U.S. Biosphere Reserve Associated Agencies and Institutions

Adirondack Park Agency
Agency for International Development
Audubon Society
Borderlands Sonoran Institute
California Department of Forestry and Fire Protection
California Department of Parks and Recreation
City of San Francisco
Economic Development Administration
Environmental Protection Agency
Florida Department of Environmental Protection
Georgia Department of Natural Resources
Grandfather Mountain Inc., North Carolina
Kansas State University
Little St. Simons Island, Georgia
Marin County Municipal Water District, California
National Aeronautics and Space Administration
National Institutes of Health
National Science Foundation
New York Department of Environmental Conservation
North Carolina Dept. of Environment, Health and Natural Resources
Peace Corps
Puerto Rico Department of Natural Resources
Smithsonian Institution
South Carolina Department of Natural Resources
Southern Appalachian MAB Cooperative
Stanford University
Tennessee Valley Authority
Tennessee Department of Environment and Conservation
The Nature Conservancy
The Pinelands Commission, New Jersey
U.S. Army - Corps of Engineers
U.S. Department of Agriculture - Agricultural Research Service
U.S. Department of Agriculture - Forest Service
U.S. Dept. of Commerce - National Oceanic and Atmospheric Administration
U.S. Department of Energy
U.S. Department of the Interior - Bureau of Land Management
U.S. Department of the Interior - Fish and Wildlife Service
U. S. Department of the Interior - Geological Survey
U.S. Department of the Interior - National Biological Service
U.S. Department of the Interior - National Park Service
U.S. Department of State
University of Alaska
University of California
University of Colorado
University of Maryland
University of Miami
University of Michigan
University of South Carolina
University of Tennessee
University of Washington
Vermont Agency of Natural Resources
Weyerhaeuser Company

United States Man and the Biosphere Program

Strategic Plan for the U.S. Biosphere Reserve Program

"The mission of the United States Man and the Biosphere Program is to foster harmonious relationships between humans and the biosphere through domestic and international cooperation in interdisciplinary research, education, biosphere reserves, and information exchange." Adopted by the U.S. Executive Committee for the Man and the Biosphere Program, November 3, 1994.

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

This *Strategic Plan* has been approved by the U.S. National Committee for the Man and the Biosphere Program to guide the continued development of the U.S. Biosphere Reserves. The *Plan* does not necessarily reflect the official views of the biosphere reserve associated agencies listed on the back cover of this publication. Inquiries concerning the U.S. MAB Program should be addressed to the Executive Director, U.S. MAB Secretariat, OES/EGC/MAB, U.S. Department of State, Washington, DC 20522, Tel. 703-235-2946, FAX 703-235-3002, Internet E-mail: usmab@state.gov

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STRATEGIC PLAN FOR THE U.S. BIOSPHERE RESERVE PROGRAM

BIOSPHERE RESERVE DIRECTORATE
U.S. MAN AND THE BIOSPHERE PROGRAM

1994

EXECUTIVE SUMMARY

The Man and the Biosphere Program (MAB) of the United Nations Scientific, Educational, and Cultural Organization (UNESCO) is based on the concept that it is possible to achieve a sustainable balance between the conservation of biological diversity, economic development, and maintenance of associated cultural values. The validity of this concept is tested, refined, demonstrated, and implemented in the Biosphere Reserves.

U.S. Biosphere Reserves are part of an international network and include many of the most important conservation areas, ecological research sites, and environmental education areas in the United States. This Strategic Plan[1] provides a flexible framework for developing and coordinating an integrated U.S. Biosphere Reserve Program (USBRP). Through the USBRP, each U.S. Biosphere Reserve can become a full partner in the process of integrating conservation and sustainable development locally, and in sharing information and experience to help address regional and global problems. The Plan sets forth the mission, goals, objectives, and implementing actions for the USBRP.

Through the USBRP, agencies, organizations, and individuals will be better able to obtain, share, and apply knowledge and technology in discovering ways to harmonize biodiversity, cultural values, and socioeconomic development in particular biogeographic areas. In developing partnerships and promoting mutual education among stakeholders, it is intended that the USBRP will expand the constituency for developing shared goals for use and management of ecosystems in a changing environment. Cooperative activities will be encouraged to implement these shared goals. Greater participation will

[1]The U.S. Strategic Plan was developed in response to UNESCO's call for country MAB Programs to develop and adopt Biosphere Reserve Action Plans.

facilitate cost-sharing, coordination, and public support for government and private programs. Thus, stability and continuity will be enhanced which should improve the effectiveness of stakeholders in a biogeographic area to find practical ways to address resource problems.

Implementing the USBRP will require increasing the participation of legally established areas managed for conservation, research, multiple use, sustainable regional development, and other complementary purposes. Designation of such areas as components of a biosphere reserve gives international recognition to their role as contributors and beneficiaries in the USBRP, and helps foster commitment in achieving its goals. As the number of participating sites grows, so will the opportunities for the sites to coordinate their authorities and capabilities for applying ecological principles to regional conservation and development.

This Plan is intended to be substantially implemented during the next decade with support from U.S. MAB's member agencies, private organizations, and an expanding community of BR stakeholders at the local level. Although progress in implementing the USBRP is possible under a wide range of funding situations, full implementation of the plan will require national commitment, and government and private support at all levels. Within the U.S. MAB Program, the Biosphere Reserve Directorate and the individual BRs will have lead responsibilities for generating this support.

U.S. Biosphere Reserves are important areas for developing the data, technology, and experience needed to implement the recommendations of the United Nations Conference on Environment and Development that relate to global issues, such as biodiversity, climate change, desertification, forest management, and sustainable development. Implementation of the Plan will enable U.S. biosphere reserves to contribute more effectively to U.S. leadership on these issues.

STRATEGIC PLAN FOR THE U.S. BIOSPHERE RESERVE PROGRAM

Introduction

The Man and the Biosphere Program (MAB) of the United Nations Scientific, Educational, and Cultural Organization (UNESCO) is based on the concept that it is possible to achieve a sustainable balance between the conservation of biological diversity, economic development, and maintenance of associated cultural values. Biosphere reserves are areas composed of different land and water uses where the validity of this concept is tested, refined, demonstrated, and implemented.

UNESCO provides a conceptual scheme to describe the spatial distribution of the functions of a biosphere reserve. Ideally, each biosphere reserve includes three types of areas: one or more securely "Protected Areas," such as wilderness areas or nature reserves, for conservation and monitoring of minimally disturbed ecosystems; "Managed Use Areas," usually surrounding or adjoining the protected areas, where experimental research, educational activities, public recreation, and various economic activities occur according to ecological principles; and "Zones of Cooperation," which are open-ended areas of cooperation, where managing agencies, local governmental agencies, scientists, economic interests, nongovernmental organizations, cultural groups, local citizens and other biosphere reserve stakeholders educate one another in the process of linking conservation, economic development, and cultural values.[2]

[2] "Protected Area" is the U.S. term for UNESCO's "Core Area." Similarly, "Managed Use Area" is the U.S. term for UNESCO's "Buffer Zone," and "Zone of Cooperation" is the U.S. term for UNESCO's "Transition Area."

VALUE OF BIOSPHERE RESERVES

Promoting sustainable development and associated cultural values in areas surrounding the protected areas is a primary means for building the local constituency for conserving biological diversity in the landscape. As UNESCO's International Coordinating Council for the Program on Man and the Biosphere recently noted . . .

"Connected by corridors judiciously linking different ecological units within the urban-rural and terrestrial/marine landscape, biosphere reserves could provide the most viable means for the long-term protection of biodiversity."

By offering society a framework for cooperation, biosphere reserves enable stakeholders to plan types, levels, and patterns of protection and human uses that optimize conservation opportunities, while enhancing social and economic development. Biosphere reserves have been called "landscapes for learning" and "laboratory regions of sustainable development" because of their role in associating research and education with conservation and development issues. Since UNESCO incorporated the Biosphere Reserve Project as an important component of its MAB Program two decades ago, the BR concept has become widely recognized as an innovative means of addressing conservation and sustainable development.

Locally, an individual BR provides a means for integrating conservation, research and monitoring, education and training, and involving local populations in conservation and development issues, in an area of outstanding ecological, scientific, and educational importance. A BR can facilitate the formation of associations made up of different types of management units such as national parks and equivalent reserves, experimental research areas, managed forests and rangelands, and areas under private, local, state, or Federal ownership. For example, the Central California Coast Biosphere Reserve is an association of 13 management units encompassing

terrestrial, coastal, and marine environments. Such associations are essential for cooperative ecosystem-based management and conservation of biological diversity at the landscape level.

Worldwide, the international network of BRs[3] offers a framework for increasing worldwide access to, and sharing of scientific data and the practical experience gained in individual BRs through regional and international cooperation. This network seeks to demonstrate that conserving terrestrial and coastal/marine biological diversity is compatible with sustainable types and patterns of human uses.

In 1993, MAB's International Coordinating Council adopted four integrating themes for the MAB Program: biological diversity, sustainable development, regional and global change, and developing capacity for ecosystem and landscape planning. The Council reaffirmed that BRs are MAB's logistic base for coordinating activities under these themes, and for contributing to the development of a Global Terrestrial Observing System (GTOS) that will provide data on changes in the global earth system.

IMPLEMENTING THE CONCEPT

Functionally, BRs implement the MAB concept through:

- ***In situ*** conservation of the diversity of natural and seminatural ecosystems and landscapes.
- Establishment of demonstration areas for ecologically sustainable land and resource use.
- Provision of logistic support for research, monitoring, education, and training related to conservation and sustainable development.

[3]As of November 1994, UNESCO had designated 324 biosphere reserves in 82 countries. The 47 U.S. Biosphere Reserves include 99 administrative units under Federal, state, and local ownership.

Making biosphere reserves more functional in conserving biological diversity is a major international objective. Figure 1 presents the activities that each biosphere reserve is expected to undertake in order to fully implement the MAB concept versus the number of BRs worldwide that are currently conducting these activities. As the diagram shows, a large number of BRs are involved in conservation, research, and environmental education —activities that are particularly emphasized in the national parks and research reserves that comprise most of the current BR network. Activities requiring a high degree of stakeholder cooperation — i.e., local participation, integrated planning, and sustainable development — are being undertaken by a much smaller number of BRs. Finally, only a few BRs are involved in regional and international cooperative activities that are required for BRs to achieve their full potential in addressing global conservation and development issues.

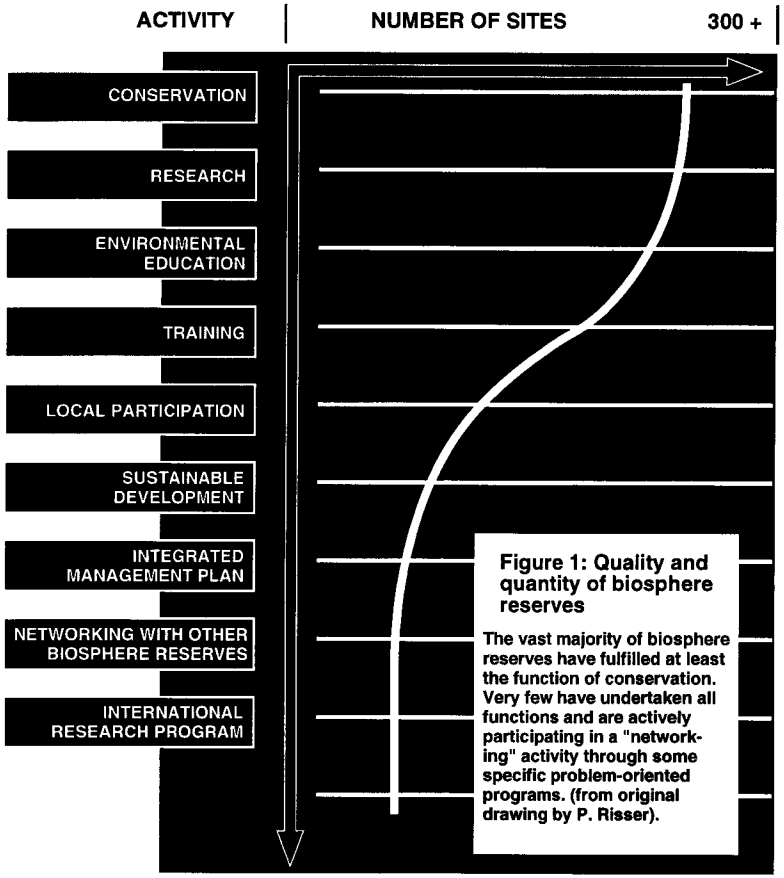


Figure 1: Quality and quantity of biosphere reserves

The vast majority of biosphere reserves have fulfilled at least the function of conservation. Very few have undertaken all functions and are actively participating in a "networking" activity through some specific problem-oriented programs. (from original drawing by P. Risser).

BIOSPHERE RESERVES IN THE UNITED STATES

U.S. Biosphere Reserves (USBR) that were designated prior to 1980 are primarily protected natural areas or research sites. Sometimes U.S. MAB grouped several reserves in a particular biogeographic area into a cluster to facilitate cooperation and communication.

Reserves designated after 1980, however, were based on studies to identify complementary sites which, when joined together, could best implement the MAB concept. These multisite reserves included two or more administrative units designated together as a single BR.

By the late 1980s, concern over the loss of biodiversity and the emergence of the concepts of ecosystem management and sustainable development were generating worldwide interest in the potential of BRs to demonstrate the practical feasibility of these concepts. USBRs began to plan and organize cooperative programs involving site administrators and other stakeholders to solve complex problems of conservation and development in their regions. As these programs succeeded, stakeholder participation increased and additional sites often requested UNESCO designation, as components of these multifunctional units, thereby creating Regional BRs. All USBRs designated since 1988 have followed the Regional Reserve model of linked complementary sites built around a cooperative association of stakeholders.

THE U.S. MAN AND THE BIOSPHERE PROGRAM

The U.S. Man and the Biosphere Program (U.S. MAB) seeks to facilitate the discovery of practical solutions to complex conservation and development problems by providing a framework for policy makers and resource managers to interact with an interdisciplinary community of natural and social scientists and other stakeholders. The National Committee for U.S. MAB establishes policy and program priorities. The Committee includes natural and social

scientists, and representatives of most of the Federal agencies with missions in conservation, natural and human systems research, and sustainable use of natural resources.

In 1989 U.S. MAB established five Research Directorates which conduct multiyear research projects on practical policy and management issues, and ensure the integration of research into the U.S. MAB Program. An important benefit of the research is that BR managers and stakeholders who wish to implement ecosystem-based management are provided with a better understanding of relationships between ecosystems, human activities, resource policies, and cultural values. In addition to research initiatives, U.S. MAB supports interagency efforts to integrate BRs more effectively within the U.S. MAB Program.

In December 1993 U.S. MAB sponsored a national workshop of BR managers and stakeholders in Estes Park, Colorado to develop recommendations for a U.S. MAB action plan for the U.S. BR Program (USBRP). The 83 participants represented 33 of the 47 USBRs, and included representatives from 11 Federal agencies, several state and local agencies, nongovernmental organizations, Canadian BRs, and an Indian nation. The workshop produced a draft action plan which was subsequently revised by a committee of workshop participants. This Strategic Plan is the result of these efforts.

This Plan sets forth the mission, goals, objectives, and implementing actions for the USBRP. Actions are listed under each objective in general order of priority.

MISSION OF THE UNITED STATES BIOSPHERE RESERVE PROGRAM

The mission of the United States Biosphere Reserve Program (USBRP) is to establish and support a U.S. network of designated biosphere reserves that are fully representative of the biogeographical areas of the United States. The program promotes a sustainable balance among the conservation of biological diversity, compatible economic use, and cultural values, through public and private partnerships, interdisciplinary research, education, and communication.

I. POLICY AND PROGRAM OPERATIONS

Implementing the vision and themes of the MAB concept in an integrated fashion is a complex undertaking. Conservation, research, education, and economic development sectors must be as actively involved as local communities. Sites managed for conservation, research, and multiple-use objectives all play important roles in the USBRP. Because environmental concerns reach beyond borders, connections among BRs and other research sites must cross regional and international boundaries.

The complexity of this process will require a variety of approaches. Individual reserves will have unique experiences that by themselves are primarily of local relevance. It is when these individual experiences are shared and integrated that the value-added benefits of BRs can be achieved. Accomplishing this integration requires a facilitating organization which can develop the required mechanisms.

By formalizing a USBRP, with a directorate, the U.S. MAB National Committee created the organizational structure required to strengthen individual BR programs, create a

functional USBR network, and enhance the contributions of the USBRs to the overall goals of the MAB program. U.S. MAB will further support the USBRP in helping stakeholder groups solve local, regional, and global conservation and development problems by providing policy guidance, being a persuasive advocate, and facilitating coordination domestically and internationally.

GOAL: ESTABLISH A POLICY AND OPERATIONAL FRAMEWORK FOR THE U.S. BIOSPHERE RESERVE PROGRAM.

OBJECTIVE: *Integrate the USBRP as an essential component of the U.S. MAB Program.*

To implement this objective, the U.S. MAB National Committee will:

- Establish a BR Directorate whose Chair is a member of the National Committee. The Directorate will recommend policies, an annual program plan, and specific projects for approval by the National Committee; plan, coordinate, and oversee the USBRP, and develop institutional and public support for the Program. The directorate membership will include BR managers and stakeholders, scientists, and agency BR program coordinators.
- Encourage U.S. MAB research projects to use BR sites and to keep BR managers informed on research.
- Convene an annual meeting of research and BR directorates to review program accomplishments and develop an integrated U.S. MAB Program.

OBJECTIVE: *Encourage recognition and support for BRs at all levels of government and in the private sector.*

To implement this objective, the U.S. MAB National Committee will:

- Promote the inclusion of the USBRP in the Administration's policy and planning in such areas as biodiversity, global change, ecosystem management, and improving government performance; and encourage all member agencies of U.S. MAB to emphasize BRs in their plans, programs, and budget formulations, and to identify an agency coordinator for the USBRP.

OBJECTIVE: *Provide resources for the U.S. Biosphere Reserve Program.*

To implement this objective, the U.S. MAB National Committee will:

- Review USBRP's annual program plan and appropriate funds for its annual activities. Allocated funds will support the administration of the BR Directorate, and help support activities involving USBRs, whenever possible, on a cost-sharing basis. Some examples of these activities are: BR feasibility studies and program planning; BR organization and coordination; research, education and demonstration projects; information networking; and forums on conservation and development issues.
- Encourage donor organizations (e.g., U.S. Agency for International Development, Peace Corps, World Bank) to support international activities involving USBRs.
- Cooperate with the UNESCO MAB Secretariat to coordinate funding and administrative support for USBR participation in international programs and projects.

To implement this objective, the BR Directorate will:

- Identify, evaluate, and pursue opportunities to increase private sector funding and encourage private sector efforts to raise funds for the USBRP.

- Develop an aggressive marketing strategy for BRs, including effective communication of the USBRP mission and BR accomplishments, targeted at potential agency and private sources of support.
- Leverage U.S. MAB funding for the USBRP with other sources of governmental and private support.

II. BIOSPHERE RESERVE NETWORK DEVELOPMENT

An early goal of the UNESCO MAB Program was the establishment of at least one BR in every biogeographical province in the world. Biogeographic representation has been approximately achieved in the United States, both in terrestrial and coastal/marine ecosystems. However, two major challenges for U.S. MAB remain.

The first challenge is to fill any remaining gaps in biogeographic representation with BRs that are organized and committed to implementing the MAB concept. The second is to assist the diverse collection of BRs to become a functional network in which each reserve addresses conservation and development issues locally, while participating actively in solving problems of regional and global importance. As the collection of USBRs evolves from single conservation/research sites toward a coordinated network of multisite/multifunction BRs, the USBRP will pursue opportunities to share this experience with BR managers and stakeholders, both domestically and internationally, seeking to use the regional BR approach.

GOAL: CREATE A NATIONAL NETWORK OF BIOSPHERE RESERVES THAT REPRESENTS THE BIOGEOGRAPHICAL DIVERSITY OF THE UNITED STATES AND FULFILLS THE INTERNATIONALLY ESTABLISHED ROLES AND FUNCTIONS OF BIOSPHERE RESERVES.

OBJECTIVE: Ensure that each terrestrial and coastal/marine biogeographical province in the United States has at least one BR that is fully implementing the internationally defined roles for BRs.

To implement this objective, the BR Directorate will:

- Review the status of the USBR Network, evaluate the effectiveness of the various approaches being used to implement the MAB concept, and identify successful examples that can serve as models.
- Provide guidelines for the planning, organization, management, and coordination of USBRs, including the roles and responsibilities of BR managers and staff. To develop these guidelines will require identifying the characteristics that USBRs should have in order to fulfill their mission of conserving biodiversity within the context of ecologically sustainable cultural and economic development.
- Interpret the UNESCO criteria for the selection of BRs within the US context and in light of desired characteristics of USBRs and provide oversight for selection and expansion of BRs to ensure the USBR network adequately represents the U.S. terrestrial and coastal/marine biogeographic provinces and their associated cultural and economic systems.
- Develop standards for evaluating the progress of USBRs in implementing MAB concepts, and provide recommendations to the National Committee and individual BRs on ways to improve performance.

To implement this objective, USBRs will:

- Appoint an individual to coordinate their BR program and represent the BR in the National Program. Cooperative regional BR programs should appoint an individual and provide the resources to coordinate the regional program.

- Establish coordination among individuals, organizations and agencies involved with conservation, research and multiple-use areas, for planning and implementing the MAB concept in a particular biogeographic area.
- Develop strategic plans, reflecting the different missions and jurisdictions within the BR, as the basis for implementing the MAB concept. Each BR should periodically evaluate its plan's effectiveness in maintaining biodiversity and providing benefits to stakeholders, and revise the plan accordingly.

III. LOCAL PARTICIPATION

The USBRP should provide guidance so each USBR can become firmly rooted in the social, cultural, and economic fabric of its associated communities. These communities should derive tangible benefits from participation in BR activities, such as international recognition and linkages, a stronger voice in environmental management, better access to scientific information, employment opportunities, enhanced valuation of traditional uses and cultural integrity, improved access to financial and technical resources, and opportunities to create partnerships that enable stakeholders to educate each other on the benefits of integrating conservation and development.

GOAL: FOSTER COOPERATIVE PARTNERSHIPS AMONG ALL STAKEHOLDERS IN BIOSPHERE RESERVES.

OBJECTIVE: Plan and implement cooperative organizations, mechanisms, and processes involving scientific, environmental, economic, and cultural interests through which all stakeholders participate in conserving biological diversity while promoting compatible economic use and sustaining cultural values.

To implement this objective, the BR Directorate will:

- Assess approaches being used to encourage multi-sector involvement in ecosystem management and provide appropriate recommendations and guidance to BRs.

To implement this objective, USBRs will:

- Identify potential BR stakeholders, consider techniques and methods of cooperation used successfully elsewhere, and assess the feasibility of alternative approaches for implementing MAB concepts.
- Encourage stakeholders, including local citizens and traditional resource users, to participate fully in identifying issues of concern and in establishing cooperative BR programs, organizations, and mechanisms that enable full consideration of different positions in building community-wide consensus on conservation and development issues.

IV. RESEARCH

The research strategy of the USBRP is to emphasize interdisciplinary research which encompasses the themes of conservation of biological diversity, development of compatible economic use, and maintenance of extant cultural values by: 1) developing institutional capacity within the USBRP to focus more intensively on these themes, 2) developing effective means of gathering ecological and socioeconomic data and monitoring changes in BRs, and 3) promoting individual BR research programs that integrate natural and social sciences to address practical policy and management issues.

GOAL: ACQUIRE AND INTEGRATE KNOWLEDGE FOR SUSTAINING BIODIVERSITY, CULTURAL VALUES, AND VIABLE ECONOMIES WITHIN AN ECOSYSTEM/ LANDSCAPE CONTEXT.

OBJECTIVE: Develop the scientific capacity of USBRs to address local, regional and global resource issues.

To implement this objective, the BR Directorate will:

- In cooperation with the U.S. MAB Research Directorates, promote interdisciplinary BR research and management programs that encourage the integration of natural and social sciences.
- Sponsor forums to identify ecosystem, landscape, regional, and global research needs BRs can help address.
- Synthesize and disseminate information on existing and planned research, inventory, and monitoring programs at USBRs.
- Establish a working group(s) to identify and document available databases and recommend ways to facilitate access of USBRs to these data sources.
- Establish committees of specialists to examine protocols and procedures developed by multidisciplinary research, inventory, and monitoring programs and recommend ones that BRs could use to document and assess status and trends in their biological diversity, socioeconomic conditions, and cultural resources.

To implement this objective, BRs will:

- Develop and implement a basic resource inventory and monitoring program for the systematic acquisition of ecological and sociocultural data.

- Plan and conduct multidisciplinary research programs on issues of biodiversity, sustainable development, and regional and global change that provide the basis for testing and demonstrating ways to manage ecosystems while promoting compatible economic and social uses.

V. EDUCATION

Success in the process of harmonizing biodiversity conservation and compatible cultural-economic development will depend on the involvement and expertise of all BR stakeholders. Public awareness programs play a key role in developing stakeholder interest which often precedes stakeholder involvement. The USBRP will emphasize dissemination of facts, news, and materials describing its work to the general public and appropriate decisionmakers.

Formal and informal educational activities will be essential to assure that all groups have knowledge and skills required for their full participation in implementing the MAB concept. At the same time, such activities will be the vehicle for transmitting lessons learned and experience gained about the MAB concept to others.

GOAL: PROMOTE PUBLIC AWARENESS AND EDUCATION THAT STRENGTHENS THE COMMITMENT OF STAKEHOLDERS TO MAB CONCEPTS.

OBJECTIVE: Become regional showcases for fostering understanding of the evolution of the natural and human systems of the BR's biogeographic area, and resource centers for training, education, and conducting dialogue on issues related to conservation and sustainable development.

To implement this objective, the BR Directorate will:

- Develop public media to support the USBRP, including media that can be adapted for use by individual BRs (e.g., brochures, slide presentations).
- Showcase BRs that best exemplify the goals of the USBRP.
- Facilitate personnel exchanges involving managers, researchers, students, and other BR stakeholders among and between BRs and other areas concerned with conservation and development.

To implement this objective, BRs will:

- Encourage stakeholders, as part of the BR planning process, to coordinate use of their technical and financial resources to implement public awareness and education programs.
- Develop and implement public awareness programs on the changing relationships between nature, cultural values, and economic development, and on issues relating to conservation and development.
- Cooperate with academic institutions and local school systems to incorporate MAB concepts and the information from BR programs into their educational materials and curricula on conservation and development issues.
- Encourage training of BR staff and stakeholders on skills required for effective community relations, partnership development and conflict resolution.
- Educate BR personnel and stakeholders about the principles and practices of ecosystem management and sustainable cultural-economic development using BRs as educational laboratories.

VI. COMMUNICATION

The USBRP can play an important role in policy development by providing integrated and scientifically credible information on the complex connections between the actions of humankind and our natural world. Through effective communication, the USBRP can generate and share new ideas and concepts related to conservation and sustainable development, and help keep them at the forefront of the national agenda. Communication mechanisms which allow biosphere reserves to share information will also strengthen and enhance the development of the U.S. Biosphere Reserve Program and the worldwide Biosphere Reserve Network.

GOAL: ESTABLISH MECHANISMS FOR SHARING AND DISSEMINATING DATA AND INFORMATION AMONG U.S. BIOSPHERE RESERVES AND BETWEEN U.S. BIOSPHERE RESERVES AND OTHERS.

OBJECTIVE: Design and implement a USBR communication system to facilitate BR access to data, information and publications so that information about USBRs and research results and information on conservation and development issues from BRs are accessible and widely shared.

To implement this objective, the BR Directorate will:

- Develop and disseminate materials that convey the relevance of the USBRP to the missions and specific goals of agencies and private sector organizations.

- Hold regular meetings for USBR managers and stakeholders to share experiences in implementing MAB concepts.
- Produce and periodically update a directory of USBRs to provide current information on BR programs, facilities, and individuals.
- In cooperation with U.S. MAB's member agencies, sponsor forums to help USBRs explore topics, problems, and areas of opportunity.
- Explore the feasibility of linking the USBRs via an existing global electronic network (e.g., INTERNET) and other means (e.g., electronic bulletin boards, newsletters, USBR magazine, and UNESCO INFOMAB publication).

To implement this objective, the BRs will:

- Develop communication tools and use public media in cooperation with other organizations and institutions, to strengthen communication among BR stakeholders.

OBJECTIVE: Strengthen domestic and international cooperation between the USBRP and other programs and institutions that have complementary goals and objectives.

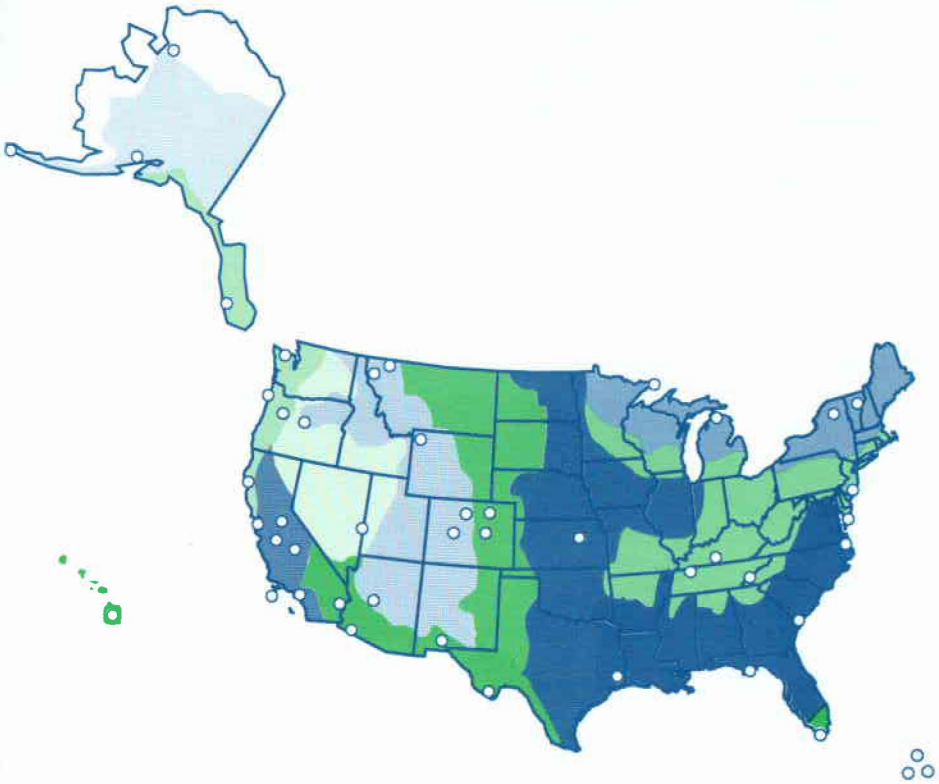
To implement this objective, the BR Directorate will:

- Encourage linkages between the USBRP with other national and international programs concerned with biodiversity, sustainable development, and regional and global change. Examples at the national level include Heritage Programs (The Nature Conservancy and states), the Long-term Ecological Research Program (National Science Foundation), the Sustainable Biosphere Initiative (Ecological Society of America), the Bioreserves Program (The Nature Conservancy), and the U.S. Global Change Research Program (interagency). Examples at the international

level include the Diversitas Program (International Union of Biological Sciences), the International Geosphere-Biosphere Program (International Council of Scientific Unions), and the Global Environmental Facility (World Bank).
- Encourage increased participation of USBRP in MAB's international networks (e.g., EuroMAB, Northern Science Network) for scientific cooperation, technical assistance, and information exchange.
- Promote and facilitate pairing among USBRs and between USBRs and BRs in other countries having similar ecological situations and management issues.

- Arctic Tundra
- Boreal Forest & Woodland
- Temperate Rainforest
- Mediterranean Forest, Chaparral & Grassland
- Humid Temperate Broadleaf Forest
- Temperate Warm Desert & Semi-Desert
- Semi-Arid & Humid Forest & Scrub Continental
- Temperate Cold Desert & Semi-Desert
- Humid Grassland & Parkland
- Semi-Arid Temperate Grassland
- Great Lakes Mixed Forest
- Humid Subtropical Mixed Forest
- Tropical Savanna & Woodland

U.S. Biosphere Reserves



LIST OF U.S. BIOSPHERE RESERVES BY CATEGORY

Protected Natural Area. *Protected area managed for conservation and designated wholly or primarily as a core area.*

Aleutian Islands National Wildlife Refuge, AK (1976: FWS)

Big Thicket National Preserve, TX (1981: NPS)

Denali National Park and Preserve, AK (1976: NPS)

Everglades/Dry Tortugas National Parks, FL (1976: NPS)

Guanica State Forest, PR (1981: state)

Isle Royale National Park, MI (1980: NPS)

Noatak National Preserve/Gates of the Arctic National Park, AK (1976, 1984: NPS)

Olympic National Park, WA (1976: NPS)

Organ Pipe Cactus National Monument, AZ (1976: NPS)

Virgin Islands National Park, USVI (1976: NPS)

Yellowstone National Park, MT–WY (1976: NPS)

Research Reserve. *Protected areas managed primarily for research to understand ecosystem processes or support development of sustainable ecosystem uses.*

Beaver Creek Experimental Forest, AZ (1979: FS)

Central Plains Experimental Range, CO (1976: ARS) LTER site

Desert Experimental Range, UT (1976: FS)

H.J. Andrews Experimental Forest, OR (1976: FS) LTER site

Hubbard Brook Experimental Forest, NH (1976: FS) LTER site

Konza Prairie Research Natural Area, KS (1979: TNC, university) LTER site.

Luquillo Experimental Forest, PR (1976: FS) LTER site

San Dimas Experimental Forest, CA (1976: FS)

San Joaquin Experimental Range, CA (1976: ARS)

University of Michigan Biological Station, MI (1979: university)

Biosphere Reserve Cluster. *An association of separately designated administrative units that cooperate in implementing biosphere reserve roles. (Clusters of Protected Natural Areas and Research Reserves provided the basis for many initial U.S. Biosphere Reserve nominations in 1976)*

Big Bend National Park, TX (1976: NPS) and Jornada Experimental Range, NM (1976: ARS) LTER site. Also includes Mapimi Biosphere Reserve in Mexico.

Fraser Experimental Forest, CO (1976: FS), Niwot Ridge, CO (1979: FS, university) LTER site, and Rocky Mountain National Park, CO (1976: NPS)

Glacier National Park, MT (1976: NPS) and Coram Experimental Forest, MT (1976: FS). Also includes Waterton National Park in Alberta, Canada (1979: Parks Canada)

Sequoia and Kings Canyon National Parks, CA (1976: NPS) and Stanislaus-Tuolumne Experimental Forest, CA (1976: FS)

Three Sisters Wilderness, OR (1976: FS) and Cascade Head Experimental Forest and Scenic-Research Area, OR (1976: FS)

Multisite Biosphere Reserve. *A group of two or more administrative units designated together as a single biosphere reserve. Designated primarily between 1980 and 1986.*

California Coast Ranges Biosphere Reserve, CA 10 units in 2 clusters (1983: BLM, FS, NPS, state, TNC, university)

Carolinian-South Atlantic Biosphere Reserve, NC–SC–GA 13 units in 3 clusters (1986: FWS, NOAA, NPS, TNC, states, private, university) includes North Inlet LTER site

Central Gulf Coastal Plain Biosphere Reserve, FL 1 unit, other units not yet designated (1983: state)

Channel Islands Biosphere Reserve, CA 2 units (1976 and 1986: NPS, NOAA)

Glacier Bay-Admiralty Island Biosphere Reserve, AK 2 units (1986: FS, NPS)

Hawaiian Islands Biosphere Reserve, HI 2 units (1980: NPS)

Mojave and Colorado Deserts Biosphere Reserve, CA–NV 5 units (1984: BLM, FS, NPS, state, university)

South Atlantic Coastal Plain Biosphere Reserve, SC 1 unit, other units not yet designated (1983: NPS)

Regional Biosphere Reserve. *A large multiple use area or an association of administrative units designated together as a single biosphere reserve. The designated area(s) participate in an organized, cooperative program involving multiple agencies and nongovernmental entities. Designated primarily since 1988.*

Central California Coast Biosphere Reserve, CA 13 units (1988 and 1991: FWS, NPS, NOAA, state, local, private)

Champlain-Adirondack Biosphere Reserve, NY–VT (1988: FS, local, private, state, complex ownerships)

Land Between the Lakes Area Biosphere Reserve, TN–KY multiple use area (1991: TVA)

Mammoth Cave Area Biosphere Reserve, KY regional development district and a national park (1990: NPS, regional development authority)

New Jersey Pinelands Biosphere Reserve, NJ regional multiple use reserve (1983, 1988: FWS, local, state, complex ownerships)

Southern Appalachian Biosphere Reserve, GA–NC–SC–TN–VA 5 units (1976, 1988, 1993: DOE, FS, NPS, state, private) includes Coweeta LTER site

Virginia Coast Reserve, VA multiple islands TNC bioreserve (1979: TNC) LTER site

Administrators of Designated Sites

ARS	Department of Agriculture—Agricultural Research Service
DOE	Department of Energy
FS	Department of Agriculture—Forest Service
FWS	Department of the Interior—U.S. Fish and Wildlife Service
NOAA	National Oceanic and Atmospheric Administration
NPS	Department of the Interior—National Park Service
TNC	The Nature Conservancy
TVA	Tennessee Valley Authority