1995

Biosphere Reserve Managers' Workshop

Sponsored by

the Biosphere Reserves Directorate

of the

U.S. Man and the Biosphere Program

October 29-31, 1995

Hyatt Dulles
Washington, DC
U.S. BIOSPHERE RESERVE MANAGERS' WORKSHOP
OCTOBER 29-31, 1995

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TAB 2 Preliminary Participant List

TAB 3 Research Reports

TAB 4 Biosphere Reserve Directorate
   A. 1995 Funded Activities
   B. Interim Guidelines for Selection of Biosphere Reserves
   C. Draft Biosphere Reserve Brochure
   D. 1996 Funded Activities
   E. FY1996 Request for Proposals

TAB 5 Biosphere Reserve Q&A's

TAB 6 Results of Biosphere Reserve Managers' Survey

TAB 7 Case Studies
   A. Southern Appalachian Man and the Biosphere Program
   B. Sonoran Desert Biosphere Cooperative
   C. Mammoth Cave Area Biosphere Reserve
   D. Colorado Rockies Regional Cooperative
   E. Proposed Catskills Biosphere Reserve
   F. Proposed Lake Superior Basin Multi-Site Biosphere Reserve
   G. Proposed Tijuana Watershed Biosphere Reserve

TAB 8 Topical Workshop Objectives
   1. Communication
   2. Education and Training
   3. Filling Gaps
   4. Local Participation
   5. Operational Framework
   6. Research and Monitoring
Purpose:
Develop mechanisms to better implement the Strategic Plan for the U.S. Biosphere Reserve Program and to integrate all components of the U.S. MAB program into biosphere reserve programs.

Approach:
Start with a plenary information sharing session to bring everyone up to date followed by concurrent topical breakout discussion sessions to develop strategies for implementing components of the Strategic Plan.

AGENDA

Sunday, October 29, 1995
5:30 - 7:30 p.m. Registration and Reception in Earhart/Lindberg Room

Monday, October 30, 1995
7:30 a.m. Registration at conference room Concord AB
8:00 a.m. Welcome/Informal Greetings/Overview and Goals for the Meeting
- Hubert Hinote, Chairman, U.S. MAB Directorate on Biosphere Reserves
8:30 a.m. Comments from the Chairman
- Dean Bibles, Chairman, U.S. MAB National Committee
9:00 a.m. International Opportunities for U.S. Biosphere Reserves
- Roger Soles, Executive Director, U.S. MAB Program
9:15 a.m. Biosphere Reserve Data Bases/Electronic Communication
- Michael Ruggiero, National Biological Service
- James Quinn, University of California at Davis
- Francisco Dallmeier, Smithsonian Institution MAB Biodiversity Program
10:00 a.m.  Break

10:30 a.m.  MAB Research and the Biosphere Reserve Manager  
- Mark Harwell, University of Miami

10:45 a.m.  Reports of the U.S. MAB Research Directorates  
o High Latitude Ecosystems - Jack Kruse, University of Alaska  
o Temperate Ecosystems - Robert Naiman, University of Washington  
o Tropical Ecosystems - John Wilson, USAID  
o Marine & Coastal Ecosystems - Michael Crosby, NOAA  
o Human Dominated Systems - Mark Harwell, University of Miami

12:15 p.m.  Lunch

1:30 p.m.  Initiatives of the Biosphere Reserve Directorate  
o Small Grants Program - Hubert Hinote, Southern Appalachian MAB Cooperative  
o Guidelines for Establishing Functional Biosphere Reserves - Karen Wade, Great Smoky Mountains National Park  
o Completing the Network - Mike Ruggiero, NBS  
o Brochure - Hubert Hinote, Southern Appalachian MAB Cooperative  
o FY 96 Projects - Reed Bohne, NOAA

1:30 p.m.  U.S. MAB Executive Committee Breakout - Concurrent Activity in Lindberg Room

2:15 p.m.  Results of the Managers' Survey  
- William Gregg, National Biological Service

2:45 p.m.  Remarks - John Reynolds, Deputy Director, National Service

3:00 p.m.  Break

3:30 p.m.  Case Study Presentations and Discussion  
- William Gregg, National Biological Service

1. Southern Appalachian Man and the Biosphere Program  
- Hubert Hinote - Southern Appalachian MAB Cooperative

2. Sonoran Desert Biosphere Cooperative  
- Tony Ramon - Tohono O'odham Nation  
- Harold Smith, Organ Pipe Cactus National Monument

3. Mammoth Cave Area Biosphere Reserve  
- Jeff Bradybaugh, Mammoth Cave National Park
4. Colorado Rockies Regional Cooperative  
- Craig Axtell, Rocky Mountain National Park

5. Proposed Catskills Biosphere Reserve  
- Janet Crawshaw, The Catskill Center

6. Proposed Lake Superior Basin Multi-Site Biosphere Reserve (U.S. - Canada)  
- Robert Brander, National Park Service

4:45 p.m. Structure and Assignments for Tuesday  
- Hubert Hinote, Southern Appalachian MAB Cooperative

5:00 p.m. Adjourn

6:00 p.m. Banquet at Hotel

Speakers:  
- The Honorable John Fraser, Ambassador for the Environment and Chairman, Canadian MAB National Committee  
- Dr. Miguel Equihua, Academic Secretary, Institute of Ecology, Mexico  
- Dean Bibles, Chairman, U.S. MAB National Committee

Signing of trilateral agreement

7:30 p.m. Breakout Sessions

Coastal and Marine Biosphere Reserves Meeting

National Park Service Biosphere Reserve Managers’ Workshop

Biosphere Reserve Case Studies (10 mins. each)

1. Tijuana Watershed (U.S. - Mexico, proposed)  
- Fred Cagle, IMMEDSYS.LTD

2. New Jersey Pinelands  
- Robert Zampella, Pinelands Commission

3. Crown of the Continent Biosphere Reserves (U.S. - Canada)  
- Brace Hayden, Glacier National Park

4. Proposed Ozark Highlands  
- David Foster, Ozark National Scenic Riverways

9:30 p.m. Adjourn
Tuesday, October 31, 1995

7:30 a.m.   Registration at conference room Concord AB

8:00 a.m.   Opening remarks
            - F. Eugene Hester, Deputy Director, National Biological Service

8:30 a.m.   Concurrent Topical Workshops

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<td>Karen Wade</td>
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<td>3. Filling Gaps</td>
<td>Dave Foster</td>
<td>John Humke</td>
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<td>4. Local Participation</td>
<td>Doug Nadeau</td>
<td>Wendy Laird</td>
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<td>5. Operational Framework</td>
<td>MaryAnne Young</td>
<td>Dick Ring</td>
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<td>6. Research and Monitoring</td>
<td>Al Muth</td>
<td>Reed Bohne</td>
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10:00 a.m.   Break

12:00 p.m.   Lunch

1:00 p.m.    Progress Reports to Plenary

3:00 p.m.    Break

3:15 p.m.    Discussion of What Achieved, What Still Needed

4:15 p.m.    Summary of Meeting, Chart for Future
            - Dean Bibles, Chairman, U.S. MAB National Committee

4:30 p.m.    Adjourn

7:30 p.m.    Bureau Breakout Sessions as Needed

9:30 p.m.    Adjourn
U.S. BIOSPHERE RESERVE MANAGERS' WORKSHOP
Hyatt Dulles Hotel, Herndon, Virginia
October 29 - 31, 1995

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updated 11/29/95
High Latitude Ecosystems Directorate
Research Relevant to Biosphere Managers

Phase 1 Core Project: Resource user involvement and management effectiveness: A comparison of Arctic caribou management systems (final year)

Nearest BR: Noatak BR (in the range of the Western Arctic Herd)

Other BR's: All BR's in which the health of a wildlife population depends on the voluntary cooperation of people.

Research Question: Does direct involvement of users in a management board improve the effectiveness of the management system?

Study Design:

The Western Arctic Caribou Herd in Alaska and the Beverly and Qamanirjuaq caribou herds in Canada are the focus of study. In the case of the Western Arctic Herd state system, users advise a state Board of Game through local and regional councils and through contacts with local government biologists. Users of the Beverly or Qamanirjuaq herds are represented in a board composed of eight traditional users and five government representatives.

Our initial hypothesis was that the direct contact between Canadian users and government managers in a joint management board would produce greater cooperation and agreement than the Alaskan hierarchical system. We conducted a census of government managers, interviewing a total of 48 biologists, supervisors, conservation officers, and enforcement personnel. We surveyed probability samples of approximately 200 traditional users in both countries.

Major findings of the study: (1) the direct involvement of user-representatives on a management board causes government managers to be more sensitive and responsive to user concerns; and, (2) this form of direct user involvement does not increase the likelihood that users at the village level will cooperate with management actions. User-manager boards do not appear to be a substitute for a frequent and continued presence of biologists in traditional user communities when it comes to establishing trust in management information and supporting traditional community-based decisionmaking.

Phase 2 Core: Sustainability of Arctic Communities: Interactions Between Global Changes, Public Policies, and Ecological Processes (just starting)

Relevant BR's: BR's in which the viability of communities depend on a combination of wage employment and use of local resources.

Research Question: How will oil development, tourism, non-local hunting and climate change affect wage employment, subsistence harvests of caribou, and perceived local control?

Study Design: Focus on the Porcupine Caribou Herd and prospective development in the Alaska National Wildlife Refuge
MEMORANDUM

TO: U.S. MAB Biosphere Reserve Managers

FROM: John Wilson, Chairperson,
U.S MAB Tropical Ecosystems Directorate

SUBJ: Core Program Summary: Ecological Sustainability and Human Institutions in Belize, Guatemala and Mexico

I. Introduction: The Maya Tropical Forest (Selva Maya) extends across parts of Chiapas and Quintana Roo, Mexico; the northern Petén, Guatemala; and western Belize. The Selva Maya represents the Western Hemisphere’s largest remaining block of tropical forest north of the Amazon, and is home to globally significant biological, cultural, and archaeological resources. However, its rich natural patrimony is increasingly threatened by population growth and migration, expansion of the agricultural frontier, timber poaching, and petroleum extraction.

II. Program Objective: The overall objective of the MAB Tropical Ecosystem Directorate (TED) core program is to promote the sustainable management of tropical forests in Belize, Guatemala, and Mexico (Selva Maya). Recognizing the magnitude of this objective and the limits of its resources, MAB TED sought out a special niche: our approach focuses on working on a regional scale to: (1) link research with action, integrating social and biological research to address current problems; and (2) promote cross-border cooperation and exchange of information on integrated approaches to the conservation and management of the Selva Maya tropical forests.

III. Participants in the project: To leverage its resources, MAB TED worked together with a number of partners, including the Central American Commission on Environment and Development (CCAD), the Mayan Forest (MAYAFOR) program, the MacArthur Foundation, and other local, national, and international organizations. With these partners, MAB TED has sponsored and coordinated a series of studies, workshops, and conferences, supported a small grants program, and published and disseminated the lessons learned.

IV. Results to date: Over the past three years, the MAB TED core program has accomplished much to strengthen the development and exchange of information in the Selva Maya region. Through workshops, conferences, a directed small grants program, and special studies on topics of particular importance, the core program has increased the
knowledge and involvement of local communities and organizations in resource management policy development and decision-making affecting tropical forests.

A. The Flores Workshop

An early major achievement of the TED core program was the co-sponsorship with the CCAD of the Third Tri-national meeting on the Maya Forest. This meeting, held in Flores, Guatemala, identified gaps in information and priority actions needed to address the major issues in the Selva Maya and developed recommendations for follow-up actions to meet urgent needs.

Findings from the Flores workshop were published and helped shape the U.S. Forests for the Future Initiative’s Mayafor (Mayan Forests) program. In partnership with MAB TED, MAYAFOR helped strengthen a tri-national partnership among local private sector scientific and conservation organizations to promote the conservation and sustainable management of the Selva Maya.

B. MAB TED Small Grants Program

A Small Grants Program initiated by the MAB Tropical Ecosystems Directorate has proven particularly effective in eliciting excellent applications through a competitive funding process. The program offers grants of up to $20,000. It is expected that TED funds will be used to leverage additional support from non-government organizations and private foundations. The funds offered by the Directorate are disseminated through a process of proposal submission that allows selection of quality projects which support the overall mission of the Directorate and U.S. MAB. In this process, a Request for Proposals is issued to solicit projects in fields closely related to the Directorate objectives, especially tropical forest management, agroforestry, community forestry, and similar subjects. Special attention is paid to activities which strengthen partnerships among local communities, resource users, researchers, managers, and policymakers. These grants have become major tools for implementing the TED program.

C. Conservation Assessment Workshop

The U.S. MAB Tropical Ecosystems Directorate hosted a Regional Conservation Assessment Workshop for the Maya Tropical Forest in San Cristóbal de las Casas, Mexico, on August 15 to 17, 1995. Cosponsored with the USAID Mayan Forests (MAYAFOR) program, El Colegio de la Frontera Sur (ECOSUR), Conservation International and Management Systems International, this workshop brought together 50 participants from four countries to develop a consensus regarding the environmental conditions and information needs for this important region.

Increasing attention and dedication is being paid to improving sustainable forest management and conservation in the region. However, cooperation is hampered by the lack of comprehensive understanding on what information has been collected, where information is lacking, and a lack of mechanisms for sharing data. The Conservation Assessment
Workshop was held to address this problem by providing a forum for sharing information and identifying areas of importance for a range of conservation issues. Another purpose of this workshop was to compile the available information on the region to support future research, planning, and decision-making. A key result of the workshop was to build a consensus regarding the environmental conditions and create a common base of information shared among a network of organizations in the region.

Over the three days of the workshop, participants documented information sources describing environmental, cultural, and socioeconomic conditions in the Maya Tropical Forest; identified areas where information is absent or duplication of information is occurring; and developed plans for coordinated regional approaches to assess and monitor changing regional conditions. A highlight of the meeting was the presentation and distribution of a digital geographic database for the Maya Forest region, prepared by the GEOPLAN Center of the University of Florida. Considerable support was expressed for efforts to link Biosphere Reserves in the region, offering an opportunity to explore future collaboration with EcoNetAmerica. Results of the meeting, including data bases, maps, and proceedings will be produced and distributed shortly by the MAB Tropical Ecosystems Directorate in collaboration with Conservation International.

V. Conservation & Community Development in the MAYAFOR Region:

This conference is planned as a capstone for the MAB TED core program. Scheduled for November 1995, this conference will present the results of three years of work by the U.S. Man and the Biosphere Program on behalf of research, conservation, and development activities in the Mayan rainforest. The conference is designed to provide a broad, participatory framework for sharing research findings, successful and unsuccessful action strategies, and for encouraging the strengthening of both public and private networks for developing and conserving the thriving biotic and human communities of the region. Edited proceedings will be published in Spanish and English.

VI. Planned future milestones

A Phase II MAB TED program is proposed to sustain momentum for conservation and management of the Maya tropical rainforest and to encourage the establishment of a regional system of biosphere reserves. The first three years of the MAB TED core program have already achieved much to bring a regional perspective to the management of the rich tropical forests of the Selva Maya and to facilitate the exchange of information to enhance local capacity for biosphere reserve management. The close proximity of five existing biosphere reserves and one proposed biosphere reserves in Mexico, Guatemala, and Belize makes the Maya Tri-national region the largest collection of tropical biosphere reserves in Latin America and the second largest in the Americas -- after the complex of biosphere reserves along the border of western Canada and the United States. By supporting a Phase II program, US MAB has an opportunity to foster this critical system of reserves and to continue its leadership and vision promoting the conservation and sustainable development of the Maya Tropical Forest -- a globally significant and precious resource.
United States Man and the Biosphere Directorate

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1 According to the "Terms of Reference" establishing the Directorate; these persons should no longer be on the directorate either because (1) they are not currently serving as a manager of a biosphere reserve or (2) they have missed more than two consecutive Directorate meetings.
Summary

US Biosphere Reserve Directorate
1995 Program

In the “Strategic Plan for the US Biosphere Reserve Program”, actions are called for by
1. The US MAB National Committee;
2. USMAB Biosphere Reserve Directorate; and
3. the individual Biosphere Reserves.

In order to begin to implement the objectives assigned to the Biosphere Reserve Directorate, the
Directorate, in 1994, prepared a “Program Agenda for Implementing the Biosphere Reserve Strategic Plan”
and requested $185,400 to carry out the program. The National Committee funded $90,000 in the
following areas:

**Goals 1 and 2**: Policy and program operations/Biosphere Reserve Network Development projects:

- BR Selection Guidelines $15,000.00
- BR Network Review 15,000.00

**Goal 3**: Local participation/partnerships:

- BR Catalytic Grants $ 50,000.00

**Goal 4**: Research
- No proposals

**Goals 5 & 6**: Education/Communication:

- New Biosphere Reserve Brochure $10,000.00

1 The Directorate sent out a request for proposals to all Biosphere Reserve units in the Fall, 1994, for
implementation of the project “Biosphere Reserve Catalytic Grants program”. The Directorate received
and evaluated 21 (twenty-one) proposals. Nine were selected for funding, as follows:
<table>
<thead>
<tr>
<th><strong>Biosphere Reserve Represented</strong></th>
<th><strong>Project Title</strong></th>
<th><strong>Amount</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky Mountain National Park</td>
<td>Develop a neighborhood planning handbooks for the Borderlands of the Rocky Mountain National Park BR</td>
<td>$ 5,000</td>
</tr>
<tr>
<td>Mammoth Cave and Land Between the Lakes</td>
<td>Joint workshop between Land Between the Lakes and Mammoth Cave BRs</td>
<td>$ 5,000</td>
</tr>
<tr>
<td>Isle Royale National Park</td>
<td>Elevation of Isle Royal BR to fully functional status</td>
<td>$ 5,000</td>
</tr>
<tr>
<td>Champlain-Adirondack</td>
<td>Adirondack Northern Forest: A common stewardship</td>
<td>$ 5,000</td>
</tr>
<tr>
<td>Organ Pipe Cactus National Monument</td>
<td>Building successful community-based partnerships along the US-Mexican border</td>
<td>$ 6,000</td>
</tr>
<tr>
<td>Virgin Islands National Park</td>
<td>Virgin Islands BR program planning workshop</td>
<td>$ 6,000</td>
</tr>
<tr>
<td>Mojave and Colorado</td>
<td>Biological field studies to assist in the preparation of a multiple species habitat conservation plan for the Mojave and Colorado Desert</td>
<td>$ 7,000</td>
</tr>
<tr>
<td>Glacier Bay/Admiralty Island</td>
<td>Glacier Bay and Admiralty Island Biosphere Reserve Scientific Data needs assessment and studies planning workshop</td>
<td>$ 8,000</td>
</tr>
<tr>
<td>Aleutain Islands</td>
<td>Aulet Traditional Knowledge Assessment</td>
<td>$ 10,000</td>
</tr>
</tbody>
</table>

**Total** $ 57,000.00 *

* $ 7,000 was reprogrammed from the “BR Selection Guidelines” project to the catalytic grants project.
PROPOSED GUIDELINES FOR THE SELECTION OF BIOSPHERE RESERVES IN THE UNITED STATES

SUBMITTED TO THE U.S. NATIONAL COMMITTEE FOR THE MAN AND THE BIOSPHERE PROGRAM BY THE INTERIM U.S. BIOSPHERE RESERVE DIRECTORATE

JULY, 1995
INTRODUCTION FOR THE BIOSPHERE RESERVE DIRECTORATE
AND THE
U.S. NATIONAL COMMITTEE

In December, 1993 the U.S. Man and the Biosphere Program (USMAB) convened a workshop of Biosphere Reserve managers and other interested parties at Estes Park, Colorado to develop recommendations for a Strategic Plan for the U.S. Biosphere Reserve Program. The Strategic Plan was drafted, approved by the U.S. National Committee for the Man and the Biosphere Program, and released in December, 1994.

The Strategic Plan included the establishment of a Biosphere Reserve Directorate, the membership of which comprises Biosphere Reserve managers and stakeholders, scientists, and agency Biosphere Reserve coordinators. Among the tasks assigned to the Biosphere Reserve Directorate is the implementation of a Strategic Plan objective to "Ensure that each terrestrial and coastal/marine biogeographical province has at least one Biosphere Reserve that is fully implementing the internationally defined roles of Biosphere Reserves." A component of the implementation strategy is the development of guidelines, based on UNESCO criteria, for the selection and expansion of U.S. Biosphere Reserves.

At its first meeting in August, 1994 at Gatlinburg, Tennessee, the newly formed directorate assigned one of its members to chair a committee to draft guidelines for consideration and future recommendation to the U.S. National Committee for MAB. The members of the committee included:

Terrence D. Moore, Executive Director of the New Jersey Pinelands Commission and member of the Directorate, Chair;

Dr. John G. Dennis, Acting Deputy Associate Director for Natural Resources, National Park Service;

Dr. Edward L. Towle, President, Island Resources Foundation;

Karen P. Wade, Superintendent, Great Smoky Mountains National Park;

Dr. Reed Noss, Department of Fisheries and Wildlife, Oregon State University.

The Committee met in Washington, D.C. in January, 1995 after reviewing recommendations for selection criteria that were made during the previous decade and a half by various parties. The selection guidelines contained in this proposal result from a two day workshop and the review of draft reports from that session.
Also present during the workshop were Dr. Hubert Hinote, Chairman of the Biosphere Reserve Directorate and Dr. William Gregg, a member of the National Committee. Mr. Dean Bibles, Chairman of the National Committee and Mr. Roger Soles, Executive Director of the U.S. MAB Secretariat, visited during the session and provided valuable comments.

The committee also discussed the question of whether there should be a limit placed on the number of Biosphere Reserves in the United States. The members believe that it is premature to suggest a limit until such time as the U.S. National Committee determines that the reserve system in the U.S. is sufficient to provide an adequate representation of all biogeographical regions, and will achieve viable implementation of the U.S. Biosphere Reserve Program.

The committee recognizes that all proposals for designation of areas as Biosphere Reserves will not meet every guideline proposed herein, but areas may qualify in the future as deficiencies are addressed. The committee recommends that the U.S. National Committee consider the establishment of a new system for designating a second tier of "U.S. Reserves." Such a designation may provide an incentive for organizations and agencies to continue to develop the necessary ingredients for full designation as a Biosphere Reserve. The new system could also act as a network of geographic linkages between designated Biosphere Reserves, thereby enhancing their own viability.

The committee has appreciated the opportunity to assist in devising guidelines that it believes will lead to enhancing the implementation of the U.S. Man and the Biosphere Program.
The Man and the Biosphere Program (MAB) of the United Nations Scientific, Educational, and Cultural Organization (UNESCO) fosters the designation of Biosphere Reserves, a network of ecologically important areas throughout the world. The program promotes a sustainable balance between the conservation of biological diversity, economic development and the maintenance of local cultural values in such areas. A Biosphere Reserve is a place of recognized world importance where people, various levels of government and the scientific community work together to foster a harmonious relationship between our human needs and the environment in which we live. It is a cooperative venture involving all who have an interest in the region.

The National Committee of the U.S. Man and the Biosphere Program is responsible for nominating areas within the U.S. to UNESCO for designation as Biosphere Reserves. The Biosphere Reserve Directorate which is made up of Biosphere Reserve managers, persons with economic and other interests, scientists, and coordinators of the Biosphere Reserve Program in a variety of agencies, reviews nominations for new reserves and expansions of those already designated. The Directorate recommends whether the U.S. National Committee should consider an area's nomination.

UNESCO provides a conceptual framework which characterizes the spatial and functional relationships of a Biosphere Reserve. Normally, three types of areas, whether they be comprised of land or water, are included in a Biosphere Reserve. In the U.S. these are referred to as the "Protected Area," the "Managed Use Area," and the "Zone of Cooperation."

The Protected Area(s) is often publicly or privately owned conservation lands such as wilderness areas or nature preserves. These provide a location where ecosystems which are minimally disturbed can be monitored and maintained for the future.

Managed Use Areas usually adjoin and may surround the Protected Area. Here research, education, recreation, and a variety of economic activities are conducted based upon agreed ecological principles.

Zones of Cooperation are the third component in the relationship. In these areas all who have an interest in the Biosphere Reserve seek to link conservation, economic development, and cultural values. Participants include those that manage the land and water resources, local governments, economic interests, non-governmental and cultural groups and organizations, and most important, people who live and work in the region.
Designation of a Biosphere Reserve in the United States results from a voluntary decision of those desiring to participate in the program. It does not affect the management perogatives of those managing the reserve, or require additional regulation of the uses of properties in cooperation areas.

The diagram below presents an example of the three areas typically found in a Biosphere Reserve.
In 1994, the U.S. Man and the Biosphere Program released its Strategic Plan for the U.S. Biosphere Reserve Program. It sets forth the mission of the program as follows:

"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."

Biosphere Reserve designation is a process that involves international recognition of a network of ecosystems of world importance. Designation provides a framework for communications among and between the public, scientists, and all levels of government. The framework promotes the identification and articulation of commonly held human values relating to an ecosystem and its protection and use. The purpose of the framework is to facilitate conservation, research, education, and compatible sustained use in the Reserve in order to maintain long-term ecosystem integrity through cooperative ventures.

Biosphere Reserves in the United States should:

1. Be representative of biogeographical regions of the country;

2. Exhibit biological diversity and significance;

3. Be at an ecosystem level of large enough scale to maintain ecological integrity of the reserve;

4. Contain and have maintained one or more permanently protected areas and surrounding managed use and cooperation areas providing for appropriate levels of human interaction reflecting commonly shared values which sustain the ecosystem in a harmonious relationship;

5. Contain and have maintained an adequately equipped organizational network to ensure conservation, research, education, and ecologically compatible sustained use;
6. Be subject to clearly articulated achievable goals and objectives, and strategies which implement the framework and facilitate conservation, research, education, and ecologically compatible sustained use;

7. Result from a process which involves the public in planning for the designation, and implementing the purposes of the Biosphere Reserve.

GUIDELINES FOR SELECTION OF BIOSPHERE RESERVES IN THE UNITED STATES

Individuals and organizations seeking assistance in preparing an application for designation as a Biosphere Reserve in the U.S. should contact the U.S. Man and the Biosphere Program Secretariat, the address and telephone number of which appears in the inside front cover of this brochure. The Secretariat will provide the necessary UNESCO application forms and instructions for filing the application. Additional information on how the application will be reviewed by the Biosphere Reserve Directorate and the U.S. National Committee for the Man and the Biosphere Program will also be shared.

In reviewing applications for designation, the Biosphere Reserve Directorate will consider the guidelines set forth below in making its recommendation for consideration to the U.S. National Committee. The U.S. National Committee will review the recommendation of the Biosphere Reserve Directorate prior to making a determination as to whether it will nominate the proposed Biosphere Reserve to UNESCO.

Proposals for the designation of a new Biosphere Reserve in the United States should specifically address each guideline for selection. Proposals for the expansion of existing designated Biosphere Reserves should also address the guidelines or, where deficient, indicate the steps that the managing entity of the reserve will take to work towards achieving the elements of the guidelines in the future. Where a proposal bases its demonstration that a guideline has been achieved by setting forth ranking or classification systems, such systems should be ones generally accepted in the literature. Where a new or integrated system is utilized, the proposal must demonstrate its relationship to other commonly accepted or standard systems.
I.

Representative Guideline

The proposal should indicate the biogeographical region and demonstrate the level of representation of the region exhibited by the proposed biosphere reserve. Where the proposed reserve is located in a biogeographical region where there is one or more existing Biosphere Reserves, the proposal should demonstrate how the proposed reserve would significantly add to the level of representation of the region by filling voids not encompassed by the existing reserve(s).

II.

Biological Diversity and Significance Guidelines

The proposal should demonstrate that the area being proposed for reserve status is biologically diverse by providing data and literature references relating to the characteristic biological communities and the ecological processes responsible for same, species diversity, and genetic diversity within species. The proposal should also set forth the reasoning why the area is significant in terms of biological diversity representative of the biogeographic region.

III.

Ecosystem Level/Scale Guidelines

The proposal should demonstrate the existence of a sufficient protected area that is representative of the biologically diverse and significant ecological resources of the proposed reserve, define the managed use area, and include a description of cooperation areas which contain related ecosystem components or which otherwise have a relationship to the reserve. The proposal should also demonstrate that the boundaries include cultural populations and economic activities related to the proposed reserve.

IV.

Protected Area/Outer Area Guidelines

The proposal should demonstrate that there are sufficient mechanisms in place to ensure the long-term protection and integrity of the protected area(s). Protected areas secured by legal mechanisms will be viewed as the optimal demonstration. In the managed use and cooperative areas, the proposal should provide an assessment to demonstrate that there are adequate leadership and cooperative and/or legal mechanisms in place or proposed to ensure ecologically compatible sustained use.
V.

Organizational Network Guideline

The proposal should provide an assessment to demonstrate that an adequately equipped and representative organizational network exists to implement the purposes of the proposed reserve. Organizations within the reserve should have diverse, but generally compatible interests, exhibit financial stability, have records of past achievement, and share common goals and objectives for the proposed reserve. The roles and responsibilities of the managing entity should be clearly defined. The organizations identified should jointly be capable of achieving the conservation, research, education, and ecologically compatible sustained use missions of the proposed reserve.

VI.

Goals and Objectives Guideline

The proposal should set forth specific goals and objectives for the proposed reserve and the strategies to achieve same. Current and future organizational assignments should be identified for carrying out necessary programs, research, and other implementation tasks.

VII.

Public Participation Guideline

The proposal should demonstrate that there have been adequate levels of public participation in the steps leading toward the submission of an application for the proposed reserve, and how the public will continue to participate in the implementation of the goals and objectives for the reserve. Such participation may include meetings, workshops, and other communications and participatory mechanisms that promote a wide range of public understanding of the inclusion of the proposed reserve in the network of Biosphere Reserves.
PROPOSED ADDENDUM

An addendum will be developed to the guidelines describing how to develop a Biosphere Reserve nomination. This will include suggested studies and information, endorsements, level of public involvement, etc. The addendum will also describe the process for review of the nomination by the Biosphere Reserve Directorate and the National Committee. Its purpose will be to assist applicants to provide an adequate amount of information to expedite the review process.
Comments

"We in Pittman Center have been involved with the Southern Appalachian Man and the Biosphere Program for almost five years. I want to make it clear that the SAMAB Program does not infringe upon private property rights, try to depopulate an area, allow outsiders to direct future development, nor bring additional regulatory pressures. Our association with the program has resulted in many benefits to the community especially the recognition that economic development and natural resource protection are complementary goals, not competing ones!"

-James B. Coykendall, III
Board of Alderman, Pittman Center, Tennessee

"Let's keep humankind in touch with reality. Reality is that we exist within our natural world, part of nature and part of the family of living systems. The creation of biosphere reserves in our urban world allows us to continue being a part of total living systems."

-Ann Azari, Mayor
City of Fort Collins, Colorado

"In the Native American perspective, the preservation of the earth's environment is based on two key principles: time and relationship. Components of the earth's natural environment interact and complement each other. If man fails to recognize these fundamental relationships and does not institute preservation measures, the interaction will slowly decrease and eventually cease altogether. The long-term preservation concepts and success of the Biosphere Program will be measured by man's relationship with the earth's natural environment over time. The Man and the Biosphere Program is a necessity for the very existence of man."

-Floyd Flores, O'odham Nations, Tucson, Arizona

"A Biosphere Reserve creates a biologically relevant framework to recognize and protect the broader range of resources required by many forms of wildlife. Natural systems can only be protected over larger areas. A Biosphere Reserve creates the collaborative goals between groups to accomplish more than would be accomplished individually."

-Daniel Evans, Executive Director
Point Reyes Bird Observatory, California

There are presently 324 biosphere reserves in 82 countries. The 47 U.S. biosphere reserves include sites under public or private ownership.

Biosphere reserve designation encourages voluntary cooperation, and requires no special programs, methods of management, financial obligations, or changes in ownership. U.S. MAB provides program support to U.S. biosphere reserves, but the local partners in the biosphere reserves are in charge.

Steps to Biosphere Reserve Designation

1. A federal, state, or local agency, organization, or individual completes the nomination form. Owners of the affected lands and local government leaders write letters of support.

2. The completed nomination form and letters of support are sent to the U.S. Man and the Biosphere Program (U.S. MAB) for review and recommendation. Representatives of several federal agencies, organizations, and scientists make up the governing committee of U.S. MAB.

3. U.S. MAB sends the recommended nomination to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) office in Paris that makes the final approval and awards the biosphere reserve designation.

For further information please contact:
U.S. MAB Secretariat, OFS/ETC/MAB
Department of State, Washington, DC, 20522-4401
Tel. (202) 776-8318, Fax. (202) 776-8367
The model biosphere reserve is made up of three types of areas. A legally protected natural area, an area managed for use by the local community, and a broader zone of cooperation. These areas in various ways conserve the natural resources of the biosphere reserve.

The protected natural areas are the core areas for conservation. They are often used for such activities as hiking, diving, bird watching, environmental education, and long-term scientific research and monitoring.

One purpose of a biosphere reserve is to encourage local people to maintain the variety of plants and animals representative of the region's natural systems.

The model biosphere reserve has areas locally managed for human economic development with respect for the conservation of the protected areas. These managed areas may contain tourism; agricultural, fishing, and forest activities; settlements; and recreational facilities and other carefully managed uses.

The model biosphere reserve includes a zone of cooperation near the protected and managed use areas. This zone may contain the activities in the managed use areas as well as towns, factories, farms, fisheries, parks and other human activity. The economic and cultural development activities can also help protect the natural areas.

One purpose of a biosphere reserve is to promote economic and cultural development that will assure quality of life for generations to come.

The model biosphere reserve is a good place for long term study of changes in the physical, biological, and human environment. The biosphere reserves cooperate with other biosphere reserves and with scientists in sharing data obtained through research and monitoring programs.

The biosphere reserve is a place for education and training. Land management methods can be demonstrated. Local people, landowners, and organizations cooperate on conservation and development issues affecting the region.

One purpose of a biosphere reserve is to foster cooperation among residents and landowners to chart their course for the future by planning research, development, conservation, and environmental education activities of the area.
International Scope

Technological advances, including computers, make closer international cooperation possible on important issues such as conservation and sustainable use of biological resources.

UNESCO's Man and the Biosphere Program and its World Network of Biosphere Reserves play a significant role. 115 countries participate in the program through their own autonomous MAB organizations. There are now biosphere reserves in more than 80 countries. The U.S. MAB program works closely with many of these organizations and biosphere reserves.

For example, the U.S. has joined with national MAB organizations in European countries and Canada in implementing the Biosphere Reserve Integrated Monitoring (BRIM) program to improve coordination and access to data and information from the region's 172 biosphere reserves. The U.S. also participates in other MAB networks involving MAB programs and biosphere reserves in the circumpolar region (the Northern Sciences Network), the Western Hemisphere (EcoNet America), and Eastern Asia (???).

What You Can Do

The Man and the Biosphere Program has far-reaching effects and benefits millions of people around the world. But its success continues to depend upon the participation and commitment of individuals, communities and institution.

If you would like to learn more about the Man and the Biosphere Program, what the Biosphere Reserve Program is doing in your area, and how you may be able to assist, please write to the following address:

U.S. MAB Secretariat
OES/EGC/MAB
U.S. Department of State
Washington DC 20522-4401

If printed on recycled paper, indicate here and use recycling logo.)

Biosphere Reserves affect the lives of millions, yet many people have never heard of them. What are Biosphere Reserves? What do they contribute to the quality of your life? This publication will answer such questions.
Recognizing a Need

Since the turn of the century, societies have come to realize that the earth's resources are limited and many are being squandered at an alarming rate. Many species of plants and animals have vanished. Life for millions of people is a daily struggle. Some scientists even doubt the planet's ability to sustain life for future generations.

Recognizing this dilemma, the United Nations Education, Scientific and Cultural Organization (UNESCO) launched the Man and the Biosphere Program in 1971. The purpose was simple, yet vital: to help communities achieve and sustain a healthy balance between conservation, development and use of the earth's natural resources.

While the concerns of the program are global, effective action must take place at the local level. Thus, locally-managed Biosphere Reserves are an integral part of the Man and the Biosphere Program, or MAB. In these areas, MAB encourages a cooperative approach to help communities resolve problems related to air and water pollution, resource conservation, biological diversity, and sustainable economic uses.

In many cases, Biosphere Reserves contain two or more Units that work cooperatively with local agencies and organizations to address conservation and development issues affecting a large geographical area. Biosphere Reserve Units are protected areas, which are nominated by their administrators, approved by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Designation represents international recognition of the importance of the protected areas in helping to demonstrate conservation and sustainable uses of ecosystems in the geographic area.

Biosphere Reserves — A Closer Look

Each Biosphere Reserve should contain three components: (1) one or more protected areas, designated as "core areas" for conserving biological diversity, monitoring ecosystems, and conducting non-destructive research; (2) one or more designated managed use area, usually surrounding or adjoining the core area and managed for uses and activities compatible with sound ecological principles; and (3) an open-ended and typically undesigned zone of cooperation that extends beyond the core and managed use area.

The zone of cooperation of a Biosphere Reserve may include cities and towns, croplands, forests, recreation sites, and areas managed for social and economic uses characteristic of the region. It is an area where conservation and management skills are cooperatively developed, tested, and locally implemented.

Biosphere Reserves offer suitable proving grounds for demonstrating the principles of sound ecosystem management. They also provide a good base for ecological research and monitoring. To illustrate, the Southern Appalachian Biosphere Reserve, established in 1988, presently consists of a national park, a state park, a private nature reserve and resort, and two federal research areas. Additional Units are planning to petition for Biosphere Reserve designation to recognize their role in the Southern Appalachian Man and the Biosphere Program.

To plan and implement this program, 11 federal and several state agencies have formed a cooperative to identify and address regional issues. They contribute funds and/or services to support the cooperative program. In addition, a state-chartered nonprofit foundation helps the cooperative to fund projects that benefit the Southern Appalachian region.
Biosphere Reserve Directorate

“Program Agenda for Implementing the Biosphere Reserve Strategic plan”

Calendar year 1996

In order to continue implementation of the objectives assigned to the Biosphere Reserve Directorate, the Directorate presented the proposed 1996 “program agenda” to the USMAB National Committee at its July meeting. The Directorate requested $420,000 for projects, but the National Committee could only fund $210,000 for the following activities.

**Goals 1 & 2:** Policy and program operations/Biosphere Reserve Network Development project:
- BR Network Review (continued from 1995) $10,000

**Goal 3:** Local participation/partnerships:
- BR Catalytic Grants $100,000 *
- BR Managers Workshop $25,000

**Goal 4:** Research
- No proposals

**Goal 5:** Education projects:
- BR Brochure (continued from 1995) $10,000
- BR Slide presentation (Begin to develop slides and text) $5,000

**Goal 6:** Communication:
- US/Russia MAB Bilateral agreement (continuation of ongoing activities that were previously funded directly) $10,000
- Targets of International Opportunity $5,000
- BR Integrated Monitoring Program (BRIM): Data and Information Systems for US (Funded Directly to University of California - Davis) $45,000

| Subtotal (Funded to BR Directorate) | $165,000 |
| Subtotal (Funded to UC-Davis)       | $45,000  |

**Total** for Implementation of the Strategic plan by the BR Directorate $210,000
United States Man and the Biosphere Program: Request for Proposals for the Biosphere Reserve Directorate

The Biosphere Reserve (BR) Directorate of the U. S. Man and the Biosphere Program (U.S. MAB) announces a catalytic grants program to support Biosphere Reserve workshops and partnership-building activities that promote cooperative regional ecosystem-based initiatives.

A total of $100,000 is available to support small grants in two distinct categories: (1) conferences, workshops or forums; and (2) partnership projects. The projected maximum single grant award is $15,000. Grants are expected to average between $7,000 and $10,000. Organizations and persons interested in applying for these grants are encouraged to first obtain a copy of Strategic Plan for the U.S. Biosphere Reserve Program, from the U.S. MAB Secretariat.

Funding Objectives

The purpose of the grants is to assist projects that produce short-term tangible results furthering the mission of the United States Biosphere Reserve Program as defined in Strategic Plan for the U.S. Biosphere Reserve Program, dated December 1994. “The mission of the U.S. Biosphere Reserve Program 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.”

Focal Issues

Within the mission of the U.S. Biosphere Reserve Program a wide range of conference and workshop topics are eligible. For example: a forum for Biosphere Reserve stakeholders at a single Biosphere Reserve unit or cluster of units; a regional or local vision setting workshop; or a conference for Biosphere Reserves stakeholders from throughout a region focusing on an issue or management approach of shared interest. Other ideas for conferences and workshop topics promoting the mission of Biosphere Reserves are welcome.

The U.S. Biosphere Reserve Directorate also intends to support partnership projects. Proposals are sought which strengthen cooperative relationships for enhancing the functions of Biosphere Reserves. Innovative and new approaches to conservation challenges will receive priority. Examples of eligible projects could include: assessing natural or cultural resources; building public support for conservation and sustainable development; fostering demonstrations of cooperative ecosystem management; or developing local planning mechanisms. Other ideas for partnership projects that promote the mission of Biosphere Reserves are welcome.

Feasibility studies for expanding the activities of existing Biosphere Reserves to more fully implement the regional, ecosystem-based mission of the Biosphere Reserve program also are encouraged. However, feasibility studies for designating new Biosphere Reserve units are ineligible.

Proposals may include a request for partial staff support only if the proposal and the staff position are related to expanding the regional activities of a Biosphere Reserve or promoting a cooperative program involving multiple agencies and nongovernmental partners.

Proposal Content

Each proposal should have a title page and a one-page synopsis of the proposal activities.

A maximum of three additional pages should describe: (1) the affected Biosphere Reserve or Biosphere Reserve cluster; (2) the applicant’s relationship to the Biosphere Reserve; (3) the proposed conference or partnership project; (4) how the proposed conference or project relates to past, current, and projected Biosphere Reserve activities at the site; (5) how the proposal complies generally and specifically with the evaluation criteria; and (6) how the results of the conference or activity will be evaluated.

All proposals must also include a one-page itemized budget including personnel, travel, operation, and equipment/supplies, with justification. The budget page should show the status of any matching funds to the proposed activity.

A one-page map of the affected Biosphere Reserve, showing protected area(s), zone(s) of managed use, and zone of cooperation if applicable. The site of the proposed activities must be included.

The last page should be a one-page letter of endorsement from the Biosphere Reserve manager(s). If the proposed activity involves or would benefit more than one Biosphere Reserve, the letter of endorsement should indicate the support of the managers of the involved or affected Biosphere Reserves. Biosphere Reserve managers should endorse no more than one single proposal in each funding category this year.

Evaluation and Review Process

A review panel of the U.S. Biosphere Reserve Directorate will evaluate proposals based upon the following criteria:

—Alignment of the proposal with the mission and goals of the United States Biosphere Reserve Program as defined in Strategic Plan for the U.S. Biosphere Reserve Program, dated December 1994, available from the U.S. MAB Secretariat, (address below);

(Continued on page 6 – RFP)
—Likelihood that the proposal will result in tangible progress within a year toward promoting cooperative regional, ecosystem-based initiatives that integrate conservation and sustainable environmental development at Biosphere Reserve sites;

—Demonstrated local support for the project;

—Innovation in implementing Biosphere Reserve functions;

—Potential to replicate the concept or project at other Biosphere Reserve sites;

—Extent to which grant funds will be leveraged with matching funds or support from other private or public sources;

—Demonstrated capacity of the applicant to implement the proposal;

—Endorsement from Biosphere Reserve Manager(s).

Limitations. Grants may not be used for: feasibility studies for designating new Biosphere Reserves; institutional overhead; academic research; acquisition of land, buildings, or capital equipment; general support of agency functions; or political activities. All grants should produce tangible results within 1 year. Biosphere Reserve Directorate members are ineligible to receive benefits from funds awarded through this request for proposals.

Awards will be announced by January 31, 1996. The U.S. MAB Secretariat will provide principals copies of all U.S. MAB/BR review evaluations of their proposals and a written notification of the directorate’s decision on their proposal.

Submission of Proposals by December 1, 1995, and for further information:

U.S. Man and the Biosphere Program
OES/ETC/MAB, 1st Floor, SA—44C
Department of State
Washington, D.C. 20522-4401
Tel: (202) 776-8318, Fax: (202) 776-8367
Attention: Biosphere Reserve Directorate

U.S. MAB BULLETIN Vol. 19, No. 2 September 1995
Questions Frequently Asked About Biosphere Reserves

Q. What is a biosphere reserve?

A. A biosphere reserve is an area that includes protected natural areas, areas of managed use, and zones of cooperation in which land owners, resource managers, scientists and local people work together to promote research, education, economic and cultural development, and conservation. Each biosphere reserve is locally managed, and may include areas under government (county, municipal, state, and/or federal) or private ownership.

Q. What is the purpose of a biosphere reserve?

A. To implement the biosphere reserve concept, an area must perform three fundamental roles: Conservation of terrestrial or coastal/marine ecosystems and biological resources of particular importance; Development of ecologically sustainable types of human uses of land, water, and other natural resources; and logistic support for research, monitoring, educational, and training activities relating to conservation and sustainable development.

Q. How are biosphere reserves designated?

A. Agencies, organizations, or individuals interested in developing a biosphere reserve complete a nomination form provided by The United Nations Educational, Scientific and Cultural Organizations (UNESCO). Most nominations are prepared by locally established ad hoc steering committees that coordinate the nomination effort and the initial planning of the cooperative program to implement biosphere reserve roles. The completed nomination form with supporting letters from administrators of each included protected area, other participants in the cooperative program, and local government
representatives is submitted to the U.S. Man and the Biosphere Program (U.S. MAB). There the nomination is reviewed by the Biosphere Reserve Directorate and a recommendation is made to the U.S. National Committee for MAB.

If the U.S. National Committee for MAB concurs the nomination is sent to the UNESCO MAB Secretariat, which arranges for review by the UNESCO Advisory Committee on Biosphere Reserves. The Advisory Committee reviews the nomination using international criteria and makes a recommendation to the International Coordinating Council of the Man and the Biosphere Program which awards the biosphere reserve designation.

Q. What effect does designation have on the management and use of designated sites, or on use of private property?

A. In the United States designation is strictly voluntary and does not affect the prerogatives of owners and administrators of designated sites, nor does it affect the rights of private property owners. Biosphere reserve programs focus on generating, sharing, and applying information. These programs help facilitate the availability of reliable information for planning and decision making relating to the use and management of land and water resources. Participation in a biosphere reserve program creates opportunities for cooperative management but does not restrict use of land and water resources by participants.

Q. What is the Man and the Biosphere Program?

A. The Man and the Biosphere (MAB) Program is a world-wide program of research, training, demonstration, education, and cooperation. MAB emphasizes integrated interdisciplinary research in the natural and social sciences to help solve problems arising from the interactions of human societies and natural systems. MAB operates on several levels, each with an important role in the overall program. Internationally, the intergovernmental MAB program is coordinated by the UNESCO MAB Secretariat which serves the MAB International Coordinating Council (ICC), composed of elected representatives of 30 member states of UNESCO. The United States, at present, is an observer of this Council, not a member. The ICC sets priorities and provides general guidance for the international MAB program. The Advisory Committee on Biosphere Reserves is responsible for reviewing the status of the World Network of Biosphere Reserves, reviewing biosphere reserve nominations for designation by the ICC, and for recommending ways to improve the
effectiveness of biosphere reserves in addressing conservation and development issues. A long-term goal of MAB is to electronically link all Biosphere Reserves worldwide so as to share scientific and management information.

Most of the 125 countries which are members of MAB have formed national committees to coordinate national activities. National MAB committees have established networks to focus on particular ecological or geopolitical regions of the world. For example, EuroMAB is a cooperative organization involving Canada, the United States, and 29 European countries.

The U.S. MAB National Committee includes representatives from 15 federal agencies, specialists from academia, and private organizations. The U.S. MAB Secretariat, located at the U. S. Department of State, provides administrative support. The U.S. MAB National Committee has established five interdisciplinary research directorates which address questions relating to biological diversity, resource management, and sustainable development. A sixth directorate plans and coordinates programs and projects involving biosphere reserves.

On a regional level cooperative organizations are established to develop biosphere reserve programs. Such cooperatives as the Southern Appalachian Man and the Biosphere Program, the Central California Coast Biosphere Reserve, Barren River Area Development District of the Mammoth Cave Area Biosphere Reserve, the Colorado Rockies Regional Cooperative, and the International Sonoran Desert Alliance operate as voluntary partnerships for pooling scientific and technical capabilities that support ecosystem and landscape-based approaches to resource management and economic development.
Biosphere Reserve: ________________________________

Administrative Unit: ________________________________

Name and Position: ________________________________

The purpose of this questionnaire is to assess the perceptions of managers about their biosphere reserves. A summary of the responses will be distributed and presented at the Second Managers Workshop. We will use the summary to stimulate discussion of ways to make biosphere reserves more effective in fulfilling the concepts and goals set forth in the "Strategic Plan for the U.S. Biosphere Reserve Program". (If you need a copy of the Plan, contact the MAB Secretariat at 202-776-8319 or FAX 202-776-8367)

WHAT ARE THE MANAGEMENT BENEFITS OF YOUR BIOSPHERE RESERVE?
Rate your perception of the benefits of biosphere reserve status for your unit and region as follows:

4 = highly significant
3 = significant
2 = obvious benefit, but not significant
1 = possible minor benefit
0 = no benefit

In my area, BR status is

- improving public recognition of resource significance....(  )
- improving public consultation and participation..............(  )
- improving political support for conservation..................(  )
- increasing environmental awareness..........................(  )
- promoting an ethic of sustainability.........................(  )
- increasing Nature protection.....................................(  )
- increasing protection of cultural resources..................(  )
- increasing my operating budget...............................(  )
- improving access to data/information on natural systems.(  )
- improving access to data/information on human systems.(  )
- encouraging research............................................(  )
- facilitating regional economic development................(  )
- facilitating ecosystem management...........................(  )
- facilitating international cooperation.........................(  )
- helping address regional environmental problems.........(  )
- improving the effectiveness of planning & decisionmaking,(  )
WHO'S PARTICIPATING?

Do you participate

o in a cooperative program that identifies explicitly with biosphere reserve concepts and goals?
Yes __ No __

o in a cooperative program consistent with biosphere reserve concepts and goals, but not identifying explicitly with them?
Yes __ No __

If you answered "yes" to either of the above, please indicate how extensively the following groups are involved in the program.

4 = extensive participation
3 = substantial participation
2 = some participation
1 = little participation
0 - no participation
N = category does not apply

o International agencies and organizations....................................................( )

o Foreign government agencies (e.g., Environment Canada).....( )

o Federal agencies.........................................................................................( )

o State and regional agencies.................................................................( )

o Local governments..................................................................................( )

o Universities/research institutions.........................................................( )

o Conservation groups................................................................................( )

o Economic development groups (e.g., chambers of commerce).( )

o Commercial enterprises ...........................................................................( )

o Religious organizations..........................................................................( )

o Service organizations.............................................................................( )

o Citizen volunteers....................................................................................( )

o Foundations..............................................................................................( )

o Schools........................................................................................................( )

o Resource users.........................................................................................( )

o Native Americans.....................................................................................( )

o Biosphere reserve staff...........................................................................( )

o Other biosphere reserves..........................................................................( )
WHAT'S NEEDED?

Which of the following do you think could enhance biosphere reserve-related activities in your biosphere reserve, on a scale of 1 (least needed) to 5 (most needed):

- An enthusiastic local constituency for BR through public education and local participation
- Better guidance and communication from U.S. MAB
- More involvement of BR managers in Directorate programs
- Establishment of a cooperative regional MAB/BR program
- More communication among BR managers
- More emphasis on inventory/monitoring of biodiversity
- More emphasis on long-term ecological research
- More international linkages to build a functional information-sharing network
- Policy and guidance from my agency/organization
- Resources ($$ and positions) to implement BR
- Staff support in the BR to implement and coordinate a BR program
- Other (specify)

WHO IDENTIFIES WITH THE BIOSPHERE RESERVE CONCEPT?

Rate each statement as follows:
4 = strongly agree
3 = somewhat agree
2 = somewhat disagree
1 = strongly disagree
N = no opinion

I understand and identify with the BR concept
BR staff understand and identify with the BR concept
My partner agencies and organizations understand and identify with the BR concept
Local people understand and identify with the BR concept
WHO IS CONCERNED ABOUT OR OPPOSED TO THE BIOSPHERE RESERVE?

Have you received expressions of concern or opposition to the biosphere reserve? 
YES ____ NO ____.

If so, please indicate sources and concerns raised (check those that apply). If sources are agencies and organizations, please indicate names in the space provided.

Sources:
( ) Federal agencies __________________________________________
( ) State agencies ___________________________________________
( ) Local governments _________________________________________
( ) Private organizations __________________________________________
( ) Resource user groups __________________________________________
( ) Visitors ___________________________________________
( ) Local residents __________________________________________
( ) Other (specify) ___________________________________________

Concerns raised
( ) Infringement on property rights
( ) Infringement on traditional uses of resources
( ) Infringement on economic development
( ) International influence on local affairs (e.g., United Nations role)
( ) Philosophical concerns (e.g., "New World Order", role of government)
( ) Other (specify) ___________________________________________

Is there organized opposition to the biosphere reserve? YES ____ NO ____.

Have opportunities for cooperation been lost or activities deferred? YES ____ NO ____.

Please elaborate:
________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

Please FAX complete SURVEY to Bill Gregg at (202) 208-7275.
I. The SAMAB Program

What is the SAMAB Program?

It is a public/private partnership that focuses its attention on the Southern Appalachian Biosphere Reserve. The vision of the program is to:

- promote the achievement of a sustainable balance between the conservation of biological diversity, compatible economic uses and cultural values across the Southern Appalachians. This balance will be achieved by collaborating with stakeholders through information gathering and sharing, integrated assessments, and demonstration projects directed toward the solution of critical regional issues.

The program encourages the utilization of ecosystem and adaptive management principles.

The Man and the Biosphere program (MAB) was established in 1971 (by the United Nations Scientific, Educational, and Cultural Organization (UNESCO)) on the premise that a balance can be sustained between conservation of biological diversity, economic development and cultural values. In 1976, UNESCO designated 59 biosphere reserves in eight countries; two of those were in Southern Appalachia -- the Great Smoky Mountains National Park and Coweeta Hydrological Laboratory.

What is the Southern Appalachian Biosphere Reserve? What area does it cover?

The "zone of cooperation" of the Southern Appalachian Biosphere Reserve covers the Appalachian parts of six states: Tennessee, North Carolina, South Carolina, Georgia, Alabama, and Virginia (see Figure 1). It is loosely defined as the Southern Appalachian ecosystem. The Southern Appalachian Biosphere Reserve was designated by UNESCO in 1988 as a multi-unit regional biosphere reserve. UNESCO designated it based solely on its unique characteristics (geological, biological, and cultural) and plays no role in its management. UNESCO has given special recognition (certificates) to five management units within the Southern Appalachian Biosphere Reserve:

1. Great Smoky Mountains National Park (managed by the National Park Service);
2. Coweeta Hydrological Laboratory (managed by the U.S. Forest Service);
3. Oak Ridge's National Environmental Research Park (managed by a private contractor for the U.S. Department of Energy);
4. Mount Mitchell State Park (managed by the State of North Carolina's Department of Health, Environment and Natural Resources); and
5. Grandfather Mountain (privately owned with protected easements provided to the Nature Conservancy).

Three other areas are in the process of acquiring this special recognition:

1. Tennessee River Gorge (near Chattanooga, TN and managed by a non-profit organization);
2. Roane Mountain area (mixed management but largely the U.S. Forest Service and a non-profit organization); and
3. Mount Rogers area in Southwestern Virginia (mixed management but largely the U.S. Forest Service).

How was the SAMAB program formed?

In 1986, the US Man and the Biosphere (MAB) National Committee endorsed the nomination of the Southern Appalachian Biosphere Reserve and initiated planning of a model biosphere reserve regional project. Also in 1986, the National Park Service's Southeast Regional Director proposed pilot projects in Cooperative system planning be used in the Southern Appalachians. He described the critical problems facing this region as "...increasing urbanization, pollution, competition for consumptive resources, and the shrinking of personnel and fiscal resources." He stressed the need to begin a process of identifying regional issues and developing objectives and strategies to address them on a scale reaching beyond park boundaries, indicating that "...these efforts should draw their strength from interagency cooperation aimed at achieving common goals -- an ecosystem approach which should be discussed with leaders of the area."

In 1988 Southern Appalachia was officially designated a multi-unit regional biosphere reserve. In the 1986 through 1988 period, some leaders in the region felt sure this designation would be forthcoming and they began work to put an organization into place to:

1. Encourage wise use of the area's natural resources and to foster environmental research, education, and training;
2. Promote knowledge and understanding of the natural and cultural resources of the region; and
3. Build a model of cooperative, integrated regional resource management.

In August 1988, six federal agencies signed an "Interagency and Cooperative Agreement for the Establishment and Operation of the Southern Appalachian Man and the Biosphere Cooperative." The signatories of this agreement were: U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, Economic Development Administration, Department of Energy-Ecological Sciences Division (ORNL), and the Tennessee Valley Authority. Attachment 1 is the statement of work contained in that agreement. This statement of work empowered the SAMAB Cooperative Executive Committee to establish a Southern Appalachian Biosphere Reserve coordinating office.

It should be noted that signing the cooperative agreement did not commit an agency to any level of financial or in-kind support. This responsibility was delegated to the Executive Committee.

In mid 1989, a coordinating office was established at the Great Smoky Mountains National Park (GSMNP) and a part-time executive director (manager) for that office was named.

How is the SAMAB program organized?

Figure 2 illustrates the organizational structure of the SAMAB program. It presently consists of two organizational entities:

- The SAMAB Cooperative (federal and state agencies join voluntarily); and
- The SAMAB Foundation.

The SAMAB Cooperative consists of Federal and State agencies who have signed the "Interagency and Cooperative Agreement": (as of July 1995, 11 federal and three state agencies have signed, attachment 2, with two other federal agencies giving it 'active' consideration). The Cooperative is managed by an executive committee (representing the signatories) who has overall responsibility. The
The coordinating office is charged with day-to-day operations and coordinating the overall activities of the program. Six Committees, made-up of representatives from both the public and private sectors, define issues, develop a plan of work, and implement the vision of the program. The six committees are:

1. Research and Monitoring;
2. Resources Management;
3. Sustainable Development;
4. Cultural and Historical Resources;
5. Environmental Education; and

In 1990, the non-profit SAMAB Foundation was formed to complement the Cooperative; to involve other interest groups such as private industry, other non-profit organizations, and special interest groups; and to help find means to support the program. The Foundation has established its own Board of Directors; members of the Board consists of (1) Private industry (e.g. Duke Power, Georgia Power, The Chevron Companies, WBIR-TV); (2) Non-governmental organizations (e.g. National Parks and Conservation Association, Environmental Defense Fund, Sierra Club); (3) Universities/Colleges (e.g. University of Tennessee-Knoxville, Carson-Newman College, Appalachian State University); and (4) Local Communities (e.g. Pittman Center, Tennessee). The Foundation is expected to become a significant fund-raiser.

The Foundation and the Cooperative work together to identify important natural resource and economic development issues. Independently and together, they develop means for addressing these issues.

A third entity is presently being developed, the SAMAB Consortium. The Consortium will consist of colleges and universities that affiliate with the SAMAB program.

What are some of the issues that have been addressed?
What has SAMAB accomplished (done!)?

It has undertaken cooperative projects/programs addressing some aspect as the following subject areas/issues:

**Environmental Monitoring and Assessment**
- Forest Health Monitoring; Threats to forest health in the Southern Appalachians
  - Three workshops across region describing exotic insects and diseases affecting the forests
  - Approximately 100 plots already providing data. There are 100 additional plots expected in the next one to two years.
- Landscape Ecology/Landscape Monitoring
  - Held two workshops on Integrated/Ecological Assessments
  - In cooperation with EPA’s EMAP program, significant research is being funded on developing landscape scale modeling and analysis.

**Sustainable Development/Sustainable Technologies**
- Two regional workshops for better understanding and implementation strategies
- Community strategic planning/tourism
  - Assistance in developing a strategic plan led to additional grants to the community for implementation
  - Outreach program to other communities underway.
- Geographic Information Systems
  - Regional geographic information system underway.
- Workshops on Forestry Best Management Practices.
Conservation Biology
• Wetlands
  ⇒ Regional conference led to publication of Book entitled “Wetlands of the Southeastern United States.”
• Economic Use(s)/Protection of Native Plants
  ⇒ First Regional workshop clarified local interest; data needs; and opportunities for achieving sustainable economic development of biological resources.
• Range of Native Brook Trout
  ⇒ Workshop led to additional funded research.
• Neo-tropical Migratory Birds
  ⇒ Cooperative support led to additional monitoring and education programs.

Ecosystem Management
• Testimony to the Senate subcommittee on Agricultural Research, Conservation, Forestry and General Legislation
  ⇒ Recognized by White House’s Interagency Task Force on Ecosystem Management as a demonstration area for ecological assessment and ecosystem management.
• Air Quality Management: Threats to Class I Airsheds
  ⇒ Brochure on “Understanding Air Pollution in the Southern Appalachians
  ⇒ Workshop led to the Creation of the Southern Appalachians Mountain Initiative (SAMI) -- an eight state consortium of public and private groups to address air quality impacting Class I areas in the region;
  ⇒ Assisting in developing a framework for preparing air quality management plans on public lands in Southern Appalachian.
• Partner with U.S. Forest Service on the Chattooga Ecosystem Demonstration Project
• Regional Demonstration -- Southern Appalachian Assessment

Environmental Education and Training
• Directory of Environment Education and Training (member organizations)*
• Videos, posters, and teacher guides on:
  ⇒ Reintroduction of the Red Wolf into the Great Smoky Mountains National Park, in Cooperation WBIR-TV, Knoxville, (video won an Emmy Award and the educational poster was selected by Urban America as one of top 20 posters in America in 1992).
  ⇒ “Water: From the Mountains to the Coast”, also in Cooperation with WBIR-TV, Knoxville.
  ⇒ Dogwood Anthracnose, in cooperation with several non-government organizations.
*These were distributed to all schools and public libraries in the zone of cooperation.

Cultural and Historical Resources
• Workshop(s) led to ongoing development of a cooperative program to preserve and promote regional cultural resources;
• Developing databases on regional cultural resources.

Public Information and Education
• Newsletter
• Spring and Fall Conferences
• General Information about SAMAB and the Southern Appalachian Biosphere Reserve.
• SAMAB Home Page on the Internet

Attachment 3 contains some highlights of the 1994 and 1995 SAMAB program. Moreover, in April of 1994, SAMAB initiated work on one of the most significant projects to date, the Southern Appalachian Assessment (SAA). This integrated assessment will assemble existing data and evaluate past trends, current conditions, and future risks to the economic, ecological, and cultural resources of the region. The initial phase of the SAA will be completed in early 1996 with publication of resource-specific
technical reports and a preliminary integrated report. Other products of the SAA include: 1) a comprehensive database made available to interested parties through a variety of media including a SAMAB Homepage on the Internet; and 2) identification of gaps in both available data and understanding of system function that will guide future research and monitoring activities. It is hoped that the results of the SAA will enable SAMAB partners to work together to protect the unique resources of Southern Appalachia while promoting economic development that is sustainable. The SAA has been recognized as one of three prototypes by the National Assessment Program under the Office of Environmental Policy and is expected to set the standards for anticipated integrated assessments conducted across the country.

**How is SAMAB Funded?**

Funding support for the SAMAB Cooperative may be categorized as follows:

- Direct support for the Coordinating Office (Salaries, benefits, travel and related costs directly associated with staffing the coordinating office)
- Pooling funds to implement specific programs/projects (e.g. Red Wolf Education program)
- In-kind services
  - Staff serves on executive committee, Chair the various committees, and work on specific programs/projects;
  - Administrative/clerical services, office, telephone, postage, printing services, etc.

The SAMAB Cooperative Executive Committee is charged with generating funds and in-kind services to plan and implement the program. These funds and in-kind support generally come from the local managers and/or their regional offices. Since many of the Executive Committee members are local managers, they have willingly supported the program/projects because they have recognized the value of cooperation, coordination, and integration. It should be noted that no new or additional funds have been provided to the local managers because of their participation; rather they see the SAMAB program as an effective way to identify and address local and regional issues that reach beyond the mandate and scales of their respective agencies. SAMAB cooperation allows them to take an ecosystem approach to identifying and addressing problems facing the region.

Support, both financial and in-kind, has grown as the program has matured; but local managers have limited ability to redirect funds and personnel. Gaining the support of regional and national agency administrators to commit time, attention, and money to support SAMAB efforts has limited its effectiveness in addressing a larger variety of regional issues. However, as the program has grown in stature and recognition, regional administrators and other agencies have increasingly provided support.

SAMAB still lacks a reliable financial base on long-term basis. This limits its ability to undertake activities that reach beyond the current budget cycle of local managers. Nevertheless, it has found ways to undertake a number of research and education projects that better inform the public and encourage better management practices.

The SAMAB Foundation will help raise funds, but to date it has not been successful in raising enough funds to significantly support regional projects, needed staff, and administrative expenses. The funds that the Foundation has raised have been used to support programs/projects; but much more is needed. The Foundation is working to attract more private sector partners and to involve local people more directly in SAMAB activities.
II. What do some of the Stakeholders say about the SAMAB program?

• "...in the six state region of the Southern Appalachians, which includes my home state of Tennessee, we have a program called the Southern Appalachian Man and the Biosphere program SAMAB. This program is dedicated to finding ways for developing a sound economy while maintaining and enhancing a healthy environment. Through SAMAB, Federal, state and local, and public and private institutions have developed innovative cooperative approaches to ecosystems management and sustainable economic development. We still have a long way to go in these areas, but I believe SAMAB provides a useful model on a national and even international scale” statement by Senator Jim Sasser commenting on the Government Performance and Results Act of 1993.

• "Cooperation of all the government agencies was always very important to me. But I'm certain that without SAMAB, many of the positive things that have happened in our region would not have happened” Randall Pope, retired Superintendent, Smoky Mountain National Park.

• “In Southern Appalachia, we take cooperation for granted. The Parks people, the National forest people, TVA, the wildlife associations -- they have built a tradition of working together. It's really mind-boggling. Forming SAMAB is another excellent example of building on this tradition” Bill Landry, Host of the “Heartland” series, WBIR-TV, Knoxville.

• “TVA is to be further commended for its continued funding of and participation in the Southern Appalachian Man and the Biosphere Consortium” Blueprint for TVA Environmental Leadership, submitted to TVA Board Chairman by a group of Environmental organizations. November 1993.

• “SAMAB really is a world class model” Dr. Frank McCormick, Director, Institute for International Training in Sustainable Development, University of Tennessee - Knoxville, in comparing his experiences in Brazil, China, and other countries.

• “The Southern Appalachian Biosphere Reserve exemplifies the U.S. modality of biosphere reserves. The modality is based on expanding regional partnerships to discover ways to harmonize biodiversity, cultural values, and socioeconomic development...The Southern Appalachian experience is particularly relevant in regions having complex land management systems, many protected area categories and ownerships, nature conservation and resource development. In such situations, the approach offers a useful model for building the knowledge, skills, and commitment needed for cooperative planning for ecosystem sustainability on a regional landscape basis” Dr. William Gregg, Director, International Affairs office, National Biological Service (in a presentation to the International Conference on Biosphere Reserves, Seville, Spain March 1995).

• “We in Pittman Center have been involved with the SAMAB program for almost five years. I want to make it clear that the SAMAB program does not infringe upon private property rights, try to depopulate an area, allow outsiders to direct future development, nor bring additional regulatory pressures. Our association with the program has resulted in many benefits to the community especially the recognition that economic development and natural resource protection are complementary goals not competing ones” James B. Coykendahl, III, Board of Alderman, Pittman Center, Tennessee. Comments to the US MAB program for publication in their “Biosphere Reserve Pamphlet” 1994.

• “...A group of federal agencies will monitor forestlands in portions of six states that make up the Southern Appalachian Man and the Biosphere region...TVA’s leadership in taking on this study is a continuation of that fine tradition of service to the region that has been part of the agency’s mission since its founding...finding a significant need in the Valley while offering an example for the rest of the nation...”Editorial”, the Knoxville News Sentinel. July 1, 1992.
• "The Tennessee Valley Authority (TVA) has scientists working on regional-scale environmental research and monitoring programs. Of particular relevance is their leadership in the Southern Appalachian Man and the Biosphere program, a forward thinking program that addresses environmental research, monitoring and management issues on an eco-regional scale. Furthermore, the emphasis of their work has been on cross ecosystem issues, such as water quality and biological diversity..." Bruce Jones, Technical Director, of EPA’s Environmental Monitoring and Assessments program (EMAP) -- Landscapes Program.

• "We are honored to have the opportunity to introduce you to SAMAB, a program which is a recognized leader in achieving that cooperation and in implementing the concepts and practices of regional public/private partnerships...We strongly support SAMAB and encourage your support and help" Southeastern Natural Resource Leaders Group in an October 1994 letter to their respective headquarters’ offices in Washington, DC.

• "With these agencies working together, we have recognized a tremendous cost savings simply because multiple agencies are not collecting similar data individually, but instead are doing so jointly. This interagency approach also helps prevent duplication of efforts which leads to more efficiency and effective use of Assessment data.” Statement of Dr. Jack Ward Thomas, Chief, U.S. Forest Service, before the Subcommittee on Forests and Public Land Management, Committee on Energy and Natural Resources, U.S. Senate, April 5, 1995.

• "Member agency personnel constitute a valuable pool of knowledge and experience: SAMAB uses these resources as a conduit for sharing, not only with other cooperative members, but also with public and private land managers throughout the region. Let us hope future managers will see the logic in working toward more cooperation, not less.” Park Science: Integrating Research and Resource Management. National Park Service, Volume 15 - Number 3; Summer 1995.

• "The Southern Appalachian Man and the Biosphere Cooperative, although containing Federal agency partners, has developed an identity separate from the agencies. This gives the Cooperative an unique ability to forge cooperation in all aspects of science and information dissemination. Many interviewees viewed the Cooperative as a resource and facilitator. Individual Management agencies might by contrast, be perceived as a threat. The Southern Appalachian Man and the Biosphere Cooperative has become accepted as a translator of technology. It facilitates science by increasing awareness among agencies of other agencies’ missions and functions. It also helps eliminate duplication of effort in research activities and it encourages software compatibility for data sharing.” The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies. Report of the Office of Environmental Policy’s Interagency Ecosystem Management Task Force, volume 1, June 1995, page 43-44.
III. What is SAMAB’s future?

The future of SAMAB looks encouraging. Recognition and support for SAMAB has grown steadily. This is a reflection of the fact that the concept and principles on which it was established are sound and future oriented. It is also a strong reflection of individual leadership within each of the member organizations. More specifically:

1. The concepts and principles on which SAMAB was established are more valid today than ever before; especially the need to identify and address issues that reach beyond the scale and mandate (s) of any single agency, and the need for developing coordinated and consistent data bases for multiple uses in both the public and private sectors.

2. The structure of the program places major emphasis on the development of strong public - private partnerships for both funding and decision-making (this is extremely important in Southern Appalachia where about one-third of the land base is publicly owned and managed).

3. The products and services of the program include environmental and economic problem solving options.

4. The federal government’s emphasis on Performance Reviews, Ecosystem Management, Adaptive Management and other effectiveness and efficiency measures fits with the vision and action plan of SAMAB.

5. A wide range of stakeholders -- local citizens, environmental groups, private industry, and government officials (local, state, national, and international) -- have recognized the SAMAB program as a model for developing cooperative and coordinated research, resource management, and educational programs/projects.

In 1994, SAMAB developed an Action Plan for the 1994-1996 period and is in the process of implementing that plan. SAMAB has done much with good faith and limited funds to fully achieve its goals. Participating agencies and the MAB National Committee should consider ways to support Biosphere Reserves through National Programs that provide adequate funding to enable regional MAB Cooperatives to contribute effectively and efficiently to ecosystem management.
Legend:
- Southern Appalachian Biosphere Reserve
- General Zone of Cooperation
- Great Smoky Mountains National Park Unit
- Coweeta Hydrologic Laboratory Unit
- National Environmental Research Park Unit
- Mount Mitchell State Park
- Grandfather Mountain
- Blue Ridge Parkway
SAMAB COOPERATIVE
(Federal & State Agencies)

EXECUTIVE COMMITTEE

COORDINATING OFFICE
(EXECUTIVE DIRECTOR)

SAMAB FOUNDATION
[501(c)(3) Nonprofit]
(Multi-sector Membership)

BOARD OF DIRECTORS

LOCAL CHAPTERS

SAMAB ASSOCIATED COLLEGES AND UNIVERSITIES
(Under development)

EXECUTIVE COMMITTEE

COMMITTEES

PUBLIC AFFAIRS
ENVIRONMENTAL EDUCATION AND TRAINING
RESEARCH AND MONITORING
RESOURCE MANAGEMENT
SUSTAINABLE DEVELOPMENT
CULTURAL AND HISTORICAL RESOURCES

MEMBERS: Federal, state, local, university, and nongovernmental representatives
(A representative from one of the Cooperative's member agencies chairs each committee.)
INTERAGENCY AND COOPERATIVE AGREEMENT FOR THE
ESTABLISHMENT AND OPERATION OF THE
SOUTHERN APPALACHIAN MAN AND THE BIOSPHERE COOPERATIVE

ARTICLE II. STATEMENT OF WORK

1. Establish a Southern Appalachian Man and the Biosphere Cooperative (SAMAB). The cooperative shall be managed and directed through an executive committee comprised of one representative from each party to this agreement. The executive committee shall establish program policies consistent with the cooperative’s objectives.

2. Cooperate with regional, state, and local governments, individuals, and other interested organizations to develop a land ethic that recognizes the importance of ecologically sound management of natural and cultural resources.

3. Identify principal environmental and developmental issues related to the objectives of the cooperative. This will be accomplished through a series of conferences and meetings with interested groups and individuals.

4. Undertake an ongoing and comprehensive effort to identify long-term, sustainable, and ecologically sound economic development opportunities.

5. Undertake cooperative research and resource management initiatives which are regional in scope and disseminate resulting information from these activities.

6. Develop and implement a voluntary environmental education program with the public school systems of the region and with other interested organizations.

7. Establish cooperative relationships with state, local, and other federal entities within the region.

8. Procure and disseminate informational materials appropriate to this project.

9. Empower the executive committee to establish a Southern Appalachian Biosphere Coordinating Office which can provide the expertise and labor to carry out the functions desired by the parties to this agreement.
ATTACHMENT 2

SAMAB COOPERATIVE MEMBERS

July 1995

Tennessee Valley Authority, Resources Group

USDA Forest Service, Southern Resource Station

USDI National Park Service, Southeast Region

USDI Fish and Wildlife Service, Southeast Region

USDI Geological Survey, Water Resources Division, Southeast Region

USDI, National Biological Service

US Environmental Protection Agency, Region IV

Economic Development Administration, Atlanta Regional Office

US Department of Energy, through Environmental Sciences Division, ORNL

US Army Corps of Engineers, Ohio River Division, and South Atlantic Division

Appalachian Region Commission

State of Tennessee, Department of Conservation and Environment

State of Georgia, Department of Natural Resources

State of North Carolina, Department of Environment, Health, and Natural Resources
Attachment 3

HIGHLIGHTS OF SAMAB PROGRAM

I. Calendar Year 1994

* Integrated assessment workshop;
* SAMAB Business/Action plan and ‘critical issues’ identification developed;
* Sponsored the Sustainable Economic Development Conference for western North Carolina
* NBS, COE, ARC became the 9th, 10th, and 11th Federal agency signatory to SAMAB cooperative agreement;
* TN became the third state signatory to SAMAB;
* Discussions currently ongoing with NRCS, OSM;
* States of Virginia, South Carolina, and Alabama have been invited;
* Recommended that the Tennessee River Gorge became the 6th Biosphere Reserve unit in the SAMAB Region;
* Provided testimony to the Senate Sub-Committee on Agricultural Research, Conservation, Forestry, and General Legislation - April 14, 1994;
* Hosted visit by Federal Interagency Task Force on Ecosystem Management as a case study as part of NPR on July 11-15, 1994;
* Co-Sponsored with the Environmental Protection Agency an Ecological Assessment Workshop where SAMAB is being considered as 1 of 3 prototype areas to test National Assessment Program Protocols for ecosystem assessment - April, 1994;
* SAMAB hosted meeting of Southeastern Natural Resources Leaders Group in Chattanooga, August 15-17, 1994;
* SAMAB participated with the U.S. Forest Service and others in a series of 3 meetings for public input on the SAA assessment; August 23, 25, and 27, 1994, in Asheville, Roanoke and Gainesville, GA;
* SAMAB hosted a visit from GAO September 11-15, 1994, representing the House of Representatives Committees on Agriculture, Natural Resources; Merchant Marine and Fisheries; and the Subcommittee on Specialty Crops and Natural Resources; and for the purpose of identifying ways for Congress to facilitate ecosystem management implementation and to gather information to testify before the House Budget Committee in the Spring of 1995;
* Developed joint Letter of Support (October 3, 1994) for SAMAB from Natural Resources Leaders Group to Washington level Bureau/Agency heads, --- three responses;
* Annual Conference - November 14-17, 1994 in Hendersonville, North Carolina
* Hired NBS - sponsored data coordinator for SAMAB - Karl Hermann at Norris, TN
* SAMAB initiated the Southern Appalachian Assessment
* There was general financial support for executive director, FY 95 budget, need for continued support.

II. Calendar Year 1995

* Primary focus is the Interagency “Southern Appalachian Assessment.” Databases finalized, put on the Internet, and preliminary reports completed by November 1995. Final Integrated Report will be issued in January 1996;
• SAMAB participated as 1 of 10 representatives in meeting on February 8, 1995 with the new Speaker of the House regarding natural resource issues;

• Presentation to Natural Resources Committee of the President’s Council on Sustainable Development — Chattanooga, TN, January 1995;

• SAMAB Home Page established on the Internet;

• Executive Director participated in the International Conference on Biosphere Reserves. He and International Affairs Director Bill Gregg, NBS, co-authored a paper on SAMAB and presented it at the Conference, Seville Spain, March 1995.

• Presentation on SAMAB, as a model for ecosystem management, made to the National Hydropower Association, Washington, DC, April;

• SAMAB Annual planning meeting, April 27-28, Asheville, NC
  ⇒ Initiated Education program (brochures, posters, etc.) to inform the public on the habits of Black Bears and the dangers of trying to feed them;
  ⇒ Initiated programs to assist in the production of educational materials that describe the region’s neo-tropical migratory birds and their values to society

• Team of six SAMAB representatives presented a five-day workshop in the Czech Republic. Developed a strategy for cooperation between SAMAB and Czech Biosphere Reserves and developed a Cooperative Program between SAMAB and the Krivoklatsko Biosphere Reserve, June;

• Hosted meeting of Southeastern Natural Resources Leaders Group in Charleston, SC, Sept.

• Team of four SAMAB representatives presented a three-day workshop and visited five protected areas (Biosphere Reserves) in the Slovak Republic. Memorandum of understanding on mutual cooperation was signed between SAMAB and the following groups: Slovak MAB National Committee, Slovak Environmental Agency, and the Director of the U.S. Peace Corps in Slovakia, October;

• SAMAB Annual Meeting November 14-16. Honorable Bruce Babbit, Secretary, Department of Interior is the Keynote Speaker. Initial findings of the Southern Appalachian Assessment will be shared at this meeting.

• Throughout the year, SAMAB leadership played a key role in developing and implementing the SAMI (Air quality) program.

• Hosted Biosphere Reserve Managers from Poland, Germany, Czech Republic, Slovak Republic, Indonesia, and China.

• The SAMAB Foundation played a key role in supporting (handling the funding) for the USMAB Biosphere Reserve Directorate, participation of non-government representatives in the SAMI program, and the Southeastern Natural Resources Leaders group.
COOPERATIVE PROGRAM FOR THE SONORAN DESERT

I. PURPOSE

The goal of the Cooperative Program for the Sonoran Desert is to unite organizations and communities in developing and implementing a coordinated plan of action for the region's future. This document outlines the overall Cooperative Program for the Sonoran Desert. This Program is based upon the priorities and needs identified by participants at 15 ISDA membership meetings and three regional conferences, and the results of four years of meetings with officials. This Program also has been developed in close coordination with state and federal agency representatives from both sides of the border.

This Program has been initiated by the International Sonoran Desert Alliance (ISDA), the Sonoran Institute (SI), Friends of PRONATURA (Friends), and the Arizona-Sonora Desert Museum (ASDM). These organizations welcome and encourage other interested regional groups, agencies, and individuals to join this Cooperative Program.

II. GEOGRAPHIC SCOPE

The geographic scope of the Program includes the Arizona-Sonora border region of the Sonoran Desert. Over the past eight years, the core area of interest has been southwestern Arizona and northwestern Sonora. The Cooperative Program now seeks to include additional partners and activities in adjacent areas.

III. PHILOSOPHY

The Cooperative Program for the Sonoran Desert is based on the concept of sustainable use developed in the early 1970s by the Man in the Biosphere Program to cope with tensions between resource management and economic development. The U.S.-Mexico border artificially divides the Sonoran Desert, segmenting both communities and ecosystems. The Cooperative Program seeks to transcend this artificial barrier and find locally based solutions for conservation and economic development planning. The diversity of the Sonoran Desert region calls for a process of cooperation and common ground to promote sustainable use and culturally appropriate policies. Accordingly, this program emphasizes broad-based community efforts and partnerships necessary to overcome long-standing political, cultural, and institutional barriers. Residents of both Mexico and the U.S., including various Native American communities, are equal partners in this cooperative program.

IV. COOPERATIVE PROGRAM

The Cooperative Program for the Sonoran Desert is designed to provide an integrated framework involving the four elements that characterize comprehensive conservation and
economic development planning. These are: (A) community participation — determining community goals and regional priorities; (B) research — conducting scientific research to understand the region's natural, cultural, and economic factors; (C) community-based strategies — developing strategies based upon local and regional trends and priorities; and (D) program evaluation — evaluating progress and adapting the program to changing conditions.\footnote{Note: The order in which the elements of the cooperative plan are listed do not necessarily indicate priorities; many of the listed programs and projects are being implemented in a parallel fashion.}

A. Community Participation — identify local priorities in the U.S.-Mexico border region to guide future research, management of protected areas, agency decisions, and the activities of the partners in the Cooperative Program. The Program is designed to provide for meaningful local leadership in determining regional priorities. Community participation and leadership is critical to the success of the Cooperative Program.

1. Community Workshops -- develop and sponsor community workshops to identify shared local priorities and specific pilot projects for protecting and enhancing cultural, social, economic, and ecological resources under the Cooperative Program. \textit{Funding Status}: Funded through Cooperative Agreement FY 95, Article 9, and a grant from USFWS, USEPA.

2. Special Issue Forums -- convene forums and support task force activities to address specific regional issues, such as, immigration/bi-national citizenship for border tribes, highway development, mining, and NAFTA related activities. \textit{Funding Status}: to be funded

3. Technical Advisory Task Force -- continue to support the Technical Advisory Task Force that has been meeting since 1994 to provide technical and scientific information to the organizations and communities that are part of the Cooperative Program for the Sonoran Desert. Scientific research projects will be evaluated based on community needs. \textit{Funding Status}: to be funded

B. Research — encourage research programs that foster greater knowledge of the region's economic, biological, and cultural resources. Research programs fall into 5 categories: (1) Economic Resources; (2) Water Resources; (3) Biological Diversity; (4) Cultural Resources; (5) and Geographic Information.

1. Economic Resources — develop a better understanding of regional economic resources, conditions, and trends as well as opportunities to promote sustainable community development.
a. Economic Assessment -- complete an economic assessment to identify viable alternatives in the region and develop case studies on eco-tourism and other non-extractive industries. Funding Status: Funded through Cooperative Agreement FY 94, Article 6

b. Sustainable Resource Inventory -- inventory which plant and animal resources in biospheres and active management areas currently generate income to cottage industries, or are used for traditional subsistence/home use; evaluate limited access for sustainable harvesting and monitoring. Funding Status: to be funded

c. Valuation Study -- conduct a valuation study to assess economic values of natural and cultural resources. Funding Status: to be funded

2. Water Resources — develop a better understanding of hydrological resources and systems.

a. Resource Inventory -- compile existing research on watersheds, surface and ground water systems, and land use to be available at the regional resource center for local residents and decisionmakers. Funding Status: to be funded

b. Watershed Evaluation -- evaluate and monitor critical regional water resources. Projects may include: routine monitoring of Quitovac water quality and artesian spring flow quantity, and repeat 1980-1982 biodiversity inventory; evaluating and monitoring water resources of Cienega Santa Clara, Rio Sonoyta watershed, and on Tohono O'odham lands; evaluating riparian ecosystems. Funding Status: to be funded

c. Water Consumption Analysis --

d. Land Use Inventory -- conduct a land use inventory of the Rio Sonoyta Watershed to determine water resource use. Understanding different land use needs within this watershed will provide for more effective management policies and mitigation measures. Funding Status: to be funded

3. Biological Diversity — develop a better understanding of regional biological systems.

a. Regional Science Symposium -- host a symposium to share and compile biodiversity inventories and mapping that includes endangered species; develop future research priorities, and collaborative projects between land users, managers, and regional experts. Funding Status: to be funded
funded

b. Habitat Fragmentation Study -- identify impacts of fragmented management and differing missions of various agencies for selected botanical and animal resources in the biosphere reserves. *Funding Status:* Partially funded through Cooperative Agreement FY 95, Article 21

c. Publication on Biosphere Reserve Flora -- publish multi-lingual versions and disseminate the Flora of the Sonoran Desert Biosphere Reserve Network by Richard Felger and others, the first volume in a series compiling documented biodiversity inventories of the region. *Funding Status:* to be funded

d. Endangered Species Study -- determine through literature review, field note compilation and new field studies which endangered species move between various binational management areas and map these corridors. *Funding Status:* to be funded

e. Exotic Weed Mapping -- begin mapping exotic weed invasion for buffelgrass, mustards and tamarisks, and develop a shared control agenda with the region's farmers. *Funding Status:* to be funded

4. Cultural Resources — develop a better understanding of cultural and social resources.

a. Cultural Resource Mapping -- determine through literature and consultation with tribes which multi-cultural use sites can be mapped, and which should or should not be visited by the public or mentioned in interpretative materials and maps. *Funding Status:* to be funded

b. [Pat Phelan will add new projects -- Ecotourism, Ethnobotany, and Recreation]

5. Geographic Information — develop a better understanding of the region by linking geological, physical, biological, demographic, and cultural information under a GIS format.

a. Transboundary Resource Inventory Project -- using ARC-INFO Geological Information Systems, compile, map, and disseminate in electronic formats all physical, biological, hydrological, cultural, and demographic data for the region. *Funding Status:* to be funded

C. **Community-Based Strategies — carry out projects to promote community-based**
sustainable development, conservation, and social/cultural values. Specific activities are based upon community participation and previous and on-going scientific research.

1. Community-based Sustainable Development — implement projects that promote economic vitality while minimizing impacts on protected natural areas and historic resources.

   a. Sustainable Development Workshops -- conduct workshops to present case studies on sustainable development and identify pilot projects. Funding Status: Funded through Cooperative Agreement FY 95, Article 20

   b. Economic Pilot Projects -- carry out community-based sustainable development pilot projects identified at workshops, e.g. assisting an artisan cooperative, or eco-tourism venture. Funding Status: Funded through Cooperative Agreement FY 95, Article 13

   c. Economic Development Organization -- establish and support a new bi-national economic development organization to promote sustainable development by providing technical assistance (e.g. marketing, accounting, business plans, etc.) equity financing, loans. Funding Status: to be funded

   d. Design Guidelines -- develop a hands-on publication with design guidelines for environmentally sensitive land development and use in arid climates. Funding Status: to be funded

2. Education and Training — carry out programs to educate the public about the region's cultural and natural history, and provide training for local residents, resource managers, and educators to participate in research, monitoring, and educational programs.

   a. Juntos: Maestros y Niños program -- continue this intercultural, environmental education program that emphasizes the region's unique heritage, human impact on the natural environment, and changing land uses over time. Funding Status: Funded through Cooperative Agreement FY 95, Article 17

   b. Roots/Raices/Ta:tk program -- continue this grass-roots environmental/cultural youth program to provide constructive activities for Ajo's culturally diverse youth; support efforts to establish similar programs in the region. Funding Status: Funded through Cooperative Agreement FY 95, Article 12
c. Bat Education Program -- collaborate with Journey North, BCI, ASDM and others in conducting on-line monitoring of nectar-feeding bats during cactus and agave flowering with school children and researchers. *Funding Status:* to be funded

d. Job Training -- help border residents receive training for jobs in local resource management and historic preservation. This job training program will enable local people to participate in managing the region's resources and protected areas with respect to traditional values. *Funding Status:* to be funded

e. Leadership Development -- provide training to local leaders, educators, and other residents so that they can participate in policy making and management activities for protected areas in the region (including the Upper Gulf/Colorado River Delta Biosphere Reserve, the Cienega Santa Clara, and other fragile border ecosystems) and educate students about the region's local ecology and cultural history. *Funding Status:* to be funded

f. Professional Training -- provide training to federal and state resource managers in community participation, local ecology, natural history, and cultural preservation to improve sensitivity to local values in agency decisions. *Funding Status:* to be funded

3. Social and Cultural Values — implement projects to realize social and cultural priorities.

a. Cultural Resources Symposium -- sponsor a cultural resources symposium to exchange ideas about cultural preservation, access issues, and new priorities for future projects. *Funding Status:* to be funded

b. Feasibility of Cultural Center -- assess the feasibility of a facility that will serve as a center for interpreting the natural and cultural resources of the Sonoran Desert region and secure a site. The facility will provide a setting for cross-cultural education programs and binational cooperation in research and management. *Funding Status:* Funded through Cooperative Agreement FY 94, Article 3

c. Tucson Visitors Center -- coordinate with agencies currently working to establish the proposed multi-agency visitor center in Tucson. This coordination will ensure that the facility provides information and features exhibits on the border region. *Funding Status:* to be funded
d. Regional Profile -- produce a multilingual regional profile describing the area, history, current conditions and a vision for the future. Funding Status: Funded through Cooperative Agreement FY 94, Article 8

e. Land Rights -- work with Hia-Ced Alliance and other native peoples to pursue potential aboriginal land claims. Funding Status: to be funded

4. Cooperative Conservation for Protected Areas — carry out cooperative projects that protect the integrity of protected natural and cultural areas along the Arizona-Sonora border.

a. Riparian Restoration Workshops -- develop and conduct riparian workshops for local officials, resource managers, and landowners that are experiencing environmental problems stemming from the deterioration of rivers and their associated riparian ecosystems; identify restoration pilot project whose watershed includes areas of both the U.S. and Mexico. Funding Status: Funded through Cooperative Agreement FY 95, Article 18

b. Riparian Restoration Pilot Project -- carry out a bi-national pilot project identified at riparian restoration workshops. Funding Status: to be funded

c. Romero Floodplain Renovation -- renovate Romero floodwater field at Suvuk in collaboration with the Pinacate Biosphere Reserve Management, and begin research and interpretation there during wet season. Funding Status: to be funded

d. Federal Agency Coordination -- coordinate regional conservation activities with U.S. Department of the Interior's Field Coordinating Committee Biosphere Project. Funding Status: to be funded

5. Capacity Building — improve the ability of regional organizations and agencies to carry out conservation and development activities.

a. ISDA's institutional capacity -- maintain and strengthen ISDA's institutional capacity by maintaining a regional office and staff; convening regular board and general meetings; providing staff and board training; sponsoring public seminars; and diversifying funding to support ISDA's activities. Funding Status: Funded through Cooperative Agreement FY 95, Article 14 and 16

b. Mexican NGO staff position -- staff a non-governmental position in Sonora to carry out cooperative community-based conservation and
sustainable development programs in the border region. Funding Status: to be funded

c. U.S. MAB Cooperative nomination -- develop workplan for completing the U.S. MAB nomination and formalize cooperative efforts in the region by securing recognition as a biosphere cooperative program. Funding Status: Funded through a U.S. MAB grant

d. Catalytic Grants Program -- provide catalytic small grants for innovative activities that demonstrate collaborative approaches for understanding the region, and promote cross-border cooperation for conservation and sustainable development initiatives. Funding Status: to be funded

e. Sonoran Bioregion Network -- assess regional communication needs and identify resources for implementing a communication plan to increase dialogue between communities and the biosphere. This plan may include on-line access to information. Funding Status: Funded through Cooperative Agreement FY 95, Article 10

f. Computer Network at El Pinacate -- create a local area network (LAN) at the remote El Pinacate that can be linked by telephone or satellite to the Sonoran Bioregion Network in the future. Funding Status: Funded through Cooperative Agreement FY 95, Article 15

g. Pinacate Community Outreach program -- assist with a Pinacate Community Outreach program to improve collaboration between park management and adjacent communities. Funding Status: Partially funded through Cooperative Agreement FY 95, Article 19

h. Regional Resource Center -- develop a regional resource center and lending library to help disseminate information about the cultural heritage, natural resources, socio-economic trends, and biosphere reserves. Funding Status: Partially funded through Cooperative Agreement FY 95, Article 11

i. Outreach publications -- create a regional newsletter. Funding Status: Partially funded through a USFWS grant

D. Program Evaluation — evaluate the success of the Cooperative Program for the Sonoran Desert, and use project evaluations beginning in summer 1996 to guide future program modifications.

1. Community Participation Evaluation — monitor and evaluate community programs to gain in-depth, on the ground knowledge of community needs, and
ensure local priorities are incorporated into the Cooperative Program.

2. **Research Evaluation** — monitor and evaluate research programs to determine future research needs.

3. **Community-based Strategy Evaluation** — monitor and evaluate strategic programs to determine the overall effectiveness of projects in communities.

4. **Overall Cooperative Program Evaluation** — assess the overall capacity and effectiveness of this international program.
A SONORAN DESERT BIOSPHERE COOPERATIVE

Although historically Organ Pipe Cactus National Monument was designated as part of the International network of Biosphere Reserves in 1976 it was several years before awareness and implementation of the concept began. During the late 1980's successive progressive steps were achieved.

During the late 1980's preparation of a general management plan for Organ Pipe Cactus National Monument the necessity for cooperative management of surrounding lands was identified. Cooperative management that will protect resource values and enhance the visitor use and protection must be developed if the values that attract people to the heart of the Sonoran Desert are to be perpetuated. The Monument is a biosphere reserve, and is 94 percent designated wilderness. Trinational cooperative management is key to the recognition and preservation of the natural and cultural resources in the geographic heart of the Sonoran Desert.

Two non-governmental organizations, Friends of PRONATURA and the Sonoran Institute, began working in close cooperation with the Monument. This cooperation took on the form of a partnership in that all parties found a strong commonality of goals and objectives while retaining their independence and mission.

In October, 1992 the partners solicited the support of other entities and hosted the first annual conference entitled "Land Use Changes in the Western Sonoran Desert Border Area." As a result of this community enlightenment interested citizens met on a monthly basis to identify common concerns and develop equitable solutions. Apathy began to subside as issues were confronted, trust among participants increased while the meetings continued.

Monthly meetings continued and lead to the second annual conference held in January, 1994 at Puerto Peñasco, Sonora entitled "Bridging Borders: A Cross-Border Exchange". During March 1995 the third annual conference was held at Coborca, Sonora entitled "Celebration of Desert Cultures." Interest, trust, understanding, and support increased leading to incorporation in the United States and Mexico. The International Sonoran Desert Alliance, a recently incorporated tri-national and tri-cultural organization seeking to promote cooperative protection of resources, ecologically sound economic development, improved responsiveness of public policy to local needs, and applying research and local indigenous knowledge to issues and needs, is seeking an association Civil status in Mexico.

A fifteen member board of directors was elected with the officers of the corporation providing leadership and assuming organizational duties. Also in March 1995 a salaried Director was hired and an office was set up in Ajo, Arizona.

Recent activity in Mexico saw the Mexican Federal designation of two Biosphere Reserves covering over 4 million acres. Subsequently the United Nations Educational, Scientific and Cultural Organization gave international recognition and designation to both sites in Mexico.

Elected officials at all levels, when briefed on the progress, endorsed the activity and provided support. In Fiscal Year 1994 substantial federal funding was received and continues to date. With this financial capability, projects previously identified were initiated. Congressional funding for some 26 projects to date is leading to the formulation of a "Biosphere Cooperative".

Development of an infrastructure and institutionalization of processes and procedures are important steps the International Sonoran Desert Alliance has underway to further implement the Biosphere Cooperative. This will promote legitimacy, recognition, and creditability essential for effective functioning in this region of diverse economic, social, and political entities.
The board of directors hired Ceal Smith as staff director in March 1995. Ms. Smith brings with her many years of experience working in environmental education, community/economic development, and conservation biology in the US, Mexico and South America, and has worked for and with many non-profit organizations in the US and Latin America. In addition to setting up and managing the office, she provides staff support for monthly board and general membership meetings, publication of the newsletter, development and organization of the regional resource center, manage the Juntos and Roots Environmental Education programs along with recruiting and managing volunteers to work on various projects.

Regular monthly board of directors meetings, general meetings of the membership and annual forums have consistently been conducted in a manner and a regularity that along with regular office hours in a highly accessible and highly visible location, have done much to increase the effectiveness and functioning ability of the Alliance.

With the above items working smoothly projects underway including communication networking initiation and enhancement, local economic pilot-type ecotourism and/or resource sustainable businesses are next in line for implementation. Funding sources including grant writing and fund raising are also items receiving attention and some degree of success.

The story is remarkable for the sizeable barriers it has overcome. Despite the three nations and three languages, an international border dividing developed and third world economies, a depressed economy with the threat of uncontrolled development of a sparsely populated area spread over approximately twelve million acres, progress to date has been impressive.
MAMMOTH CAVE AREA BIOSPHERE RESERVE

Introduction

The Mammoth Cave Area Biosphere Reserve (MCABR) is located in southcentral Kentucky within the temperate broad-leaf forest biome and the eastern deciduous forest biogeographic province. The area is a karst system typified by complex underground water courses, and a multilayered cave system (longest in the world), with unique fauna and mineralization features. There is evidence that prehistoric peoples explored and extracted minerals from the caves, used them for shelter, and cultivated the surface area. Mammoth Cave has been a tourist attraction since the early 19th century. Commercial development along major highways, tourist services, some light manufacturing, and agriculture are the basis of the regional economy.

The most significant issue for the MCABR is achieving a sustainable economy, within the zone of cooperative use, that improves the economic and social well-being of local people and is compatible with the core area values. Of particular concern to Mammoth Cave National Park is the impact of agricultural, commercial, and residential land use on the ecosystem, especially with respect to the effects of groundwater pollution on cave biota. Within the zone of cooperative use the principal economic issues are sustainable agriculture and sustainable development for small tourist oriented businesses as well as light industry.

The principal monitoring and research themes of the BR are groundwater hydrology, water quality, the effects of agricultural land uses, the health of freshwater ecosystems, and atmospheric pollutants. Long-term hydrological and ecosystem research projects were initiated in the park and surrounding region decades ago. The research has produced a substantial knowledge base that is available for use in planning development projects in the zone of cooperative use.

Organization

Rural development in this area is coordinated through the Barren River Area Development District (BRADD). Following designation of the Biosphere Reserve, the MCABR Advisory Council was established as an adjunct to the Natural Resources Planning Council of BRADD. The members of the Council (Cooperative) have signed a Memorandum of Understanding for coordination of the BR program.
Partners in the Cooperative

<table>
<thead>
<tr>
<th>BRADD - 10 Counties</th>
<th>BRADD NATURAL RESOURCES PLANNING COUNCIL</th>
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<td>Federal agencies</td>
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<td>KY Nature Preserves</td>
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Selected Activities

Project: Regional Geographic Information System (GIS)

Purpose: Develop GIS for MCABR to support planning and ecosystem management.

Accomplishments: * Global Positioning System purchased and in operation to support research and management activities. * Grant secured to develop a node on the National Geospatial Data Network to collect, share and utilize geospatial data for agency and business planning. Linked with program at Western Kentucky University for training users and students.

Project: Economic Impact Study (completed 1994)

Purpose: Assess potential for sustainable industrial development along major transportation corridor MCABR

Accomplishments: *Information has been analyzed and reported, assessing present and future water pollution potential, as well as other environmental risks from business and industrial development along I-65.

Project: Environmental Education Program

Purpose: Present regional environmental issues to park visitors, local students/residents, and teachers throughout the state focusing on the schools within BRADD.

Project: Resource Conservation and Development District (RC&D)

Purpose: Develop and carry out plans that improve the general welfare, health, and economy of the 10 BRADD counties (including MCABR) through resources management.

Accomplishments: Provided technical and funding assistance for numerous small rural water and sewer systems, school and community beautification projects, environmental education programs, and rural fire protection.

Project: Mammoth Cave Area Special Water Quality Project

Purpose: Assess, monitor and mitigate non-point source pollution on water quality in primary watersheds of Mammoth Cave.

Accomplishments: Cost-share funding made available to area farmers ($950,000) to construct more than 80 on-farm systems (Best Management Practices) to prevent pollution from pesticide and animal waste through containment, water management and recycling.

Milestones for the Near Future

Expansion of the MCABR: A application will be forwarded to USMAB within the next few months, by the Barren River Area Development District, for expansion of the Biosphere Reserve. The expanded biosphere would include a proposed state park and an Army Corps of Engineers recreation area. The proposed addition includes lands outside the Mammoth Cave watershed, but within regional hydrologic boundaries, including groundwater basins critical to agricultural, municipal and industrial sustenance. Additionally, the expansion includes areas where development has impacts on natural and cultural resources as well as the economy of the current MCABR region.

Water Resources Management: *A grant has been secured from the US EPA to quantitatively assess and demonstrate the water quality changes resulting from installation and use of on-farm best management practices within a specific groundwater sub-basin. *A groundwater hazards map for use by emergency response agencies is nearing completion. The map will assist in containment of toxic materials spills before they might enter points accessible to critical aquifers.

Ecological Monitoring and Research: *The National Park Service has selected Mammoth Cave National Park as a Long-Term Ecological Monitoring (Prototype) Park. A comprehensive proposal outlining monitoring and research programs for key resources, communities and systems has been developed. Implementation scheduled for October 1997. *A number of studies and projects important to MCABR resources will be completed in the next 2 years.
Sustainable Economics: The West Kentucky Corporation and the MCABR are developing a Mammoth Cave Area Economic Development Plan which focuses on tourism and sustainable activities. This study will examine economic opportunities, infrastructural needs, environmental constraints, and identify the resources required to accomplish the stated goals. Several proposals involving sustainable use of natural resources are under consideration.

Education: Meetings have been held to discuss organization of a consortium of agencies, private interests and Western Kentucky University to promote science-based educational opportunities for area citizenry in environmental and cultural resource management.

Recommendations to MAB

Coordination of Federal Initiatives: Assure that various initiatives of the Administration include and are coordinated with MAB, applicability of MAB model, and garner support for MAB concepts. Examples: there are White House task groups on ecosystem management and sustainable economic development.

Enhance/Maintain Funding Base for Biosphere Reserve Directorate: The Directorate needs to continue and enhance its small grants program in order to promote individual projects and activate program development in biosphere reserves.

Consider Funds Acquisition through Grant-Making Organizations: Explore the opportunities for private funds, establishment of non-profit foundation, and other ways to enhance Directorate funds. Organize materials and/or training for biosphere managers regarding similar actions at the biosphere level.

Staff Support for the Biosphere Reserve Programs: Assure that adequate staff is available to support the biosphere management activities of the national office. Explore options and sources of assistance available to local biosphere cooperatives for coordination and enhancement of local programs. Garner program support from federal agencies involved in biosphere reserves.

Communication and Training: Continue the periodic meetings of biosphere reserve managers, development of case studies on pertinent examples of successes and failures, and publication of materials that can be utilized by biosphere reserve managers broadly and adapted to specific use. Consider sponsorship of training needs identified by managers.
CASE STUDY
ROCKY MOUNTAIN NATIONAL PARK BIOSPHERE RESERVE

I. INTRODUCTION

- Approximately 107,000 hectares administered for ecosystem preservation, environmental education, and resource-oriented public recreation

- Bordered by the Arapaho/Roosevelt National Forest including three wilderness areas (Indian Peaks, Comanche, and Neota) along 63 percent of the Reserve Boundary; remainder 37 percent private land and the gateway communities of Estes Park and Grand Lake

Issues of Concern to “Stakeholders”

- Economic sustainability, watchable wildlife, visitor transportation and automobiles

- Urban/Wildland interface issues--wildland fire, development, access, night lighting, wildlife habitat

- Open Space, quality development, commercial aircraft tours, noxious weeds, private property rights

II. ORGANIZATION

The COLORADO ROCKIES REGIONAL COOPERATIVE (CORRC)

- An organization to develop and share information related to future land and resource use, bio-diversity, and ecosystem management

- A Grassroots effort--involving 14 partners representing all levels of government, universities and private sector including:

  - City of Boulder
  - Boulder County
  - Colorado Division of Wildlife
  - University of Colorado
  - U.S. National Park Service
  - U.S. Geological Survey
  - The Nature Conservancy
  - City of Fort Collins
  - Larimer County
  - Colorado State Forest Service
  - Colorado State University
  - U.S. National Biological Service
  - Arapaho & Roosevelt National Forests
  - Rocky Mt. Forest & Range Exp. Station

- Organization origin from a need for cooperation on issues transcending geopolitical boundaries and the need for the pooling and sharing of data, the need for ecosystem and landscape scale research, technical expertise, and financial resources
Focus is on three landscape zones:
Core Zone - Rocky Mountain National Park, Wilderness Areas, Roadless Areas
Management Zone - Other National Forest Lands, State Lands, County Park Lands
Cooperation Zone - Urban/Wildland Interface between private and Core Zone, mixed private-public land ownership

III. ACTIVITIES and ACCOMPLISHMENTS

- CORRC now has administrative and relative fiscal stability; an eight member Board of Directors with rotating term limits, working under a Memorandum of Understanding, a Partnership Coordinator, an approved set of by-laws, and modest ($24k) funding with fiscal management by the Nature Conservancy.

- Spur 66 Project -- Through a partnership that includes CORRC, were successful in securing a grant (GO Colorado) to assist a neighborhood adjacent to the BR to prepare design guidelines to better manage future development.

- CORRC developed refined data sets including the following broad data themes wildfire management, wildlife management, transportation, land use, recreation management and visual resources.

- CORRC recognized by funding agencies as representing many diverse interests and instrumental in supporting Spur 66 and Estes Park Land Trust Acquisitions by the Go Colorado Trust Fund.

- MAB has provided funding to CORRC to develop a neighborhood planning handbook that will draw upon the lessons learned during the Spur 66 project. It will provide a process for other neighborhoods to follow in making wise decisions regarding stewardship of neighborhood assets.

- CORRC facilitated the establishment of a partnership that includes the City of Fort Collins, Colorado, and Ducks Unlimited. The partnership will focus on the restoration of urban wetlands around Fort Collins.

- Overflights - Unparalleled community, county and state support, participation, and partnering; close ties to community economic sustainability.

- Greenhouse/Native Species and genotypes; exotic plant control; all with community involvement and support, transcending of BR values to the community.

- Fall River Visitor Center; Private/Public/Community Partnership to foster resource stewardship and reduce visitor impact on BR.
• Research Dormitory; (16) bed facility with kitchen to encourage the use of the BR for research by offering a scarce resource (e.g. lodging in summer months); first summer of operation (25) different projects with (58) different people, for 1,152 user nights

IV. MILESTONES AND FUTURE PROJECTS

• Hiring of a data manager and development of a fully functioning data sharing cooperative
• Closer organizational association with the Niwot Ridge, Fraser Experimental Forest, and Central Plains Experimental Range Biosphere Reserves
• The development of visible products to the public:
  - City of Boulder research on biological diversity within its open space areas
  - Neighborhood planning handbook will be widely shared and include a message regarding the importance of sustaining area assets.
• Further definition on the role of CORRC and its relationship to the Area’s Biosphere Reserves
• Develop, and if possible implement a strategy of inventory and monitoring—the Park’s number 4 priority in the Resources Management Plan
• Conduct a Related Lands Evaluation; major effort to—identify values on lands outside park which are critical to meeting the purposes of the park through the establishment of community taskforces and broad public participation to examine the following topics:
  - Scenic vistas
  - Wildlife habitat
  - Wildland fire
  - Alien plants
  - Night lighting
  - Public access (trails)
• Develop a Joint Adjacent Wilderness and Rocky Mountain National Park Prescribed Natural Fire Management Plan; ecosystem sustainability and public acceptance

V. RECOMMENDATIONS TO U.S. MAB

• Champion Cause related to Possible Loss of Research Funding including:
  - J.TER in Loch Vale Watershed
  - Global Climate Change Research
• Continue to disseminate information on innovative work being done at biosphere reserves or by cooperators, especially focus on projects or information that is transferrable to others (i.e., models for partnerships) and serve as a clearing house of information on established cooperatives that advance the Strategic Goals of USMAB
• Continue to be a source of limited funding for special projects
Proposed Catskill Biosphere Reserve

DESCRIPTION

The Catskill Mountain Region of New York State nominated for recognition as a Biosphere Reserve of State, National and international importance is located 150 miles north of New York City and includes all of Sullivan, Delaware, Schoharie, Greene, Otsego and Ulster counties, and southwestern towns of Albany County, Berne, Knox, Rensselaerville, Westerlo, New Scotland and Coeymans, and thus defined, provides both definitive political boundaries and lowland buffering for the proposed Reserve. The Region centers on the Catskill Park and Catskill Forest Preserve, which are overlain by the 5,200 square kilometer watershed for New York City’s water supply, supplying drinking water to 9 million + people, tourism host to 3-4 million annually.

The Catskill Region is diverse in its flora and fauna and highly divided politically. Like many Appalachian areas, it has struggled with a resource-based economy, and the lack of a strong regional economic development agenda. At the same time, the Catskill have tremendous biocultural importance. It was in the Catskills, “America’s first wilderness,” that ecotourism was invented and the image of American wildlands shaped. The ethnic enclaves of the Catskill today place the region among the most culturally diverse of rural regions in the country. The region fought the Anti-Rent War in the early 19th Century, and this historic tradition of resistance to outside control remains alive.

PARTICIPATION

The Catskill nomination was spearheaded by a committee of local community members, educators, conservation organizations and professionals and public agencies. The organizing committee included several not-for-profits (the Catskill Center for Conservation and Development, the Mohonk Preserve, the Huyck Preserve, Olive Natural Heritage Society), and the New York State Department of Conservation and the New York City Department of Environmental Protection. The nomination was prepared over several years with input from more than 70 individual citizens and organizations.

ISSUES

• Threaten to home rule?
• Threat of more regulation and control by “outsiders”?
• Fear of the United Nations—as a body seeking a one-world government.
• Fear of loss of private property rights—a land grab.
• Fear of research/studies.
• How could this designation directly benefit the region? --benefits seen as intangible and insignificant.
Proposed Catskill Biosphere Reserve (cont’d)

SUGGESTIONS TO MAB

• Improve language of program (eg., “biosphere”) to address broader public.

• Improve dissemination of information about existing Biospheres to build worldwide constituency for biosphere reserve program. Get message out about the benefits of designation and program participation.

• Match existing reserves with proposed reserves to provide technical and organizational support. It would be helpful to have people from existing reserves come speak to proposed reserve areas to explain benefits/disadvantages of reserve status.

• Provide more organizing assistance/guidance to help prepare areas for public information needs.
21.2.b. PROPOSED CATSKILL REGION BIOSPHERE RESERVE

Catskill Park (Central Managed Use Area) ——

Catskill Region (Zone of Cooperation) ——

(Adapted from Anderle and Carroll, 1988)
INTRODUCTION: The region under consideration is the entire Lake Superior basin, some 56,000 sq. miles (146,000 sq. km.) of lake surface and 49,000 sq. miles (128,000 sq. km.) of watershed. Several variants of the boreal forest predominate in the northerly basin and the transition temperate northern hardwood-hemlock-white pine forest occupies much of the southern watershed. Superior, the largest (by surface area) lake on Earth, is markedly oligotrophic and exhibits oceanic behavior in its strong circulatory currents and upwellings. Human population (700,000) is mainly concentrated in two "large" cities (Thunder Bay, Ont., Duluth, Minn.) and a dozen or so small cities of 5,000 to 20,000 people. There are some 18 Ojibwa communities, most with fewer than 1,000 inhabitants. The basin's economy is founded in primary resource extractions (wood, minerals, fish), water-borne shipping, and tourism.

The proposed biosphere reserve (BR) would include at least one core protected area (CPA) in each terrestrial sub-ecoregion and within Lake Superior per se. The minimum number of CPAs thus would be in excess of 12. Most of the CPAs would be selected to coincide with human settlements, i.e., the zones of cooperation.

PARTICIPATION:
(1) CPAs—Managers of existing CPAs have met at two binational workshops, in 1993 and 1994; a "Lake Superior Protected Areas Association" is now being formed. The binational "Lake Superior Ecosystem Cooperative", comprised of senior natural resources managers and university/college presidents, has since 1991 considered application of the UNESCO biosphere reserve model within the basin. Isle Royale National Park (U.S.) was designated a MAB Biosphere Reserve in 1980.
(2) Zones of Cooperation—Parks Canada and U.S. National Park Service have encouraged citizen-driven sustainability initiatives in two areas in Ontario, one in Michigan, and one in Wisconsin. Each of the areas has been exposed to biosphere reserve as a framework for managing sustainability initiatives.
(3) Binational Program to Restore and Protect the Lake Superior Basin—Formed in 1991 by the Governors of Mich., Wis., and Minn., the Premier of Ontario, and the two federal governments, the Program is formally exploring application of the UNESCO biosphere reserve model as a framework for addressing its sustainability objective.
(4) Rehabilitation Areas—Seven "areas of concern", an identity within the binational Great Lakes Water Quality Agreement, have
been designated within the Lake Superior basin. "Remedial action plans" are now in development within each of the areas.

(5) Traditional Use Areas—Biosphere Reserve concept is now being articulated to the 18+ Ojibwa bands within the basin.

(6) Research Areas—The 10+ universities/colleges in the basin are currently considering a Lake Superior Binational Program suggestion that they form a consortium that would manage a basin system of long-term research and monitoring sites.

An action plan for a Lake Superior regional biosphere reserve (BR) feasibility study has been developed by Parks Canada, U.S. National Park Service, and University of Waterloo. Components of the plan now in progress are:

--protected areas directories for Canada and U.S. portions of the basin.

--a human dimension analysis within a test "area of cooperation".

--Parks Canada and World Wildlife Fund-Canada have reached agreement for a protected area analysis, including application of gap analysis methodology.

--a communication plan has been prepared to help explain the need and role of protected areas in ecosystem management.

ISSUES: (1) Some officials in some natural resources management agencies see BR designation as yet another means to restrict access to harvestable/extractable resources. (2) Some chauvinistic and/or conservative activists are increasingly outspoken on expected loss of their rights to UN and its UNESCO BR program. It is to be expected that those activists will find support in some segments of mining, wood products, and other extractive industries in the basin. We address these potential issues by linking our BR proposal with the Lake Superior Binational Program's economic transition and sustainable development objectives, and with the concept of place (i.e., we pay as much attention to cultural history as we do to natural history).

PROBLEMS ENCOUNTERED AND LESSONS LEARNED: An attempt in the 1980's to expand the Isle Royale BR into northern Minnesota was strongly and successfully resisted in communities dependent on paper pulp manufacture and mining. Another attempt in 1991 to mount a binational Lake Superior cluster BR feasibility study stimulated immediate resistance in some U.S. and state resource management agencies. Likewise, the ongoing examination of BR within the Lake Superior Binational Program has simulated some objection in at least one state resource management agency. These lessons gained over the past 10 years have taught us to proceed slowly, with ample time for education on BR. We focus most of our energy on (a) managers of protected areas and (b) nearby communities that have initiated sustainable development programs.

RECOMMENDATIONS TO MAB: U.S. MAB could assist us with suggestions and communications that would lead to "twinning" Lake Superior with other large lake regions (e.g., Lake Baikal).
October 30, 1995
draft

COORDINATION:
Lake Superior Basin Biosphere Feasibility Study

- Binational Program to Restore & Protect the Lake Superior Basin (LSBP)
- LSBP Special Designations Committee (BR action plan)
  - Design and conduct BR feasibility study:
    - Parks Canada
    - Nat. Park Service
    - Univ. of Waterloo
    - Contractors

- Isle Royale BR
- Association of Protected Areas Managers
- Lake Superior Forum (stakeholders responsive to LSBP)
- Consortium of basin colleges and universities
- Communities with sustainable development initiatives
- Ojibwa communities

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LSBP formal lines of empowerment

U.S. MAB line of empowerment
(Canada MAB through Univ. Waterloo)

Advisory lines

Educational lines
Some Potential Biosphere Reserve Functional Sites in Lake Superior Basin:

(a) Remediation (7 sites)
- 1. Rossport, Ont.
- 3. Bayfield Peninsula, Wis.

(b) Sustainability demonstrations--
- 1. Rossport, Ont.
- 3. Bayfield Peninsula, Wis.

See Summary and Highlights Lake Superior Binational Program for project descriptions.
Because of its natural biodiversity and desirability as a place to live, the San Diego-Tijuana region is faced with the challenges of balancing the need to protect natural resources and providing land required for future growth. Three subregional habitat conservation programs have been initiated to help promote ecologically sustainable development in San Diego. They are the City of San Diego's multiple species conservation program (MSCP), the North County Multiple habitat Conservation program (MHCP) and the County of San Diego Multiple Habitat Conservation and Open Space Program (MHCOS). As these programs have developed the need for a multistakeholder ecosystem management design has developed which would allow for the design of a neutral, multidisciplinary, multiactor process for guiding and integrating research and ecosystem management in a whole regional ecosystem. A Man in the Biosphere preserve which links and provides coordination for conservation and sustainable development systems across along the international border is critical to the ecosystem health of this bioregion.

The Tijuana River watershed is approximately 1700 sq. miles (1,088,000 acres) in size. It straddles the US-Mexico Border with about 70% in Mexico. It extends from the Laguna Mts (U.S.) and Sierra de Juarez (Mexico) some 60 miles inland at elevations of 6000 feet to the estuary on the Pacific Ocean, just north of the international border. Major drainage is through the Cottonwood creek and Pine Creek in the US. and the Rio Las Palmas system in Mexico. The proposed core area is composed of two designated wilderness areas - Pine Creek Wilderness (13,100 acres), Hauser Wilderness (8000 acres) and core-rehabilitation area - the Tijuana National Wildlife Refuge (2700 acres). The zone of managed use includes National forest and Wildlife reserves. Less than 5% of the area is urbanized (Imperial Beach, pop. 15,000; San Ysidro, 5000; Tijuana 1 million; Tecate 50,000). The remainder is either sparsely populated with scattered ranches and groups of indigenous (Kumeyaay, Pai Pai) people or remote wilderness areas. The high biodiversity of San Diego County results from the peculiarities and diversity of topography, climate, and soil found in the region. The county includes over 1,740 plant taxa, 80 mammalian species, 435 bird species, 75 reptile and amphibian species, 125 butterfly species, and perhaps 10,000-20,000 other terrestrial and aquatic invertebrate species. The county also supports a wide range of habitats, including 23 major vegetation types and 51 plant communities. In the MSCP 12 major habitats are considered sensitive by federal, state and local agencies because they have been severely reduced in distribution as a result of urbanization. San Diego County contains approximately 200 plant and animal species that are federally and / or state endangered, threatened, rare, or proposed or candidates for listing. No other subregion of the continental US. supports as many listed and candidate species as the MSCP study area. Major areas of very high habitat value are found along the border in the Tijuana watershed and the Otay watershed.

In cooperation with Southwest Center for Environmental Research and Policy and San Diego State University, Universidad Autonoma de Baja California, Colegio de la Frontera Norte, Habitat Integral, S.C.
PARTICIPATION

The proposal has been developed initially by the Tijuana River National Estuarine Research Reserve and recently by a small grant from the EPA through SCERP at San Diego State University by Fred Cagle, Kaare Kjos, US. A., and Luis Sanchez de Carmona in Mexico.

- Major Stakeholders
- Cluster Biosphere Regional Associations:
  - Anza Borrego State Park (on eastern boundary of the watershed)
  - Gulf of Northern California Biosphere Reserve
  - San Pedro Martir proposed biosphere reserve
  - Sonoran and Pinacates reserves
  - Transpennissular Reserve and Pacific Crest Trail.
  - San Diego National Wildlife Refuge-Otay Sweetwater Unit
  - San Diego South Bay Wildlife Refuge

- Research proposals submitted for the Watershed
- Research in progress at the Pacific Estuarine Research Laboratory
- Other research in the area

- Tijuana Estuary Management Authority - basic management design will be expanded to a multistakeholder design.
Increasing stakeholder involvement

Increasing stakeholder decision making authority

ISSUES

- MAB is seen as a neutral facilitator of information and planning of the relationship between MSCP-MHCP and Mexico conservation
- Coordination of available scientific information in a format for decision makers multiple jurisdictions
- Use of GIS to coordinate information available along the border TRIP, DOI NAFTA defines the border as a 65mi (100km) area which is included in the BECC NADbank funding design, also EPA Border 21 covers the same area. BECC has designed a Sustainability criteria as part of its funding requirements and sustainable development in involved in the MSCP design.
- The increase in decentralization in Mexico and the US is going to require a stronger local design to ensure communication and a sustainable ecosystem.
- Great need for coordination of international research.

PROBLEMS ENCOUNTERED

- The public wants action, not more studies, and people ask "why support this endeavor?"
- Previously Protected areas also ask why they should support another level of a Biosphere Preserve does it add any more protection?
- Private property advocates see any preserve as interference with their ability to develop property.

RECOMMENDATIONS TO MAB

- Perhaps one could reserve group could assume the responsibility of networking the research and plans for the rest of the clustered network?
- More information should be made available on the advantages of a MAB umbrella specifically directed toward the subjects of local control, private property, rights and coordination of the complex interactions between stakeholders.
Introduction

The "Crown of the Continent" encompasses the mountains, valleys and prairies where Montana, Alberta and British Columbia meet. This transborder region of North America’s Rocky Mountains was named the "Crown of the Continent" in 1885 by George Bird Grinnell, an explorer and early advocate for the protection of the area.

There are three biosphere reserves in the Crown of the Continent area:

- Glacier National Park in Montana, approximately 1,001,300 acres that straddle the Continental Divide and has as its northern border the provinces of Alberta and British Columbia.

- Waterton Lakes National Park in Alberta, approximately 220,000 acres that is bounded to the east by the Continental Divide and British Columbia and on the south by Glacier National Park.

- Coram Experimental Forest in Montana, 7460 acres of National Forest land in Montana that lays west of the Continental Divide and less than 10 kilometers from Glacier National Park.

By UNESCO classification, these three Biosphere Reserves, are categorized as mixed mountain systems with complex zonation in the Rocky Mountain biogeographic province. They encompass and are surrounded by one of the most ecologically intact temperate ecosystems remaining in the world. This ecosystem also includes the largest wilderness area complex in the 48 contiguous states and British Columbia’s newest provincial park. Millions of acres of this ecosystem remain essentially wilderness in character.

While there is no formal committee that coordinates the Man and Biosphere activities of these three biosphere reserves, there exists a long history of cooperation among them on resource management, environmental education, and research.

This paper briefly outlines selective partnering efforts between Crown of the Continent Biosphere Reserves and their neighbors. Additional discussion of these and other partnering efforts can be found in the recent publication: "Biosphere Reserves in Action" (US Man and the Biosphere Program, 1995, pages 32-36)
Partnership Efforts

Burlington Northern Environmental Stewardship Area

The Burlington Northern Railroad’s mainline crosses the continental divide along the southern boundary of Glacier National Park. US Highway 2 and approximately 25,000 acres of private land also lay within this 60 mile corridor. To the south of the corridor are lands managed by the US Forest Service including the 1.5 million acre Bob Marshall Wilderness Complex.

In 1992 land managers and private landowners with responsibility for the corridor formed the Burlington Northern Environmental Stewardship Area partnership (BNESA). The goal was to create an operationally and environmentally safe and compatible rail corridor. Within this area, the railroad has agreed to pay particular attention to the operation and maintenance of the railroad system because of the area’s importance to several threatened and endangered species including grizzly bears, wolves, and bald eagles.

Partners include Burlington Northern, the National Park Service, US Forest Service, Montana Department of Fish, Wildlife and Parks, local government, private landowners and the Flathead Land Trust. The BNESA group meets biannually, or more frequently if necessary, to discuss issues of mutual concern and to form strategies for their resolution.

An early accomplishment prompted by BNESA was the railroads effort to clean up and reclaim areas along the tracks where past derailments had resulted in grain spills. It is estimated that at least 14 grizzly bears had been killed as the result of their attraction to such spills. The railroad, with agency help, has also implemented a revised set of operating instructions for the corridor and has begun an education program for their staff regarding this area’s environmental significance.

Other accomplishments include:

- Cooperative funding of a bear management biologist who works to reduce bear attractions within the corridor. This biologist's accomplishments include cooperative funding of bear proof dumpsters on private lands, and the initiation of programs for school groups, agencies, and landowners on how to live and work in Grizzly country.

- Using the Park’s GIS, maps were produced that correlate by both highway and road mile the closest rail access from US Highway 2. These maps are carried by both railroad and local disaster officials and should allow quicker on the ground response to future spills and other emergencies.

- The establishment of a BNESA trust fund to help meet future
needs identified by this partnership. Partners have set the goal of raising a million dollars for this fund. Funds are managed by the Flathead Land Trust.

**Canyon Citizen Initiated Zoning**

In 1992, landowners living in the Canyon area that forms the western entrance to Glacier National Park came together to form the Canyon Citizen Initiated Zoning Group. Their goal was to prepare a locally written land use plan that would protect environmental values, preserve rural lifestyle and provide for well planned growth.

The CCIZ group hired a professional planner to work with them over a 2 year period. Glacier National Park was a significant player in the fund raising needed for this effort, and the CCIZ was eventually successful in raising over $60,000. Contributors included the Montana Department of Highways, the World Wildlife Fund, Flathead County, Burlington Northern Railroad, the Flathead Economic Development Corporation, The US Department of Agriculture, local citizens and others. In-kind support was provided by Glacier National Park (use of GIS, resource data) and by the Flathead National Forest (office space, resource data).

Before the plan was completed nearly 30 meetings were held among local citizens and the planner to discuss options and alternatives, and review the plan in its various stages. Flathead County has now adopted the "Canyon Plan" as an amendment to it's Master Plan and implementing regulations have been adopted for two-thirds of the Canyon area.

The Canyon Land Use Plan and its implementing regulations set minimum acreage limits for future subdivisions, define incompatible businesses, and encourage the maintenance of open space through incentives for cluster development. The Plan and accompanying regulations also provide for 3 neighborhood groups (for the three separate geographic areas identified in the plan) to advise Flathead County on proposed developments that fall within the scope of the plan. The plan also provides for a natural resource advisory committee that includes officials of both the Flathead National Forest and Glacier National Park.

As with nearly all such efforts today, the Canyon Planning Process attracted opposition from property rights advocates and those opposing expansion of government regulations. This opposition was successful in having the implementing regulations rejected for the lower 1/3 of the Canyon area (by petition from 40% of the landowners). The broad-based citizen driven nature of this effort was critical to the adoption of the implementing regulations for the upper 2/3 of the Canyon area.
The Flathead Basin Commission (FBC) was established by the Montana Legislature in 1983 to protect the high quality of Flathead Lake and its tributaries. Two of these tributaries, the North and Middle Forks of the Flathead River form the western and southern boundaries of Glacier National Park. Public concern regarding the impacts of a proposed British Columbia coal mine to the Park and Flathead Lake provided substantial impetus for the establishment of this commission.

The Flathead Basin Commission is charged with promoting the preservation of the basin's resources without sacrificing economic opportunities. Commission members, including ex-officio members and liaisons, include representatives of Montana's Governor's Office, British Columbia's Premier, all of the major Federal and State agencies with land management responsibility in the basin, tribal representatives, hydropower interests, and citizen appointees.

The combination of the Flathead Basin Commission's mission and membership make it the external forum most closely resembling a Man and Biosphere Committee for Glacier National Park core area. Over the past decade the Commission has evolved into an important forum for sustainable economy and ecosystems on lands around the Park. Some of its accomplishments include:

- Prevailing upon the Federal Governments in both the United States and Canada to have the International Joint Commission (IJC) assess the transboundary impacts of the proposed Sage Creek coal mine in British Columbia. The Biosphere Reserve designations for Waterton and Glacier were important factors in the IJC's recommendation that US and Canada jointly develop strategies for "compatible, equitable, and sustainable activities in the drainage."

- Subsequent to the IJC's decision, the Commission developed consensus on a public/private sector strategic management plan for the US portion of the drainage.

- Implementing a multiagency water quality monitoring program for the basin. Recently, this monitoring program has been expanded to include a citizen based "volunteer" monitoring program for selected lakes in the basin.

- Supporting through public education the implementation of a phosphorus detergent ban in the basin and the requirement that all waste water treatment plants in the basins treat effluents to a tertiary standard.

- Raising the funds for a scientific assessment of the impacts of timber harvest activities on water quality and establishing a Scientific Round Table to advise the Commission and basin citizens regarding the basis for potential threats to the basins social, economic and natural environments.
The Crown of the Continent Electronic Data Atlas

One of the newest partnership efforts that involves all three of the Crown's Biosphere Reserves is the Crown of the Continent Electronic Data Atlas. The atlas is a computerized repository of environmental information for the area. Data is being stored and organized as geographic information system layers and will be made available to all those with an interest in this magnificent ecosystem including: industry, government agencies, university personnel, consultants and conservation organizations.

The atlas is coordinated by two Canadians with offices at the University of Calgary and is funded by government agencies, industry, universities and conservation organizations active in the region.

A goal of this project is help promote sustainable development by providing a reliable information base regarding the location of sensitive resources, ecosystem relationships and habitat fragmentation. Initial efforts are focusing on the location and integration of existing information and the identification of where data gaps exist.

Waterton-Glacier International Peace Park

The establishment of Glacier and Waterton as an International Peace Park was a joint project of the Rotarians of Montana and Alberta in 1931. Within a year the governments of both Canada and the United States had passed respective legislation establishing this area as a place to "permanently commemorate the longstanding peace and goodwill between the peoples of these two great nations".

Recently, the Rotarians in association with park managers have initiated an effort to discontinue the clearing of the boundary swath that separates the two parks. This will require that the US-Canada Treaty of 1925 be modified.

Removal of the boundary swath would underscore the Parks goals of preserving a naturally functioning ecosystem where natural processes are permitted to shape native plant and animal communities. Removal would also compliment the International Biosphere Reserve status shared by the two parks.

This past summer the superintendents of Glacier and Waterton Lakes National Parks held a conference to explore how Peace Park concept could be strengthened through the management of this area. Participants felt that Waterton and Glacier should better demonstrate through public education the advantages of cooperative resource management efforts that spans the international border and encompasses both the sharing of staff as well as technical knowledge.
Waterton’s Superintendent suggested that the group adopt the following mission statement:

"The International Peace Park is a celebration of Waterton and Glacier and their neighbors working together in harmony to resolve conflict and promote friendship and understanding in sustaining the larger regional ecosystem through our actions and to celebrate the dynamics of peace to the world."
WORKSHOP 1: COMMUNICATION

OBJECTIVES

- Facilitate BRs' access to data, information and publications so that information about USBRs, research results, and management experience are more widely shared
- Strengthen domestic and international cooperation with other programs and institutions having complementary objectives

ACTIONS AND ISSUES

1. Hold regular meetings of BR managers and stakeholders to share experience
2. Update USBR directory of programs, facilities, and contacts
3. Sponsor forums to help USBR managers and stakeholders explore topics, problems, and areas of opportunity
4. Strengthen communication among USBRs via
   4a. a global electronic network (e.g., Internet)
   4b. existing USMAB electronic bulletin board
   4c. biosphere reserve newsletter
   4d. USBR magazine
   4e. UNESCO InfoMAB publication
   4f. Other Specify: _______________________
5. Develop communication tools and use public media cooperatively with other institutions for better communication with BR stakeholders
6. Encourage linkages of the U.S. BR Program with national and international programs concerned with biodiversity, sustainable development, and regional and global change (e.g., state heritage programs, bioreserves program (TNC), NSF's long-term ecological research program (NSF), U.S. Global Change Research Program, Project Globe, Partners in Flight, Biodiversity Clearinghouse)
7. Encourage participation of USBRs in MAB's International Networks (e.g., MABNet, Northern Science Network)
   7a. Increase USBR participation in MABFlora/MABFauna
   7b. Increase USBR participation in BioMon
8. Facilitate pairing among U.S. BRs
9. Facilitate pairing of USBRs with BRs in other countries
10. Other

WORKSHOP PRODUCT: List of prioritized actions and related responsibilities, human resource requirements, and funding opportunities for building a more effective USBR Network during the next 2 years.
WORKSHOP 2: EDUCATION AND TRAINING

OBJECTIVE
- Build BRs as showcases fostering public understanding of the evolution of natural and human systems in BRs' biogeocultural areas
- Develop BRs as resource centers for training, education, and dialogue relating to conservation and sustainable development

ACTIONS AND ISSUES

( ) 1. Develop public media to support the USBR Program

( ) 2. Showcase BRs that best exemplify USBR Program goals

( ) 3. Facilitate exchanges of personnel and stakeholders among BRs and between BRs and other areas concerned with ecosystem management and sustainable development

( ) 4. Encourage coordination of technical and financial support among BR stakeholders for public awareness and education

( ) 5. Undertake public awareness programs on changing relationships between nature, cultural values, and economic development

( ) 6. Cooperate with academia and local schools to incorporate MAB concepts and information from BR programs into educational materials and curricula on conservation and development issues

( ) 7. Train BR staff and stakeholders in community relations skills, partnership development, and conflict resolution

( ) 8. Educate BR staff and stakeholders about ecosystem management and sustainable cultural and economic development using BRs as educational laboratories

( ) 9. Other

WORKSHOP PRODUCT

List of prioritized actions and related responsibilities, human resource requirements, and funding opportunities for supporting public awareness of the USBR Program, public education and outreach in BRs, and training of BR staff and stakeholders during the next 2 years.
WORKSHOP 3: FILLING GAPS

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 BR roles.

ACTIONS AND ISSUES

1. Identify desired BR characteristics and provide guidelines for planning, organization, and management, and coordination of BRs.
2. Interpret UNESCO selection criteria and statutes for BRs in U.S. context and desired BR characteristics.
3. Review the status of the USBR Network, evaluate approaches, and identify successful models for implementing the MAB concept.
4. Ensure USBR network adequately represents the U.S. terrestrial and coastal/marine biogeographic provinces and their associated cultural and economic systems (i.e., filling "biogeocultural" gaps).
5. Develop standards for evaluating the progress of USBRs in implementing MAB concepts to facilitate recommendations on improving performance (i.e., filling gaps in functions).
6. Encourage voluntary consolidation of existing BRs to form regional BRs.
7. Encourage the voluntary addition of sites to regional BRs in order to recognize and encourage their participation in cooperative BR programs and facilitate ecosystem management.
8. Other

WORKSHOP PRODUCT

List of prioritized actions and related responsibilities, human resource requirements, and funding opportunities for identifying and filling gaps (biogeocultural and functional) in the USBR network during the next 2 years.
WORKSHOP 4: LOCAL PARTICIPATION

OBJECTIVE: Plan and implement cooperative organizations, mechanisms, and processes that enable all BR stakeholders within the zone of cooperation to participate in conserving biological diversity, promoting compatible economic uses, and sustaining cultural values

ACTIONS AND ISSUES

(   ) 1. Identify potential stakeholders in BR

(   ) 2. Assess approaches being used to encourage participation of scientific, environmental, economic, and cultural interests, and local citizens in cooperative ecosystem management, and provide guidance to BRs

(   ) 3. Support local application of techniques and methods of cooperation used successfully elsewhere.

(   ) 4. Encourage stakeholders, including local citizens and traditional resource users, to participate fully in identifying issues of concern relating to conservation and development

(   ) 5. Encourage stakeholders to participate in establishing cooperative BR programs, organizations, and mechanisms that enable consideration of different positions in building consensus on conservation and development issues

(   ) 6. Facilitate catalytic financial support for sustainable local economic development activities (e.g., ecotourism, sustainable agriculture)

(   ) 7. Provide guidance for considering the physical, biological, and human environment in identifying a BR zone of cooperation that optimizes opportunities for local participation

(   ) 8. Other

WORKSHOP PRODUCTS

List of incentives to encourage participation and support of local citizens within the BR zone of cooperation

List of prioritized actions and related responsibilities, human resource requirements, and funding opportunities for encouraging local cooperative organizations, mechanisms, and processes for implementing MAB concepts.
WORKSHOP 5: OPERATIONAL FRAMEWORK

OBJECTIVES

Encourage integration of the USBR Network as an essential component of the USMAB Program

Encourage recognition and support for BRs in government, the private sector, and among the general public

Identify ways to increase availability of human and financial resources to support the USBR Program at the national and local levels

ACTIONS AND ISSUES

1. Annual meeting of all MAB Directorates to review program accomplishments and develop an integrated MAB Program

2. Encourage use of BRs for USMAB research projects

3. Strengthen communication between USMAB research projects, regional MAB organizations, and BR managers

4. Promote USBR Program in Administration policies and strategic planning in such areas as biodiversity, global change, ecosystem management, and improving government performance

5. Encourage agencies participating in MAB to identify a coordinator and to emphasize BRs in agency plans, programs, and budget formulations

6. Allocate USMAB funds for activities involving USBRs, wherever possible on a cost-sharing basis

7. Encourage donor organizations to support international activities involving USBRs

8. Cooperate with UNESCO MAB Secretariat to coordinate support for USBR participation in international programs

9. Establish framework for private sector participation (e.g., national or local MAB foundation(s), USMAB Advisory Committee, new NGO or alliance of existing NGOs for MAB)

10. Increase private sector funding and fund-raising efforts

11. Develop aggressive marketing strategy

12. Identify the roles and responsibilities of BR managers
13. Each BR to appoint MAB coordinator to coordinate on-site activities and represent BR in regional & national MAB

14. Participants in regional MAB programs should appoint a coordinator and provide human & financial resources

15. Other

WORKSHOP PRODUCT

List of prioritized actions and related responsibilities, human resource requirements, and funding opportunities for strengthening organizational framework for MAB and the USBR Program at the national, regional, and BR site levels during the next 2 years.
WORKSHOP 6: RESEARCH AND MONITORING

OBJECTIVE:

To develop recommendations for improved integration of U.S. MAB Research Directorate programs with the objectives of the Strategic Plan for the U.S. Biosphere Reserve Program.

BACKGROUND AND ISSUES:

In 1989, U.S. MAB established five Research Directorates to conduct multiyear research projects on practical policy and management issues supporting the U.S. MAB program mission. Four of the Research Directorates are organized geographically covering the high latitudes, temperate, tropical and marine and coastal ecosystems. In addition, the Human-Dominated Systems Directorate focuses on significantly altered environments. Each of the Research Directorates has developed a core research program which has been approved by the MAB National Committee as addressing an important management issue in the region encompassed by the Directorate. The Research Directorates core projects are as follows:

High Latitude Ecosystems: "Human-Environment Interactions and Institutional Frameworks: Alternative Caribou Management Systems in the Arctic";

Marine and Coastal Ecosystems: "Ecological and Socioeconomic Impacts of Alternative Access Management Strategies in Marine Protected Areas";

Temperate Ecosystems Directorate: "Land Use Patterns in the Olympic and Southern Appalachian Biosphere Reserves: Implications for Long Term Sustainable Development and Environmental Vitality";

Tropical Ecosystems Directorate: "A Regional Approach for Sustainable Development and the Conservation of Natural Resources in the Maya Tri-National Region of Belize, Guatemala, and Mexico";

Human Dominated Systems: "Ecological Sustainability and Human Institutions: Case Studies of Three Biosphere Reserves"
Each of the Research Directorates is at a different stages of completion of their core projects. Typically each Directorate plans for three years of funding for Phase I of their project, and may approach the National Committee for Phase II funding to support continuation or modification of the core effort.

With the establishment of the Biosphere Reserve Directorate and the publication of the "Strategic Plan for the U.S. Biosphere Reserve Program", the opportunity now exists for Biosphere Reserve managers to coordinate with their counterparts in the Research Directorates to consider how the management objectives, as defined in the Strategic Plan, may be more effectively addressed through the work of the Research Directorates. These improvements may take many forms, from enhanced communication to integrated Research/BR Directorate core project planning to recommendations on reorganizing the MAB Directorate and National Committee structure. The purpose of this breakout session is to think boldly and expansively with the intent of designing a constructive and pragmatic course of action to improve overall MAB program effectiveness.

Section IV of the Strategic plan addresses the research strategy of the Biosphere Reserve Program. The strategy calls for "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 BR's, and 3) promoting individual BR research programs that integrate natural and social sciences to address practical policy and management issues".

The Strategic Plan identifies specific objectives for the BR Directorate and the individual Biosphere Reserves. However the only reference to the other five of the six MAB Directorates is a statement that the BR Directorate should cooperate with the MAB Research Directorates to promote interdisciplinary research. In this session we will begin to explore how that cooperative effort among MAB Directorates may be most effective.
STRATEGIES FOR IMPROVED INTEGRATION OF RESEARCH DIRECTORATE PROGRAMS WITH THE OBJECTIVES OF THE STRATEGIC PLAN

As existing research core projects approach completion there is an opportunity to devise new approaches to the decision making process for future MAB investment in the Research Directorates. Below are three possible directions to consider in developing recommendations for better MAB Directorate cooperation. They are listed as starting points for the work group discussion.

Improved Communication:
- improved reporting of research activities through the MAB bulletin
- specific core research project meetings with BR managers
- BR manager presence as members of research Directorates
- identification of and communication of research results to all BR managers in the biogeographic zone

Core Research Planning Participation:
- identify interested BR managers to assist in new core project identification
- request list of issues from managers for core project topics
- include managers in project design to meet management needs
- focus on research agenda as defined in the Biosphere Reserve Strategic Plan
- require core projects to produce documents/products designed specifically as lessons or guidance to management community as a result of the study

Directorate Organization
- evaluate the current Research Directorate biogeographic organization
- consider functional Directorate alignment (e.g., Strategic plan elements of education, communication, local participation, monitoring etc.)
- consider biogeographic MAB Biosphere Reserve Directorates.
APPENDIX

ISSUES ABSTRACTED FROM THE STRATEGIC PLAN FOR RESEARCH

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

RECOMMENDED ACTIONS:

1. Integrate MAB natural and social science research with BR cooperative programs.

2. Develop mechanisms to identify research needs BRs can address at ecosystem, landscape, regional, and global scales. Options include:
   2a. forums;
   2b. *coordination with large scale research initiatives (LTER, GTOS, FLED, etc.)

3. Synthesize and disseminate information on existing and planned research, inventory, and monitoring programs at USBRs.

4. Establish working groups to identify and document available databases and facilitate access by USBRs. Elements might include:
   4a. *Develop a searchable registry of projects and databases;
   4b. *Support the development of metadata and data transfer standards;
   4c. *Participate in, and make use of standard setting efforts (e.g. Flora of North America, Federal Geographic Data Committee, National Biological Information Infrastructure, Interagency Taxonomic Information System)

5. Establish committees to evaluate protocols and procedures for interdisciplinary research and recommend approaches applicable to BRs.

6. Develop and implement a basic inventory and monitoring program for ecological and sociocultural data.

7. Plan and conduct multidisciplinary research programs on
   7a. biodiversity
   7b. sustainable development
   7c. regional and global change
   7d. ecosystem management compatible with social and economic uses.

*suggested additional points under elements of the strategic plan.
Research and Monitoring Workgroup

Goal
Improve integration of Research and Biosphere Reserve Directorate programs and objectives

Issue
Biosphere Reserve Directorate and BR managers are not well informed of Research Directorate programs or opportunities for participation. Each Research Directorate has taken a different approach in involving management in the development and implementation of the core projects and as a result there is a lack of consistency and process for participation in core research projects.

Recommendations
1. Meetings of Directorate program chairs
Specific time should be set aside within the agenda of the National committee meetings for the Directorate chairs to meet and discuss cooperative planning and cross Directorate collaboration on core projects. The MAB Secretariat office should set aside funds to support inter-Directorate activities.

2. Project Decision Plan
The National Committee should work with the Directorates to identify core project milestones and determine how best to plan phasing of the projects to spread core project costs across Directorate programs. The planning milestones should also identify specific opportunities for management input to guide decisions on the scope and direction of the research projects. as part of the planning process, The Biosphere Reserve Directorate should take the lead on identifying future core research topics by conducting a survey of Biosphere Reserve managers to identify key issues.

3. Guidelines for Management Involvement
The Biosphere Reserve Directorate should develop in coordination with the Research Directorates a set of guidelines that describe how the management community may become more actively involved in the planning, implementation and evaluation of core research projects. Each core project should be designed to have direct applicability to management needs and preferably have one or more specific products designed to directly support management.

4. Long Range Funding Plan
A long range funding plan on a 5 year time horizon should be developed to avoid the possible boom-bust cycle of simultaneous core project fund requirements. The Directorates should provide to the National Committee an
assessment of their long range funding needs so that the Committee can plan appropriately identify needs to MAB sponsor agencies.

5. Improved Communications
Core project reports and information should be developed periodically for distribution to the Biosphere Reserve managers. The Biosphere Reserve Directorate should improve its efforts to communicate Directorate activities to the Reserves and facilitate communication among reserves.
EDUCATION AND TRAINING WORKSHOP REPORT

OBJECTIVE: BUILD UNDERSTANDING OF A VOLUNTARY CONCEPT DEVELOPED AND APPLIED LOCALLY WHICH PROMOTES CONSERVATION AND ECONOMIC PROBLEM SOLVING, CELEBRATES SENSE OF PLACE, CONNECTIVITY AND RELEVANCE.

THE STRATEGY for implementation is to forge a frontal attack through aggressive presentation of message at all levels which present biosphere reserves as an effective model to deal with environment and development issues in a non-confrontational, democratic, decentralized and respectful way through full partnership of all stakeholders.

THE ACTIONS necessary will be carried out at several levels, as follows:

Stakeholders

- Develop story in local lingo (simple, anecdotal, personal, specific).

- Celebrate the local story (community and cultural context).

- THE story is the local issues of our community (citizens) and what we are doing about them.

- The story is conveyed by local leaders who act as catalysts to achieve action. GOAL: Local management of resources, shared sense of community and responsibility, consensus on shared values, pooled commitment of resources for good of community.

Biosphere Reserve Staffs

- Participate in "train the trainers" sessions.

- Disseminate experience amongst other biosphere reserves.

- Utilize e:mail and brown bag seminars to improve internal sharing and communication.

MAB (Washington)

- Provide philosophical underpinnings (written material, speakers, networking).

- Facilitate "train the trainers" session at annual meetings.
- Collect and distribute case studies (vignettes).

- See that national media opportunities occur (i.e. Patagonia-type, Island Press, National Geographic).

- Ensure coordination amongst Biosphere Reserves.

- Collate and share scientific information and show applicability of results.
OBJECTIVES

Encourage integration of the USBR Network as an essential component of the USMAB Program

Encourage recognition and support for BR’s in government, the private sector, and among the general public

Identify ways to increase availability of human and financial resources to support the USBR Program at the national and local levels

ISSUES (in priority) AND (recommended) ACTIONS

1. Identify authorities and roles and responsibilities of BR managers

   - Develop a clear written statement of the role, function, and responsibilities of agency and organizational managers of BR’s

   - Develop and circulate a joint statement of legal authorities addressing the scope of current and projected activities of federal BR management agencies conducted under the auspices of the USMAB. This should specifically distinguish between international and domestic program activities

   - Disseminate information on the roles & responsibilities of BR management agencies & organizations as well as a statement of the rights and opportunities of effected or interested parties

2A. Strengthen communication between USMAB research projects

   - Plug into the communications group

   - One on one

2B. Promote AN AWARENESS OF THE USBR Program in THE Administration AND AGENCIES TO SUPPORT POLICY DEVELOPMENT, and strategic planning in such areas as biodiversity, global change, ecosystem management, and improving government performance

*NOTE: Language redundant with objective #2
- Network with "communication group"

- Find ways to network within existing groups. Include field level and Washington Office agency contacts

- Provide information to "leaders who can work with the Congress, etc.

- Find the right "point" person or group to suit the occasion

2C. Encourage agencies participating in MAB to ESTABLISH A CLEAR ORGANIZATIONAL FRAMEWORK PARTICIPATION and to emphasize BR’s in agency plans, programs, and budget formulations

- Utilize existing partnerships and frameworks whenever appropriate
  (Site specific issues)
  (Other agencies - NGO’s, etc.)

- Develop MOU’s - coop. agreements, for accomplishing specific tasks

2D. Establish framework for private sector participation (e.g., national or local MAB foundations, USMAB Advisory Committee, new NGO or alliance of existing NGO’s for MAB)

- Clarify levels (type) of authority to engage in BR Program related activities for federal, state, local government managers as well as NGO BR managers

- Clarify a particular managers role and constraints associated with a given situation

- Articulate specific guidance to federal managers with regard to FACA, NEPA, rulemaking, etc. when engaged in USMAB related domestic and/or international activities

- Conduct a training course in the effective use of these authorities and other tools to facilitate USMAB Programs and BR management

3. Encourage the use of BR’s for USMAB research Projects

- Emphasize the continuity of the areas - (protected, managed status, etc.)

- Provide in kind contributions such as housing, facilities, equipment, etc.

- Emphasize multi agency mutual benefits
identify research needs/plans
utilize permits to facilitate multi agency coordination

- Emphasize uniqueness of BR to attract research interest
- Encourage support for needed cultural and social science research

4. Annual meeting of all MAB Directorates to review program accomplishments and develop an integrated MAB Program
   - Prepare list of expected meeting products prior to the meeting
   - Clarify role and duration of MAB directorates

5. Cooperate with UNESCO MAB Secretariat to coordinate support for USBR participation in international programs
   - Get domestic house in order first

6. Increase private sector funding and fund-raising efforts
   - Study examples of successful initiatives to examine their beginnings (e.g. SAMAB, ISDH (Harold, Hubert))
   - Establish framework in Directorate to seek private funds (Newt)

7. Allocate USMAB funds for activities involving USBRs, wherever possible on a cost-sharing basis (note: is this automatic)
   - Familiarization with grant institutions
   - Most bang for buck decision

8(a). Encourage donor organizations to support international activities
   - Maintain existing international donors
   - Focus on developing new donors for domestic activities

8(b) Develop aggressive marketing strategy
   - Link strongly within all communication networks
   - Continue with activities like BR brochures, etc.

8(c) Each BR to appoint MAB coordinator to coordinate on-site activities and represent BR in regional and national MAB
   - This is already the BR Manager in most cases. Each BR needs
to address coordination effectively consistent with local circumstances

9. Participants in regional MAB programs should appoint a coordinator and provide human and financial resources

10. Other

- Maintain an organizational framework/atmosphere to support USMAB objectives and participation in USMAB Programs

- Change existing paradigm. Empower local Reserve Managers. Give them the goal. Let them determine the best way to get the job done
Objectives

- Improve NPS understanding of the values and obligations of having parks designated biosphere reserves or identified under other international programs

- Increase NPS participation in biosphere reserve and other MAB programs at all levels of the NPS organization

- Clarify NPS MAB and biosphere reserve responsibilities at all levels of the NPS organization

Issues to Consider

( ) 1. Utility of international designations in protecting parks

( ) 2. Legal authorities, treaty obligations re international programs

( ) 3. Public concerns, misunderstandings about parks displaying the U.N. designation

( ) 4. FACA and any other legal problems, opportunities being faced as parks participate in biosphere reserve programs

( ) 5. Applicability of U.S. biosphere reserve strategic plan activities to park management

( ) 6. NPS responsibilities as a member of U.S. MAB and a participant in all appropriate U.S. MAB programs, including biosphere reserves

( ) 7. NPS membership on the biosphere reserve directorate

( ) 8. NPS strategic plan to implement NPS responsibilities as a member of U.S. MAB and its programs

( ) 9. Park, FDO/SSO/Cluster, WASO duties for carrying out NPS responsibilities as a member of the U.S. MAB program

( ) 10. Other

Desired Products

( ) 1. Nomination of NPS biosphere reserve managers to the biosphere reserve directorate

( ) 2. Process and assignments for developing an NPS implementation plan for NPS managed biosphere reserves and NPS participation in biosphere reserve cooperatives

( ) 3. Assignment of NPS MAB responsibilities

( ) 4. Other
Thanks for your willingness to give -- or to consider giving -- a brief presentation on your biosphere reserve program or biosphere reserve proposal at the Biosphere Reserve Managers' Workshop. We are tentatively scheduling six presentations for the afternoon plenary session, and the remainder for an evening concurrent session, on October 30 (preliminary agenda attached).
Regardless of whether you make an oral presentation, we ask you to prepare a brief written summary of the status of your biosphere reserve program or proposal according to the following outline. Maximum length should be no more than 3 pages (use bullets to highlight points, as appropriate). Please be sure to attach a diagram showing the organization or coordinating mechanism for your biosphere reserve program or proposed biosphere reserve. We will include copies of the summaries in the workshop materials provided to participants at registration. PLEASE FAX YOUR SUMMARY BY C.O.B. THURSDAY, OCTOBER 26 to (202) 208-7275.

I look forward to seeing you at the workshop.

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CASE STUDY PRESENTATIONS

SUGGESTED OUTLINE: **EXISTING BIOSPHERE RESERVES**

INTRODUCTION. Brief description of the biosphere reserve, the important issues of concern to local "stakeholders", and how the biosphere reserve concept is influencing cooperation.

ORGANIZATION. Who is involved and how they are organized. (PLEASE ATTACH A DIAGRAM SHOWING THE ORGANIZATION)

ACTIVITIES. How are the stakeholders implementing the goals and objectives of the Strategic Plan for the U.S. Biosphere Reserve Program? What has been accomplished, especially in the last two years since the last managers' workshop held in Colorado in December 1993?

MILESTONES. What activities are planned to implement the strategic plan goals and objectives during the next 2-3 years?

RECOMMENDATIONS TO MAB. How could U.S. MAB and its participating agencies most effectively encourage and facilitate your efforts?
CASE STUDY PRESENTATIONS

SUGGESTED OUTLINE: PROPOSED BIOSPHERE RESERVES

INTRODUCTION. Brief description of the "biogeocultural" region and the proposed biosphere reserve site(s) and the proposed zone of cooperation. Include a map showing the region and candidate sites.

PARTICIPATION. How is the proposal being developed? Who is involved in proposal preparation? Who are the currently identified stakeholders? Have all the stakeholders been identified, consulted, or engaged? Describe the proposed mechanism(s) for cooperation in planning and implementing the biosphere reserve concept. (Attach a diagram of the proposed regional organization, if appropriate)

ISSUES. What are the important issues of concern, identified by local "stakeholders"? How will the proposal help stakeholders address these issues?

PROBLEMS ENCOUNTERED AND LESSONS LEARNED. What problems have been encountered in developing the proposal? How have they been addressed? What lessons have been learned that could help others interested in developing biosphere reserve proposals?

RECOMMENDATIONS TO MAB. How could U.S. MAB most effectively encourage and facilitate your efforts (e.g., additional guidance on particular topics, media, participation of existing biosphere reserves, facilitation of efforts to engage stakeholders).
Biosphere Reserves Managers’ 1995 Workshop

Biosphere Reserves Managers from across the U.S. as well as representatives from Canada, Mexico, and Germany met October 29-31 in Washington, DC. The workshop was sponsored by the Biosphere Reserves Directorate of the U.S. Man and the Biosphere Program. The purpose of the workshop was to discuss ideas for implementation of the Strategic Plan for the U.S. Biosphere Reserve Program and to improve communication between the research directorates of U.S. MAB and the biosphere reserve managers.

Special speakers at the workshop were Ambassador John Fraser, Chair of Canada MAB and F. Eugene Heater, Deputy Director of the National biological Service. John Reynolds, Deputy Director of the National Park Service.

D. Dean Bibles, Chair of U.S. MAB, announced the creation of a new category of biosphere reserve. The Biosphere Reserve Directorate of U.S. MAB has been charged with developing criteria for nomination of areas to be U.S. National Biosphere Reserves. The designation as a national biosphere reserve would entitle the area to become part of the network of U.S. biosphere reserves but not recognition by UNESCO as part of the international network of biosphere reserves. This category will encourage participation in the principals of the biosphere reserve program among those areas which are interested in the issues of sustainable development, conservation of biodiversity, and sharing of research information, but are uninterested in making an international commitment.

The U.S. designation does not preclude the biosphere reserve from seeking international recognition at a later time.

Michael Ruggiero gave an update of the review of the existing network of U.S. biosphere reserves and identification of areas that should be considered for biosphere reserve status to fulfill the MAB concept for every biogeographic province.

Electronic communication was the topic of several presentations and working groups. John Dennis, as facilitator with the technical expertise of Brand Niemann and Jennifer Gaines explored the Internet. Jim Quinn reviewed the MABFauna database to date and talked with managers about the implementation of the biosphere reserve network electronic connectivity.

The chairs of the U.S. MAB research directorates, with the leadership of Mark Harwell, Chair of the Human-Dominated Systems Directorate, reported on the products of their research and discussed with managers efficient methods of relating research results to management needs. Reporting to the managers in addition to Dr. Harwell were: Jack Kruse, Chair of the High Latitude Ecosystems Directorate; Robert Nalman, Chair of the Temperate Ecosystems Directorate;
John Wilson, Chair of the Tropical Ecosystems Directorate; and Michael Crosby, Chair of the Marine and Coastal Ecosystems Directorate.

Case studies were introduced by William Gregg of the National Biological Service. They were: 
Southern Appalachian Man and the Biosphere Program by Hubert Hinote of the Southern Appalachian MAB Cooperative; 
Sonoran Desert Biosphere Cooperative by Tony Ramon of the Tohono O'odham Nation and Harold Smith of Organ Pipe Cactus National Monument; 
Mammoth Cave Area Biosphere Reserve by Jeff Bradybaugh of Mammoth Cave National Park; 
Colorado Rockies Regional Cooperative by Craig Axtell of Rocky Mountain National Park; 
Proposed Catskills Biosphere Reserve by Janet Crawshaw of The Catskill Center; 
Proposed Lake Superior Basin Multi-Site Biosphere Reserve (U.S.-Canada) by Robert Brander of the National Park Service; 
Proposed Tijuana Watershed (U.S.-Mexico) by Fred Cagle of IMMEDSYS.LTD; 
New Jersey Pinelands by Robert Zampella of the Pinelands Commission; 
Crown of the Continent Biosphere Reserves (U.S.-Canada) by Brace Hayden of Glacier National Park; and 
Proposed Ozark Highlands Biosphere Reserve by David Foster of the Ozark National Scenic Riverways.

Six concurrent topical working groups addressed the subjects of communication, education and training, local participation, operational framework, research and monitoring, and "filling gaps." Though the participants began from different starting points, in their summary presentations all working groups stressed the need for community involvement, communication of the goals of the Man and the Biosphere Program and each biosphere reserve individually to diverse audiences, and communication among biosphere reserve managers. The summaries of the working groups will be available in hard copy from the U.S. MAB Secretariat, and electronically on the U.S. MAB Home Page, http://www.nbs.gov/nbii/mab/ by late January.
The survey results showed that resources (money and staff) needed to enhance BR-related activities.

That did not lead to prescriptions of concern, although many BR's reported expressing the most in the program. Although participating in the program.

The most BR's raised by local citizens.
Seville Strategy for Biosphere Reserves

THE VISION FROM SEVILLE FOR THE 21ST CENTURY

What future does the world face as we move towards the 21st century? Current trends in population growth and distribution, increasing demands for energy and natural resources, globalisation of the economy and the effects of trade patterns on rural areas, the erosion of cultural distinctiveness, centralization and difficulty of access to relevant information, and uneven spread of technological innovations -- all these paint a sobering picture of environment and development prospects in the near future.

The UNCED process laid out the alternative of working towards sustainable development, incorporating care of the environment and greater social equity, including respect for rural communities and their accumulated wisdom. Agenda 21, the Conventions on Biological Diversity, Climate Change, and Desertification, and other multi-lateral agreements, show the way forward at the international level.

But the global community also needs working examples that encapsulate the ideas of UNCED for promoting both conservation and sustainable development. These examples can only work if they express all the social, cultural, spiritual and economic needs of society, and are also based on sound science.

Biosphere reserves offer such models. Rather than forming islands in an increasingly impoverished and chaotic world, they can become theatres for reconciling people and nature, they can bring knowledge of the past to the needs of the future, they can demonstrate how to overcome the problems of the sectoral nature of our institutions. In short, biosphere reserves are much more than just protected areas.

Thus biosphere reserves are poised to take on a new role. Not only will they be a means for the people who live and work within and around them to retain a balanced relationship with the natural world, they will also contribute to the needs of society as a whole by showing a way to a more sustainable future. This is at the heart of our vision for biosphere reserves in the 21st century.

The Seville Conference adopted a two-pronged approach:

• to examine past experience in implementing the innovative concept of the biosphere reserve;

• to look to the future to identify what emphases should now be given to their three functions of conservation, development and logistical support.

The Seville Conference concluded that, in spite of the problems and limitations encountered with the establishment of biosphere reserves, the programme as a whole had been innovative and had had many successes. In particular, the three basic functions would be as valid as ever in the coming years. In the implementation of these functions and in the light of the analysis undertaken, ten key directions were identified by the Conference and which are the foundations of the new Seville Strategy:

1. strengthen the contribution which biosphere reserves make to the implementation of international agreements promoting conservation and sustainable development, especially to the Convention on Biological Diversity and other agreements such as those on climate change, desertification and forests.

2. develop biosphere reserves that include a wide variety of environmental, biological, economic and cultural situations, going from largely undisturbed regions and spreading towards cities. There is a particular potential, and need, to apply the biosphere reserve concept in the coastal/marine environment.
3. strengthen the emerging regional, inter-regional and thematic networks of biosphere reserves as components within the World Network of Biosphere Reserves.

4. reinforce scientific research, monitoring, training and formal education in biosphere reserves since conservation and rational use of resources in these areas require a sound base in the natural and social sciences as well as the humanities. This need is particularly acute in countries where biosphere reserves lack human and financial resources and should receive priority attention.

5. ensure that all zones of biosphere reserves contribute appropriately to conservation, sustainable development and scientific understanding.

6. extend the transition area to embrace large areas suitable for regional approaches such as ecosystem management, and use biosphere reserves to explore and demonstrate approaches to sustainable development at the regional scale. For this, more attention should be given to the transition area.

7. reflect more fully the human dimensions of biosphere reserves. Connections should be made between cultural and biological diversity. Traditional knowledge and genetic resources should be conserved and their role in sustainable development should be recognized and encouraged.

8. promote the management of each biosphere reserve essentially as a "pact" between the local community and society as a whole. Management should be open, evolving and adaptive. Such an approach will help ensure that biosphere reserves -- and their local communities -- are better placed to respond to external political, economic and social pressures.

9. bring together all interest groups and sectors in a partnership approach to biosphere reserves both at site and network levels. Information should flow freely among all concerned.

10. invest in the future. Biosphere reserves should be used to further our understanding of humanity's relationship with the natural world, through programmes of public awareness, information and formal and informal education, based on a long-term, inter-generational perspective.

In sum, biosphere reserves should preserve and generate natural and cultural values through management that is scientifically correct, culturally creative and operationally sustainable. The World Network of Biosphere Reserves, as implemented through the Seville Strategy, is thus an integrating tool which can help to create greater solidarity among peoples and nations of the world.
Seville Strategy for Biosphere Reserves

BACKGROUND

Biosphere reserves are designed to deal with one of the most important questions the World faces today: how can we reconcile conservation of biodiversity and biological resources with their sustainable use? An effective Biosphere reserve involves natural and social scientists; conservation and development groups; management authorities and local communities—all working together on this complex issue.

The Biosphere Reserve Network, coordinated by UNESCO's Man and the Biosphere (MAB) Program, was launched in 1976 and, as of March 1995, had grown to include 324 reserves in 82 countries. The network is a key component in MAB's objective of achieving a sustainable balance between the sometimes-conflicting goals of conserving biological diversity, promoting economic development, and maintaining associated cultural values. Biosphere reserves are sites where this objective is tested, refined, demonstrated and implemented.

In 1983, UNESCO and UNEP jointly convened the First International Biosphere Reserve Congress in Minsk (Belarus), in cooperation with FAO and IUCN. The Congress's activities gave rise to an "Action Plan for Biosphere Reserves." The Minsk Action Plan prescribed nine goals and 35 recommended actions for the biosphere reserve network to achieve in the next five years. Some of the actions were quite ambitious and, for a variety of reasons, only a few of them have been fully implemented.

While much of the Minsk Plan remains valid today, the context in which biosphere reserves operate has changed considerably. Of great importance is the UNCED process and, in particular, the Convention on Biological Diversity. The Convention was signed at the "Earth Summit" in Rio de Janeiro in June 1992, entered into force on 29 December 1993 and has now been ratified by 100 countries. It contains several important innovations, especially as it addresses all levels of biodiversity and their interactions with human welfare and development, in a comprehensive manner. This is illustrated by the three objectives of the Convention: conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of benefits arising from the use of genetic resources. Biosphere reserves promote this integrated approach and are thus well placed to contribute to the implementation of the Convention.

In the decade since the Minsk conference, thinking about protected areas as a whole and about the biosphere reserves has been developing along parallel lines. Most importantly, the link between conservation of biodiversity and the development needs of local communities—a central component of the biosphere reserve approach—is now recognized as a key feature of the successful management of most national parks, nature reserves and other protected areas. At the Fourth World Congress on National Parks and Protected Areas, held in Caracas, Venezuela, in February 1992, the world's protected-area planners and managers adopted The Caracas Declaration and The Caracas Action Plan, both of which embody many of the ideas (community involvement, the links between conservation and development, the importance of international collaboration) that are essential aspects of biosphere reserves. The Congress also approved a resolution in support of biosphere reserves.

There have also been important innovations in the management of biosphere reserves themselves. New methodologies for involving stakeholders in decision-making processes and resolving conflicts have been developed, and increased attention has been given to the need to use regional approaches. New kinds of biosphere reserves, such as cluster and transboundary reserves, have been devised, and many biosphere reserves have evolved considerably, from a primary focus on conservation to a greater integration of conservation and development through increasing cooperation among stakeholders. And new international networks, such as EuroMAB, fueled by technological advances, including more powerful computers and the Internet, have greatly facilitated communication and cooperation between biosphere reserves in different countries.

Thus, it is time to evaluate the effectiveness of the Minsk Action Plan, to analyze its implementation, and to develop a strategy for biosphere reserves as we move into the 21st
The Seville Strategy, while building on the Minsk Action Plan, anticipates that there will be substantial examination and development of the biosphere reserve network in the next several years. The document is somewhat less specific than the Minsk Action Plan, and is rather intended to lay out a general strategy for biosphere reserves.

The Biosphere Reserve Concept

Biosphere reserves are “areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's Programme on Man and the Biosphere (MAB)” (draft Statutes of the World Network of Biosphere Reserves, March 1995). Reserves are nominated by national governments; each reserve must meet a minimal set of criteria and adhere to a minimal set of agreements before being admitted to the network.

Each biosphere reserve is intended to fulfill three complementary functions: a conservation function, to preserve genetic resources, species, ecosystems and landscapes; a development function, to foster economic and human development which is socio-culturally and ecologically sustainable; and a logistic support function, to support demonstration projects, environmental education and training, and research and monitoring related to local, national and global issues of conservation and sustainable development.

Physically, each biosphere reserve should contain three elements: one or more core areas, which are securely protected sites for conserving biological diversity, monitoring minimally disturbed ecosystems, and undertaking non-destructive research and other low-impact uses (such as ecotourism and education); a well-defined buffer zone, which usually surrounds or adjoins the core areas, and is used for cooperative activities compatible with sound ecological practices, including environmental education, recreation, and applied and basic research; and a flexible transition area, or area of cooperation, which may contain a variety of agricultural activities, settlements and other uses and in which local communities, management agencies, scientists, non-governmental organizations, cultural groups, economic interests and other stakeholders work together to manage and sustainably develop the area's resources. Although originally envisioned as a series of concentric rings, the three zones have been implemented in many different ways in order to meet local needs and conditions. In fact, one of the greatest strengths of the biosphere reserve concept has been the flexibility and creativity with which it has been realized in various situations.

Some countries have enacted legislation specifically to establish biosphere reserves. In many others, the core and buffer zones of biosphere reserves are designated (in whole or in part) as protected areas under national law. A large number of biosphere reserves simultaneously belong to other national systems of protected areas (such as national parks or nature reserves) and/or other international networks (such as World Heritage or Ramsar sites).

Ownership arrangements may vary, too. In some cases, the core areas of biosphere reserves are owned by non-governmental organizations. In many cases, the buffer zone is in private or community ownership, and this is generally the case for the transition area. A meaningful strategy for biosphere reserves must reflect this wide range of circumstances.

THE SEVILLE STRATEGY

The following Strategy provides recommendations for developing effective reserves and for implementing the World Network of Biosphere Reserves. It does not repeat the general principles of the Biodiversity Convention and Agenda 21, but instead identifies the specific role of biosphere reserves in developing a new vision of the relationship between conservation and development. Thus, the document is deliberately focused on a few priorities.

The Strategy suggests the level (international, national, individual reserve) at which each recommendation will be most effective. However, given the large variety of different national and local management situations, these recommended actors should be seen merely as
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guidelines, and adapted to fit the situation at hand. Especially note that the "national" level should be interpreted to include other governmental levels higher than the individual reserve (e.g., provincial, state, county, etc.). In some countries, national or local NGOs may also be appropriate substitutes for this level. Similarly, the "international" level often includes regional and inter-regional activities.

The Strategy also includes recommended Implementation Indicators—a check-list of actions that will enable all involved to follow and evaluate the implementation of the strategy. Criteria used in developing the Indicators were: availability (can the information be gathered relatively easily), simplicity (are the data unambiguous), and usefulness (will the information be useful to reserve managers, National Committees, and/or the network at large). One role of the Implementation Indicators is to assemble a database of successful implementation mechanisms and to exchange this information among all members of the network.

GOAL I: USE BIOSPHERE RESERVES TO CONSERVE NATURAL AND CULTURAL DIVERSITY

Objective I.1: Improve the coverage of natural and cultural biodiversity by means of the Network of Biosphere Reserves.

Recommended at the international level:

1. Promote biosphere reserves as integral means of implementing the goals of the Convention on Biological Diversity.

2. Promote a more comprehensive approach to biogeographical classification that takes into account such ideas as vulnerability analysis, in order to develop a system encompassing socio-ecological factors.

Recommended at the national level:

3. Prepare a biogeographical analysis of the country as a basis, inter alia, for assessing coverage of the Biosphere Reserve Network.

4. In light of the analysis, and taking into account existing protected areas, establish, strengthen or extend biosphere reserves as necessary, giving special attention to fragmented habitats, threatened ecosystems, and fragile and vulnerable environments, both natural and cultural.

Objective I.2: Integrate biosphere reserves into conservation planning.

Recommended at the international level:

1. Encourage the establishment of trans-boundary biosphere reserves as a means of dealing with the conservation of organisms, ecosystems, and genetic resources that cross national boundaries.

Recommended at the national level:

2. Include biosphere reserves as an integral element in strategies for biodiversity conservation and sustainable use, in plans for protected areas, and in the national biodiversity strategies and action plans provided for in Article 6 of the Convention on Biological Diversity.

3. When applicable, include projects to strengthen and develop biosphere reserves in programs to be initiated and funded under the Convention on Biological Diversity and other multilateral conventions.
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4. Link biosphere reserves with each other, and with other protected areas, through green corridors and in other ways that enhance biodiversity conservation, and ensure that these links are maintained.

5. Link biosphere reserves with \textit{ex situ} conservation and use of genetic resources, including wild relatives of cultivated and domesticated species, and consider using the reserves as rehabilitation/re-introduction sites.

GOAL II. UTILIZE BIOSPHERE RESERVES AS MODELS OF LAND MANAGEMENT AND OF APPROACHES TO SUSTAINABLE DEVELOPMENT

Objective II.1: Secure the support and involvement of local people.

Recommended at the international level:

1. Prepare model guidelines for such key aspects of biosphere reserve management as conflict resolution, securing local benefits, and involvement of stakeholders in decision-making and in responsibility for management.

Recommended at the national level:

2. Incorporate biosphere reserves into plans for implementing the sustainable use goals of Agenda 21 and the Convention on Biological Diversity.

3. Establish, strengthen or extend biosphere reserves to include areas where traditional lifestyles and indigenous uses of biodiversity are practiced (including sacred sites), and/or where there are critical interactions between people and their environment (e.g., peri-urban areas, degraded rural areas, coastal areas and wetlands).

4. Identify and promote the establishment of activities compatible with the goals of conservation through the transfer of appropriate technologies which include traditional knowledge and which promote sustainable development in the buffer and transition zones.

Recommended at the individual reserve level:

5. Survey the interests of the various stakeholders and fully involve them in planning and decision-making regarding the management and use of the reserve.

6. Evaluate the natural products and services of the reserve and use these evaluations to promote environmentally sound and economically sustainable income opportunities for local people.

7. Develop incentives for the conservation and sustainable use of natural resources, and develop alternative means of livelihood for local populations when existing activities are limited or prohibited within the biosphere reserve.

8. Identify and address factors that lead to environmental degradation and unsustainable use of biological resources.

9. Ensure that the benefits derived from the use of natural resources are equitably shared with the stakeholders, by such means as sharing the entrance fees to a central protected area, sale of natural products or handicrafts, use of local construction techniques and labor, and development of sustainable activities (e.g., agriculture, forestry).
Objective II.2: Ensure better harmonization and interaction among the different biosphere reserve zones.

Recommended at the national level:

1. Ensure that each biosphere reserve has an effective management policy or plan and an appropriate authority or mechanism to implement it.

2. Develop means of identifying incompatibilities between the conservation and sustainable use functions of biosphere reserves and take measures to ensure that an appropriate balance between the functions is maintained.

Recommended at the individual reserve level:

3. Develop and establish institutional mechanisms to manage, coordinate and integrate the reserve's programs and activities.

4. Establish a local consultative framework in which the reserve's economic stakeholders are represented, including the full range of interests (e.g., agriculture, forestry, water and energy supply, fisheries, tourism, research).

Objective II.3: Integrate biosphere reserves into regional planning.

Recommended at the national level:

1. Include biosphere reserves in regional development policies and in regional land-use planning projects.

2. Encourage the major land-use sectors near each biosphere reserve to adopt practices favoring sustainable land use.

Recommended at the individual reserve level:

3. Set up forums and demonstration sites for the examination of socio-economic and environmental problems of the region and for the sustainable utilization of biological resources important to the region.

GOAL III: USE BIOSPHERE RESERVES FOR RESEARCH, MONITORING, EDUCATION, AND TRAINING

Objective III.1: Improve knowledge of the interactions between humans and the biosphere.

Recommended at the international level:

1. Use the Biosphere Reserve Network to conduct comparative environmental and socio-economic research, including long-term research that will require decades to complete.

2. Use the Biosphere Reserve Network for international research programs that deal with such topics as such as biological diversity, ethnobiology, and global change.

3. Use the Biosphere Reserve Network for cooperative research programs at the regional and inter-regional levels, such as the Southern Hemisphere, East Asia and Latin America.

4. Encourage the development of innovative, interdisciplinary research tools for biosphere reserves, including flexible modeling systems for integrating social, economic and ecological data.
5. Develop a clearing house for research tools and methodologies in biosphere reserves.

6. Encourage interactions between the Biosphere Reserve Network and other research and education networks, and facilitate the use of the biosphere reserves for collaborative research projects of consortia of universities and other institutions of higher learning and research, in the private as well as public sector, and at non-governmental as well as governmental levels.

Recommended at the national level:

7. Integrate biosphere reserves with national and regional scientific research programs, and link these research activities to national and regional policies on conservation and sustainable development.

Recommended at the individual reserve level:

8. Use the reserve for basic and applied research, particularly projects with a focus on local issues, interdisciplinary projects incorporating both the natural and the social sciences, and projects involving the rehabilitation of degraded ecosystems and the sustainable use of natural resources.

9. Develop a functional system of data management for rational use of research and monitoring results in the management of the biosphere reserve.

Objective III.2: Improve monitoring activities.

Recommended at the international level:

1. Use the Biosphere Reserve Network, at the international, regional, national and local levels, as priority long-term monitoring sites for international programs focused on topics such as terrestrial and marine observing systems, global change, biodiversity, and forest health.

2. Encourage the adoption of standardized protocols for meta-data concerning the description of flora and fauna, to facilitate the interchange, accessibility and utilization of scientific information generated in biosphere reserves.

Recommended at the national level:

3. Encourage the participation of biosphere reserves in national programs of ecological and environmental monitoring and development of linkages between biosphere reserves and other monitoring sites and networks.

Recommended at the individual reserve level:

4. Use the reserve for making inventories of fauna and flora, collecting ecological and socio-economic data, studying the effects of pollution, etc., for scientific purposes and as the basis for sound site management.

5. Use the reserve as an experimental area for the development and testing of methods and approaches for the evaluation and continuous monitoring of biodiversity, sustainability and quality of life of its inhabitants.

6. Use the reserve for developing indicators of sustainability (in ecological, economic, social and institutional terms) for the different productive activities carried out within the buffer and transition zones.
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7. Develop a functional system of data management for rational use of research and monitoring results in the management of the biosphere reserve.

Objective III.3: Improve education, public awareness, and involvement.

Recommended at the international level:

1. Use biosphere reserves as sites for innovative education and public awareness activities to further understanding of sustainable development concepts and of actions that individuals and communities can take to build a sustainable future; link such education and information activities within the international network, in order to reinforce the understanding of global linkages, and to promote dialogue, exchange of information and sharing of experience.

2. Facilitate exchange of experience and information between biosphere reserves, with a view to strengthening the involvement of volunteers and local people in biosphere reserve activities.

3. Promote the development of communication systems for diffusing information on biosphere reserves and on experiences at the field level.

Recommended at the national level:

4. Include information on conservation and sustainable use, as practiced in biosphere reserves, in school programs and teaching manuals, and in media efforts.

5. Encourage participation of biosphere reserves in international networks and programs, to promote cross-cutting linkages in education and public awareness.

Recommended at the individual reserve level:

6. Encourage involvement of local communities, school children and other stakeholders in education and training programs and in research and monitoring activities within biosphere reserves.

7. Produce visitors' information about the reserve, its importance for conservation and sustainable use of biodiversity, its socio-cultural aspects, and its recreational and educational programs and resources.

8. Promote the development of ecology field educational centers within individual reserves, as hands-on facilities for contributing to the education of schoolchildren and other groups.

Objective III.4: Improve training for specialists and managers.

Recommended at the international level:

1. Utilize the Biosphere Reserve Network to support and encourage international training opportunities and programs.

2. Identify representative biosphere reserves to serve as regional training centers.

Recommended at the national level:

3. Define the training needed by biosphere reserve managers in the 21st century and develop model training programs on such topics as how to design and implement inventory and monitoring programs in biosphere reserves, how to analyze and study socio-cultural conditions, how to solve conflicts, and how to manage resources cooperatively in an ecosystem or landscape context.
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Recommended at the individual reserve level:

4. Use the reserve for on-site training and for national, regional and local seminars.

5. Encourage appropriate training and employment of local people and other stakeholders to allow their full participation in inventory, monitoring and research in programs in the reserve.

6. Encourage training programs for local communities and other local agents (such as decision makers, local leaders and agents working in production, technology transfer, and community development programs) in order to allow their full participation in the planning, management and monitoring processes of the reserve.

GOAL IV: IMPLEMENT THE BIOSPHERE RESERVE CONCEPT

Objective IV.1: Integrate the functions of biosphere reserves.

Recommended at the international level:

1. Identify and publicize demonstration ("model") biosphere reserves, whose experiences will be beneficial to others, at the national, regional and international levels.

2. Give guidance/advice on the elaboration and periodic review of strategies and national action plans for biosphere reserves.

3. Organize forums and other information exchange mechanisms for biosphere reserve managers.

4. Prepare and disseminate information on how to develop management plans or policies for biosphere reserves.

5. Prepare guidance on management issues at biosphere reserve sites, including, inter alia, methods to insure local participation, case studies of various management options, and techniques of conflict resolution.

Recommended at the national level:

6. Ensure that each biosphere reserve has an effective management policy or plan and an appropriate authority or mechanism to implement it.

7. Encourage private-sector initiatives to establish and maintain environmentally and socially sustainable activities in appropriate zones of biosphere reserves and in surrounding areas, in order to stimulate community development.

8. Develop and periodically review strategies and national action plans for biosphere reserves; these strategies should strive for complementarity and added value of biosphere reserves with respect to other national instruments for conservation.

9. Organize forums and other information exchange mechanisms for biosphere reserve managers.
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Recommended at the individual reserve level:

10. Prepare, implement and monitor an overall management plan or policy that includes all of the zones of the reserve.

11. Where necessary, in order to preserve the core area, re-plan the buffer and transition zones according to sustainable development criteria.

12. Develop and establish institutional mechanisms to manage, coordinate and integrate the reserve's programs and activities.

13. Ensure that the local community can participate in planning and management of the reserve.

14. Encourage private sector initiatives to establish and maintain environmentally and socially sustainable activities in the reserve and surrounding areas.

Objective IV.2: Strengthen the World Biosphere Reserve Network

Recommended at the international level:

1. Facilitate provision of adequate resources for implementation of the Statutes of the World Network of Biosphere Reserves.

2. Facilitate the periodic review by each country of its biosphere reserves, as required in the Statutes of the World Network of Biosphere Reserves, and assist countries in taking measures to make their reserves functional.

3. Support the functioning of the Advisory Committee for Biosphere Reserves and fully consider and utilize its recommendations and guidance.

4. Lead the development of communication among biosphere reserves, taking into account their communication and technical capabilities, and strengthen existing and planned regional and thematic networks.

5. Develop creative connections and partnerships with other networks of similar managed areas and with international governmental and non-governmental organizations with goals congruent with those of the biosphere reserves.

6. Promote and facilitate twinning between biosphere reserve sites and foster trans-boundary reserves.

7. Give biosphere reserves more visibility by disseminating information materials, developing communication policies, and highlighting their roles as members of the Biosphere Reserve Network.

8. Wherever possible, advocate the inclusion of biosphere reserves in projects financed by bilateral and multilateral aid organizations.

9. Mobilize private funds, from businesses, NGOs and foundations, for the benefit of biosphere reserves.

10. Develop standards and methodologies for collecting and exchanging various types of data, and assist their application across the network of biosphere reserves.
11. Monitor, assess and follow up on the implementation of the Seville Strategy, utilizing the Implementation Indicators, and analyze the factors that aid in attainment of the indicators, as well as those that hinder such attainment.

Recommended at the national level:

12. When the statutes for the Biosphere Reserve Network are adopted by the UNESCO General Conference, facilitate provision of adequate resources for their implementation.

13. Develop a national-level mechanism to advise and coordinate the biosphere reserves; and fully consider and utilize its recommendations and guidance.

14. Prepare an evaluation of the status and operations of each of the country's biosphere reserves, as required in the Biosphere Reserve Statutes, and provide appropriate resources to address any deficiencies.

15. Develop creative connections and partnerships with other networks of similar managed areas and with international governmental and non-governmental organizations with goals congruent with those of the biosphere reserves.

16. Seek opportunities for twinning between biosphere reserve sites and establish trans-boundary reserves, where appropriate.

17. Give biosphere reserves more visibility by disseminating information materials, developing communication policies, and highlighting their roles as members of the Biosphere Reserve Network.

18. Include biosphere reserves in proposals for financing from GEF and other international and bilateral funding mechanisms.

19. Mobilize private funds, from businesses, NGOs and foundations, for the benefit of biosphere reserves.

20. Monitor, assess and follow up on the implementation of the Seville Strategy, utilizing the Implementation Indicators, and analyze the factors that aid in attainment of the indicators, as well as those that hinder such attainment.

Recommended at the individual reserve level:

21. Give biosphere reserves more visibility by disseminating information materials, developing communication policies, and highlighting their roles as members of the Biosphere Reserve Network.

22. Mobilize private funds, from businesses, NGOs and foundations, for the benefit of biosphere reserves.

23. Monitor, assess and follow up on the implementation of the Seville Strategy, utilizing the Implementation Indicators, and analyze the factors that aid in attainment of the indicators, as well as those that hinder such attainment.
## IMPLEMENTATION INDICATORS

### INTERNATIONAL LEVEL

<table>
<thead>
<tr>
<th>Implementation Indicator</th>
<th>Cross Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosphere reserves included in advice on implementation of the Convention on Biological</td>
<td></td>
</tr>
<tr>
<td>Diversity and other conventions</td>
<td>I.1.1</td>
</tr>
<tr>
<td>Improved biogeographical system developed</td>
<td>I.1.2</td>
</tr>
<tr>
<td>New trans-boundary reserves developed</td>
<td>I.2.1; IV.2.6</td>
</tr>
<tr>
<td>Model guidelines developed and published</td>
<td>II.1.1; IV.1.4</td>
</tr>
<tr>
<td>Network-wide research programs implemented</td>
<td>III.1.1</td>
</tr>
<tr>
<td>Biosphere reserves incorporated into international research programs</td>
<td>III.1.2</td>
</tr>
<tr>
<td>Regional and inter-regional research programs developed</td>
<td>III.1.3</td>
</tr>
<tr>
<td>Interdisciplinary research tools developed</td>
<td>III.1.4</td>
</tr>
<tr>
<td>Clearing house for research tools and methodologies developed</td>
<td>III.1.5</td>
</tr>
<tr>
<td>Interactions developed with other research and education networks</td>
<td>III.1.6</td>
</tr>
<tr>
<td>Biosphere reserves incorporated into international monitoring programs</td>
<td>III.2.1</td>
</tr>
<tr>
<td>Standardized protocols and methodologies adopted for data and for data exchange</td>
<td>III.2.2; IV.2.10</td>
</tr>
<tr>
<td>Mechanism developed for exchanging experiences and information between biosphere reserves</td>
<td>III.3.1</td>
</tr>
<tr>
<td>Biosphere reserve communication system implemented</td>
<td>III.3.2; IV.2.4</td>
</tr>
<tr>
<td>International training opportunities and programs developed</td>
<td>III.4.1</td>
</tr>
<tr>
<td>Regional training centers identified and developed</td>
<td>III.4.2</td>
</tr>
<tr>
<td>Demonstration (&quot;model&quot;) biosphere reserves identified and publicized</td>
<td>IV.1.1</td>
</tr>
<tr>
<td>Guidance provided on elaboration and review of strategies and national action plans for</td>
<td></td>
</tr>
<tr>
<td>biosphere reserves</td>
<td>IV.1.2</td>
</tr>
<tr>
<td>Mechanisms developed for information exchange among reserve managers</td>
<td>IV.1.3</td>
</tr>
<tr>
<td>Statutes of the World Network of Biosphere Reserves are implemented at the international</td>
<td></td>
</tr>
<tr>
<td>and national levels</td>
<td>IV.2.1 and 2</td>
</tr>
<tr>
<td>Advisory committee for Biosphere Reserves is functional and effective</td>
<td>IV.2.3</td>
</tr>
<tr>
<td>Regional and thematic networks developed or strengthened</td>
<td>IV.2.4</td>
</tr>
<tr>
<td>Interactions developed between biosphere reserves and similar managed areas and</td>
<td></td>
</tr>
<tr>
<td>organizations</td>
<td>IV.2.5</td>
</tr>
<tr>
<td>Mechanisms developed to foster twinning between biosphere reserves</td>
<td>IV.2.6</td>
</tr>
<tr>
<td>Information and promotional materials developed for the Biosphere Reserve Network</td>
<td>IV.2.7</td>
</tr>
<tr>
<td>Strategies developed for including biosphere reserves in bilateral and multilateral aid</td>
<td></td>
</tr>
<tr>
<td>projects</td>
<td>IV.2.8</td>
</tr>
<tr>
<td>Strategies developed for mobilizing funds from businesses, NGOs and foundations</td>
<td>IV.2.9</td>
</tr>
<tr>
<td>Data standards and methodologies applied across the World Network</td>
<td>IV.2.10</td>
</tr>
<tr>
<td>Mechanisms developed for monitoring and assessing the implementation of the Seville</td>
<td></td>
</tr>
<tr>
<td>Strategy</td>
<td>IV.2.11</td>
</tr>
</tbody>
</table>

### NATIONAL LEVEL

<table>
<thead>
<tr>
<th>Implementation Indicator</th>
<th>Cross Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biogeographical analysis prepared</td>
<td>I.1.3</td>
</tr>
<tr>
<td>Analysis of need for new or extended biosphere reserves is completed</td>
<td>I.1.4 and II.1.3</td>
</tr>
<tr>
<td>Biosphere reserves included in national strategies and other responses to the Convention</td>
<td></td>
</tr>
<tr>
<td>on Biological Diversity and other conventions</td>
<td>I.2.2 and 3</td>
</tr>
<tr>
<td>Links developed between reserves</td>
<td>I.2.4</td>
</tr>
<tr>
<td>Biosphere reserves linked to ex situ conservation plans</td>
<td>I.2.5</td>
</tr>
<tr>
<td>Biosphere reserves incorporated into sustainable development plans</td>
<td>II.1.2</td>
</tr>
<tr>
<td>Biosphere reserves developed or strengthened to include traditional life styles and in</td>
<td></td>
</tr>
<tr>
<td>areas of critical people-environment interactions</td>
<td>II.1.3</td>
</tr>
<tr>
<td>Conservation and sustainable use activities identified and promoted</td>
<td>II.1.4</td>
</tr>
<tr>
<td>Effective management plans or policies in place at all reserves</td>
<td>II.2.1; IV.1.6</td>
</tr>
<tr>
<td>Mechanisms developed for identifying incompatibilities between conservation and</td>
<td></td>
</tr>
<tr>
<td>sustainable use functions and to insure an appropriate balance between these functions.</td>
<td>II.2.2</td>
</tr>
<tr>
<td>Biosphere reserves included in regional development and land-use planning projects</td>
<td>II.3.1</td>
</tr>
<tr>
<td>Land-use sectors near biosphere reserves are encouraged to adopt sustainable practices</td>
<td>II.3.2; IV.1.7</td>
</tr>
</tbody>
</table>

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## IMPLEMENTATION INDICATORS

<table>
<thead>
<tr>
<th>Description</th>
<th>Cross Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosphere reserves are integrated into national and regional research programs and policies.</td>
<td>III.1.7</td>
</tr>
<tr>
<td>Biosphere reserves are integrated into national monitoring programs and are linked to similar monitoring sites and networks.</td>
<td>III.2.3</td>
</tr>
<tr>
<td>Principles of conservation and sustainable use, as practiced in biosphere reserves, integrated into school programs.</td>
<td>III.3.3</td>
</tr>
<tr>
<td>Biosphere reserves participate in international education networks and programs.</td>
<td>III.3.4</td>
</tr>
<tr>
<td>Model training programs for biosphere reserve managers are developed.</td>
<td>III.4.3</td>
</tr>
<tr>
<td>Mechanisms developed to review national strategies and action plans for biosphere reserves.</td>
<td>IV.1.8</td>
</tr>
<tr>
<td>Mechanisms developed for information exchange among reserve managers.</td>
<td>IV.1.9</td>
</tr>
<tr>
<td>Principles of conservation and sustainable use, as practiced in biosphere reserves, integrated into school programs.</td>
<td>III.3.3</td>
</tr>
<tr>
<td>Biosphere reserves participate in international education networks and programs.</td>
<td>III.3.4</td>
</tr>
<tr>
<td>Model training programs for biosphere reserve managers are developed.</td>
<td>III.4.3</td>
</tr>
<tr>
<td>Mechanisms developed to review national strategies and action plans for biosphere reserves.</td>
<td>IV.1.8</td>
</tr>
<tr>
<td>Mechanisms developed for information exchange among reserve managers.</td>
<td>IV.1.9</td>
</tr>
<tr>
<td>Statutes of the World Network of Biosphere Reserves are implemented at the national level.</td>
<td>IV.2.12 and 14</td>
</tr>
<tr>
<td>National-level mechanism developed to advise and coordinate biosphere reserves.</td>
<td>IV.2.13</td>
</tr>
<tr>
<td>Interactions developed between biosphere reserves and similar managed areas and organizations.</td>
<td>IV.2.15</td>
</tr>
<tr>
<td>Mechanisms developed to foster twinning between biosphere reserves.</td>
<td>IV.2.16</td>
</tr>
<tr>
<td>Information and promotional materials developed for the Biosphere Reserve Network.</td>
<td>IV.2.17</td>
</tr>
<tr>
<td>Strategies developed for including biosphere reserves in bilateral and multilateral aid projects.</td>
<td>IV.2.18</td>
</tr>
<tr>
<td>Strategies developed for mobilizing funds from businesses, NGOs and foundations.</td>
<td>IV.2.19</td>
</tr>
<tr>
<td>Mechanisms developed for monitoring and assessing the implementation of the Seville Strategy.</td>
<td>IV.2.20</td>
</tr>
</tbody>
</table>

## INDIVIDUAL RESERVE LEVEL

<table>
<thead>
<tr>
<th>Description</th>
<th>Cross Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey made of stakeholders interests.</td>
<td>II.1.5</td>
</tr>
<tr>
<td>Survey made of the natural products and services of the reserve.</td>
<td>II.1.6</td>
</tr>
<tr>
<td>Incentives identified for sustainable use by local populations.</td>
<td>II.1.7</td>
</tr>
<tr>
<td>Factors leading to environmental degradation and unsustainable use are identified.</td>
<td>II.1.8</td>
</tr>
<tr>
<td>Plan prepared for equitable sharing of benefits.</td>
<td>II.1.9</td>
</tr>
<tr>
<td>Mechanisms developed to manage, coordinate and integrate the reserve's programs and activities.</td>
<td>II.2.3; IV.1.10, 12</td>
</tr>
<tr>
<td>Local consultative framework implemented.</td>
<td>II.2.4</td>
</tr>
<tr>
<td>Regional demonstration sites developed.</td>
<td>II.3.3</td>
</tr>
<tr>
<td>Coordinated research and monitoring plan implemented.</td>
<td>III.1.8; III.2.4</td>
</tr>
<tr>
<td>Functional data management system implemented.</td>
<td>III.1.9; III.2.7</td>
</tr>
<tr>
<td>Reserve is used for developing and testing of monitoring methods.</td>
<td>III.2.5</td>
</tr>
<tr>
<td>Reserve is used for developing indicators of sustainability relevant to local populations.</td>
<td>III.2.5 and 6</td>
</tr>
<tr>
<td>Local stakeholders are included in education, training, research and monitoring programs.</td>
<td>III.3.5; III.4.5</td>
</tr>
<tr>
<td>Information for visitors to the reserve has been developed.</td>
<td>III.3.6</td>
</tr>
<tr>
<td>Ecology field center developed at the reserve.</td>
<td>III.3.7</td>
</tr>
<tr>
<td>Reserve is used for on-site training activities.</td>
<td>III.4.4</td>
</tr>
<tr>
<td>A local educational and training program is in place.</td>
<td>III.4.6</td>
</tr>
<tr>
<td>Buffer and transitions reformulated to promote sustainable development and preserve the core area.</td>
<td>IV.1.11</td>
</tr>
<tr>
<td>Local community involved in planning and managing reserve.</td>
<td>IV.1.13</td>
</tr>
<tr>
<td>Private-sector initiatives to establish and maintain environmentally and socially sustainable activities are encouraged.</td>
<td>IV.1.13</td>
</tr>
<tr>
<td>Information and promotional materials developed for the Biosphere Reserve Network.</td>
<td>IV.2.21</td>
</tr>
<tr>
<td>Strategies developed for mobilizing funds from businesses, NGOs and foundations.</td>
<td>IV.2.22</td>
</tr>
<tr>
<td>Mechanisms developed for monitoring and assessing the implementation of the Seville Strategy.</td>
<td>IV.2.23</td>
</tr>
</tbody>
</table>