



BULLETIN

VOLUME 11, NUMBER 1
March 1987

UNITED STATES INVENTORY OF MACRORESERVES: DEVELOPMENT OF A NATIONAL ECOSYSTEM CONSERVATION DATABASE:

The goal of this project, initiated by the U.S. MAB-8 (Biosphere Reserves Directorate) in 1985, is to build a national database that continuously monitors the protection status of terrestrial and aquatic ecosystem diversity in the United States. The database can aid in planning and design of publicly owned preserve systems at any level from Federal to local, and can also be used for privately owned systems. It will be especially valuable for determining adequacy of ecosystem coverage in the planned or existing cluster biosphere reserves of different biogeographical provinces.

There are four major, computerized parts of the database:

1. Maps of (a) potential ecosystem diversity, and (b) macroreserves.

For example, terrestrial ecosystem diversity at the national level is represented primarily by Kùchler's 1964 and 1966 potential natural vegetation maps of the United States and in Florida primarily by Davis's 1967 map of the natural vegetation of Florida. A macroreserve is a land and/or water management unit of at least 2,000 hectares (5,000 acres) that contains one or more natural ecosystems and is publicly owned, or is privately owned and designated for nature conservation. The map of a macroreserve system, e.g., all national forests and parks in the United States or all state wildlife refuges in Florida can be overlaid on a potential diversity map to identify ecosystem types that are not included in the macroreserve system. If a potential ecosystem type is not represented in a macroreserve system, then it can be reasonably assumed that no actual occurrences of this type exist anywhere in the system.

2. Cross-reference tables that relate ecosystems in one type of classification system to those in another. For example, the Austroriparian Biogeographical Province in Florida contains six Kùchler types, each of which contains several Davis types, and so on down to the lowest hierarchical level of plant community associations. Information of this sort is needed to determine how well a particular major type such as Kùchler's Southern Mixed Forest is actually represented by its component parts in macroreserve inventories.

3. Summaries of site-specific inventories which describe the ecosystem types that occur on individual macroreserves. This information is needed to determine if potential ecosystem types, identified previously as occurring in particular macroreserves are actually present in those macroreserves.

4. A rating system for assessing the amount of ecosystem protection expected in different kinds of macroreserves, as indicated by their management objectives. Macroreserves such as Bureau of Land Management (BLM) lands, Federal military reservations, state forests, county parks, and private sanctuaries can then be ranked in a general way according to the level of protection they are expected to provide.

The ecosystem conservation database approach is a rapid method of assessing protection status "from the top down." Protection of potential diversity is assessed first, on a national, regional, or state basis. Ecosystems which meet this test satisfactorily can be considered further to determine if representative samples actually exist in macroreserves and, if so, to what extent they are likely to be protected by the management practices of those macroreserves. If an ecosystem type is not adequately protected for any of the above reasons, the map of potential diversity will be a general guide to locations that may contain candidate occurrences for future protection. More specific information will have to come from sources such as the natural heritage inventory programs of The Nature Conservancy and individual states. These sources are complementary to the ecosystem conservation database because they will provide information on the actual diversity that exists on the landscape between macroreserves.

(Continued)

A reasonably comprehensive U.S. assessment of the protection status of 134 major potential terrestrial ecosystem types in 602 Federal macroreserves was completed in March, 1987. A much more detailed assessment of actual, as well as potential, terrestrial ecosystem protection in 87 Federal, state, local, and private Florida macroreserves will be finished later in 1987. "Protection provided" rankings for different kinds of Florida macroreserves will also be produced in 1987. Following this, the aquatic part of the Florida ecosystem conservation database will be developed.

Preparations have been made for extending the Florida methodology to other parts of the United States. Preliminary information on ecosystem diversity and macroreserves has been obtained from the natural heritage inventory and natural areas programs of 46 other states and the Tennessee Valley Authority. Extension of the more detailed Florida analysis to other states and regions is intended eventually to replace the U.S. survey just completed, which pertains only to Küchler types and the larger Federal macroreserves.

Direct financial support for the National Ecosystem Conservation Database Project during 1985-87 was provided by the National Park Service, U.S. Man and the Biosphere Program, National Geographic Society, and National Parks and Conservation Association. In kind support has been supplied by Florida State and Yale Universities, the Universities of Colorado and Idaho, The Nature Conservancy, and the state heritage inventory and natural areas programs of numerous states.

David W. Crumpacker, Project Director
 Dept. of Environmental, Population, and
 Organismic Biology (Campus Box 334)
 University of Colorado, Boulder, CO 80309

(Secretariat Note: MAB is seeking additional support for the macroreserves project.)

THE U.S. MAB ARCTIC (MAB-6) DIRECTORATE:

The emphasis of the Arctic Directorate, chaired by Dr. Charles Slaughter, U.S. Forest Service, Inst. of Northern Forestry, Fairbanks, has been on northern resource and ecosystem relationships. Work recently accomplished or in progress includes:

- initiation of information and research exchange with the Peoples Republic of China with regard to musk-ox biology and management, and in the area of forest hydrology;
- establishment of long-term multi-disciplinary environmental monitoring in northwest Alaska's Noatak National Preserve in cooperation with the World Meteorological Organization, Global Environmental Monitoring System, United Nations Environment Program, and the National Park Service;
- study of the relationship of indigenous people to the environment in national parks and reserves in Scandinavia;
- development of a comprehensive vegetation classification system for Alaskan resource managers.

Further, the International MAB Biosphere Reserve program currently includes four Alaskan sites: Denali National Park, Noatak National Preserve, Aleutian Islands National Wildlife Refuge, and Glacier Bay/Admiralty Island Biosphere Reserve. MAB-6 is currently engaged in direct discussions with Canada/MAB personnel with a view to increasing the number and utility of high-latitude Biosphere Reserve and similar protected research areas in North America.

These subject areas are of circumpolar importance, and MAB-6 activities are undertaken in cooperation with other northern countries--Denmark, Greenland, Norway, Sweden, Canada, U.S.S.R., Iceland. MAB-6 is cooperating with other northern countries and with UNESCO/MAB in a Northern Science Network initiative whose objectives are to facilitate improved communication and understanding among scientists, public and private policy makers, resource managers, and resident populations of the north. The Northern Science Network, with the Secretariat at the University of Alberta, initially adopted three "themes" for implementation:

1. Studies on ecology and land use of subarctic birch forest. These forests form a circumpolar zone extending through Canada, the United States, U.S.S.R., Finland Norway, Sweden, Iceland and southwest Greenland. The home of many indigenous peoples, birch forests are used for reindeer herding and sheep grazing, sport and subsistence hunting, fishing and tourism. Fennoscandian investigators are already cooperating in birch forest studies involving laboratory work and experimental plantations, and there is potential for circumpolar studies involving North America and the U.S.S.R.

2. Development of, and monitoring and research in, Biosphere Reserves and other protected areas. One purpose of this theme is to encourage the development of more reserves in the north. Biosphere Reserves are a major concern of national MAB committees in Canada, Norway, the United States, and the U.S.S.R. The theme includes research and monitoring in other types of reserves such as parks, ecological reserves and watershed research areas, to study industrial and experimentally-induced disturbance effects.

3. Land use and grazing animals: socio-economic, biological and environmental effects. Land use conflicts occur in a large area of the circumpolar north, notably between grazing animals (principally reindeer), and wild ungulates, hunters, tourists, and industrial operations such as logging, energy development, and mining. Enhancing access into remote areas through new surface transportation corridors and increased air travel brings often unexpected and deleterious impacts on environments and societies. Such problems are shared by many high-latitude areas.

The prime objectives of the Northern Science Network are to strengthen scientific activities by exchange of information, education, and facilitating interdisciplinary synthesis; the Network's activities involve both the international scientific community and local residents, managers, and decision-makers in public and private sectors. In this vein, US/MAB assisted the Northern Science Network in convening an International Conference on Arctic Science Policy and Development, in August 1985, at the University of Alaska; an overt attempt was made to involve persons engaged in political as well as scientific aspects of the north, and residents of the north, as well as the "visitors" who provide the bulk of northern expertise in policy circles. (Proceedings are in press).

MAB Arctic Directorate participants have found the Man and the Biosphere program and viewpoint valuable in implementing high-latitude resource and ecosystems analysis programs. The Directorate's view is circumpolar. The resources, the ecosystems, and the severe environmental constraints on resource use and ecosystem productivity are circumpolar. The Directorate is, of necessity (and to the benefit of U.S. science) involved in communication and cooperation with other northern countries, their scientists and their indigenous people.

NEWCOMERS TO U.S. MAB TEMPERATE FORESTS (MAB-2) DIRECTORATE:

We welcome two new members to MAB-2 which is chaired by Dr. Peter F. Ffolliott of the School of Renewable Natural Resources, University of Arizona in Tucson. They are Dr. Ann M. Bartuska of the U.S.D.A. Forest Service's Acid Deposition Program, 1509 Varsity Drive, Raleigh, North Carolina, and Dr. Robert G. Lee of the Division of Forest Resources Management, College of Forest Resources, University of Washington, Seattle.

NEW FROM U.S. MAB: THE MARINE CONNECTION:

THE MARINE CONNECTION is a new quarterly newsletter distributed as a result of the International Marine Protected Area Management Seminar (June 1-12, 1986; see U.S. MAB BULLETIN, Vol. 10, No., 1, July 1986). The newsletter is intended as an informal presentation of current events relating to marine protected areas worldwide. Each issue includes announcements of newly designated sites and brief articles on the management of marine protected areas for education, research and monitoring, and sustainable use. THE MARINE CONNECTION is a cooperative effort of the National Oceanic and Atmospheric Administration (NOAA) and U.S. MAB. A limited number of back issues are available upon request from the MAB Secretariat. To receive the newsletter on a regular basis, write to: Michele Lemay, THE MARINE CONNECTION, U.S. Man and the Biosphere Program, OES/ENR/MAB, Department of State, Washington, D.C. 20520.

MAB ENVIRONMENTAL PROFILES OF DEVELOPING COUNTRIES:

From 1979 to 1983 the U.S. MAB Program sponsored the preparation of a series of environmental profiles of developing countries. Each report contains information on the country's geography, topography, climate, and natural resources. The profiles focus on environmental problems, their relationship to development, and national attempts to alleviate degradation. Included are charts, maps, extensive topical bibliographies, and appendices.

In all there exist 50 "Phase I," or desk study profiles, and nine additional "Phase II" field study profiles. They treat 24 African, 13 Asian, and 14 Latin American and Caribbean countries.

Photocopies of any of the Phase I reports may be purchased by writing to the Arid Lands Information Center, Office of Arid Lands Studies, University of Arizona, 845 North Park, Tucson, Arizona 85719, or by calling 602-621-7897. When ordering from the U.S. or Canada, please add ten per cent (10%) for postage; elsewhere, add fifteen per cent (15%).

Listed are PHASE I profiles, with prices:

AFRICA:

Burundi (1981)	\$22.00	Cameroon (1981)	\$11.00	Cape Verde (1980)	\$ 7.50
Egypt (1980)	\$20.00	Gambia (1980)	\$12.00	Ghana (1980)	\$23.50
Guinea (1983)	\$35.00	Lesotho (1982)	\$17.00	Liberia (1980)	\$7.00
Malawi (1982)	\$27.00	Mali (1980)	\$10.00	Mauritania (1979)	\$6.00
Morocco (1981)	\$13.00	Niger (1980)	\$21.50	Rwanda (1981)	\$24.50
Senegal (1980)	\$15.00	Sudan (1982)	\$40.50	Swaziland (1980)	\$14.00
Tunisia (1981)	\$11.00	Uganda (1982)	\$35.00	*Upper Volta (1980)	\$19.00
Zaire (1980)	\$12.50	Zambia (1982)	\$32.00	Zimbabwe (1982)	\$29.00

*Now Burkina Faso

ASIA:

Bangladesh (80)	\$14.00	Burma (1982)	\$31.50	India (1980)	\$23.00
Jordan (1979)	\$13.50	Nepal (1979)	\$8.00	Oman (1981)	\$27.50
Pakistan (1981)	\$26.00	Philippines (80)	\$10.00	Sri Lanka (1978)	\$11.00
Syria (1981)	\$12.00	Thailand (1979)	\$12.50	West Bank/Gaza (80)	\$8.50
Yemen (1982)	\$28.00				

LATIN AMERICA & THE CARIBBEAN:

Barbados (1982)	\$ 7.50	Belize (1982)	\$12.50	Bolivia (1979)	\$10.00
Costa Rica (81)	\$17.00	Ecuador (1979)	\$8.50	El Salvador (1982)	\$19.00
Guatemala (79)	\$13.00	Guyana (1982)	\$16.00	Haiti (1979)	\$9.50
Honduras (1981)	\$15.50	Jamaica (1981)	\$23.00	Nicaragua (1981)	\$16.00
Peru (1979)	\$18.00				

PHASE II Profiles:

For price information and hard copies of the PHASE II profiles, contact the author institutions at addresses below. Photocopies, at \$10.00 each, may be obtained by writing: Environmental Profiles, I.I.E.D., 1717 Massachusetts Avenue, N.W., Suite 302, Washington, D.C. 20036 U.S.A. Enclose payment with your order.

<u>AFRICA:</u>	Mauritania II	BOSTID Pub., National Academy Press, 2101 Constitution Avenue, NW, Washington, D.C. 20418 U.S.A.
	Upper Volta II	ISTI, Inc., 2033 M Street, NW, Washington, D.C. 20036 U.S.A.
	Belize II	Robert Nicolait & Associates, Ltd., P.O. Box 785, Belize City, Belize
<u>LATIN AMER. & THE CARIB-BEAN:</u>	Bolivia II	JRB Associates (See Bolivia II, above, for address.)
	Costa Rica II	Trop.Science Ctr., Aptdo. 8-3870, 1.000 San Jose, Costa Rica
	Dominican Rep. II	JRB Associates (See Bolivia II, above, for address.)
	Ecuador II	USAID/Quito, ATT: F. Almaguer, APO 34039, Miami, Florida
	Guatemala II	Inst. of Ecology, Univ. of Georgia, Athens, Georgia 30602
	Honduras II	JRB Associates (See Bolivia II, above, for address.)

4th WORLD WILDERNESS CONGRESS/MAB SYMPOSIUM (September 11-18, 1987, Ft. Collins):

Worldwide Conservation: A Call for a New Initiative is planned as "the most significant and stimulating event to address worldwide conservation issues in many years." The Congress will be held in the United States (Colorado) for the first time and will focus on integrated solutions to critical environmental challenges.

The program will include a 4-day symposium on Biosphere Reserves co-chaired by Dr. William P. Gregg, Jr. (USDI National Park Service) and Dr. Stan Krugman (USDA Forest Service) who also co-chair the U.S. MAB Directorate on Biosphere Reserves (MAB-8). MAB Symposium Advisor is Dr. Gonzalo Halffter, Chairman, MAB/Mexico.

Most members of the International MAB Panel on Biosphere Reserves will be among the 40 participants of the MAB symposium. It will consist of three 2-hour presentations on the Biosphere Reserve Concept and Evolution, Applications in Developing Countries, and Applications in Developed Countries. These will be followed by a panel discussion that will lead to recommendations on Biosphere Reserves which will be presented to the Plenary Session of the Convention. There will also be a poster session including case studies of Biosphere Reserves (with emphasis on Canada, Mexico, and the United States), macroreserves (see article on pages 1 and 2), and conservation of biological diversity.



WILDERNESS CONGRESS information brochures (which contain response cards for registration materials) can be obtained by writing to: MAB BULLETIN, OES/ENR/MAB, Department of State, Washington, D.C. 20520.

EARLY INFORMATION ON AN INTERNATIONAL WORKSHOP ON ECOTONES:

The Role of Ecotones (the transition zone between two different plant communities-- as that between forest and prairie) in Aquatic Landscape Management and Restoration will be the subject of an international workshop scheduled for May 23-27, 1988. The workshop, to be held at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria, will be organized jointly by UNESCO/MAB, IIASA, and the Austria MAB National Committee. The program will be undertaken in close cooperation with other interested international programs and organizations.

General objectives for the MAB ecotones program are to: (1) develop a predictive capability for understanding the role of boundaries (ecotones) in determining landscape patterns and ecological processes; (2) develop rational management plans for conservation of ecotones and for use in addressing detrimental environmental practices; and (3) develop plans for collaborative research within MAB on the theme of ecosystem recovery and restoration of degraded ecotones occurring at the terrestrial/aquatic interface.

All interested persons will be encouraged to attend and to contribute to the final research plan. The workshop will be advertised in relevant international professional journals. Those interested in participating are advised to complete and return registration forms as soon as possible. (In the U.S. a preliminary information note with a registration form is available from the U.S. MAB Secretariat; others may contact UNESCO/MAB, Div. of Ecological Sciences, 7, Place de Fontenoy, 75700 Paris, France.)

If you no longer wish to receive the MAB BULLETIN, please fill in this slip and mail it to the Editor, MAB BULLETIN, OES/ENR/MAB, U.S. Department of State, Washington, D.C. 20520, or call (202) 632-2816.

Please stop sending me the MAB BULLETIN.

Name _____

Address _____

Comments (if any): _____

MORE ABOUT U.S. MAB'S FREE PUBLICATIONS:

The Secretariat was swamped with orders for the publications offered in our December BULLETIN.

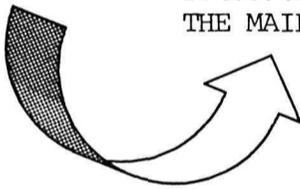
If you have not received yours yet, please be patient! Some orders did not include addresses, however, and we cannot fill them. We have had to secure additional supplies or, in some cases, arrange for photocopying certain items. We are completely out of Marine and Coastal Protected Areas (Salm and Clark); Watershed Management in the Caribbean (Lugo and Brown); Park Science Resource Management Bulletins (all Issues); and the Proceedings of the Conference on the Management of Biosphere Reserves, Gatlinburg, Tennessee (Peine). To obtain a copy of the Proceedings, write to:

Dr. William P. Gregg, Jr.
National Park Service (474)
U.S. Department of Interior
P.O. Box 37127
Washington, D.C. 20013-7127

It has come to our attention that we mailed some copies of UNESCO Report No. 55, Task Force on Methods and Concepts for Studying Man-Environment Interactions, which had missing pages. If your copy is incomplete, please call (202 632-7571) or write to the Secretariat for a photocopy.

NEW LOCATION FOR THE U.S. MAB SECRETARIAT:

By the time you receive this BULLETIN, the MAB Secretariat will have been relocated to Suite 833, 1375 K Street, N.W., Washington, D.C. HOWEVER, THE MAILING ADDRESS WILL NOT CHANGE, AND REMAINS:



U.S. MAB Secretariat
OES/ENR/MAB
Department of State
Washington, D.C. 20520

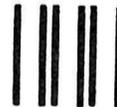
Telephone numbers are still (202) 632-2786; 2816, 7571, and 7573.

Editor, MAB BULLETIN, Phylis N. Rubin (202) 632-2816

OES/ENR/U.S. Man and the Biosphere Program

DEPARTMENT OF STATE, U.S.A.
WASHINGTON, D. C. 20520

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE. \$300



POSTAGE AND FEES PAID
DEPARTMENT OF STATE
STA-501