto

La Escuela Internacional de Ciencias Forestales y Recursos Naturales de la Universidad Estatal de Colorado ofrece el VI Curso Corto Especial "Manejo de Areas Silvestres y Areas Protegidas" diseñado especialmente para participantes de América Latina y será conducido enteramente en español. El curso tendrá un énfasis trabajos prácticos, incluyendo por tres viajes al campo de varios días, para adquirir experiencias sobre el manejo de áreas protegidas y su integración con zonas de amortiguamiento. Se dará preferencia a las solicitudes de candidatos quienes actualmente trabajan directamente en el campo en el manejo de áreas protegidas, sea para instituciones gubernamentales o particulares. La fecha límite para la admisión es el 1 de mayo de 1995. Para mayor información y copia de hoja de admisión al curso, favor acercarse a la Oficina de Educación y Becas de STRI, en el Centro Tupper.

NEW STRI PUBLICATIONS

Andrews, Robin M. and Wright, S. Joseph. 1994. "Long-Term Population Fluctuations of a Tropical Lizard: a Test of Causality.: In: *Lizard Ecology: Historical and Experimental Perspectives*: 267-285, edited by L.J. Vitt and E.R. Pianka. Princeton: Princeton University Press.

Cornejo, Fernando H., Verala, A. and S. Joseph Wright. 1994. "Tropical Forest Litter Decomposition Under Seasonal Drought: Nutrient Release, Fungi and Bacteria." *Oikos* 70: 183-190.

Dalling, James W. 1994. "Vegetation Colonization of Landslides in the Blue Mountains, Jamaica." *Biotropica* 26(4): 392-399.

De Oliveira, P.E. and Colinvaux, Paul. 1994. "The Consequence of Pleistocene Climate Change on Lowland Neotropical Vegetation." *Bulletin of the Ecological Society of America* 75: 52.

Freile, Deborath. 1994. "Carbonate Production by the Calcareous Alga *Halimeda incrassata* in a Tropical Lagoon at Pico Feo Island, San Blas, Panama. *Geological Society of American Abstracts*.

Hillis, Llewellya. 1994. "Fossil Reef-Building Bryopsidalean Alga: Is *Halimeda* a Source of DNA for Phylogenetic Analyses? *Ancient DNA Newsletter* 2(1): 33-34.

Mulkey, Stephen S., Wright. S. Joseph and Smith, Alan P. 1994. "Comparative Physiology and Demography of Three Neotropical Forest Shrubs: Alternative Shade-Adaptive Character Syndromes." *Oecologia* 96: 526-536.

Boland, Kelly A., and Freile, Deborath. 1994. "Tropical Rhrodoliths from a Caribbean Patch Reef, San Blas, Panama." *Geological Society of American Abstracts*.

Seutin, Gilles and Letzer, M. 1995. "The Short-Tailed Nighthawk is a Tree Nester." *Journal of Field Ornithology* 66(1): 30-36.

Wright, S. Joseph and Colley, M. 1994. *Accessing the Canopy*. Nairobi, Kenya: United Nations Environment Program.

Seutin, Gilles, Lein, Dedra K., Ricklefs, Robert E. and Bermingham, Eldredge. 1994. "Historical Biogeography of the Bananaquit (*Coereba flaveola*) in the Caribbean Region: a Mitochondrial DNA Assessment." *Evolution* 48(4): 1041-1061.

Seutin, Gilles. 1994. "Plumage Redness in Redpoll Finches Does not Reflect Hemoparasitic Infection." *Oikos* 70: 280-286.

Terborgh, J. and Wright, S. Joseph. 1994. "Effects of Mammalian Herbivores on Plant Recruitment in two Neotropical Forests. *Ecology* 75: 1829-1833.

Van Schaik, C P., Terborgh, J.W. and Wright, S. Joseph. 1993. "The Phenology of Tropical Forests: Adaptive Significance and the Consequences for Primary Consumers." *Annual Review of Ecology and Systematics* 24: 353-377.

Wright, S. Joseph. 1994. "La Selva: Ecology and Natural History of a Neotropical Rain Forest (Book Review)." *Vida Silvestre Neotropical* 3: 51-52.

Wright, S. Joseph and van Schaik, C.P. 1994. "Light and the Phenology of Tropical Trees." *American Naturalist* 143: 192-199.

Yavitt, J.B., Wieder, R.K. and Wright, S. Joseph. 1993. "Soil Nutrient Dynamics in Response to Irrigation of a Panamanian Tropical Moist Forest. *Biogeochemistry* 19: 1-25.

Seutin, Gilles. 1994. "Plumage Redness in Redpoll Finches Does not Reflect Hemoparasitic Infection." *Oikos* 70: 280-286.

Seutin, Gilles, Lein, Dedra K., Ricklefs, Robert E. and Bermigham, Eldredge. 1994. "Historical Biogeography of the Bananaquit (*Coereba flaveola*) in the Caribbean Region: a Mitochondrial DNA Assessment." *Evolution* 48(4): 1041-1061.

Seutin, Gilles and Letzer, M. 1995. "The Short-Tailed Nighthawk is a Tree Nester." *Journal of Field Ornithology* 66(1): 30-36.

Wcislo, William T. 1994. "The Relevance of Mate Recognition to the Evolution of Sociality in Sweat Bees (Hymenoptera: Halictidae)." In: *Les Insectes Sociaux*: Proceedings of the 12th Congress International of the Union for the Study of Social Insects: 184. Paris: Universite Paris Nord.

FROM OTHER SOURCES

Smithsonian Studies of Coral and Algae May Shed Light on Coral Bleaching and Other Phenomena

by William Schulz

Coral bleaching —a patchy discoloration of coral that plagues and sometimes destroys coral reefs —and other puzzling phenomena may be clarified by results from a new study of corals and their symbiotic algae by scientists at the Smithsonian Tropical Research Institute in the Republic of Panama.

In the March 28 issue of the *Proceedings of the National Academy of Sciences*, Dr. Robert Rowan, a molecular genetist at the University of Guam and currently a Senior Fellow at STRI and Dr. Nancy Knowlton, a STRI Staff Scientist, present evidence which refutes the notion that each coral species hosts only one type of symbiotic alga.

"Dogma held that the corals and their symbiotic algae are broadly adapted 'generalists' capable of thriving in a variety of habitats," Knowlton says. "Our work suggests a radically different view: what was once considered a single dominant species of Caribbean coral with a single species of symbiotic alga is actually three species of corals and three types of algae, whose diverse patterns of association have predictable and much narrower distributions."

The symbiotic relationship of corals and their algae lies at the heart of such problems as coral bleaching, Rowan explains. When the symbiotic relationship is stressed, the algae are expelled and the corals lose their characteristic colors.

Episodes of "mass" coral bleaching have plagued reefs worldwide during the 1980s and 1990s and have been attributed, albeit amidst controversy, to increased temperature and ultraviolet light.

The extent of bleaching, however, can differ dramatically among neighboring colonies of coral or even adjacent portions of an individual coral. The new findings may explain this variability and represent the first empirical support for the idea that modest bleaching is a natural mechanism that promotes a shift in algal communities when environmental conditions change.

Several years ago, work by Knowlton and her STRI colleagues revealed that the most abundant and best-studied coral of Caribbean reefs, *Montastraea annularis*, was, in fact, a complex of closely related but ecologically distinct species.

At about the same time, Rowan demonstrated that the symbiotic alga, which are the photosynthetic engine necessary to create massive coral-reef structures, could be divided into three broad groups, each capable of associating with many species of corals and other marine invertebrates. Rowan and Knowlton joined forces to determine if even the closely related *Montastraea* species might host different algae. In fact, they found that each of two coral species is able to host all three of the major types of algae, often hosting two types within an individual coral.

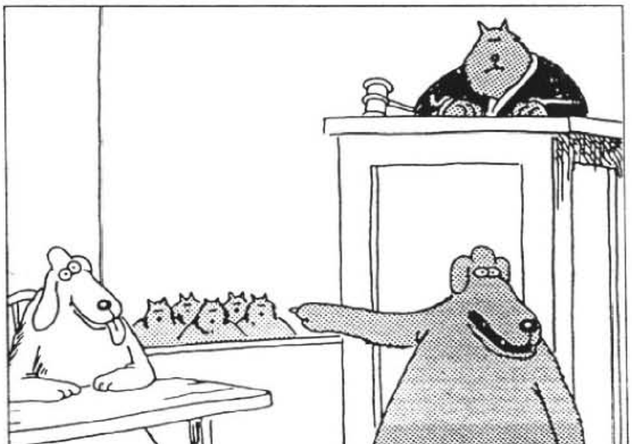
Moreover, Rowan says, the different types of algae exhibit different depth distributions, suggesting that they are responding to different light levels in a manner analogous to "sun" and "shade" species of terrestrial plants.

These flexible patterns of association between different and ecologically specialized hosts and symbionts, the researchers day, appear to explain how corals can adapt to two important aspects of their environment: wave energy and light intensity.

Both wave energy and light intensity decrease in deeper water, but not in the same way. An array of habitats is thus created with depth. Combining several types of coral hosts with several types of algae, the researchers explain, might produce an array of different corals specialized to diverse combinations of wave energy and available light.

This admittedly complex scenario, they say, contrasts markedly with the widely held view of one species of coral and its one symbiotic alga create, in an environmental sense, an "all purpose" organism.

But understanding this complexity is valuable, Knowlton says. The scenario she and Rowan describe provides a more realistic model for exploring equally complex problems in ecology, especially the role of coral and algal diversity in mediating responses to global climate change, past and future.



"A cat killer? Is that the face of a cat killer? Cat *chaser* maybe. But hey—who isn't?"

Exhibición de Arte y Manualidades de STRI

STRI Community Arts and Crafts Show

1-12 de Mayo de 1995

Su Nombre: ____________________
Your Name:

Su posición (o relación) en STRI: ____________________
Your position (or relation) at STRI:

¿Qué artículo(s) de arte o manualidad exhibirá?
What type of art or craft will you exhibit? ____________________

____

Nota: En la exhibición pueden participar todos los miembros de la comunidad de STRI, incluyendo cónyuges e hijos. Los artículos a exhibirse deberán estar en la Oficina de Becas y Educación, Centro Tupper, antes de la última semana de abril, 1995. **Regrese esta forma a Annette Aiello, Centro Tupper.**

Note: Participation in the exhibit is open to the STRI community including spouses and children. Your artwork should be brought to the Office of Fellowships and Education during the final week of April, 1995. ***Please return this form to Annette Aiello, Tupper Center.***