

STRI newsletter

December 14, 1990

SMITHSONIAN TROPICAL RESEARCH INSTITUTE - Apartado 2072, Balboa, Panama

No. 50

SEMINARS

Tupper Center Auditorium

No noon seminar scheduled for Tuesday, Dec 18.

There will be an evening staff seminar at 6:30 p.m. by Gilberto Ocaña. Refreshments will be served.

Agrosilvopastoral Systems

Uso de Sistemas Agrosilvopastoriles como una Alternativa a la Deforestación.

PEOPLE

Arrivals

- Diane De Stevens, Dec 16-Jan 12, University of Wisconsin, to work on ESP project at BCI.
- Thomas Juenger, Dec 15-Jan 15, University of Illinois, to work on social organizations of tent-making bats on BCI.
- William Rand, Dec 15-Jan 1, Tuft University, to work on chorus organization and call strategies in the Tungara frog.
- Jennifer Craine, Dec 18-25, to work at Naos.

ANNOUNCEMENTS

Regional Interest in Mangroves

From Nov 12-14, Zuleika Pinzón and Norman Duke were invited to participate in a workshop entitled "La Evolución de los Manglares en Centroamérica", co-sponsored by CSUCA (Consejo Superior Universitario Centroamericano) and the University of Panama. Together with the participants from Tommy Guardia and INRENARE, plus the other countries in this region, the extent, composition, and uses of mangroves were discussed. This culminated in a proposal for a more technical workshop, designed to standardize and improve methodologies for making a more for-



A lively group of youngsters from Boca La Caja's primary school visited the new aquaria at the Naos Marine Laboratories on Thursday of last week. A grant from the Women's Committee of the Smithsonian Associates made possible the purchase of these two large aquaria for the new outdoor living exhibit at Naos ••• Un grupo de activos estudiantes de la escuela primaria de Boca La Caja visitaron los nuevos acuarios en los Laboratorios Marinos de Naos el jueves de la semana pasada. Estos dos grandes acuarios fueron adquiridos recientemente para la exhibición marina al aire libre gracias al financiamiento del Comité de Damas de los Asociados del Smithsonian.

(Photo: C.C. Hansen)

mal, regional inventory of mangrove forests. The proposed workshop will include sections on remote sensing and mangrove forest characterization, the first step toward a better understanding of mangroves in this region.

Exchange Program

The National Academy of Sciences sponsors exchange programs of individual scientists with the Academies of Sciences of the USSR, Bulgaria, Czechoslovakia, Hungary, Poland, Rumania and Yugoslavia. The disciplines include physics; chemistry; mathematics and computer sciences; earth, atmospheric, and oceanographic sciences; agricultural, forestry, fishery, and plant sciences; biological sciences; environmental sciences; engineering; archaeology and anthropology; geography; psychology; science and technology policy; and the history and philosophy of science. Projects in the economic and social sciences that involve development of new analytical methodologies will be considered on a case-by-case basis.

Applications must be postmarked no later than Feb 28, 1991 for Individual Exchange Visits Jan 92-Dec 92 to: Office of International Affairs, National Research Council, 2101 Constitution Ave., Washington, D.C. 20418. Tel: (202)334-3884.

Simposio-Taller Frugivoría y Dispersión de Semillas

Estación Biológica "Los Tuxtlas", Instituto de Biología, Universidad Nacional Autónoma de México, 3-6 de junio de 1991.

Con el objetivo de revisar avances científicos y teóricos logrados en el estudio de una de las interacciones ecológicas más fundamentales en los ecosistemas tropicales, se invita a individuos e instituciones que trabajan en investigaciones sobre frugivoría y dispersión de semillas a este Simposio-Taller. Los interesados deben indicar su área específica de interés y/o título tentativo de su presentación (cartel) a: II Simposio Taller Frugivoría y Dispersión de Semillas, att.: Dr. Carol Horvitz, Department of Biology, University of Miami, Coral Gables, Florida; o al Apartado Postal 176, San Andrés Tuxtla, Veracruz, México.

Natural History Internships at the Smithsonian

The National Museum of Natural History, Departments of Botany, Paleobiology and Vertebrate Zoology offer summer internships specifically designed for undergraduate college students. The internship offer students the opportunity to work side by side with Smithsonian Staff participating in hands-on systematic-based research.

The summer session is an intensive 10-week training opportunity. Applications are due 1 February 1991. Application forms and suggested project descriptions may be obtained by completing and mailing postcards available at Tupper Bulletin Board.

FROM OTHER SOURCES

Ocean waters still far from "dolphin safe"

by John Barrat, SI News Service

Dolphin safe tuna may not taste any better, but for many people, it is a lot easier to swallow. No one likes a sandwich with a side order of guilt.

America's three largest dealers of canned tuna—Star Kist, Bumble Bee and Chicken of the Sea—admitted as much earlier this year when they agreed to stop buying tuna netted by methods that also kill Pacific dolphins. Environmental groups are now working to convince foreign tuna interests to follow suit. Despite this decision, dolphins are still dying by the thousands in 30 to 40 mile-long driftnets commonly used to harvest a number of fish other than tuna—including squid. In addition concern for dolphins has been compounded since 1987 by a die-off of roughly half their population along the

U.S. Atlantic coast from an AIDS-like illness. Thousands of dolphins washed ashore suffering from skin lesions, starvation and viral infections—conditions attributed to the effects of natural and man-made toxins. A similar die-off has killed several hundred dolphins so far this year in the Gulf of Mexico.

While much has been learned about the behavior and intelligence of captive dolphins, research on how these animals live and survive in the open seas has been difficult and slow. Wild dolphins are shy, nearly impossible to follow and spend most of their time underwater.

Still, in order to be able to help dolphins survive the often devastating actions of man, a clearer picture of how they "normally" live is critical, says Dr. James Mead, director of the Smithsonian Institution's Marine Mammal Program, based in the National Museum of Natural History in Washington, D.C. "What we don't know about these animals would fill volumes," he says. "Ninety-nine percent of what you read about them is anecdote and hypothesis."

Research on dolphins and whales by Mead and Charles Potter, another Smithsonian marine mammal expert, has helped clear up some of the myths surrounding these animals and helped build the case against their exploitation by the tuna industry. In the mid-1970's, for example, Mead was a recipient of hundreds of dead Pacific dolphins pulled from the nets of U.S. tuna boats, then frozen and shipped to his laboratory. Mead and other marine mammal experts carefully examined the dolphins one by one, inside and out, from tooth to fin.

What the scientist learned was startling. "They discovered that the tuna boats were netting a variety of different species and sub-species of Pacific dolphins, not just a few as had been previously assumed," Potter says. And although these dolphins are nearly identical in appearance "each sub-species, is a unique set of animals living in a particular marine habitat". Such diversity is a natural mechanism for survival, Potter explains. One sub-species, for example, may develop the ability to utilize a very specific resource that other groups ignore. Over time, such diversity is essential to the overall well-being of the entire species. "Knowing the zones these different sub-groups occupy in the oceans is important," Potter says. "Otherwise, someone may plan an oil well or garbage dump in the middle of a critical habitat".

"Today dolphins, as well as hundreds of other species of sharks, fish, turtles, seals and birds, are being drowned by the thousands in driftnets that are essentially stripmining the oceans," Potter says. "Net boats after one type of fish kill thousands of other animals in their nets. These creatures are then dumped back into the sea, dead".

Normally, Mead and Potter glean most of their data from the carcasses of stranded animals, not from those caught in fishing nets. While a stranded dolphin or whale may elicit little more than novel curiosity or a cry of "yuck" from beachcombers, Mead and Potter have learned to "read" the physical characteristics of these animals with great accuracy. Examination of their stomach contents, external morphology, reproductive tract and other organs yields valuable insight into the animal's life history. A belly-full of squid in the dead Atlantic bottlenose dolphin, for example, tells researchers that it lived far out at sea where squid are plentiful. A second distinct stock of Atlantic dolphin living just off the beach eats only fin fish, such as spot or sea trout.

"Even without knowing what they eat, we can often determine an animal's origin by the suite of parasites it carries," Mead says. "Each stock of dolphins carries a unique set of worms. Some are picked up in the food they eat and other are passed down from generation to generation". "We are concerned with gathering data that represents the normal natural history of these animals, such as when they become sexually mature, what diseases they get, how large they grow and how long they live," Mead emphasizes.

Unfortunately, toxic pollutants have also become normal for dolphins, and the Marine Mammal Program has documented a spectrum of pollutants found in their bodies-including high concentrations of DDT, PCBs, mercury and chlordane. "So high, in fact" Potter says, "that, if they were a commercial fish, dolphins would certainly be banned as unfit for human consumption". Potter points out that dolphins are at the top of the ocean food chain and acquire these contaminants from the fish they eat, such as mackerel, croaker, sea trout and the like. "These are the same fish you will find at a fish fry or at your local restaurant," Potter cautions.

"In mammals, toxins accumulate in fatty tissues, such as the blubber and liver," Mead says. Sub-lethal levels of toxins affect mammals by weakening their immune systems, making them susceptible to diseases that their bodies would normally be able to resist. Evidence of crippled immune systems was observed during the die-off of Atlantic bottlenose dolphins in 1987.

In related research, marine mammal scientists are still learning the most basic facts of dolphins anatomy.

Recently, for example, researchers learned that dolphins move through the water using means of locomotion previously unknown to man. A thin girdle of tendons just beneath the dolphin's blubber stores energy, which, when released through the tail, helps propel the creature through the water.

Another researcher has discovered a previously unknown



Las Esclavas High School organized its first Educational Expo-Fair (previously only recreational) on November 18th. The STRI Office of Education and Conservation participated with a photo display, of what is STRI, its facilities, aspects of Panama's biodiversity and a marine aquarium. Thanks to the volunteers, Luis Anibal Solorzano, Eddar Brunetti, Adalberto Gomez, Emerita Borace y Jorge Silva, visitors to the exhibit received ample instruction on the natural history of plants and animals in Panama.

El 18 de noviembre pasado el Colegio las Esclavas organizó su primera Feria-Expo Educativa (anteriormente sólo recreativa) en los predios del colegio. La Oficina de Educación y Conservación de STRI participó con un 'display' de información sobre lo que es el STRI, sus instalaciones, un pantallazo de la biodiversidad en Panamá y un acuario con especies marinas. Gracias a los voluntarios, Luis Anibal Solórzano, Eddar Brunetti, Adalberto Gómez, Emérita Borace y Jorge Silva, los visitantes a nuestra exhibición recibieron una amplia explicación sobre diferentes aspectos de la historia natural de plantas y animales en Panamá.

circulatory pathway by which dolphins can regulate the blood temperature around their reproductive organs. Scientists still have much to learn about dolphins, but time is running out since many species are being driven towards extinction - despite the tuna industry's recent decision.

The 1987 die-off was a real warning shot across our bow," says Potter. "It is time we began to take pollution and management of our oceans seriously".



STRI LIBRARY NEW BOOK LIST

Archaeological field research in the upper Mantaro, Peru, 1982-1983: investigations of Inka expansion and exchange (T. Earle ... [et al.], 1987) F3430.1.H8A7 1987X STRI.

Archaeology as long-term history (I. Hodder, ed., 1987) CC77.H5A7 1987X STRI.

Arthropod bioacoustics: neurobiology and behaviour (AW EWING, 1989) QL496.5.E96 1989Y.

Atlas of alien and translocated indigenous aquatic animals in southern Africa (IJ de Moor & MN Bruton, 1988) QL141.D43 1988 STRI.

Biology and utilization of the Curcubitaceae [sic] (DM Bates et al., eds., 1990) SB351.C8B56 1990X STRI.

Botanical research and management in Galapagos (Workshop on Botanical Research and Management in Galapagos (1987: Santa Cruz, Galapagos, Ecuador), 1990) QK473.G2W92 1987 STRI.

The Cell cycle: proceedings of the British Society for Cell Biology-Journal of Cell Science Symposium, St. Andrews, April 1989 (British Society of Cell Biology. Symposium (1989: University of St. Andrews), 1989) QH605.B86 1989 STRI.

Dictionary of biomedical acronyms and abbreviations (J. Dupayrat, 1990) R123.D87 1990X STRI.

Electrocommunication in teleost fishes: behavior and experiments (B. Kramer, 1990) QL639.1.K74 1990X STRI.

Evolution and the fossil record (K. Allen & D. Briggs, eds., 1989) QH366.2.E933 1990Y STRI.

The Evolution of the Polynesian chiefdoms (PV Kirch, 1984) GN670.K56 1984X STRI.

Fauna del Ecuador (E. Patzelt, 1989) QL245.P38 1989X STRI.

Fishery fleets statistics = Statistiques des flottes de peche = Estadísticas de las flotas de pesca, 1970-1978 (Food and Agriculture Organization of the United Nations, 1981) SH331.5.S75F53 1981 .

Forestry in the Caribbean: proceedings of the first Workshop of Caribbean Foresters held in Castries, Saint Lucia, May 24-28, 1982 (Workshop of Caribbean Foresters (1st: 1982: Castries, Saint Lucia), 1982?) SD118.W92 1982 STRI.

From: **365 Ways to save your planet •**
Page-a-day Calendar

This is the year you won't be engulfed by mountains of Christmas wrapping paper. Hold down the waste by wrapping box lids and bottoms for family gifts separately, then tying them with ribbon. Save the boxes for next year-you'll find this saves time too.

From foraging to agriculture: the Levant at the end of the Ice Age (DO Henry, 1989) GN776.2.32.M62H45 1989X STRI.

Geological problem solving with LOTUS 1-2-3 for exploration and mining geology (with programs on diskette) (GS Kock, Jr, 1990) QL696.F3J6 1990X STRI.

Glosario de términos de acuicultura (1988) Ref SH135.G56 1988 STRI.

Hawks, eagles & falcons of North America: biology and natural history (PA Johnsgard, 1990) QL696.F3J6 1990X STRI.

A History of archaeological thought (BG Trigger, 1989) CC100.T75 1989X STRI.

Investigaciones arqueológicas en la costa sur de Guatemala (DS Whitley & MP Beaudry, eds., 1989) F1465.I56 1989X STRI.

The Lullabies of the San Blas Cuna Indians of Panama (SS McCosker, 1974) Ref ML3572.M13 1974 STRI.

Macrolichens of East Africa (TDV Swinscow & H. Krog, 1988) QK592.A353S97 1988 STRI.

Maintenance of the biosphere: proceedings of the Third International Conference on Environmental Future (3rd ICEF) (International Conference on Environmental Future (3rd: 1987: University of Edinburgh), 1990) GF3.I37 1987X STRI.

Managing marine protected areas: an action plan / prepared during the International Marine Protected Area Management Seminar June 1-12, 1986 (N. Foster & MH Lemay, eds., 1986) QH91.75.AIM25 1988 STRI.

Mechanisms of forest response to acidic deposition (AA Lucer & SG Haines, eds., 1990) SB745.4.M43 1990X STRI.

The Metaphysics of evolution (DL Hull, 1989) QH371.H85 1989X STRI.

No timber without trees: sustainability in the tropical forest (D. Poore ... [et al.], 1989) SD247.P82 1989 STRI.

A Partially annotated bibliography of commercially exploited scallops (Pectinidae, Rafinesque 1815) (E. Kopinski, 1978) Z7996.M7K83 1978 STRI.

Peripheral hearing mechanisms in reptiles and birds (GA Manley, 1990) QP461.M35 1990X STRI.

Plant-microbe interface: structure and function (PA McGee et al., 1989) QR111.P713 1989 STRI.

Principles of stratigraphic analysis (H. Blatt et al., 1991) QE651.B68 1991X STRI.

Report on the fungus fouling of optical instruments (United States. Office of Scientific Research and Development. National Defense Research Committee, 1944) QC372.2.D5U6 1944 STRI.

El Rio Orinoco como ecosistema = The Orinoco River as an ecosystem (FH Weibenzahn et al., eds., 1990) QH541.5.S7R585 1990 STRI.