

# STRI newsletter

March 6, 1992

SMITHSONIAN TROPICAL RESEARCH INSTITUTE - Apartado 2072, Balboa, Panamá

No. 10

## TUPPER CENTER SEMINARS

Tuesday, March 10, noon seminar speaker will be Stephen Emlen, Cornell University.

**Polyandry, Promiscuity, and Paternity in the Role-Reversed Wattled Jacana ••• *Poliandria, Promiscuidad, Paternidad y Rol Sexual Invertido en Jacana jacana.***

### Abstract ••• Resumen

Wattled jacanas are neotropical shorebirds that exhibit extreme behavioral role-reversal. Females are larger and more aggressive than males. In Panama, breeding females simultaneously pair with, and sequentially provide clutches for, as many as 5 male mates (average=2.8). Each male incubates his own clutch(es) and cares for his brood(s) without assistance from his mate. Females frequently copulate promiscuously with their different "co-mates" prior to laying a clutch for any one of them. DNA fingerprinting analyses indicate that many such clutches are multiply sired. This creates the paradoxical situation of low paternity assurance in a species in which males are the sole providers of parental care. Why should males accept multiply sired clutches, and why should females be promiscuous? I will discuss these as well as other sexual conflicts of interest in this role-reversed species.

•••

*Jacana jacana es un ave acuática neotropical que exhibe un comportamiento de roles sexuales invertidos. Las hembras son más grandes y agresivas que los machos. En Panamá, las hembras que han alcanzado la madurez, se aparean hasta con 5 machos diferentes, (promedio 2.8) y suministran en secuencia una postura para cada uno de ellos. Cada macho incuba su propia nidada y cuida de su progenie sin asistencia de la hembra. Las hembras copulan promiscuamente con sus diferentes machos antes de poner los huevos en el nido de alguno de ellos. Análisis de ADN indican que muchas de las nidadas presentan múltiples padres. Esto crea la paradójica situación de una paternidad poco asegurada, en una especie en la cual los machos son los únicos que brindan cuidados paternales. ¿Por qué los machos aceptan huevos fecundados por otros machos en sus nidadas, y por qué las hembras son promiscuas? Se discutirán estas preguntas, así como otros conflictos sexuales de interés relacionados con los roles sexuales invertidos en esta especie.*

No habrá traducción simultánea al español.

## PEOPLE

### Arrivals

- Thomas Herbert, University of Miami, Mar 7-14, to study the daily leaf movement of *Ischnosiphon pruinosus* (*Pleistocgya pruinosus*) on BCI.



*Michael Robinson, SI National Zoological Park (NZP) director, examines a 4 month old paca during a recent visit of the members of the NZP Council to STRI ••• Mike Robinson, director del Parque Zoológico Nacional del Smithsonian, examina un conejo pintado de 4 meses de edad durante la reciente visita de los miembros del consejo del parque a STRI.*

(Foto: M.A. Guerra)

- John Van Veen and J. Marien, Utrecht University, Netherlands, Mar 8-15, to conduct studies on multiple mating in *Melipona* at Tupper Center.
- Marcia Wendeln, Wright State University, Ohio, Mar 9-Apr 5, to work on the vine *Combretum*, as a nectar resource during seasonal shortage of fruit in a tropical rain forest on BCI.
- Stephen Mulkey, short-term visitor from University of Missouri, Mar 10-Apr 10, to conduct bomb calorimetry work on *Psychotria* and *Marantaceae* leaves.
- Pamela Hall, Boston University, Stephen Hubbell, Princeton University, Miguel Martínez, Universidad Nacional de México, Sean O'Brian, University of Virginia, Raman Sakumar, Indian Institute of Science, Robert Waide and Jess Zimmerman, University of Puerto Rico, Mar 10-14, to attend the Center for Tropical Forest Science Workshop on BCI.

- I. Booth, J. Bowe, B. Woodworth, E. Crone, C. Huckins, V. Guager, R. Kobe, E. Capaldi, N. Simmons, G. LeBuhn and V. Guglielmo, OTS course participants, Mar 10-14, to visit BCI.

### Departures

- Fernando Pascal, ODC, Mar 9-13 on official business to the Smithsonian Institution, Washington D.C.

## THINGS YOU SHOULD KNOW

There will be no scientific staff meeting on Tuesday, March 10.

### Behavioral Discussion Group

The Behavioral Discussion Group will meet for the second time on Tuesday, March 10, 1992 at 5pm in the Tupper Meeting Room. The topic of the discussion will be *An experimental test of the sensory trap hypothesis for why female Uca beebei are attracted to males that build pillars*. For more information call Ursula Schober at 28-4060.

### From the Visitor's Office

#### ••• De la Oficina de Visitantes

Trips to Darien National Park must be arranged at least 10 working days in advance with INRENARE, Paraiso. Get in contact Maria Morello, Visitor Services Office, Tupper Center, for the necessary arrangements. The only communication with the office of INRENARE in Darien is through cablegram, and it takes time to organize the logistics of the trip ••• *Los viajes al Parque Nacional Darién deben ser programados con un mínimo de 10 días laborables de anticipación con INRENARE, Paraiso. Para los arreglos necesarios consulte a María Morello, Oficina de Visitantes en el Centro Tupper. La única comunicación con la Oficina del INRENARE en Darién es a través de cablegrama, y toma tiempo organizar los pormenores del viaje.*

## STRI NEW PUBLICATIONS

- King, David A. 1991. "The Allometry of Trees in Temperate and Tropical Forests." *National Geographic Research and Exploration* 7(3): 342-351.
- Lessios, H.A. 1991. "Presence and Absence of Monthly Reproductive Rhythms among Eight Caribbean Echinoids off the Coast of Panama." *Journal of Experimental Marine Biology and Ecology* 153: 27-47.
- Robertson, D. Ross. 1991. "The Role of Adult Biology in the Timing of Spawning of Tropical Reef Fishes." In: *The Ecology of Fishes on Coral Reefs*: 356-386, edited by P.F. Sale. Academic Press.

- Terwilliger, Valery J. 1991. "Natural History of Baird's Tapir on Barro Colorado Island, Panama Canal Zone." *Biotropica* 10(3): 211-220.

## ANNOUNCEMENTS

### 1992 Brooks Award Nominations

Robert A. Brooks Award for Excellence in Administration was established in honor of the former SI Under Secretary. Send nominations by Mar 15 to Office of Financial and Management Analysis, 955, L'Enfant Plaza, Room 7500, MRC 906 (Announcement 92-1, dated Jan 13, 1992 has details on eligibility criteria).

### Summer Volleyball League

#### Liga de Verano de Vóleibol

Coordinators ••• *Coordinadores*

Tupper/Tivoli: Luis Turner

Naos: Marco Soriano

BCI: Milton García

ANCON: Jorge Aranda

On Friday March 13, 1992, STRI initiates its Summer Volleyball League. Everybody is cordially invited to participate. There will be trophies for the winning teams. Interested persons can sign up with their facility coordinator ••• *El viernes 13 de marzo de 1992, se inicia la Liga de Verano de Vóleibol del STRI. Todos están cordialmente invitados. Habrá trofeos para los equipos ganadores. Los interesados favor de comunicarse con el coordinador de su lugar de trabajo.*

### PROMAR y el Día de la Tierra

En el Día de la Tierra 1992 (22 de abril), la Fundación para la Protección del Mar (PROMAR) está lanzando una campaña en desagravio a la parte acuática del planeta, en colaboración con la organización *Earth Day*. El proyecto, denominado *Proyecto Planeta Océano*, se realizará el domingo 26 de abril con la colaboración de grupos interesados en llevar a cabo una limpieza costera marina y fluvial. Aquellos grupos interesados en contribuir con el proyecto deberán comunicarse con la Fundación PROMAR al tel. 64-1565 de 1 a 5pm.

### Assistant Available

Harald v. Campenhausen, Ph.D. student in animal physiology at Tuebingen University (Germany), is interested in working as a volunteer or as a field assistant in the tropics, in the field of behavior, animal ecology or zoology, preferably with marine animals. Can pay travel expenses. Available from May to September. Curriculum vitae available at the Office of Education.

## POSICIONES ABIERTAS

### *Especialista en Estudios de Impacto Ambiental*

Organismo ecologista privado, sin fines de lucro requiere un **Especialista en Estudios de Impacto Ambiental**. Se requiere: título universitario o maestría en estudios de impacto ambiental; experiencia en estudios de campo en áreas de difícil acceso; habilidad para hablar y escribir con dominio total el inglés y español; experiencia en la ejecución de inventarios ecológicos rápidos o estudios de impacto ambiental; preferiblemente con experiencia en supervivencia en selva, primeros auxilios, navegación, conducción de vehículos 4x4; disponibilidad inmediata para viajar y permanecer en áreas remotas del país; preferiblemente con experiencia en el diseño y manejo de proyectos científicos y la supervisión de personal técnico. Salario competitivo basado en la experiencia académica y profesional de la persona seleccionada. Por favor envíe un curriculum vitae detallado a: **Especialista en Estudios de Impacto Ambiental**, Apartado 1613, Panamá 1, Panamá.

### *Oficial de Conservación*

Organismo ecologista privado, sin fines de lucro requiere contratar a un **Oficial de Conservación** para ejecutar y supervisar programas de conservación de la naturaleza en el terreno. Se requiere experiencia en el manejo e implementación de programas de campo en áreas de difícil acceso; preferiblemente con experiencia en supervivencia en selva, primeros auxilios, navegación, conducción de vehículos 4x4; disponibilidad inmediata para viajar y permanecer en áreas remotas del país; título universitario en biología, ecología, geografía o ingeniería forestal preferiblemente con experiencia en el desarrollo de proyectos de conservación en las Provincias Centrales del país. Salario competitivo basado en la experiencia académica y profesional de la persona seleccionada. Por favor envíe un curriculum vitae detallado a: **Oficial de Conservación**, Apartado 1613, Panamá 1, Panamá.

## Bulk Purchase • Dive Equipment Orders

The Smithsonian Institution is accepting orders from STRI personnel who wish to buy diving equipment at bulk prices. A written order along with federal or trust account number or check made out to the Smithsonian Institution is necessary. Get in contact with Julio Calderon, acting dive officer, Naos, if interested.

The deadline for the next order is Wed, March 18.

## FROM OTHER SOURCES

### **Update on an Ecological Disaster**

Although the oil well flames are out, intensive clean up in the Persian Gulf region must continue in order to prevent long-term environmental damage, according to UNEP.

To address the environmental consequences of the Gulf War, UNEP prepared an action plan, including an initial survey and preliminary environmental assessment of the region. The concluding report, stating that the international community must act now to save fragile and damaged ecosystems, points to air pollution and the destruction of terrestrial habitats as the most crucial areas to be tackled, but marine pollution and hazardous waters are still problematic.

The Regional Organization for the Protection of the Marine Environment (ROPME), established in 1979 and based in Kuwait, is the coordination center for the UN Inter-Agency Plan of Action for the Gulf region. UNEP implemented the Plan through an expert group from the ROPME secretariat, and the UNEP's Oceans and Coastal Areas Programme Activity Centre (OCA/PAC).

The report is optimistic about the recovery of marine and coastal environments, although despite removal of much of the spilled oil, considerable environmental damage to beaches, coral reefs, mangroves, and nesting grounds of marine species still exists, according to Makram Gerges, UNEP's senior program officer.

Terrestrial ecosystems were hard hit. The destruction of chemical factories and oil refineries in Iraq had severe effects on the food chain, soil productivity and water quality. Large mammal populations have been adversely affected; the dorcas gazelle may be extinct. Movements of heavy military equipment across deserts pulverized the surface soil, leading to severe erosion and damaging the flora and fauna. Hazardous waste and waste disposal problems also remain.

The plan urges governments responsible for environmental protection to begin rehabilitation after follow-up assessments. Over one billion dollars will be needed for the clean-up.

### *Nuevo Plan Médico*

Aquellas personas interesadas en conocer sobre un nuevo Plan de Seguro de Hospitalización, se les invita al salón de reuniones del Centro Tupper, el miércoles 11 de marzo a las 2pm.



## STRI NEW BOOKLIST

- Advances in gene technology: a research annual.  
TP248.I3.A245 STRI.
- American ginseng: *Panax quinquefolius*.  
RS165.G45F75 1991 STRI.
- Antiviral compounds from plants / author, James B. Hudson.  
RS431.P55H83 1990X STRI.
- Asian ginseng: *Panax ginseng*. RS165.G45F75a 1991 STRI.
- Atmospheric deposition and forest nutrient cycling: a synthesis of the integrated forest study / Dale W. Johnson, Steven E. Lindberg, editors. QH541.5.F6A85 1992X STRI.
- Bibliografie Nederlands Antillen, Aruba / samengesteld door S.R. Criens. F2141.C92 1989 STRI.
- Biogeochemistry of subalpine ecosystem: the Loch Vale Watershed / Jill Baron, editor. QH105.C6B56 1992X STRI.
- CRC handbook of ayurvedic medicinal plants / author, L.D. Kapoor. RS164.K36 1990X STRI.
- Chamomile: *Matricaria recutita* & *Chamaemelum nobile* / by Steven Foster. RS165.C24F75 1990 STRI.
- The Chemistry of prehistoric human bone / edited by T. Douglas Price. CC79.5.A5C48 1989X STRI.
- Chlorinated municipal waste toxicities to rainbow trout and fathead minnows. [Prepared] for the Environmental Protection Agency. SH177.C43M52 1971X STRI.
- Coastal plant communities of Latin America / [edited] by Ulrich Seeliger. QK205.C63 1992X STRI.
- Climates of southern and western Asia / edited by K. Takahashi and H. Arakawa. QC990.A7542C63 STRI.
- The Cultural landscape: past, present, and future / edited by Hilary H. Birks [et al.]. GF75.C85 1988X STRI.
- Designed right! / Alan Swann. HF5825.S97 1990 STRI.
- Echinacea: the purple coneflowers / by Steven Foster. RS165.E4F75 1991 STRI.
- Economic and medicinal plant research. RS164.E27X STRI.
- Feverfew: *Tanacetum parthenium* / by Steven Foster. RM666.F44F75 1991 STRI.
- The Forests of western and central Ecuador. SD165.U5 1947X STRI.
- Garlic: *Allium sativum* / by Steven Foster. RM666.G15F75 1991 STRI.
- Ginkgo: *Ginkgo biloba* / by Steven Foster. RS165.G4F75 1991 STRI.
- Goldenseal: *Hydrastis canadensis* / by Steven Foster. RS165.G65 1991 STRI.
- Herbivores, their interaction with secondary plant metabolites, edited by Gerald A. Rosenthal, May R. Berenbaum. QH541.H36 1991X STRI.
- Intertidal and littoral ecosystems / edited by A.C. Mathieson and P.H. Nienhuis. QH541.5.S35I58 1991X STRI.
- Light as an ecological factor: a symposium of the British Ecological Society, Cambridge, 30th March-1st April, 1985. Edited by Richard Bainbridge, G. Clifford Evans and Oliver Racham. QH515.L72 1985 STRI.
- Milk thistle: *Silybum marianum*, by Steven Foster. RS164.F75 1991 STRI.
- Peppermint: *Mentha x piperita*, by Steven Foster. RM666.P385F75 1991 STRI.
- Pinnipeds and El Niño / Fritz Trillmich, Kathryn A. Ono, eds. QL737.P6P56 1991X STRI.
- Principles of systematic zoology / Ernst Mayr, Peter D. Ashlock. QL351.M47 1991Y STRI.
- Proceedings of the International Symposium on Biology and Management of Mangroves / edited by Gerald E. Walsh, Samuel C. Snedaker, and Howard J. Teas. QK495.R46I61 1974 STRI.
- Recent advances in palynology: G. Thanikaimoni memorial volume / editor, Sunimal Chanda. QK658.R424 1989X STRI.
- Resource management in Amazonia: indigenous and folk strategies / D.A. Posey and W. Bale, editors. F2519.1.A6R47 1989X STRI.
- The Role of scent glands in pollination: on the structure and function of osmophores / Stefan Vogel; scientific editor, Susanne S. Renner. QK655.V6413 1990X STRI.
- The Scale insects of the tropical South Pacific region / D.J. Williams and Gillian W. Watson. QL526.8.A1W722 1988 STRI.
- Siberian ginseng: *Eleutherococcus senticosus*, by Steven Foster. RS165.G45F75s 1991 STRI.
- Systematic revision and suprageneric classification of trochaean gastropods / Carole S. Hickman and James H. McLean. QL430.4.H62 1990 STRI.
- Uncommon ground: archaeology and early African America, 1650-1800 / by Leland Ferguson. E445.S7F37 1992X STRI.
- The Use of fish movement patterns to monitor zinc, by John Cairns, Jr. and William T. Waller. SH177.Z5C35X 1971 STRI.
- Valerian: *Valeriana officinalis* / by Steven Foster. RS165.V3F75 1990 STRI.
- Watershed development in Asia: strategies and technologies / John B. Doolette and William B. Magrath, editors. S625.A78 1990X STRI.
- Wetlands: a global perspective / C. Max Finlayson and Mike E. Moser, editors. QH87.3.W46 1991X STRI.