

STRI newsletter

February 14, 1992

SMITHSONIAN TROPICAL RESEARCH INSTITUTE - Apartado 2072, Balboa, Panama

No. 7

TUPPER CENTER SEMINARS

Tuesday, Feb 18, noon seminar speaker will be Dieter Ebert, University of Basel.

*Social behavior and division of labor in the tropical spider *Anelosimus eximius*.*

Abstract

Eusociality, the "highest" grade of sociality known in the animal kingdom, has evolved at least 14 times independently. It was debated that the spider *Anelosimus eximius* (*Theridiidae*) is another independent example for the evolution of eusociality. Two of the three characteristics of eusociality, communal care of brood and overlapping generations were well described for this species, but not division of labor. A field study was undertaken to describe behavior of individual marked spiders, focusing on foraging activity, exposure to potential predators and reproduction. For spiders not currently involved into reproduction it is suggested that a trade-off between high exposure to predators and high foraging activity on one hand and low exposure risk and reduced food intake on the other hand exists. And further, that reproducing spiders take advantage of food caught by other colony members without facing the high risk of predator exposure.

Next Week

Tuesday, Feb 24, noon seminar speaker will be Ernst Mayr, Harvard University.

Reply to questions posed by the audience in an informal setting.

SPECIAL SEMINAR

Thursday, Feb 20, noon seminar speaker will be John Daly, National Institute of Health.

Frog alkaloids: fact or fiction?

Holiday ••• *Día Feriado*

Monday, Feb 17, we celebrate Washington's Birthday, a STRI holiday ••• *El lunes, 17 de febrero, celebramos el cumpleaños de Washington y es un día feriado para STRI.*



Under the supervision of curator George Angehr (right), the STRI exhibit "Parting the Green Curtain" was recently packed and shipped to the Charles Darwin Foundation in Ecuador ••• La exhibición "Descorriendo la Cortina Verde" de STRI fue empacada recientemente, bajo la supervisión de su curador George Angehr (der), y luego enviada a la Fundación Charles Darwin en Ecuador.

(Foto: M.A. Guerra)

PEOPLE

Arrivals

- Roberta Rubinoff, director, SI Office of Fellowships and Grants, Feb 21-Mar 3, to participate in the fellowship selection meeting and consult with STRI staff.
- Amaya Bernardez, UNAM, Feb 12-May 12, to assist Kenneth Clifton with his project in San Blas.
- Marielos Peña, Univ. de Sao Paulo, Feb 8-May 8 to assist Robin Foster with the Forest Dynamics Project on BCI.
- Carlos Machado, Univ. Nacional de Colombia, Feb 15-May 15, to work with Eldredge Bermingham at the molecular biology lab.
- Rick Meinzer, Feb 17-Mar 9, and Marco Gutierrez, Feb 17-Apr 1, both from Hawaii, to continue research with Dr. Goldstein at the Parque Metropolitano and BCI.
- Sean Morris and Keenan Smart, Oxford Scientific Films, Feb 19-23, to film research at STRI.
- Secretary Adams and regents David C. Acheson, Samuel C. Johnson, Homer A. Neal and James Woolsey, Feb 19-23, accompanied by their wives Pat Acheson, Gene Johnson and Dana Neal. Also coming are Robert Hoffmann, assistant secretary for research, and Mrs. Sally Hoffmann.

- Eric Fischer, Feb 19-27, with a group of members of the National Audubon Society. They are visiting Panama for a bird-a-thon and plan to visit BCI.
- Don Wilson, director, SI Biodiversity Program, with Stan Shetler, Dan Appleman and Marsha Siltnik. They are stopping here on their way back to the US from a tour of their Peruvian operations, to consult with staff and visit STRI facilities.

THINGS YOU SHOULD KNOW

Regents to Visit STRI

- David C. Acheson, lawyer and independent consultant in technology development in Washington, D.C.
- Samuel C. Johnson, chairman and chief executive officer of S.C. Johnson and Son, Inc.
- Homer A. Neal, Chairman, Dept. of Physics, Univ. of Michigan at Ann Arbor.

Visit from the SI Office of Environmental Management & Safety

A staff assistance visit and on-site follow-up survey of the August 1991 Management Evaluation and Technical Review (METR) will take place Feb 25-Mar 6, 1992.

The team plans to assist STRI staff by testing and certifying all laboratory hoods, conducting personal exposure sampling for STRI staff who use hazardous materials, conducting flow tests of fire suppression systems, and evaluating the STRI radiation safety program. In addition, with the assistance of Carlos Tejada, the team has scheduled a series of special emphasis training classes for STRI staff on Mar 4-5, 1992.

New Scanning Electron Microscope Facility (SEM)

We hope to have the SEM installed soon at STRI and running by May or June. The scope will be housed at the Tupper complex. Those who anticipate using the microscope should indicate to Dolores Piperno when the first studies would commence, the kinds of problems that would be studied, and the number of hours per month needed on the scope.

From the Visitor Services Office

We would like to remind all STRI visitors that the Visitor Services Office should be notified of any persons coming to STRI, for whatever length of time. We are the logical reference office for incoming calls, mail, etc. In the past few weeks, there have been several instances of calls being received for people whose names we did not recognize as being associated with STRI, when, in fact, they were visitors here. Your cooperation will be very helpful in solving this problem.

Visits to Fortuna

STRI researchers, who wish to visit the Fortuna area, may use an IRHE facility in El Cañon. This facility is just a building with one large room with indoor bathroom and electricity. It has no beds or kitchen, and drinking water must also be taken, as there is no potable water available. Visitors must take sleeping bags and a portable stove and food. Or, they can eat at one of several eating places nearby. There is no charge at this time.

All visits to Fortuna, whether using these facilities or not, need advance permission from IRHE. Contact the Visitor Services Office for necessary information and forms at least 10 working days in advance of the proposed visit. Visitors must plan to arrive in Fortuna on week days between 8 am-4:30 pm only, in order to report to the IRHE offices in Los Planes.

ANNOUNCEMENTS

At Tupper Center

Tue, Feb 18 9-10 am, Auditorium, Talk on STRI History and Present Activities for STRI Employees and Fellows
5-7 pm, Meeting Room, Behavioral Discussion Group

Wed, Feb 19 9-11 am, Meeting Room, *Amigos de la Biblioteca* Meeting

Best Paper Winners

Peter Glynn and Luis D'Croz, STRI research associate, were awarded Best Paper of the Year by the Coral Reef Society in Berkeley, California, for their paper *Experimental evidence for high temperature stress as the cause of El Niño-coincident coral mortality*.

Award

Zuleika Pinzon, an assistant from the Oil Spill Project, was selected to join the International Training Programme on the Conservation of Mangrove Forest Genetic Resources scheduled for Madras, India, from March 16 to May 21, 1992. Only 15 candidates were chosen.

Lost ••• Perdido

A white envelope with mangrove photographs, originally sent to Norman Duke, Surfside. If found please return to Oil Spill Project, Tel: 28-4150 ••• *Un sobre blanco dirigido a Norman Duke, Surfside, con fotos de manglares. Si lo encuentra favor regresar al Proyecto de Derrame de Petróleo, Tel: 28-4150.*

Volleyball ••• Voleibol

Naos/Tupper/Tivoli Mixed Team will play BCI and ANCON Association this Friday, Feb 14, from 5 pm at Tupper. Hot dogs and drinks will be sold. Don't miss it ••• *Un equipo mixto de Naos/Tupper/Tivoli jugará contra los equipos de BCI y la Asociación ANCON este viernes, 14 de febrero, desde las 5 pm en Tupper. Habrá perros calientes y bebidas a la venta. ¡Vengan todos!*

Mesa Redonda sobre la Bahía de Panamá

La Universidad de Panamá a través de la Vice-Rectoría de Investigación y Post-grado, el Centro de Ciencias del Mar y Limnología, y la Fundación Shin Matsu (Pino Nuevo), invitan a los interesados en ocasión de celebrarse el VIII Congreso Científico Nacional a la Mesa Redonda "La Recuperación de la Bahía de Panamá y las Alternativas de Uso". Se mismo desarrollará en el Auditorio de la Facultad de Odontología, Ciudad Universitaria "Octavio Mendez Pereira", el 20 de febrero de 1992 a las 7 pm.

Coiba: Nuevo Parque Nacional

Tomado del Panamá América

A fines de enero el gobierno panameño pasó la resolución J.D. No. 21 por medio del cual se establece el Parque Nacional Coiba en la provincia de Veraguas con una extensión de 270,125 hectáreas, las cuales incluyen la isla del mismo nombre, otros nueve territorios insulares, así como las aguas marinas y la plataforma continental.

La creación del Parque Nacional Coiba tendrá entre sus objetivos conservar muestras de ecosistemas insulares, marinos y costeros en el área a fin de mantener la diversidad de especies de flora y fauna, el flujo genético y los procesos evolutivos para las generaciones presentes y futuras.

NEW STRI FELLOWS**Short-term Fellows**

- Jennifer Ruesink, Univ. of Washington. *The role of epibiotic biology in disturbance to scleractinian corals: colonization after wounding and its consequences.*
- Steve Travers, Univ. of California at Sta. Barbara. *Pollentube competition and the potential for sexual selection in tropical plant species.*

Exxon Fellows

- Raul Aviles, Univ. de Panama. *Distribución y características del transporte axial y radial de agua en las raíces de Pseudobombax septenatum: una especie caducifolia común en el dosel de los bosques del Neotrópico.*
- Juan Bernal, Univ. de Panama. *Estudio comparativo de la comunidad de macro-invertebrados bentónicos en dos playas arenosas de la Bahía de Panama.*
- Jose Berdiales, Instituto Superior de Forestación y Tecnología Maderera, Bulgaria. *Estudio ambiental de las áreas adyacentes a la planta de Cemento Bayano.*
- Ruben Roa, Univ. de Concepción, Chile. *Morphological plasticity of the carnivorous sea urchin Eucidaris tribuloides (Lamarck) as related to food ration and composition.*
- Rafael Rodriguez, Univ. de Costa Rica. *Comportamiento de cópula de Pseudoxychila tarsalisecies en diferentes*

localidades de Panamá.

- Sandra Patiño, Univ. de los Andes, Colombia. *Character syndromes in representative Ficus species in Central America.*
- Luis Alberto Sanchez, Univ. de Costa Rica. *Evaluación preliminar del sitio arqueológico Cerro Juan Diaz, Provincia de Herrera, Panamá.*

Exxon Assistantships

- Adrian Badilla, Univ. de Costa Rica, Assistant to Richard Cooke.
- Amaya Bernardez, Univ. Nac. Autónoma de Mexico, Assistant to Kenneth Clifton.
- Manuel Demaria, Univ. Nacional de Córdoba, Argentina, Assistant to Stephen Emlen.
- Carlos Alberto Machado, Univ. Nacional de Colombia, Assistant to Eldredge Bermingham.
- Marielos Peña, Instituto de Biociencias, Bolivia, Assistant to Robin Foster.
- María del Pilar Angulo, Univ. de los Andes, Colombia, Assistant to Joseph Wright.
- Diego Lombeida, Univ. Católica del Ecuador, Assistant to Stanley Rand.

JOB ANNOUNCEMENTS**Research Assistant Needed**

To build a reference collection of pollen of the American tropics, to identify tropical pollen grains from trap samples and sediments, and to undertake extraction of pollen and other microfossils from sedimentary deposits. Position requires a bachelor's degree in botany or a related discipline, and extensive knowledge of pollen laboratory techniques together with experience at identifying tropical American pollen. The position is important to the Smithsonian Tropical Research Institute's initiative to reconstruct the environmental history of the climate and vegetation of the Neotropics throughout the last glacial cycle because the appointee will take charge of building and organizing the basic reference collection of pollen types.

Temporary position for one year. Salary according to experience and qualifications. Mail CV with references to: "Pollen Position", Apartado 3353, Balboa, Panama.

Environmentalist

Wilkins, Miller & Mackey needs a person to handle environmentally related matters. This person will be responsible for the management and administration of environmental projects of the highest complexity relating to world development. A second language (preferably French) is desirable.

Call or fax résumé to Sandra Wilkins. Tel: 212-490-0081, Fax: 212-490-0133.

STRI NEW BOOKLIST

- Access services: a handbook / by Ann Catherine Paietta.
Z711.P26 1991X STRI.
- Atlas of sponge morphology = Atlas de morphologie des sponges / by Louis de Vos ... [et al.].
QL374.A87 1991X STRI.
- Bees and beekeeping: science, practice, and world resources / Eva Crane. SF523.C856 1990X STRI.
- Biogeochemistry: an analysis of global change / William H. Schlesinger. QH343.7.S35 1991X STRI.
- The Birds of Japan / Mark A. Brazil. QL691.J3B82 1991 STRI.
- Compilation of scientific publications, comarca de San Blas, Republic of Panama: Smithsonian Tropical Research Institute, 1972-1986. QH540.3.C73 1987 STRI.
- Ecology / Robert E. Ricklefs. QH541.R53 1990X STRI.
- Estudio bacteriológico de playas de anidación de la tortuga marina, *Lepidochelys olivacea* / por Yolanda del Carmen Jiménez Muñoz y Eyda Julieta Timm Peralta. QR106.J615 1989 STRI.
- First western hemisphere waterfowl and waterbird symposium (1st: 1982 May 25-28: Edmonton, Canada). QL696.A5W52 1982 STRI.
- Genetic and physical mapping / edited by Kay E. Davie, Shirley M. Tilghman. QG445.2.G32 1990 STRI.
- Growth factors in cell and developmental biology: proceedings of the British Society for Cell Biology-Journal of Cell Science Symposium, Manchester, April 1990 / organized and edited by M.D. Waterfield. QP552.G76B86 1990 STRI.
- Guía para la investigación silvicultural de especies de uso múltiple / R. Salazar. SD247.S16 1989 STRI.
- Index hepaticarum / founded by C.E.B. Bonner; edited by P. Geissler, H. Bischler. Ref QK553.B6x 1987 STRI.
- Los Inmigrantes antillanos en Panamá / por George W. Westerman. F1577.B55W52 S1980 STRI.
- Kin recognition / edited by Peter G. Hepper. QL761.5.K49 1991X STRI.
- Life, the science of biology / William K. Purves, Gordon H. Orians. QH308.2.P87 1987X STRI.
- Medicinal plants and folklores: a strategy towards conquest of human ailments / V.K. Singh and Abrar M. Khan; editor, J.M. Govil. Ref RS164.S558 1990X STRI.
- Microspores: evolution and ontogeny / edited by S. Blackmore, R.B. Knox. QK658.M62 1990 STRI.
- Molas: folk art of the Cuna Indians / Ann Parker & Avon Neal. F1565.2.C8P3 1977X STRI.
- Molecular activities of plant cells: an introduction to plant biochemistry / John W. Anderson, John Beardall. QK728.A53 1991X STRI.
- Motor proteins: a volume based on the EMBO Workshop, Cambridge, September 1990 / organised and edited by R.A. Cross and J. Kendrick-Jones. QH603.M44E53 1990 STRI.
- The Online catalog: a critical examination of public use / by Thomas A. Peters. Z699.35.C38P47 1991X STRI.
- Plants used against cancer: a survey / Jonathan L. Hartwell. RC271.H47H37 1982X STRI.
- Revision of the stratigraphy of the coastal plain of Suriname / by Th.E. Wong. QE449.S75W87 1989 STRI.
- Satellite remote sensing in climatology / Andrew M. Carleton. QC981.C347 1991X STRI.
- Simon and Schuster's international dictionary. Diccionario internacional Simon and Schuster. English/Spanish, Spanish/English. Tana de Gómez, editor in chief. Ref PC4640.S48X STRI.
- Useful palms of the world: a synoptic bibliography / compiled and edited by Michael J. Balick and Hans T. Beck and collaborators. Ref SB317.P3U74 1989X STRI.

From: 365 Ways to Save our Planet
• Page-a-Day Calendar •

• Nothing but footprints • Gone fishing? When it's time to come home, bring everything back—hook, line and sinker. Park rangers and game protectors often find animals, fish and birds trapped or choked by discarded fishing line and hooks.

Center for Tropical Forest Science

by Gretchen Sotomayor

They cover less than 7 percent of the earth's surface and house almost half of the world's species, but the rain forests of the world are sorely underexplored—and rapidly disappearing.

These teeming tropical forests harbor sources for valuable products, such as foods, medicines and chemicals, and contain a large store of genetic information that may provide avenues for coping with future disease epidemics, crop pests and economic needs.

Despite the potential that lays in these rich, dense environments, the developed world knows little about them. Even the simplest biological mechanisms—how much food, light and water plants need or the ways tropical animals fight disease—lack study.

"We really do know more about the geology of the moon than the ecology of the tropical forest or a coral reef," said Dr. Ira Rubinoff, director of the Smithsonian Tropical Research Institute (STRI) in Panama City, Panama.

But STRI has recently established the Center for Tropical Forest Science - a center that encourages more aggressive management and exploration of the world's tropical forests. The center, based in Panama City, was formed in cooperation with faculty members at Princeton and Harvard universities.

The primary aim of the multi-faceted center is to promote programs of long-term, interdisciplinary research in the natural and social sciences aimed toward understanding plant, animal and human interactions in natural tropical forests. The center will translate this information into results relevant to forest management, conservation and natural resources policy, and communicate these results in a timely fashion through publications, workshops, conferences and data-sharing networks.

"If there are tropical forests at this time in the next century," Rubinoff said, "we will have a better understanding of their management and natural change."

At STRI in Panama City, the center will operate as a kind of "clearinghouse" for information, said Princeton University scientist Dr. Stephen Hubbell, who helped develop the idea of the center. A five-year, \$1 million grant from the John D. and Catherine

T. MacArthur Foundation is providing the funding for the center's establishment.

At this time, the center is collaborating with tropical forest scientists working on plots in Panama, Malaysia and India. Establishment of similar sites is underway in Bolivia, Mexico, Zaire, Sri Lanka and Thailand. The network supports summary data on more than 1,000 species and will increase the availability of this information to scientists, policy makers, educators and investors interested in preserving tropical forests.

"We hope to develop a worldwide understanding of what a tropical forest is," Hubbell said. "It's a big order."

One goal of the tropical forest science center is to determine what native species are economically valuable to a country. With this information, profitable indigenous trees can be planted instead of introducing exotic species.

"It will free up people interested in plantations from the tyranny of planting pine trees and eucalyptus," Rubinoff said. "I think there are other species indigenous to a country that will grow better and be worth more."

The center is also encouraging researchers to standardize research and data management protocols at all sites to facilitate analysis and sharing of information worldwide, said Dr. Richard Condit, the STRI scientist in charge of the center's operations.

One example of standardization is the use of 50-hectare plots in long-term studies of tropical forests. In the past, studies were generally conducted in small areas, usually one or a few hectares, limiting scientists to the study of one or two species. But with larger plots, the interaction of many species can be recorded, Condit said.

The first scientists to create the 50-hectare plot, which equals the area of 100 football fields, were Hubbell and STRI scientist Dr. Robin Foster. They established the site on Barro Colorado Island, a STRI research area located on Lake Gatun in the Panama Canal. Working as the principal investigators in the forests on the island, they discovered a wealth of understanding about many species in "one stroke," Hubbell said.

Also, during the last decade, Hubbell and Foster realized a need to improve communication between scientists, policy makers and investors in providing better management of tropical forests, Hubbell said. These needs are being met by the new center, he said.

Though the newly established center is just beginning to make itself known to foreign governments, it will be encouraging countries to work with international lending agencies and conservationists in strengthening forestry programs, Hubbell said.

In Panama, center officials hope to work with the Institute of Renewable Natural Resources (INRENA-RE) in developing forest management plans, Condit said. Panama is losing valuable hardwood, such as El Cativo and mangrove, as land is cleared by campesinos for firewood or building materials. Ideally, a program would be established to train and educate campesinos on planting and maintaining sustainable and profitable forests of native trees.

But until alternative use and economic assistance programs are established, it is essential that large areas of land are protected in order to preserve forests, Rubinoff said.

Though there is still much to accomplish, Hubbell pointed out positive strides during the past three to four years toward improved tropical forest management. Cooperative agreements are forming between exporters and importers, and massive reforestation is occurring on about 5 percent of tropical forest lands. Also, 27 nation members of the International Tropical Timber Organization (composed of tropical timber-producing and -consuming countries) have agreed to purchase wood products grown only in sustainable forests starting in the year 2000, Hubbell said.

"Good forestry is not elitism, it is environmental necessity," Hubbell said. "If we don't take it seriously, the environmental cost, in real economic terms, in gross national product, will be staggering."