

## U.S. MAB APPROVES TROPICAL ECOSYSTEMS DIRECTORATE CORE PROGRAM

**A Regional Approach for Sustainable Development and the Conservation of Natural Resources in the Maya Tri-National Region of Belize, Guatemala, and Mexico—**  
*Coordinating Research To Assist the Development of Sustainable Resource Management Policies.*

The core program proposal of the Tropical Ecosystems Directorate, Chaired by Twig Johnson of U.S.A.I.D., was approved by the U.S. MAB Executive Committee. The proposal reflects a theme central to the goals of the Tropical Ecosystems Directorate—management of the tropical landscape for diversity, resilience, productivity, and sustainability for the long term.

The Maya Tri-national Region, encompassing parts of Belize, Guatemala, and Mexico, was selected as the research site by the directorate in order to enhance understanding of the interrelationships among the diverse factors impacting upon tropical landscapes.

The three countries of the Maya Tri-national Region offer contrasts for studying how surrounding land tenure and land use affect landscape patterns, ecosystem function, and biological diversity. The Belize component is heavily forested with a low population density; the Mexican component has a relatively dense human population and low forest cover; and the Guatemalan component is currently well forested but is being rapidly transformed by logging and agriculture. Land tenure and land use patterns differ significantly among the three countries. In Belize, much of the land in the program area is in the hands of large private landowners or protected by private groups. In contrast,

*continued on page 3*

## POSITIONS AVAILABLE ON U.S. MAB DIRECTORATES

The U.S. National Committee for MAB announces its request for persons to apply to serve on U.S. MAB Directorates for a 3-year appointment. Openings exist on the following four directorates: High Latitude Ecosystems, Human Dominated Systems, Marine and Coastal Ecosystems, and Temperate Ecosystems.

To implement its mandate of pursuing interdisciplinary research and collaboration, the U.S. MAB Program attempts to maintain a balance on all directorates between scientists from the biological/natural sciences disciplines and the social scientists. U.S. MAB also seeks on its directorates a balance between scientists from the supporting Federal agencies and from the private sector/ academia. Therefore, in 1992, U.S. MAB will give special consideration for appointment to applicants who fulfill the following:

**High Latitude Ecosystems Directorate:** priority consideration to social scientists from U.S. MAB supporting

*continued on page 5*

## In This Issue

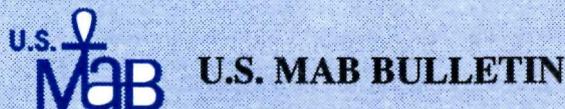
- **Tropical Directorate Core Program Approved**
- **EuroMAB: Linking Biosphere Reserves**
- **Positions Available on U.S. MAB Directorates**



## Notes From the Executive Director

This Bulletin contains announcements of what might appear to be two new directions that were recently approved by the U.S. MAB Executive Committee. I hesitate to call them “policy directions” because what they really do is reemphasize some of the basic underpinnings of the entire Man and the Biosphere Program, both internationally as well as domestically.

The first the reader may notice is in the description of the core program of the Tropical Ecosystems Directorate.



The U.S. MAB Bulletin is published quarterly by the U.S. MAB Secretariat, OES/EGC/MAB, Room 608, SA-37, U.S. Department of State, Washington, DC 20522-3706. Tel. 703-235-2946, 2947. FAX # 703-235-3002.

*“The mission of the United States Man and the Biosphere Program (U.S. MAB) is to foster harmonious relationships between humans and the biosphere through an international program of policy-relevant research which integrates the social, physical and biological sciences to address actual problems. These activities—broadly interpreted—include catalytic conferences and meetings, education and training, and the establishment and use of biosphere reserves as research and monitoring sites.”* Adopted by the U.S. National Committee for the Man and the Biosphere Program, January 6, 1989.

U.S. MAB is supported by the Department of Agriculture-Forest Service, the Department of Energy, the Department of the Interior-National Park Service, the Department of State, the Agency for International Development, the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the National Science Foundation, the Peace Corps, and The Smithsonian Institution.

The program is organized into five directorates: High Latitude Ecosystems; Human Dominated Systems; Marine and Coastal Ecosystems; Temperate Ecosystems; and Tropical Ecosystems.

Unlike the directorate core programs of other U.S. MAB Directorates, this program does not propose primarily to initiate new research activities. While a number of reviewers were critical of this lack of “traditional U.S. MAB support” for research, the Executive Committee was persuaded to support this program by the fact that the first order of business will be to document the extent of *existing* ongoing research and other rainforest conservation projects in the region. Already the Tropical Ecosystems Directorate’s preliminary inventory in the Belize/ Guatemala/ Mexico area has identified more than 300 such projects. Putting researchers of the many projects into communication with each other and with the relevant authorities and other stakeholders, nongovernmental organizations, etc., of the regions, and perhaps synthesizing some lessons learned and identifying gaps in required knowledge does indeed reemphasize one of the basic MAB goals: To increase communications among the sciences and policymakers.

The second new/old reemphasis can be observed in our annual call for persons to apply to become members of a U.S. MAB directorate. While MAB’s strength has been in the blending of the biological and social sciences, this year’s call also attempts to reach out to and seek participation from the nonacademic private sector. The process of building effective directorates between the Federal and private sector has admittedly been slow. While effective communications appear to have been created between the “feds” and the academic scientists, the Executive Committee has also signaled its desire to obtain the involvement of the large and effective private industrial and business sectors in the U.S. MAB Program.

Again, this is not a new policy direction, but a belated recognition that indeed there are also qualified scientists and others in the nonacademic private sector. To effectively address the complex environmental problems of today and of the future, all of the sectors must be involved. The easy and irrelevant “we vs. they syndrome” must give way to mutual cooperation and involvement. As one who observed from within the State Department the many discussions concerning the CFC issue leading to the Montreal Protocol, the leadership and involvement of the scientific community from the private industrial sector was critical to success in Montreal. Consequently, while I can’t say that U.S. MAB is necessarily leading the way on this issue, we must, and U.S. MAB will try, to actively involve a broader representation of the “private sector.”

ROGER E. SOLES



---

## Tropical Ecosystems—continued from page 1

*ejido* land tenure prevails in Mexico, resulting in communally held lands administered by elected community governing boards, while in Guatemala, the government holds large blocks of forested land with small cultivated holdings, shifting cultivation, cattle ranching, and commercial logging present on the periphery of government lands.

The primary objective of the directorate program is to develop a process through which resource management decisionmaking in and around the parks and protected areas of the Maya Tri-national Region can be improved and strengthened. This will be done by focusing upon the identification and coordination of researchers, resource managers, and funding institutions in the Maya Tri-national Region. Preliminary investigation by the directorate has shown that numerous researchers, conservation organizations, and resource management institutions are already conducting research and initiating development projects in the region. The directorate determined that what is needed is a program for synthesis and coordination of the information that is gathered in the three separate countries, but is required for use on a regional scale. The directorate plans to accomplish this by:

**1. Regional Communication.** Locate data sources, researchers, and institutions active in the area and encourage communication among all parties by disseminating this information. Compile information into a single document and use this as a starting point for a regional newsletter, to be published in both English and Spanish, that will present an account of current research projects in the region and will summarize new data as they become available.

**2. Development of a Research Agenda.** Establish links between researchers and resource management personnel. Provide data from research projects relevant to management issues and needed information. By proposing concentration on need-driven research, the directorate will hope to ensure the utilization of the research findings and actively address immediate threats to biological diversity.

**3. Research Projects.** Develop three projects designed to address specific questions raised at the initial meeting. The directorate will facilitate cooperation among researchers already active in the region to enable them to develop a regional, multidisciplinary approach in seeking information in the research agenda. Types of projects could include:

a. impact of different land use patterns and laws on conservation of natural resources;

b. ecological and socioeconomic impacts of resource extraction, logging, agriculture, cattle ranching, oil exploration, etc.;

c. fundraising, institutional development, and support and training of resource managers and reserve personnel, etc.

**4. A Regional Network.** Establish strategic alliances with resource management institutions and conservation organizations in the Maya Tri-national Region so that a long-term ongoing process to determine resource management needs and to direct research to help meet these needs is put into place.

**5. Funding the Research Agenda.** Actively seek out additional funding sources for the core program. The program envisioned will require financial input beyond what is available from U.S. MAB in the years to come. The directorate, therefore, will seek out private foundations and funding sources to support additional research and the recurrent expenses of maintaining the network. Funding for the Maya Tri-national Region is already substantial; however, the funding comes from diverse sources and duplication and repetition of research projects occurs frequently. Soliciting some of these funds for coordination could promote a more effective and efficient research program in the region.

---

## EuroMAB: FORGING THE LINKS OF BIOSPHERE RESERVES

The U.S. Man and the Biosphere Program is actively working to create an international ecological monitoring network that links the biosphere reserves established under UNESCO's Man and the Biosphere Program. The initial work is focusing on creating links among the 168 biosphere reserves of EuroMAB, which is comprised of the Man and the Biosphere Programs of Europe and North America. The concept of creating this network was endorsed by representatives at the EuroMAB III meeting in September 1991, in Strasbourg, France.

The German MAB National Committee representative, with strong support from the United States, Spain, and the former Soviet Union, proposed the development of an integrated ecological monitoring network using the 168

*continued on page 4*



biosphere reserves in EuroMAB region. The delegates at this meeting agreed to initiate work by surveying the existing data bases on their biosphere reserves before the end of 1991, using as a base the results of a survey on biosphere reserve activities conducted by Yale University for UNESCO. U.S. MAB obtained this information from Yale University and invited EuroMAB member states to update the information. In addition, the U.S. MAB Program invited the EuroMAB member states to attend a workshop in Washington, DC in February 1992 to analyze this information and to chart appropriate courses for future scientific cooperation.

### **The First Planning Workshop**

The first planning workshop for the EuroMAB Biosphere Reserve Integrated Monitoring (BRIM) network was held February 5–7, 1992 in Washington, DC and was attended by representatives from Spain, Canada, Czechoslovakia, the United Kingdom, Germany, Russia, France, Sweden, and the United States. The workshop participants reviewed the status of the available data bases and information on the EuroMAB biosphere reserves and recommended that the EuroMAB biosphere reserve managers and EuroMAB National Committees work toward creating linkages to facilitate access to this information by developing two general types of networks: a broad-based network and several smaller, specialized networks.

The broad-based network would include almost all of the biosphere reserves in the EuroMAB member states. It would use ongoing research and monitoring activities to develop, on as many of the EuroMAB biosphere reserves as possible, comparable data sets on inventories of vascular plants, climatological monitoring, and the establishment and scientific study of permanent vegetation plots.

Several in-depth research and monitoring networks would be established for smaller, more detailed sets of specialized information among those biosphere reserves that appear to have longer-term historical records, detailed and specialized research and monitoring activities, and/or strong current research and monitoring activities in the fields of plants, vertebrates other than mammals, mammals, invertebrates, and precipitation chemistry.

The workshop participants recommended five immediate activities to establish linkages within the EuroMAB biosphere reserve networks. These include:

- compiling and publishing a directory of the EuroMAB biosphere reserves;

- standardizing the reporting of flora and fauna information and developing an inventory of vascular plants for EuroMAB biosphere reserves;
- developing criteria and guidelines for establishing permanent vegetation plots on biosphere reserves for monitoring;
- linking the monitoring of ecological processes with global change research, beginning with a draft project; and
- collecting additional information on the relationship between human and natural systems and their impacts in biosphere reserves and on institutional arrangements for dealing with such involvement or impacts in biosphere reserve monitoring activities.

The workshop participants urged each EuroMAB member state to select a core set of biosphere reserves to participate in each of the in-depth activities and to encourage the participation of all of their biosphere reserves in the broad-based biosphere reserve activities.

The workshop participants also called on each member state to designate a national focal point for biosphere reserves from which they would collect and make information available on data sets and increase communication among the national biosphere reserve programs.

Participants also called for a discussion of the establishment of EuroMAB regional focal centers to coordinate regional monitoring activities for biosphere reserves.

At the end of the workshop a schedule for meeting regularly and implementing the recommended activities was established. EuroMAB members are proceeding rapidly with the agenda that includes the development of a broad monitoring network that will focus on the collection of general scientific information from a large number of biosphere reserves and smaller networks of biosphere reserves that will collect more specific information, particularly information related to global change. (See Publications section of this Bulletin to obtain a complete copy of the workshop's final report.)



---

**Positions Available—continued from page 1**

government agencies and biologists/natural scientists from the private sector;

**Human Dominated Systems Directorate:** priority consideration to biologists/natural scientists from U.S. MAB- supporting government agencies;

**Marine and Coastal Ecosystems Directorate:** priority consideration to social scientists from the private sector; and,

**Temperate Ecosystems Directorate:** priority consideration to social and biological/natural scientists from supporting government agencies.

Qualified women and minorities and persons from the industrial and business sectors are especially encouraged to apply.

Applicants should be aware of the responsibilities incurred by those appointed members of directorates. They include approximately three 1 to 2-day meetings per year and time required to review prospectuses and proposals received in response to the annual request for proposals (RFP). Directorate members should also participate in the development and administration of the core program areas of the directorate. Potential applicants will also learn of other opportunities for participation in the "Guidelines for Operations of a U.S. MAB Directorate."

The travel and related costs of attending directorate meetings by scientists and others employed by government agencies must be supported by the appointees' agency. The travel and related costs of attending directorate meetings by scientists and others from institutions in the private sector will be supported by U.S. MAB.

Appointees to U.S. MAB directorates are not eligible to receive individual grants from the U.S. MAB Program.

Persons interested in applying for appointment to a U.S. MAB directorate should first contact the U.S. MAB Secretariat (see address and telephone number on Masthead on page 2 of this Bulletin) and request a copy of the relevant directorate(s)' mission statement, the directorate's core project, if one has been approved; an application form; and Guidelines for the Operation of a U.S. MAB Directorate.

To apply for an appointment, applicants must submit the following to the U.S. MAB Secretariat by September 11, 1992:

1. the application form;
2. a short, 1-page maximum statement about the applicant's interests and potential contribution to the directorate and the U.S. MAB Program; and,
3. a short, 3-page maximum curriculum vitae.

The submitted materials will be reviewed and evaluated by the Directorate chairs, the U.S. MAB Executive Committee and other appropriate entities.

Appointments to the directorates will be made in November.

---

**International Tundra Experiment Update—  
April 1992**

The objective of the International Tundra Experiment (ITEX) is to determine the potential of tundra plants to adjust to climate warming through acclimation or through adaptation (genetic change), and to divide the effect of climatic warming on key phenological, morphological, and physiological traits into environmental and genetic components.

At the second ITEX workshop held in Copenhagen, Denmark in February 1992, among other decisions made, it was determined that:

- Participation in ITEX requires the establishment of a standard temperature warming experiment and the measurement of standard climatic variables at a site. It also requires a commitment to data-sharing and allowing access to a site and to its biological resources;
- Scientists at each participating ITEX site are also encouraged to develop other more sophisticated experiments and observations;
- A central hypothesis and/or a set of related, corollary, or subsidiary hypotheses, which will be tested by ITEX, must be developed and be the focus of ITEX investigations;
- Central coordination of the program is essential to produce a newsletter, explore the means for coordinating

*continued on page 6*



## ITEX—continued from page 5

data-sharing, organizing annual meetings that should result in synthesis volumes, etc.; and

- A “Methods Manual” must be produced as soon as possible to provide information about the basic experiment design. It should contain details of site selection, materials to be used, climate and response variables to be measured, and measurement methods and standards. The goal is to have this manual completed by the beginning of the 1992 northern field season.

A third ITEX meeting was held in March 1992 in Boulder, Colorado attended by 24 scientists from 11 countries. At the meeting, much of the effort was spent on developing a comprehensive, precise Methods Manual. Three working groups were formed. They are: Basic Questions and Hypotheses—Marilyn Walker, Chair; Basic Temperature Enhancement Experiments—Giles Marion, Chair; and Species Selection and Standard Measurements of Response Variables—Sylvia Edlund, Chair.

It was decided that the manual would be made up of three parts, and a working group was formed for each:

1. Basic questions and hypotheses. General statements of ITEX objectives and working hypotheses were formulated.
2. Background data collection. A questionnaire was developed to provide the ITEX Secretariat with a database for comparison at some sites and will force all national boards to clearly define their candidate ITEX sites.
3. Species and response variables. The final ITEX species selection list, species-specific recommendations for response variables, and how to measure them was developed.

A new Steering Committee for ITEX was appointed. Pat Webber, the creator of ITEX, retired from his position as interim chairman, but, fortunately, agreed to remain on the board. The Committee will be chaired by Ulf Molau of Sweden, and co-chaired by Marilyn Walker of the United States. The ITEX Secretariat is now hosted by the Danish Polar Center, Hausergade 3, DK-1128 Copenhagen K, Denmark.

---

*The following article is reprinted from the Environment Bulletin, Spring 1992. For more information, contact MAB Secretariat, Division of Ecological Sciences, UNESCO, 7 place de Fontenay, 75700 Paris, France.*

## Socio-Economic Development in Tropics Will Be Focus of June Conference in Belem, Brazil

*An international conference aimed at evaluating environmentally sound socio-economic development in the humid tropics will be held in Belem, Brazil, June 13–14, 1992.*

Intended to evaluate the present state of research in order to identify gaps and priorities in key areas affecting the fragile tropical ecosystems, the conference is being convened by four institutions: the Association of Amazonian Universities (UNAMAZ), the Programme on Man and the Biosphere of the United Nations Educational, Scientific and Cultural Organization (MAB-UNESCO), the United Nations University (UNU) and the Third World Academy of Sciences (TWAS), under the auspices of the Pro-Tempore Secretariat of the Amazonian Cooperation Treaty, the Secretariat for Environment of the Brazilian Government, and the Secretariat of Science, Technology and Environment of the Para State.

Special attention will be given to the dissemination of already existing knowledge, blending modern and traditional approaches, as well as to the applications of biotechnology and provision of modern technology for producers. Discussion will focus on forest management, agroforestry, and preservation of biodiversity, biosphere reserves, rehabilitation of degraded areas, valorization of aquatic resources, bioenergy, health and environment, management of the urban environment, and planning and implementation of environmentally sound development strategies.

In all countries concerned, developing knowledge-intensive, socially responsive, environmentally and economically sound renewable use patterns while, at the same time, preserving the biodiversity of fragile humid tropical ecosystems, poses a challenge to scholars and planners. Universities and research institutes located in the eight countries of the Amazon region set up UNAMAZ to collaborate with local governments, communities, and private and public enterprises to define environmentally sound sustainable development strategies.

Researchers from three continents will discuss ways to strengthen the local research capabilities in the Amazon region and other tropical regions through provision of adequate financial technical and human resources. The conference will discuss these topics against the background of state-of-the-knowledge reports on the research conducted in Brazil and other countries belonging to the Treaty of Amazonian Cooperation, from African and Asian countries, including Indonesia and Malaysia, and publications and bibliographies provided by the sponsoring institutions and several other organizations.



## PUBLICATIONS

REMEMBER, ENCLOSE YOUR SELF-ADDRESSED MAILING LABEL (OR LABELS, IF YOU ARE REQUESTING SEVERAL ITEMS).

### Available from U.S. MAB:

**People and the Temperate Region. A Summary of Research from the United States Man and the Biosphere Program.** Edited by Peter F. Ffolliott and Wayne T. Swank. Published by the U.S. MAB Program in August 1991.

**Final Report, EuroMAB Biosphere Reserve Integrated Monitoring (BRIM) First Planning Workshop.**

**Proceedings of a Workshop on Forest Hydrological Resources in China, An Analytical Assessment.** The workshop was held in Harbin, China, August 1–23, 1987. The proceedings were edited by Peter F. Ffolliott and D. Phillip Guertin.

**Bibliography on the International Network of Biosphere Reserves.** Published by the United States Man and the Biosphere Program in July 1990.

**Directory of Biosphere Reserves in the United States.** Published by the United States Man and the Biosphere Program in June 1991.

### Available from others:

**Nature Reserves: Island Theory and Conservation Practice.** Craig Shafer, an ecologist with the National Park Service, reviews the literature on island biogeography and related subjects, synthesizes some guidelines from controversial theories, and assesses the current status of nature reserves, information available from field surveys, and results of conservation trials. Available from the Smithsonian Institution Press, Blue Ridge Summit, PA 17294–0900, tel. 800–782–4612, 717–794–2148.

**Ecology Chronicle: Twenty-four Windows on the Man and the Biosphere Programme 1989–1990.** Published by the UNESCO-MAB. Available from the UNESCO-MAB Secretariat, 7, place de Fontenoy, 75700 Paris, France.

**Geographic Information Systems and their Application in MAB Projects, Ecosystem Research and Environmen-**

**tal Monitoring,** edited by Michael Ashdown and Dr. Jorg Shaller. **Report #34.** Available from: MinR Wilfried Goerke, Dipl.-Biologe. Federal Ministry for Environment, Nature Protection and Nuclear Safety, P.O. Box 120629, D-5300 Bonn 2, Germany. Please include your self-addressed mailing label.

**Available from MAB-UNESCO, 7, place de Fontenoy, 75700 Paris, France:**

UNESCO Publication, **MAB Digest 1 on Eutrophication Management Framework for the Policy-Maker** by Marjorie Holland, Walter Rast, and Sven-Olof Ryding. Eutrophication of lakes and reservoirs is one of the most pervasive water quality problems worldwide. This digest aims to provide: quantitative tools for assessing the state of eutrophication of lakes and reservoirs; a framework for developing cost-effective management strategies; and specific technical guidance and case studies for effective management of eutrophication.

UNESCO Publication, **MAB Digest 3 on Contributing to Sustained Resource Use in the Humid and Sub-Humid Tropics, Some Research Approaches and Insights,** by Malcolm Hadley and Kathrin Schreckenber. An overview of recent, ongoing, and planned activities within the MAB framework pertaining to the ecology of humid and sub-humid tropical ecosystems, principally forests and savannas.

UNESCO Publication, **MAB Digest 4, The Role of Land/Inland Water Ecotones in Landscape Management and Restoration, Proposals for Collaborative Research,** edited by Robert J. Naiman, Henry Decamps, and Frederic Fournier. To determine the management options for the conservation and restoration of land/inland water ecotones through increased understanding of ecological processes.

UNESCO Publication, **MAB Digest 6, Debt for Nature Exchanges and Biosphere Reserves, Experiences and Potential,** by Peter Dogse and Bernd von Droste.

UNESCO Publication, **MAB Digest 7. Carbon, Nutrient and Water Balances of Tropical Rain Forest Ecosystems Subject to Disturbance, Management Implications and Research Proposals,** by Jonathan M. Anderson and Thomas Spencer.

*continued on page 8*



---

U.S. Man and the Biosphere Program, OES/EGC/MAB

**DEPARTMENT OF STATE, U.S.A.**  
Washington, DC 20522-3706

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

---

**Publications—continued from page 7**

UNESCO Publication, **MAB Digest 8, Economic and Ecological Sustainability of Tropical Rain Forest Management.** Edited by Kathrin Schreckenber and Malcolm Hadley.

Available from the **Island Resources Foundation, 1718 P Street, NW., Suite T 4, Washington, D.C. 20036, tel. 202-265-9712:**

**Country Environmental Profiles,** Six new books providing a national overview of the state of the environment in each of six neighboring island states in the Lesser Antilles -

Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines.

Designed primarily for those engaged in setting a national environmental action agenda in motion Island Resources Foundation and the Caribbean Conservation Foundation have prepared a smaller executive summary of the volumes described above, **Environmental Agenda for the 1990's: A Synthesis of the Eastern Caribbean Country Environmental Profile Series**

---

DEPARTMENT OF STATE PUBLICATION 9973  
Bureau of Oceans and International Environmental  
and Scientific Affairs

*Released May 1992*



Printed on Recycled Paper