

STRI newsletter

April 23, 1993

SMITHSONIAN TROPICAL RESEARCH INSTITUTE - Apartado 2072, Balboa, Panamá

No. 17

TUPPER CENTER SEMINARS

Tue, Apr 27, noon seminar speaker will be Koos Boomsma, Aarhus University, Denmark.

Relatedness Asymmetry and Split Sex Ratios in Halictic Bees and Polygynous Ants

Abstract

Worker controlled sex allocation in eusocial Hymenoptera has been an important test case for kin selection theory. Early models predicted that the equilibrium sex ratio of populations should be female biased to a degree proportional to the average asymmetry in relatedness of the workers to the sexuals (gynes and males). At the colony level, however, the predominant pattern is characterized by "split sex ratios", i.e. by colonies specializing in the production of either males or gynes. Much of these patterns appear to be explainable with the concept of relative relatedness asymmetry, as will be documented with case studies in ants and bees.

Next Week

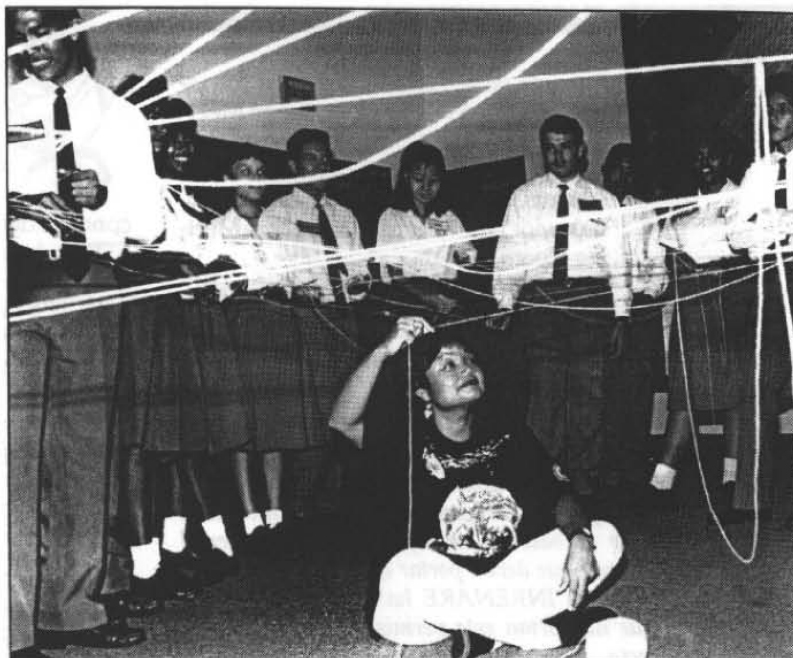
Tue, May 4, noon seminar speaker will be Paul Morris, STRI postdoctoral fellow.

Chance and Causality in Paleozoic Molluscan Evolution

PEOPLE

Arrivals

- Margaret Lowman, Williams College, MA, Apr 24-4 May, to visit STRI as a future research site.
- Marcos Vaira, short term fellow from Instituto Konrad Lorenz, Argentina, Apr 30-31 Jul to study the parental behavior of *Leptodactylus bolivianus* in Gamboa.
- David Ellsworth, Mellon postdoctoral fellow, Apr 30-30 May, to continue research with Melvin Tyree on BCI.
- Tom Kursar, visiting scientist from University of Utah, Apr 30-8 May, to continue research on BCI.



Argelis Ruiz Guevara illustrates the "web of life" to a group of students at Jamboree'93 held at ATLAPA, Apr 15-18, where STRI participated with an exhibit and ecological activities ••• Argelis Ruiz Guevara ilustra la "telaraña de la vida" a un grupo de estudiantes en el Jamboree '93, llevado a cabo en ATLAPA del 15-18 de abril, donde STRI participó con una exhibición y actividades ecológicas. (Foto: A. Montaner)

Departures

- Jeremy Jackson, to Washington D.C., Apr 24-30, to attend the meetings of the Committee on the Formation of the National Biological Survey of the National Academy of Sciences.
- Olga Linares, Apr 25-1 May, to Washington D.C. to attend the meetings of the National Academy of Sciences.
- Paul Colinvaux, Apr 26-14 May, to University of Georgia to serve as adjunct professor. He will also visit the University of Rhode Island to review core collection in national core depository and bring sediment cores to STRI and Harvard University to collect Barghoorn pollen reference collection for transfer to STRI.
- Llewellyn Hillis, Apr 26-14 May, to Kingston, Ontario to serve on Queen's University Council, and to the University of Georgia to discuss collaborative reef research with the Department of Zoology.
- Richard Condit, Apr 27-16 May, to visit several institutions in India and consult with colleagues regarding the CTFS.

Please remember to confirm your attendance to BCI's 70th Anniversary celebration with your facility's secretary ••• Recuerde confirmar su asistencia a la celebración del 70avo. Aniversario de BCI con la secretaria de su lugar de trabajo.

THINGS YOU SHOULD KNOW

At Tupper Center

- Tue, Apr 27 ■ *Proyecto para el Manejo de Areas Silvestres en Kuna Yala* meeting, Large Meeting Room, 9am-3pm.
- Noon seminar by Koos Boomsma, Aarhus University, Auditorium
 - Behavior Discussion Group, Large Meeting Room, 5-7pm.
- Thu, Apr 29 ■ OTS Meeting (*Política Ambiental*), Large Meeting Room, 1:30-5pm.

INRENARE Permit Reminder

Permiso de INRENARE

To all scientists working on the field, please remember to carry the INRENARE collecting/research permit at all times. INRENARE has reported encounters with scientists without their permit. We appreciate your attention to this matter ••• *A todos los científicos que trabajan en el campo, se les recuerda que deben portar el permiso de INRENARE todo el tiempo. INRENARE ha reportado casos de investigadores que no portan este permiso. Agradecemos su atención al respecto.*

ANNOUNCEMENTS



II Concurso Fotográfico Día de la Tierra 1993 Parque Natural Metropolitano

El Patronato del Parque Natural Metropolitano invita a fotógrafos aficionados y profesionales a participar en el II concurso fotográfico *Día de la Tierra 1993* organizado por el *Instituto Smithsonian de Investigaciones Tropicales* con tres premios, siendo el primero una cámara Canon EOS 1000FN con un lente zoom 35-105 y premios adicionales.

Las fotografías deberán tomarse dentro del área del Parque Natural Metropolitano a partir del 22 de abril de 1993, *Día de la Tierra*. La ceremonia de premiación será el viernes 4 de junio de 1993, en conmemoración del *Día Internacional del Medio Ambiente*, sábado 5 de junio. El tema del concurso es el enaltecimiento de la conservación, observación y protección de la naturaleza.

Participación por previa inscripción hasta el 10 de mayo. Costo B/.5. Última fecha para entrega de fotos: 17 de mayo de 1993. Para información, inscripción y retiro de las bases del concurso, favor de apersonarse a las oficinas del Parque en Ave. Juan Pablo II, Tel. 32-5516 y 32-5552. Encargada: Lic. Yolanda Jiménez.

En STRI, puede solicitar información y las bases del concurso en el Departamento de Fotografía.

Interamerican Secretary's Day



Día Interamericano de la Secretaria

Since 1962, Panama commemorates Secretary's Week at the end of April, and celebrates the Interamerican Secretary's Day on April 26. The purpose of this celebration is the public recognition of secretaries' professionalism and their contribution to the community's growth and progress. STRI salutes all secretaries at the Institute on this day and thanks them for their dedication and contributions to STRI's mission ••• *Desde 1962, se celebra en Panamá la Semana de la Secretaria a finales de abril, festejando especialmente el día 26, Día de la Secretaria Interamericana. El propósito de esta celebración es hacerle un reconocimiento público al profesional del secretariado, por su contribución al crecimiento profesional y cívico de la comunidad. STRI felicita y agradece a todas las secretarias del Instituto por su dedicación y devoción al trabajo, contribuyendo, de esta manera, a cumplir nuestra misión.*

Equipo STRI de Limpieza Ambiental Marina

STRI apoyará al *Proyecto Planeta Océano 93: Mares Limpios*, con una corta jornada de trabajo el día domingo 25 de abril, recogiendo basura en la playa entre Naos y Flamenco. Para incorporarse a esta actividad, favor comunicarse con Marcela Vargas, en el Centro Tupper. El proyecto es organizado PROMAR y ANCON, con el auspicio de *Earth Day International* y el *Center for Marine Conservation*.

Volunteers Needed ••• *Se Necesitan Voluntarios*

To work at the exhibition *Nuestros Bosques: Nuestra Herencia*, during May and June in the Tupper Center Exhibit Hall. If interested, contact the Office of Education, Tupper Center, Tel. 27-6022 ••• *Se requieren voluntarios para atender la exhibición "Nuestros Bosques: Nuestra Herencia" durante mayo y junio, en el Salón del Exhibiciones del Centro Tupper. Interesados favor de comunicarse con la Oficina de Educación en el Centro Tupper, Tel. 27-6022.*

Archibold P. Turner • Mar 23, 1908 - Feb 24, 1993

by Neal G. Smith

Archibold P. Turner, the first facilities manager of STRI's Marine Laboratories died in West Palm Beach, Florida. He is survived by his wife Olga (née Rodaniche), his three children, a collection of guns and perhaps some Jaguar automobiles. Wiry and balding when I met him, tenacious Archie will be remembered as a master machinist with hands containing built-in-calipers, a person who could fix almost anything, a Sunday Sharpshooter, and a gunsmith by appointment. Archie came to STRI from the Navy Research Labs.

BCI's 70th Anniversary Program

April 30, 1993, Barro Colorado Island

1:00 pm Departure from Gamboa to BCI on Las Cruces.

2:15 pm Dining Hall:

- Historical Development of BCI, by Neal G. Smith
- 'Remembering the Past', by Gloria Maggiori
- BCI and Future Directions as a Research Station, by Ira Rubinoff
- Folkloric dance presentation by the 'Conjunto Típico de la Escuela Secundaria Pedro Pablo Sánchez' de la Chorrera

3:00 pm Conference Room:

- BCI Historical Photographic Exhibition, produced by Pat Rand, Beth King and Nymadina Gómez

Basketball Court: Games and BBQ

5:00 pm Departure to Gamboa

8:00 pm Departure to Gamboa



During Earth Day celebrations at the Universidad Santa María La Antigua, Alejandro Hernández described the photo exhibition on deforestation in the Panama Canal Watershed to Vicerector Melva de Mon and students ••• Durante las celebraciones del Día de la Tierra en la Universidad Santa María La Antigua (USMA), Alejandro Hernández describió la exhibición fotográfica sobre la deforestación en la Cuenca del Canal de Panamá a Melva de Mon, Vicerectora de la USMA y a un grupo de estudiantes. (Foto: M.A. Guerra)

FROM OTHER SOURCES

Botanical Prospecting in Bocas del Toro

by Robin Foster and Allen Herre, April 14, 1993

Our one-week trip to Bocas del Toro last month had some surprising results. We went to join Charles Handley of the U.S. National Museum and Elisabeth Kalko of the University of Tübingen (Germany) working this year on the mammal fauna of the mainland adjacent to Chiriqui Lagoon. We wanted to take advantage of Handley's long-term experience in the area to get a quick introduction to the biology of the region and contribute our own first observations about fig species (bat food) and the rest of the vegetation. Handley's work on the evolution and ecology of vertebrates on the Bocas del Toro island archipelago has involved many biologists and has already revealed this to be Panama's "little Galapagos" with interesting patterns of animal evolution and community composition on the different islands.

According to the rain gauge at Handley's Nuri campsite, 30" of rain fell in one-and-a-half day period shortly before we arrived there. We had one dry day on both Isla Colon and Isla Bastimentos, and about two-and-a-half days at the Nuri mainland camp during which we could make observations and collect plants. The identification of the plant collections with the help of Mireya Correa has now finished the first pass in the herbarium at Tupper with the following results:

Of our 231 plant collections, at least 74 (32%) are species previously unreported from the Province of Bocas del Toro; at least 7 are species unreported from Panama, including 3 genera unreported for the country—*Parinari* (Chrysobalanaceae), *Couma* (Apocynaceae), *Pypayrola* (Violaceae), and at least two species new to science—a *Poulsenia* (Moraceae) and a white-flowered *Pelliciera* mangrove (Theaceae). We have since learned that the new *Pelliciera* was also discovered by Norman Duke elsewhere in Panama.

For several other species we have the second collections known from the country. Previous Panama collections of many of these species are from the El Llano Carti Road, or Santa Rita Ridge. With more work on identification of the collections, the numbers of new records should increase. Some serious collecting would obviously reveal much more than our casual visit. Our results are surprising, not in finding some new records, but in finding so many in such a short time. Furthermore, these are not just rare oddities of the flora.

The three new generic records were species that are among the dominant trees in these forests. One, *Couma*, has trunks always covered with diagonal scars for extraction of the abundant latex by the Guaymi population. The family Humiriaceae, unreported from Bocas, was represented by 3 or 4 species one of which, *Sacoglottis*, was among the most abundant trees of Isla Colon and the mainland. It is also the dominant tree of Cocos Island in the Pacific. A shrub long thought to be endemic to Cocos Island, *Ossaea macrophylla* (Melastomataceae), we found on Isla Bastimentos. *Podocarpus*, our valuable relative of pine trees, and usually considered a tree of mountain-top cloud forests, was abundant at sea level on the mainland and also Isla Bastimentos.

In contrast with the flora in general, the fig species we found on the Bocas Islands are also found on and around BCI. In a few cases there are minor morphological differences between the Bocas and BCI forms. We collected both plant and wasp tissue for making genetic comparisons to determine their geographical population differentiation. Recent evidence indicates that figs may

have the greatest capacity for long-range pollen dispersal of any known plant group.

As pointed out by Charles Handley, both the islands of the Bocas del Toro Archipelago and the mainland of Chiriqui Lagoon are now subject to an onslaught of colonization and deforestation. The existing national park only includes one piece of forest on one island (Bastimentos); it is designed mainly as a marine park. Meanwhile, there is no protection of the remaining forest on any of the other islands and this forest will probably all be gone within 5 years.

The two islands we visited were obviously very different from each other and from the mainland in the composition of the forest. A meaningful comparison would require more than the few hours we had. But the points to be made here are:

1) That the Bocas Islands are an evolutionary experiment the results of which are about to disappear. That they are full of little known, rare, and valuable native plant species that are being replaced by foreign grasses and emaciated cattle; and

2) That the Caribbean lowland forest of Panama are scarcely known, and are now under serious pressure from many directions. The only Atlantic sites that are reasonably well known botanically are small areas around Nusagandi, Santa Rita Ridge, and now the road from Fortuna to Chiriqui Grande. An inventory of one hectare of forest at Nusagandi by Rutilio Paredes (in manuscript) has shown that these are the most species-rich forests in Central America. But even at these sites we are only just starting to learn what the commonest trees are.

STRI NEW PUBLICATIONS

- Herre, Edward Allen. 1993. "Population Structure and the Evolution of Virulence in Nematode Parasites of Fig Wasps." *Science* 259: 1442-1445.
- Morris, Paul J. 1993. "The Developmental Role of the Extracellular Matrix Suggests a Monophyletic Origin of the Kingdom Animalia." *Evolution* 47(1): 152-165.
- Raloff, Janet. 1993. "Corn's Slow Path to Stardom." *Science News* 143(16): 248-250.
- Smith, Neal G. 1993. "A Tale of Peacock Rump Feathers." *Science News* 143(14): 211.
- Ventocilla, Jorge. 1992. *Cacería y Subsistencia en Cangandi: Una Comunidad de los Indígenas Kunas (Comarca Kuna Yala)*. Quito: Ediciones Abya-Yala.
- Wcislo, William T., Wille, Alvaro and Orozco, Enrique. 1993. "Nesting Biology of Tropical Solitary and Social Sweat Bees, *Lasioglossum (Dialictus) figueresi* Wcislo and L. (D.) *aeneiventre* (Friese) (Hymenoptera: Halictidae)." *Insect Socioux* 40: 21-40.

Last Minute News Al cierre

BCI-Gamboa Launch on Sat, Apr 24: 9pm

Bote BCI-Gamboa Saldrá a las 9pm este Sábado

As requested by BCI residents, Las Cruces launch will change its regular schedule from Gamboa to BCI at 4:20pm on Sat, Apr 24 to 9:00pm. If this presents an inconvenience to anyone planning to go on the regular schedule to BCI, please call BCI office ••• A petición de los residentes de Barro Colorado, el horario de salida del bote Las Cruces cambiará su itinerario regular de Gamboa-BCI de las 4:20pm el sábado 24 de abril, para salir a las 9pm. Si esto presenta un inconveniente para el transporte de algún usuario, favor de llamar a la oficina de Barro Colorado.



STRI newsletter supplement

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Today, April 23 is Librarian's Day. We salute STRI Library's staff on their day.

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Felicitaciones al personal de la biblioteca de STRI en su día, hoy 23 de abril.

STRI NEW BOOKLIST

Applied population biology / edited by S.K. Jain and L.W. Botsford. QH352.A65 1992 STRI.

Botanical illustration: preparation for publication / by Noel H. Holmgren & Bobbi Angell. QK98.24.H65 1986X STRI.

Characteristics and control of viruses infecting peppers: a literature review / by S.K. Green and J.S. Kim. SB608.P5G79 1991 STRI.

Calcium in plant growth and development / edited by Robert T. Leonard and Peter K. Hepler. QK753.C2S98 1990 STRI.

The Chrysidid wasps of the world / Lynn S. Kimsey and Richard M. Bohart. Ref QL568.C47K56 1990X STRI.

Climate and moisture variability in a tropical forest: long-term records from Barro Colorado Island, Panama / Donal M. Windsor. SD390.6.P2W76 1990 STRI.

Clovis: origins and adaptations / edited by Robson Bonnicksen, Karen L. Turnmire. E99.C832C64 1991 STRI.

Dasycladales: an illustrated monograph of a fascinating algal order / Sigrid Berger and Matthias J. Kaefer ; foreword by Ralph A. Lewin. QK569.D24B47 1992X STRI.

Desarrollar sin destruir / por Heinz Ellenberg. SB934.B5E45 1983 STRI.

Ecosystems of the Florida keys: a bibliography / compiled, edited, and indexed by Linda Pikula and Stanley Elswick. Z5322.E2E20 1992 STRI.

Genes in ecology: 33rd Symposium of the British Ecological Society, held at the University of East Anglia, Norwich, 3-5 April 1991 / editors, R.J. Berry, T.J. Crawford, G.M. Hewitt. QH456.B75 1992X STRI.

Georges Cuvier: an annotated bibliography of his published works / compiled by Jean Chandler Smith. Z8207.3.S63 1992X STRI.

Handbook of tropical forestry organizations. Ref SD247.H23 1990 STRI.

Health and the environment: a people-centred research strategy / Gilles Forget. RA565.F72 1992 STRI.

International profiles on marine scientific research: national maritime claims, MSR jurisdiction, and U.S. research clearance histories for the world's coastal states / Judith Fenwick. GC57.F34 1992 STRI.

Mammal species of the world: a taxonomic and geographic reference / edited by Don E. Wilson and Dee Ann M. Reeder. Ref QL708.M35 1992X STRI.

Mariposas de Venezuela / Theophile Raymond. QL554.V4R3925 1982b STRI.

Memorias del Segundo Coloquio Internacional de Mayistas, 17-21 de agosto de 1987. F1435.C718 1987 STRI.

The Pages project: proposed implementation plans for research activities / edited by John A. Eddy. QH541.P13 1992 STRI.

Papers in avian paleontology honoring Pierce Brodkorb: incorporating the Proceedings of the II International Symposium of the Society of Avian Paleontology and Evolution held at the Natural History Museum of Los Angeles County, 28-30 September 1988 / edited by Kenneth E. Campbell, Jr. QE871.P214 1992 STRI.

Parascript: parasites and the language of evolution / Daniel R. Brooks, Deborah A. McLennan. QL757.B785 1993X STRI.

Parent-offspring conflict and its resolution in the European starling / by Elizabeth Litovich and Harry W. Power. QL696.P278L77 1992 STRI.

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People of the Tonto Rim: archaeological discovery in prehistoric Arizona / Charles L. Redman.

E78.A7R44 1993X STRI.

Perspectivas de la economía mundial: estudio elaborado por el personal del Fondo Monetario Internacional.

HC59.P46 1992 STRI.

Plant resistance to herbivores and pathogens: ecology, evolution, and genetics / edited by Robert S. Fritz and Ellen L. Simms.

SB750.P56 1992X STRI.

A Primer to endangered species in law: obtaining federal permits for specimens protected by endangered species laws.

QL81.P95 1992 STRI

Rare and endangered biota of Florida / Ray E. Ashton, Jr., series editor. Volume I.

QL84.22.F6R37 1992X v.1 STRI

Soil-vegetation correlations in selected wetlands and uplands of north-central Florida / by G. Ronnie Best, Debra S. Segal, and Charlotte Wolfe.

S596.7.B56 1990 STRI.

Threatened birds of the Americas / M.J. Collar ... [et al].

Ref QL676.7.C69th 1992 STRI.

Tri-annual report, July 1987 - July 1990 / World Council of Indigenous Peoples.

HV3177.C2W92 1990 STRI.