



BULLETIN

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REPORT FROM THE EXECUTIVE DIRECTOR:

It is a pleasure to announce that Dr. Thomas E. Lovejoy has been selected to be the new Chairman of the U.S. National Committee for the Man and the Biosphere Program. Dr. Lovejoy replaces Samuel B. McKee, who announced at the September 17, 1987 National Committee meeting his desire to relinquish the chairmanship since taking a position with the U.S. Department of Education; he believes that U.S. MAB should be guided by a Chairman from the private sector. Mr. McKee has agreed to remain a member of the U.S. National Committee. We are indebted to Sam for his many years of dedicated work, cooperation, and real interest in the fortunes of U.S. MAB. We extend our thanks and best wishes to him.

Dr. Lovejoy is no stranger to MAB, and has long been involved in various ways with the Program. He was given a grant in 1980 from the former U.S. MAB/Agency research consortium for a study on "The Ecology of Amazonian Forest Trees: Baseline Data for Forestry and Reserve Division"; he has attended a number of meetings over the years on U.S. MAB's behalf; and, more recently, served with a special "ad hoc advisory group" established by the Department of State in 1986 to review and advise the U.S. MAB Program.

Becoming U.S. MAB Chairman is not the only recent change for Dr. Lovejoy. He is perhaps best known for his work in international conservation during his 14 years as Executive Vice President of the World Wildlife Fund-U.S. He has left WWF-U.S. and taken over duties as the Assistant Secretary for External Affairs at the Smithsonian Institution. We all wish him every success, both as Chairman for the U.S. MAB Program and in his new responsibilities at the Smithsonian. Dr. Lovejoy will contribute to future issues of the BULLETIN, commencing with the next issue.

This issue contains summary statements of major research--and related--activities which U.S. MAB funded in Fiscal Year 1987. Seven hundred and fifteen thousand dollars were received from seven federal agencies during 1987. These funds were disbursed to more than fifty specific research projects and activities in support of the Directorates' programs.

A budget of \$940,000 has been approved by the MAB Executive Committee for Fiscal Year 1988. I am optimistic that not only will all the agencies meet their target contributions but that U.S. MAB will also be able to raise additional funds to top the million dollar mark during Fiscal 1988!

Roger E. Soles

SMALL GRANTS INFORMATION:

Resources for the Future's Fall 1987 issue (No. 89) of RESOURCES, announces that RFF is accepting applications for participation in its Small Grants Program. This program provides some financial support to researchers for the study of issues related to the environment, natural resources, and energy. In contrast to many funding agencies that typically provide financial support for large projects, RFF operates its Small Grants Program with the aim of providing start-up funding for new projects or supplementary support for the completion of specific aspects of ongoing projects. Researchers of all nationalities are eligible for grants, but grants can only be made through tax-exempt institutions. The maximum grant is \$30,000 including overhead, but most grants are for smaller amounts. The maximum allowable overhead is 10 percent. Proposals for community action projects, litigation, or political activities will not be considered. Deadline for applications is March 1, 1988. Awards will be announced in April 1988. For further information and application forms, write to: RFF Small Grants Program, c/o Mrs. Jean Schanz, Resources for the Future, 1616 P Street N.W., Washington, D.C. 20036.

SUMMARY
FY-1987 MAB PROJECTS GRANTS

MAB-1 - Tropical Forests

- Review paper: The Dynamics of Deforestation in Latin America.

This study seeks to formulate a development framework that integrates regional economics with rural and environmental deforestation/development as they unfold in various contexts, and to track the concrete outcomes in terms of the environmental, social, and regional impacts.

- Publication: People and the Tropical Forest, summaries of tropical forest research funded by the MAB/Agency Consortium for the Study of Man's Relationship with the Global Environment.
- Publication: reprint of Watershed Management in the Caribbean.

MAB-2 - Temperate Forests

- Workshop: Research in Forest Hydrology in China.

Co-sponsored by U.S. MAB, the Chinese Society of Forestry, UNESCO/MAB, and the Northeast Forestry University, Harbin. Held in Harbin, Peoples' Republic of China, August 1987. Its purpose was to discuss with specialists from PRC and elsewhere the status of current forestry-hydrology research in China, with emphasis on objectives and methodology; the extent to which current research projects are relevant to the questions being asked; and possibilities for new initiatives, both nationally and internationally.

U.S. MAB-sponsored participants were Drs. Peter F. Ffolliott, Chairman, MAB-2; Charles W. Slaughter, Chairman, MAB-6; Robert S. Pierce, USDA Forest Service; and Kenneth N. Brooks, University of Minnesota (Twin Cities). U.S. input included scientific papers on: forest hydrology research in the U.S. temperate region; research techniques in forest hydrology; adequacy of existing measurement techniques, database management systems, and research techniques in forest hydrology research (the situation in the United States); application of computerized models in forest hydrology; forest hydrology and water quality; instrumentation for forest hydrology research; and the ecosystem concept--its relationship to forest hydrology.

Outcome of workshop: a published proceedings and a preliminary set of initiatives on forest hydrology in China and elsewhere (cooperatively formulated and supported by the Peoples' Republic of China and the United States).

- Publication: support for summarizing, editing and production of a report on 18 temperate forest and biosphere reserve research studies conducted under the 1979-82 MAB/Agency Consortium for the Study of Man's Relationship with the Global Environment.
- Inter-Directorate preliminary research activity: partial support for a MAB-2 scientist to conduct preliminary research on risk assessment as a measure of human response to environmental stress in forest ecosystems.

The investigator will meet with members of the Directorate on Human Issues and Environmental Change (MAB-13) to assess the need for a national or international workshop in this area.

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):
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MAB-3 - Grazing Lands

- Workshop: The Conversion of Forests to Pastureland in Tropical America.

Objectives of workshop: to determine the effects of forest grazing and forest conversion to pasture in tropical America; provide a state-of-knowledge report regarding this subject; and identify research needs and recommend technological and policy options.

Outcome of workshop: a synthesis publication which should prove useful as a background document for policy makers and a planning tool for research organizations. It is proposed that conclusions/recommendations from the workshop be developed for presentation to the International Rangeland Congress (New Delhi, tentatively scheduled for November 7-11, 1988), and the International Grassland Congress (Nice, October 4-11, 1989).

MAB-4 - Arid and Semiarid Lands

- Publication: third edition of a World Directory on Arid Lands Research Institutions.

Co-sponsors, to date, include U.S. MAB, the Office of Arid Lands Studies, the University of Arizona, and the U.S. Agency for International Development

The Directory will include entries of 275 institutions in 65 countries (up from 163 listings/36 countries in the last (1977) edition). Because it will be available as a computer database, it will be possible to make changes on a continuing basis and provide informal printouts or new editions to serve future needs.

MAB-5 - Fresh Water Resources

- International Workshop: Land/Inland Water Ecotones: Strategies for Research and Management (formerly: The Role of Ecotones in Aquatic Landscape Management and Restoration), Sopron, Hungary, May 23-27, 1988.

Long-term objectives: to develop a predictive capability for understanding the role of boundaries (ecotones) in determining landscape patterns and ecological processes, with particular emphasis on the role of ecotones at the terrestrial/aquatic interface; to develop rational management plans for conservation of ecotones and for use in addressing detrimental environmental practices; and to develop plans for collaborative research on the theme of ecosystem recovery and restoration of degraded ecotones occurring at the terrestrial/aquatic interface.

Short-term objectives: (conference development) the planning phase includes synthesis and review of existing information (e.g., the workshop) and the development of a detailed technical and logistic framework for future collaborative research starting in 1990.

- Film: Research to Protect the Tropics, a 16mm/27 minute educational film.

Co-sponsors: U.S. MAB, Office of Tropical Studies, Charles R. and Marcus Goldman, Lucas Werenfels, and Lloyd Bridges who contributed his narration to the film.

Purpose: the film will be used for explaining the role of the Office of Tropical Studies (a non-profit consortium of forty scientific and educational institutions in the United States and Central America which support research in the tropics and promote the conservation of natural resources) in training young scientists to

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):
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work in the tropics and to attract attention to exactly what is being done in tropical research by the scientific community as a whole. Large areas of tropical rain forests continue to be devastated by the lumber, mineral, and agricultural enterprises. The film will provide positive suggestions to help maintain communication on both a national and international scale so that the future of tropical land management can be planned and directed toward minimizing the destructive aspects of this inevitable and drastic alteration.
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MAB-6 - Arctic Ecosystems

- Publication: Arctic Science Policy and Development: proceedings of a UNESCO/MAB international conference.
- Research: Taiga/Tundra Ecotones in Relation to Global Climatic Change in Alaska.

Purpose: to review recent published and unpublished reports and papers on tree-line in Alaska and adjacent Canada to update the review by Viereck in 1979. In northern ecosystems probably the most sensitive indicators of climatic change, both past and present, are treelines. It is, therefore, especially timely that this study be undertaken in preparation for the anticipated, more detailed, studies by the International Geosphere/Biosphere Programme (IGBP) in the future.

Expected results: a number of potential sites for permanent treeline studies and monitoring of treeline in Alaska will be selected based upon the information gathered in the study and from other sources. Included will be sites in the Noatak Biosphere Reserve, the Seward Peninsula, alpine treeline in Denali National Park (a biosphere reserve) and others--especially those where earlier data might be available. A final publication will encompass the literature review, past history of research at specific sites, detailed information on the sites visited, and a recommendation for selection of monitoring sites.
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MAB-7 - Island Ecosystems (Caribbean)

- Publication: Interoceanic Workshop on Sustainable Development and Environmental Management of Small Islands. For editing and publication of proceedings.
- Training: in environmental management; promotion of cooperative approaches in, by, and for the Caribbean islands.

Overall goal: to enhance the capacity of insular Caribbean academic institutions to provide training in environmental management that is relevant to the regional, natural, and institutional context.

Objectives: to develop a consortium of Caribbean institutions for training in environmental management; and to initiate priority cooperative activities. A project implementation meeting will be held under the joint sponsorship of U.S. MAB-7, UNICA (Association of Caribbean Universities), the Caribbean Conservation Association, and the University of Puerto Rico/Caribbean Institute for Resource Management.

- Workshop: to produce a handbook, Managing Marine Protected Areas for Sustainable Development.

Specific activities of the project: to provide a forum for resource economists and managers to discuss the potential economic benefits and costs of marine protected areas of Caribbean island nations; to define the basic data needed to evaluate the economic impacts of marine protected areas and to insure proper financial
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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):
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management; and to formulate guidelines for reinforcing the economic linkages of marine protected areas, securing private sector involvement, and generally contributing to sustainable development.

Long-term objective: to increase regional capabilities in operating marine protected areas with a view to the sustainable development of an island's marine resources. The main vehicle to achieve this objective will be simple, practical guidelines to identify the economic benefits of marine protected areas and to reinforce linkages with the local private sector community.

- Symposium: organization of a training course on management-oriented interpretive programs for marine protected areas, focusing on how managers can use a combination of low cost interpretive techniques to address marine resource issues and public support for management measures. The Ocean Wilderness Seminar took place at the World Wilderness Congress, September 1987.

Objectives: to promote use of interpretive programs that address management issues in marine protected areas; to encourage cooperation from both the public and private sectors in designing and carrying out interpretive programs; and to promote the use of creative funding techniques for interpretive programs.

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MAB-8 - Biosphere Reserves
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- United States Inventory of Macroreserves: provision for the continued support of the development of a national ecosystem conservation database which continuously monitors the protection status of terrestrial and aquatic ecosystem diversity in the United States. The database can aid in planning and designing publicly owned preserve systems at any level from federal to local, and can also be used for privately owned systems. Four major components include: maps of potential ecosystem diversity and macroreserves; cross-reference tables that relate ecosystems in one type of classification system to those in another; summaries of site-specific inventories which describe the ecosystem types that occur on individual macroreserves; and a rating system for assessing the amount of ecosystem protection expected in different kinds of macroreserves, as indicated by their management objectives. (For more information, see March 1987 BULLETIN.)

- Workshops: partial support to provide assistance with planning and convening a series of U.S. MAB-sponsored workshops to assess the feasibility of developing a model biosphere reserve in the southern Appalachian highlands region to fulfill the multiple functions and objectives of biosphere reserves as specified in the international Action Plan for Biosphere Reserves.

- Public information projects: (1) publication: a two-sided poster/brochure, What is a Biosphere Reserve?, prepared in the United States for UNESCO; it displays a map of the world's biomes showing locations of 261 international biosphere reserves, and answers questions about the biosphere reserve program; (2) audio/visual presentation: a slide/tape/booklet package, copied from UNESCO/MAB's MAN: the key to conservation; it was provided to selected U.S. biosphere reserve managers to use as tools in informational programs for reserve visitors and for surrounding communities; and (3) training program: a grant to continue National Park Service/U.S. MAB action to provide strategies for the development of community relations in man and biosphere programs--and the interpretation of man and biosphere concepts--in U.S. National Parks. Objectives of the project are to instill an understanding and appreciation of parks and their resources--which should lead to public support for preservation of park resources--and to exchange information in such areas as man and biosphere, biological diversity, cultural heritage, native and exotic species, and air quality and acid deposition. Man and biosphere education modules are being prepared, using the above topics, for school

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):
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children (and their teachers) from kindergarten through eighth grade, for in-park visitors, and for different segments of local communities.

- Workshops: continuing support (1) toward convening panels for selection and nomination of biosphere reserves--for exploring opportunities for geographic expansion and functional development of existing reserves (e.g., Everglades, Glacier, Organ Pipe, Yellowstone); and (2) for conducting managers' workshops to provide orientation for managers of recommended sites to assess the feasibility of site linkages recommended by the panels, and to begin exploring opportunities for cooperative development of biosphere reserve functions. The former included three panels that considered the Californian Biogeographical Province, the binational U.S./Canada) Acadia-Boreal Coastal Region, and the unglaciated interior low plateau regions of the Eastern Forest. The latter included a meeting for managers of the Carolinian/South Atlantic Biosphere Reserve, and a meeting for managers of the Adirondack Mountains/Lake Champlain Basin, which may be nominated for consideration as a biosphere reserve.

- Survey Research: the International Biosphere Reserve Information System Survey cooperators are U.S. MAB, National Park Service, Yale University, and UNESCO/MAB.

Purpose: to acquire basic information on the management objectives, issues and problems, human uses, scientific facilities, biosphere reserve programs, local participation, and other aspects of biosphere reserves, which is inadequate or lacking for many units in the international network. The lack of such information makes it difficult, and in some cases impossible, to identify opportunities for cooperative activities to help build biosphere reserve functions.

Product: development of a transfer protocol, and loading of information from a UNESCO survey of the global network of biosphere reserves into the MAB Information System on Biosphere Reserves. This will be accomplished using the direct computer linkage now operating between the National Park Service and the International Union for the Conservation of Nature's conservation monitoring center. The National Park Service will load information from U.S. sites.

- Workshop: the Biological Inventory Methodology.

Cooperators: U.S. MAB, the Smithsonian Institution (SI), and UNESCO/MAB.

Purpose: to provide partial support for a standardized system for recording, storing, retrieving, and sharing information on biological diversity; to train biologists and conservationists in the system; to set permanent protected plots in tropical countries for long-term inventorying and monitoring capabilities; to provide the basis for establishment of voucher museums around which a biodiversity infrastructure could be based; to facilitate research projects on biodiversity in selected areas and countries; and to disseminate information about the project.

Specific project: the conducting of a field workshop for students in Luquillo Biosphere Reserve (Puerto Rico) in the methodology of the SI/MAB Biological Diversity Program; the establishment of links with the U.S. Virgin Island Biosphere Reserve Research Station for the Program's future training.

- Research Synthesis and Modeling: Comparative Process Measurements, Modeling and Applications Synthesis, United States/Peoples' Republic of China Broadleaf Biosphere Reserves.

Research Objectives: the broad purpose of research at the PRC/MAB sites and U.S./MAB research sites has been to advance understanding of the functioning of whole ecosystems so that the outcomes of human manipulation of these systems in the surrounding landscapes can be anticipated, and potential long-term degradation

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):

minimized or mitigated. Despite much progress, scientific understanding of those ecosystems in relation to human impact is still insufficient to implement all the applied goals of MAB's forestry orientations. The primary goal of this project is to fill in gaps in the research at these biosphere reserve sites through the exchange of scientists and the implementation of scientific studies. A secondary goal is to have both countries improve their capacity to utilize the knowledge base developed at the research sites in the solution of problems, and the application of this knowledge in the surrounding areas.

Specific products within the study period will be data, ecosystem process understanding and rate relationships, sections of whole ecosystem models, and planning documents or published papers on the uses of models in the avoidance of resource use impacts.

Four sub-projects being initiated on the part of U.S. scientists are: Quantification of tree mortality rates, dead wood accumulation and the associated decomposition processes (Dr. Jerry Franklin/U. of Washington); Measurements and modeling of nutrient mineralization--material exchange processes and linkages (Dr. John Pastor/U. of Minnesota, Duluth); Modeling the dynamics of forests of Northeast China (Dr. H. Shugart/U. of Virginia); and, Nutrient cycling in subtropical seasonal forest (Dr. Ariel E. Lugo/Institute of Tropical Forestry).

MAB-11 - Urban Ecosystems

● Modeling: Urban Ecosystems Research and Application, a Mexico City Case Study.

U.S. MAB is providing partial, continuing support in collaboration with Desarrollo Urbano Departamento del Distrito Federal (DDF), Desarrollo Urbano y Vivienda Estado de Mexico (EM), Comision de Conurbacion del Centro del Pais (CCCP), and Secretaria Desarrollo Urbano y Ecologia (SEDUE).

The project plans call for working with Mexican officials to explore the application and use of remote sensing techniques to distinguish urban from non-urban land use; to identify "ecounits" within Mexico City; and to begin a human ecosystem and natural ecosystem assessment process. The strategy is to select representative urban fringe environments in Mexico City in order to perfect this procedure. Definitions from Mexico, the United Nations, and elsewhere will be assessed.

End products of the first year: (a) classified and computer enhanced images of selected ecounit and urban fringe areas; (b) maps drafted of those areas and the interpretations thereof; and (c) a final report of the procedures, an evaluation of their effectiveness, and a detailed plan for the next two years.

● Symposium participation: International Symposium on Urban-Periurban Ecosystems Research and its Application to Planning and Development, Beijing, Peoples' Republic of China, October 1987.

Professor Rutherford Platt, Professor of Geography, University of Massachusetts, and member of the MAB-11 Directorate, presented a paper, New towns: global response to metropolitan growth, at this symposium.

MAB-13 - Human Issues and Environmental Change

● Workshop: United States/Australia workshop on Development in Fire-Prone Forest Environments: Interaction of Aesthetics and Fire Hazard (Early 1989).

Purpose: a vehicle for bringing together researchers who have separately

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):

addressed the relevant problem areas of this subject. In several regions of the world, human development is extending into essentially wild forested environments. People are frequently drawn to these areas seeking recreation, relaxation, closer interaction with nature and wildlife, and an array of aesthetic values including natural scenic beauty, quiet and tranquillity. However, due to changes introduced by development and/or natural ecological processes, these environments can prove hazardous to human property and lives, especially in forests where fire is an important component of natural ecologic processes. Scientific understanding of forest ecosystems, forest fire behavior and management and human perception of environmental quality have each progressed considerably in recent years. To date, however, progress in these separate areas of study has not been brought together in a way that can effectively guide forest developments.

Goal of workshop: to begin the development of an integrated scientific information base for the design and management of forest developments that can safely provide the natural environmental amenities that residents and visitors seek.

- International Conference: Environmental Risk Communication: perspectives from the behavioral and social sciences; University of Aberdeen, Scotland, Spring 1988.

Provision of partial support for development of the conference and the conference publication.

Primary purpose: to identify basic and applied research projects that can extend our knowledge on environmental risk communication; to stimulate the development of innovative, improved, and socially responsible techniques for communicating information about environmental risks, and to disseminate widely the findings and conclusions of environmental risk communication research.

- Workshop: Local population interactions with national parks and equivalent reserves; Second Symposium on Social Science in Resource Management, University of Illinois, Champaign, Illinois, June 1988.

Provision of partial support for the preparation of manuscripts and the travel of international scholars.

Purpose of workshop: to focus on the interaction effect of agricultural and forestry activities within and adjacent to parks; to bring together world-wide research information about the effects of human resource extractive activities in order to gain insight into the management and planning of various resource activities in concert with resource preservation. This study would involve the concept of biosphere reserves and the roles of humankind within various ecosystems and the impact of human activity upon various ecosystems. Researchers are beginning to assess the role of humans in maintaining and altering the biological conditions of such reserves. The workshop will provide the opportunity for international scholars studying the impact of human residence adjacent to parks and reserves to meet and exchange information about current conditions and management options.

- Workshop: Planning for a United States/Mexico Workshop on Social and Environmental Problems, Mexico, mid-1988.

Purpose of workshop: to develop further cooperation among United States and Mexican scientists and to develop joint research and action projects addressing environmental and border related issues. This directorate participated in an earlier workshop which identified broad areas of concern among scientists from the two countries. This project is planning a second workshop to bring key scientists together to identify specific researchable needs and issues. The project is using a "snowball" sampling technique to identify those scientists most likely to contribute to the planning and to the subsequent workshop.

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):

● Study: Culturally relevant approaches to planning and management of protected areas.

Provision for a comprehensive literature review to identify potential study sites and local scientists by surveying relevant agencies and individuals knowledgeable about those areas; a multi-language questionnaire--to be distributed to identified sources--which will address the issues of past and present uses of the protected area, cultural adaptations associated with establishment of the area, and agencies and individuals associated with the protected area establishment and management; and a draft proposal for submission to potential funders for an international workshop on the successful integration of conservation with local cultures.

● Research: to survey and analyze environmental agreements between the United States and Mexico: Successful U.S./Mexico environmental agreements.

The purpose of this project is to help determine what elements/components, contribute toward developing useful, workable international environmental agreements.

MAB-14 - Pollution

● Publication: Reconnaissance of Noatak National Preserve and Biosphere Reserve, the report of a joint project by the MAB-6 (Arctic Ecosystems) and MAB-14 (Pollution) directorates.

This study was initiated to assess the suitability of the Noatak National Preserve in northern Alaska as a potential site for inclusion in the Integrated Global Monitoring Network. Two sites are currently established as part of a pilot network--Olympic National Park, Washington, U.S.A., and Torres del Paine National Park, Chile.

Objectives of pilot study: to determine the suitability of pollutant sampling methodology; sample existing levels of certain kinds of pollutants, primarily trace elements; and collect ecosystem data to help plan a full-scale monitoring program.

● Site Revisit: a follow-on, second field study at the Noatak National Preserve (see above item) was carried out during the summer of 1987.

Work included resampling and remeasuring two permanent forest reference stands (including remeasuring of forest understory and overstory and sampling for trace element analysis of soil, lichens and mosses); establishing a third reference stand; expanding previous analysis of tree growth patterns; and sampling trace gas for sulphur dioxide, nitrogen dioxide and ozone.

All Directorates

● Administration: all directorates received nominal funding for convening planning meetings and for providing representation at certain specified meetings throughout the year.

Non-directorate activities

● Provision for assignment of U.S. scientists to assist the staff of UNESCO/MAB, Paris in providing leadership for the MAB program. This includes the continuation of one full-time scientist contracted to: promote international MAB work on issues of temperate forest management and arctic sciences; assist the MAB Secretariat in implementing the new themes for the international research program;

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SUMMARY OF FY-87 MAB PROJECTS GRANTS (Continued):

instruct and assist the MAB Secretariat in conducting rigorous scientific peer review of a research proposal from U.S. scientists on comparative process measurements, modeling and applications synthesis on broadleaf biosphere reserves in the United States and the Peoples' Republic of China; develop the relationship of MAB and the international network of biosphere reserves to the emerging International Geosphere Biosphere Program; and serve as key liaison for U.S. MAB scientists to the international MAB Secretariat.

Support for several part-time U.S. scientists promotes continued cooperation between the European and North American MAB-5 (Fresh Water Resources) project scientists. Examples include their collaboration between United States and French scientists in a state-of-the-art review and synthesis of current knowledge on land/inland water ecotones, as well as collaboration among United States, Swedish and Hungarian scientists on a review and synthesis of current knowledge on eutrophication and nonpoint source pollution.

● Tropical forest technical assistance to the Peace Corps. Contract provides a consulting scientist who has been working toward initiating collaborative efforts between the Agency for International Development, private environmental organizations, the Peace Corps, and host country agencies, for developing natural resource programs that effectively deal with existing environmental problems.

● General support for the 4th World Wilderness Congress, and support for three Congress seminars: (1) Ocean Wilderness (with pre-Congress training); (2) an Ocean Wilderness Technical Program, and (3) Biosphere Reserves. See next two articles.

● Support for an international conference on Restoration of Disturbed Ecosystems: a Global Need.

● Provision for a specialist in international marine protected areas. Contractor is responsible for preparing final proceedings of the International Marine Protected Area Management seminar; for developing an international newsletter--The Marine Connection--for marine protected area management; and for developing an international network (and directory) of marine protected area managers.

Queries, or requests for additional information about any of the grants described above, may be directed to the U.S. MAB Secretariat.

REPORTS OF TWO MAB SEMINARS AT THE 4TH WORLD WILDERNESS CONGRESS, COLORADO, SEPTEMBER 1987:

The Ocean Wilderness Seminar was one of two technical symposia held with the support of the U.S. MAB Program, at the 4th World Wilderness Congress. Chaired by Dr. Nancy Foster, of the National Oceanic and Atmospheric Administration and a member of the U.S. MAB Directorates on Caribbean Islands and on Biosphere Reserves, the seminar offered an international forum for delegates to discuss the implications of sustainable use, wilderness, and conservation strategies in ocean systems.

Several case studies from developing and developed countries were presented during the course of four afternoon sessions.

During a session moderated by William S. Beller, Chairman, U.S. MAB Caribbean Islands Directorate, reports on Indonesia, the Philippines and the Maldives highlighted the special needs for integrated marine resource management in small islands. Panel sessions and case studies on Antarctica, the Canadian Arctic Marine Conservation Strategy, and ocean management in the Netherlands underscored many of the fundamental questions raised by the World Commission on Environment and Development in its report, Our Common Future.

Plenary discussions were moderated by Dr. Foster, Mr. Graeme Kelleher, Chairman of Australia's Great Barrier Reef, and Mr. Harold Eidsvik, Chairman of IUCN's Commission on National Parks and protected areas. These discussions

produced a resolution on ocean conservation which was subsequently endorsed by all Congress delegates. Copies of the resolution are available from Michele Lemay, U.S. MAB Secretariat.

REPORT OF BIOSPHERE RESERVES SYMPOSIUM,
4th WORLD WILDERNESS CONGRESS:

Everyone agreed that biosphere reserves (BRs) represent a non-conventional approach to nature conservation and that it works. The BR approach corresponds to a need identified in the World Commission on Environment and Development Report, Our Common Future, for combining nature protection with sustainable development. In BRs, people are considered as a realistic instrument for effective and long-lasting protection of ecosystems and their genetic resources. Biosphere reserves give us scientific and management capability to address the priority issues being discussed at the Congress. They give us the flexibility to do this in all political and economic systems.

The biosphere reserves symposium was very well attended all four days. The sixteen papers, by participants from nine countries, presented an evolutionary history of the BR concept and a status report on its implementation in different regions of the world. The 16 case studies in the poster session of the symposium pointed out how the concept is being applied on the ground in Canada, Costa Rica, Mexico, Panama, the Philippines, and the United States. Most of the posters were accompanied by papers which will be published in the symposium proceedings in the spring. A workshop on the final day provided an opportunity for productive, and often lively, discussion of opportunities, impediments, and priorities for implementation. The discussions yielded specific recommendations which supplement the more general recommendations in a resolution on biosphere reserves prepared by a group of ten symposium participants.

Because of the large number of national parks which are biosphere reserves, some people who attended our session appeared to think of biosphere reserves as another form of national park. Discussions revealed that national parks can only fulfill a limited number of the functions of a biosphere reserve. However, it is possible to center a biosphere reserve on a national park if

a surrounding zone of cooperation is established for applied research and demonstration of sustainable uses, and a framework is developed for continuing proactive cooperation with other managing agencies, scientific institutions, local interest groups, and decision-makers. In this way, BRs can become powerful tools for integrating a park into its region and developing cooperative solutions to shared problems. By strengthening their scientific capabilities, parks can become major players in providing information for decisionmaking on large-scale problems affecting their future, such as regional land-use changes and atmospheric deposition.

The participants discussed examples of local participation in BRs in Canada, Kenya, Mexico, Central America, and to some extent, in the United States. We have learned from these initial experiences. However, we need many more examples from many more areas to understand the best means of integration of local people in different countries and situations so that they can participate fully in planning and managing the BRs.

There were examples of BRs in the making, in many different ecological, socioeconomic and cultural situations. Participants were enthusiastic about the innovative and imaginative way in which the concept is now being applied to conserve the Waddensee along the shores of the Netherlands, Federal Republic of Germany, and Denmark; and how the discovery of *Zea diploperennis* (the perennial wild relative of maize) has stimulated the establishment of a large biosphere reserve in Mexico based on cooperation between scientists and local people. Interestingly, only 1% of this Mexican reserve is in public ownership. We heard of the exciting work of the Kuna and Embarra people in building BRs to help secure a productive future for indigenous cultures and the tropical forest. We were told by tribal leaders that, although the biosphere reserve was new to their vocabulary, the ethic it embodies has been part of their culture for millenia.

People expressed their concern about improving the quality of BRs. They agreed that the best way to make good BRs is for UNEP, UNESCO, FAO, and IUCN, along with governments and MAB National Committees--as well as individual administrators of BRs--to assertively and enthusiastically support the implementation of the Action Plan for Biosphere Reserves.

In implementing the Plan, UNESCO's essential role should be to facilitate exchange and worldwide diffusion of ideas emanating from the biosphere reserve network, and to enlist the support of key decisionmakers in establishing BRs and developing their multiple functions.

Although the concept is exciting, the resources are painfully lacking. Biosphere reserves cannot be operated effectively on a fiscal year-by-year basis. If they are to fulfill their mission in helping us to understand change in the biosphere, both in time and space, they must be assured support for continuing science and educational programs. This support must come, first and foremost, from the national level--from the agencies and organizations which have a stake in the work of the biosphere reserves. Conservation,

science, and development sectors must all be involved.

Biosphere reserves provide areas for learning and sharing scientific findings. This knowledge can be used to develop alternative patterns of uses and activities which are ecologically sustainable, culturally appropriate, and meet the needs and aspirations of local people.

We have now built a global network based on a unity of purpose in a diversity of conditions--a unique network which remains largely unknown and underutilized. Needed now are involvement, enthusiasm, and commitment.

William P. Gregg, Jr., Co-Chairman, U.S. MAB Directorate on Biosphere Reserves

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- Arctic Science Policy and Development. Proceedings, a UNESCO/MAB International Conference, August 1985, University of Alaska, Fairbanks. Dr. Milton M. R. Freeman and Dr. Charles W. Slaughter
- Proceedings of the Interoceanic Workshop on Sustainable Development and Environmental Management of Small Islands. November 1986, Humacao, Puerto Rico. Edited by William S. Beller, Chairman, U.S. MAB Directorate on Caribbean Island Ecosystems
- Paper, New Towns: Global Response to Metropolitan Growth. Delivered by Dr. Rutherford H. Platt, University of Massachusetts, for U.S. MAB-11 (Urban Ecosystems) Directorate, at the Symposium on Urban-Periurban Ecosystems, Beijing, Peoples' Republic of China
- Watershed Management in the Caribbean. Reprinted proceedings of the Second Workshop of Caribbean Foresters, held in Kingstown, Saint Vincent and the Grenadines. Edited by Ariel E. Lugo and Sandra Brown
- Connect, UNESCO-UNEP Environmental Education Newsletter, Vol XII, #2, June 1987. International Comprehension of Environmental Problems, Education, and Training
- Connect, Vol XII, #3, September 1987. MOSCOW '87. Unesco/UNEP International Congress on Environmental Education and Training (U.S.S.R., 17-21 August 1987)
- Poster/Brochure, What is a Biosphere Reserve?
- INFOMAB No. 8, September 1987. Includes articles on: arid and semiarid zones and mediterranean climate ecosystems; urban systems; conservation; training; tropical forests and savannas; soils, ecotones and river basins; and a MAB calendar of symposia, seminars, etc. including notices of meetings from December 1987 up to August 1990
- Reprint from July-September 1986 Nature and Resources: Developing and focusing the biosphere reserve concept, Michel Batisse

ADDRESS CORRECTION AND QUESTIONNAIRE

- I. By this means, we hope to correct and update our U.S. MAB BULLETIN mailing list. We encourage your cooperation to help us become more useful to our readership and more economical in our operation.



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- II. Plans are afoot to computerize our operation. Eventually we hope to be able to provide several categories of information to those who want it. If you are interested, please complete the following portion of this questionnaire.

Check, in the boxes below, the area which interests you. If more than one, please write "1," "2," etc. in the boxes, according to your priority.

Four major research themes of the Man and the Biosphere Program:

- Management and restoration of human impacted ecosystems
- Ecosystem functioning under different intensities of human impact
- Human investment and resource use
- Human response to environmental stress

(Questionnaire continues on next page.)

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QUESTIONNAIRE (Continued):

MAB project areas: Write "1," "2," etc. in the boxes, according to your interests.

- Tropical forests Temperate forests Grazinglands Arid/Semiarid Lands
- Fresh water Arctic ecosystems Caribbean islands Biosphere Reserves
- Urban ecosystems Human issues and environmental change Pollution

III. Originally the U.S. MAB BULLETIN was directed to a very small group of readers-- those who were active in the U.S. MAB Program through directorates, committee membership, program activities, grants, previous connections, etc. We knew pretty much who our readers were and what might interest them. Over the past decade, many more have asked to receive this publication, and many names have been suggested to us by others who have found the BULLETIN useful. In order to serve our readers in the best manner possible, it would be helpful if we could learn more about our current readership. If you would like to help us, please fill in the blocks below. We will appreciate your responses very much.

Your workplace? University; Federal agency; State/local government;
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 Teaching; Other? Specify: _____

Science field? Biological; Physical; Social.

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Editor, U.S. MAB BULLETIN.....Phylis N. Rubin

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