

Problems associated with international cooperation in scientific research—and ways to minimize them—will be described by Rodolfo del Arenal (Universidad Nacional Autónoma de México).

The concluding talk of the symposium, on the effect of man on the expansion of deserts, will be given by M. Kassas (University of Cairo). Kassas will illustrate his thesis of desert expansion with the 2000-year history of the Mareotis area west of Alexandria.

Latin Americans who have been invited to be discussants for symposium sessions include Virgilio G. Roig (Argentina), Antonio J. Prego (Argentina), Mario Pérez (Bolivia), Patricio Dreckman (Chile), Mario Castro G. (Mexico),

Arturo Cornejo T. (Peru), José Lizárraga Reyes (Peru), and Carlos Zamora Jimeno (Peru).

For the four technical sessions U.S. cochairmen will be Stahrl Edmunds (University of California, Riverside), Dean F. Peterson (Utah State University), Terah L. Smiley (University of Arizona), Richard B. Woodbury (University of Massachusetts), and Gabriel Murillo Peralta (Centro Nacional de Investigaciones para Desarrollo de las Zonas Áridas).

The "Deserts and Arid Lands" central theme is cosponsored by several research institutes and professional societies. These include the Instituto de Investigación de las Zonas Desérticas (San Luis Potosí), Centro Nacional de In-

vestigaciones para Desarrollo de las Zonas Áridas (Coahuila), Dry Lands Research Institute (California), Desert Research Institute (Nevada), Office of Arid Lands Studies (Arizona), International Center for Arid and Semi-Arid Lands Studies (Texas Tech), American Society of Agronomy, Soil Science Society of America, Crop Science Society of America, and the Society of Range Management.

The coarrangers are Fernando Medellín Leal, (Instituto de Investigación de las Zonas Desérticas, Universidad Autónoma de San Luis Potosí) and H. E. Dregne (Texas Tech University).

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**29–30 June**

## **Tropical Ecosystems**

The symposium on "Tropical Ecosystems" (29–30 June) will cover research topics on organisms. The tropical zone of the world is one of the most important and fascinating areas in biological research today because of the diversity of tropical ecosystems, the basic unsolved problems, and the destruction rate of these areas. The speakers at this symposium will cover basic and applied topics bearing in mind that no progress can be made without factual knowledge of the organisms living in the natural environment.

The complexity of biotic relations of tropical organisms will be covered from different viewpoints by Drs. Colwell and Frankie. Dr. Bawa will discuss variability in reproduction of tropical trees, a neglected subject of great importance for future applied tropical forestry. Dr. Gómez-Pompa and Mr. Vázquez will discuss secondary succession in general, as well as their work and ideas about secondary vegetation in the lowland tropics of Mexico. Miss Moreno will present the first data on seed viability and dormancy of a lowland tropical tall rainforest, which is research of great importance in understanding the dynamics of the regeneration of rainforests. Regeneration can hardly be understood without discussing soil recovery after cultivation and the changes in element concentrations during this process—a topic that will be discussed by Dr. Zinke. Knowledge of tropical taxa is inadequate, and this problem will be covered by Dr. Nevling, using a subfamily of the legumes. Dr. Pannier will

then discuss the physiological ecology of mangrove swamps to illustrate the highly selective environment of tropical ecosystems.

From the applied point of view, Dr. Janzen will discuss the need for basic research if future application is to be possible, using the field of entomology as example. Tropical ecosystems and shifting agriculture are linked together, and will be discussed by Ing. Hernández Xolocotzi, who has a deep knowledge of the problem. Great portions of tropical ecosystems in Mexico have been given to groups of families by the Mexican government for their use (the "ejidos"). Problems of ejido land use will be provocatively discussed by Mr. Toledo. It is clear to many that optimal conservation of primary tropical ecosystems could be accomplished by their rational utilization, applying methods that will allow both regeneration and the use of their products. This unsolved world problem has been a critical point in promoting conservation, and Dr. Echenique will present his ideas on the subject.

This symposium is sponsored by the Ecological Society of America and arranged by Dr. Arturo Gómez-Pompa and Dr. Charles R. Malone.

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Tropical ecosystems. [Standard Oil Company]

