

# STRI newsletter

September 14, 1990

SMITHSONIAN TROPICAL RESEARCH INSTITUTE - Apartado 2072, Balboa, Panama

No.37

## SEMINARS

### Tupper Center Auditorium

Tuesday, Sep. 18, 11:30 am, seminar speaker will be Dr. James Quinn, University of California at Davis.

*Disturbance and Intertidal Community Structure* (new title)

#### Abstract

Many shallow marine communities are known to depend upon chronic disturbance to maintain local species diversity. In temperate intertidal communities, essential features of these dynamics may be captured by simple models assuming hierarchical competition in a "bath" of larvae. Wave action its effects largely reversed by trophic interactions.

September 18, 1:00 pm - Engr. Alfredo Carrasco, Secretary General of Charles Darwin Research Foundation for the Galapagos Islands, Quito, Ecuador.

*Asentamientos humanos en Galápagos y Medio Ambiente.*

#### Special Seminar/Seminario Especial

El Instituto de Geociencias de la Universidad de Panamá se complace en invitarle a la charla que dictará el Ingeniero Alfredo Carrasco; Secretario General de la Fundación Darwin el día 18 de septiembre a las 5:00 pm en la Biblioteca del Instituto de Geociencias titulada "*Erupción del Volcán Fernandina y su Impacto en el Ambiente*" ubicado en el Archipiélago de Las Galapagos. El Ing. Carrasco es invitado especial de la Oficina de Asuntos Internacionales del Instituto Smithsonian de Investigaciones Tropicales.

#### Next Week at BCI - Evening Seminar

Thursday, September 20th, Dr. James Quinn, University of California, Davis.

*Habitat Fragmentation, Species Diversity and Extinction.*



El Rector de la Universidad de Panamá, Dr. Abdiel Adames y el Dr. Ira Rubinoff firman la renovación del Convenio de Cooperación Científica entre la Universidad y el Instituto Smithsonian de Investigaciones Tropicales en el Salón de Exhibiciones del Centro Tupper el jueves 13 de septiembre.

(Foto M.A. Guerra)

## PEOPLE

### Arrivals

- Andrew Mitchell, September 15-21, from Earth Watch Europe, United Kingdom, to write an article about the crane being used to study the rainforest canopy at the Parque Metropolitano, visit STRI facilities and talk to various staff members regarding future publications.
- Harvey Mann, September 15-21, photographer from the British newspaper *The Mail on Sunday*, to accompany A. Mitchell.
- Engr. Alfredo Carrasco, September 16-23, Secretary General of the Charles Darwin Foundation for the Galapagos Islands, Quito, Ecuador, to consult with staff on future programs.
- Deborah Clarke, Organization for Tropical Studies, La Selva, Franklin Harris, NSF, and John Olden, State of Florida Institute of Oceanography, September 17-21, to participate in the Environmental Sciences Program planning process.

### Departures

- September 17 - 25, Eldridge Bermingham, to Madrid Spain, to attend workshop "Perspectives of Evolution".
- September 20-26, Vielka Chang, to Habana, Cuba, to attend the 45<sup>o</sup> Congreso de la Federación Internacional de Información y Documentación.

### Our condolences

The personnel at STRI extends their deepest condolences to Georgina de Alba for the loss of her mother, Josefina Aballí. Our support and sympathy are with her during these sad moments.

## UPCOMING EVENTS

### Speciation Discussion

The Speciation Discussion Group will meet Wednesday, September 19, 1:15 pm at the Tupper Center Meeting Room.

### News from the Journal Club at BCI

Beginning Thursday, 20 September, the journal club of BCI (T.R.A.S.H.) will begin a six week series concerning the effects of global climatic changes on the distribution of plants and animals. This week we will discuss Keller, M.M., 1990. *Effects of tropical deforestation on global and regional atmospheric chemistry*, Ph.D. thesis, Princeton University. A launch will leave Gamboa at 5:35 p.m. and return from the island at 9:00 p.m.

## THINGS YOU SHOULD KNOW

### Reminder for Women's Committee Projects Proposals

The deadline for submitting your proposals to the Women's Committee is only a few days away. Proposals must be received at the Women's Committee by October 1st in order to be considered for funding. A project information form, that can be obtained from the Director's Office, must accompany each proposal. The deadline for submitting the proposals is September 24 in the Directors Office.

### Regulations and Information on Barro Colorado Nature Monument

The official document regarding all regulations and information on the management of BCNM has been published (in English and Spanish) and presented by STRI to officials of the governments of Panama and the United States according to the Torrijos-Carter treaties of 1977, which appoints STRI as responsible guardian of the Monument. Copies of this document are available in the Library, the Director's Office, the Office of Assistant Director for External and International Affairs and the Office of the Assistant Director for Terrestrial Research at BCI for consultation.

*El documento oficial sobre la reglamentación e información sobre el manejo del Monumento Natural de Barro Colorado ha sido publicado y entregado por STRI a las autoridades*

*correspondientes de Panamá y los Estados Unidos de acuerdo al Tratado Torrijos-Carter de 1977 que designa a STRI como custodio responsable por la administración del Monumento. Para su consulta hay copias de este documento en la Biblioteca, la Oficina del Director, la Oficina de la Directora Adjunta para Asuntos Externos e Internacionales y en la Oficina del Director Adjunto para Investigaciones Terrestres, en BCI.*

### STRI Liaison Office in Washington

Our Liaison office in Washington will be relocated temporarily starting September 24 for approximately one month. The STRI Office will be moved to the Arts and Industries Building, Room 2201. The telephone and fax numbers remain the same: (202)786-2810, (202)786-2818 fax (202) 786-2819.

## ANNOUNCEMENTS

### WANTED!

#### Ideas to reduce our expenses

In view of the impending reduction of funding for the new fiscal year starting October 1, 1990, STRI has established a Fiscal Austerity Committee to review all proposals to reduce its operating expenses. This Committee is composed of: Carlos Tejada, Aníbal Velarde, Maritza Concepción, Stanley Rand, Alejandro Hernández, Mercedes Arroyo, and Leopoldo León.

The following are the major expense categories at STRI:

Salaries & Benefits	Travel
Rentals	Utilities
Printing and Reproduction	Services
Supplies and Materials	Equipment

All suggestions are welcome. Savings made by your suggestions will reduce across-the-board cuts which have to be made and/or the extent of furloughs. Austerity Committee members will be at following facilities to receive your suggestions:

<b>Tivoli / Tupper</b>	9:00AM Tuesday 9/18/90 Tupper Exhibit Hall
<b>Naos / Surfside</b>	9:00AM Wednesday 9/19/90 Naos Bohio
<b>BCI</b>	9:00AM Thursday 9/20/90 BCI Conference Room

You may also submit your proposals in writing to your supervisor or to a Committee member.

**STRI New Publications**

**Dudley, Robert.** 1990. "Biomechanics of flight in neotropical butterflies: morphometrics and kinematics." *Journal of Experimental Biology* 150: 37-53.

**Dudley, R. and DeVries, P.J.** 1990. "Flight physiology of migrating *Urania fulgens* (Uranidae) moths: kinematics and aerodynamics of natural free flight." *Journal of Comparative Physiology, A* 167: 145-154.

**For those interested in research at Guyana**

If there is anyone in STRI who would like to visit Guyana or collaborate in any research Dr. Bob Brown would be extremely pleased to help. At present he cannot offer any financial assistance, but he can arrange transport, accommodation and various support services. The opportunities in Guyana are tremendous and I'm keen to get as many people involved as possible. Those interested write to Dr. Bob Brown, c/o Golden Star Resources Ltd., P.O. Box 10312, Georgetown, Guyana, S.A.

**For Sale/Se Vende**

Grey Renault 1980 4-door sedan, 1800 cc motor, A/C., electric locks and windows. Good condition. Best offer. Call Prof. Mireya Correa, Tupper Center, 27-6022.

**Pod Pourri**

...Tim Zagat, editor and publisher of the Zagat Restaurant Survey, says you know a restaurant is trendy when they put you on hold when you call for reservations, the waiters look like an Italian soccer team, a dish of pasta cost \$24., and you are still hungry when you leave...



*Bajo la organización del Instituto de Ingenieros en Electricidad y Electrónica de la Universidad Tecnológica y la participación de la Comisión del Canal de Panamá, STRI, ANCON, INRENARE y Fundación Panamá, se inauguró la Semana de la Tecnología y la Naturaleza el 12 de septiembre. Durante la ceremonia del corte de cinta se aprecian representantes de todas las instituciones participantes. (Photo: M.A. Guerra)*

**FROM OTHER SOURCES****Birds: Lifestyles of the Migratory and Mysterious**  
By Marc Bretzfelder

Every year in March approximately 7 million people in the United States -binoculars in hand- are set to seek out the sights and sounds of migratory birds due to arrive "home" soon from the tropics. Along with many scientists, birders will leave no branch unobserved in their quest to get a peek at the lifestyles of the migratory and mysterious.

The birds come north to picnic on caterpillars and any other insects they can get their beaks on, scientist say. But only in recent years have researchers caught a glimpse of what the birds are up to when they spend the non-breeding period in the tropics.

"Our notion of bird lifestyles, based on observations in North America, often bear little resemblance to what happens when they fly to Central and South America," says Dr. Eugene Morton, a research biologist at the Smithsonian's National Zoological Park in Washington, D.C. Scientists are just now beginning to unravel the complex relationships birds establish with their habitats.

In recent years, a note of urgency to learn more about these lifestyles and relationships has been sounded. Scientists have corroborated

what many bird watchers in North America have long suspected: the melodies of these birds are fading to silence. The current rate of forest destruction in both North and South America, according to their most recent studies, means that many species will lose their habitat in both hemispheres, causing widespread population declines.

The 1 1/2-ounce Eastern Kingbird is one species Morton has studied both in North and South America. During the boreal summer months in the North, Morton says, the Kingbird gorges itself and its hatchlings on protein-packet insects. This nutrition, in fact, is vital for the Kingbird and many other birds to reproduce.

When the weather turns cold in the Northern Hemisphere, however, the Kingbird heads south on a 5,600-mile, high altitude journey that takes it through seven countries in about two months. During this journey, the Kingbird switches its diet from insects to fruit.

"Here was a bird that people saw in the United States and thought was strictly an insect eater," Morton says.

From research in South America, Morton has observed that during the Kingbird's migration, the bird bypasses the insect-laden equator and flies thousands of miles farther south to Peru and Bolivia where fruit is abundant. This fruit diet -which can't fly or crawl away- gives the Kingbird energy it needs to move about during the day.

Oddly enough, the Kingbird needs the energy from the fruit because as soon as it arrives in South America, it begins a slow trip back to the north. The Kingbird track the abundance of fruit as they move steadily northward with the tropical dry season, Morton explains.

By March, after five months "on the road" the Kingbird reaches Panama where it eats the last of its fruit diet from a plant known as *Panax morototoni*. All of the fruit-bearing plants the Kingbird feed on benefit from its arrival in the tropics, Morton

says. By attracting the birds, the plants' seeds are ensured of being dispersed far and wide once they have been digested by the always-traveling Kingbird.

"The plants advertise their fruit specifically for migrating birds," Morton says. The fruit of *Panax morototoni*, for example, appears in large clusters, which the plant pushes up above the leaves when ripe. The fruit is not visible from the ground.

"The rust colored leaves of this plant blow in the wind and wave like flags to the Kingbirds overhead," Morton says. "The Kingbird's powerful vision can spot these leaves from five miles away. That is what the Kingbirds home in on in huge flocks of 200 or 300 birds at the time"

The Kingbirds rely on the energy of the fruit to cross the Gulf of Mexico on their journey northward. Once they cross the gulf, arriving in North America, they probably switch back immediately to insect food, Morton says.

Migratory birds are drawn to North America by the summer insect-population boom, says Dr. Russell Greenberg, a National Zoo research associate. "Insects, especially caterpillars, are high-energy food, perfect for nurturing hungry hatchlings." In fact, most migratory birds only travel north to reproduce under these favorable nutritional conditions.

Migratory birds can represent up to 85 percent of the summer bird population in the eastern United States, Greenberg says. Their impact on insect populations has an economic benefit unknown to many people, he adds.

Without the added pressure of migratory birds on insect evolution, Morton explains, the insects would be free to devote more of their energy toward reproduction. Instead, the birds force them to develop and maintain all sorts of evolutionary gimmicks to avoid being eaten. Some insects produce noxious chemicals, for instance, that make them less tasty to the birds. Others spend more daylight hours finding places to hide from birds than finding leaves and

other plant material that would give them energy to produce greater numbers of offspring.

While foresters are concerned about insect damage, the overall ecological damage of uncontrolled insect evolution and reproduction concerns Morton. Through his research, he hopes to understand better the ecological systems that have shaped -and in turn are shaped by- the evolution of migratory songbirds. If the birds disappear, so will the answer to his and other scientists' questions.

The Kingbird's long migration, based on its biological adaptation to life in both the Northern and Southern hemispheres, demonstrates the hard work and international cooperation needed to preserve migratory birds, Morton says.

"In 30 years, we will have destroyed nature to the point that nothing will be natural anymore," he says, speaking of the urban sprawl in North America and agricultural clearing in Central and South America, which threatens the existence of birds and other wildlife. "As scientists, we are really historians. In the future, everyone who wants to know how the world *was* will be relying on what we discovered -which, in retrospect, may not be very much."

But what Morton and other researchers have discovered so far does demonstrate how inaccurate preconceived notions about migratory birds can be, based on observations for three or four months of the year. If the habitats of the birds disappear, so will the link between birds and their environment.

Says Morton: "When the ecological systems are destroyed, we may have individual animals left, and from this we can tell *what* they are, but we will never know what environmental relationships shaped their evolution.



From Smithsonian News Service