

MAB NOTES

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A PROGRESS REPORT ON U.S. AND INTERNATIONAL BIOSPHERE RESERVES

By John G. Dennis

Biosphere reserves are internationally recognized terrestrial and coastal or marine areas where management seeks to achieve sustainable use of natural resources while ensuring conservation of the biological diversity of the areas. The first biosphere reserves were designated in 1976 as part of the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) Man and the Biosphere Program (MAB). Biosphere reserves are nominated by national governments for inclusion in the world network of biosphere reserves. Each nation's sites remain under the sovereign jurisdiction of the nominating country. Today, a total of 391 biosphere reserves are recognized in 94 countries. Of these, 47 are in the United States, with 23 involving 30 units of the national park system (table 1, page 18). Although in the past few years some people in the United States have expressed concern that international recognition as a biosphere reserve could cause loss of private property rights, such recognition is sought and obtained voluntarily by the land manager, does not change land ownership status, and does not reduce private property rights. In fact, 13 of the 99 land management units that are part of the 47 biosphere reserves recognized in the United States involve some degree of non-governmental ownership.

In 1994 the United States adopted a strategic plan for the U.S. biosphere reserve program and fully participated when the international biosphere reserve program met in Seville, Spain, in 1995 to develop the Seville Strategy and the Statutory Framework of the World Network of Biosphere Reserves. In 2000, the United States, with a three-person delegation, was one of 46 countries that met in Pamplona, Spain, to learn from each other's experiences in implementing the biosphere reserve concept enunciated in the Seville Strategy (figures 1 and 2).

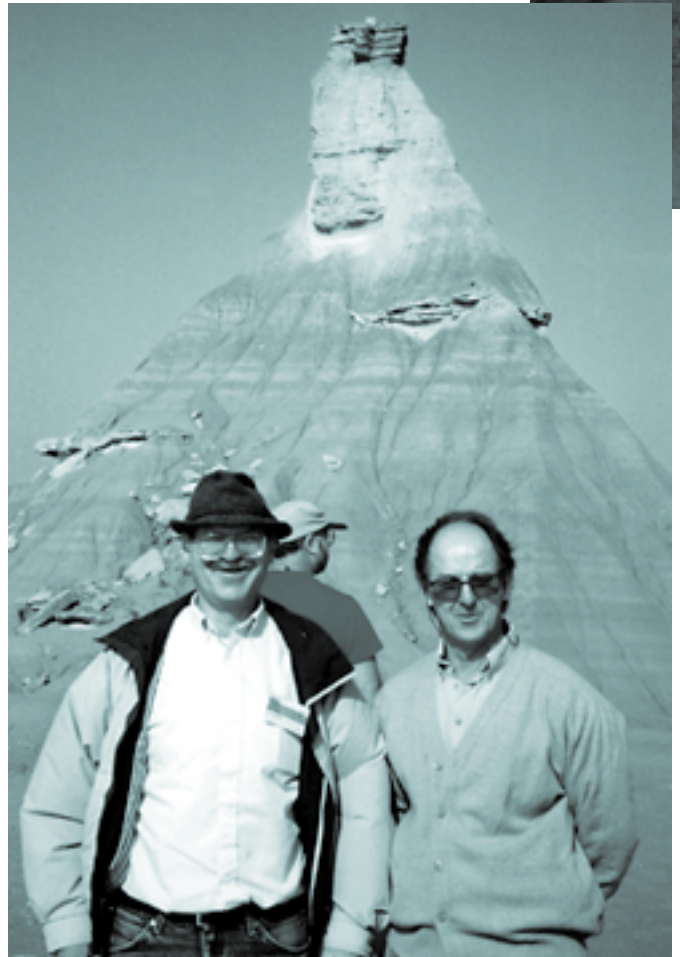


Figure 1. Participants of the international MAB review meeting in Pamplona, Spain, visited Bardenas Reales, a Spanish biosphere reserve designated in November 2000. Shown are the author (left) and Javier Castroviejo Bolibar, chairman of the Spanish MAB National Committee.



Figure 2. Located in northern Spain near the Pyrenees Mountains, Bardenas Reales Biosphere Reserve sustains high biological diversity through a mosaic of traditional land uses such as grazing and agriculture and natural disturbances that diversify habitat types.

INTERNATIONAL ASSESSMENT AT PAMPLONA

The Seville Strategy contains four broad goals: (1) to use biosphere reserves to conserve natural and cultural diversity; (2) to use biosphere reserves as models of land management and sustainable development; (3) to use biosphere reserves for research, monitoring, education, and training; and (4) to integrate functions within biosphere reserves and strengthen the world network. The Pamplona review, organized into 10 concurrent work groups followed by plenary sessions, assessed the progress of biosphere reserves in integrating the four goals. As the NPS representative for national park-related USMAB (United States Man and Biosphere Program) issues, I participated in the Pamplona review and will discuss the recommendations of the work groups.

RESEARCH AND MONITORING

One work group explored the success of biosphere reserves as sites supporting international research and monitoring programs using examples from Brazil, Indonesia, Canada, Egypt, United States, and Sweden. The group's recommendations encourage the MAB program to harmonize its research initiatives with several international programs; encourage regional networks of biosphere reserves to develop and adopt research and standardized monitoring projects related to conservation and sustainable development, especially at the landscape scale; and encourage biosphere reserves to share results and incorporate the social sciences, local communities, and volunteers into their research and monitoring programs.

SUSTAINABLE CONSERVATION

Presentations from Viet Nam, Czech Republic, and Egypt formed the basis for discussion about the role of biosphere reserves in conserving genetic resources and declining species. Recommendations encourage engaging the scientific community to inventory the potential for, and size constraints of, using biosphere reserves as gene pools of wild and domestic species; involving both local interest groups and national governments and science organizations in ensuring long-term sustainability and local economic viability of the humans involved with the reserves; and designing projects to rehabilitate degraded ecosystems in ways that also have them serve as scientific underpinnings of multilateral environmental initiatives.

Examples from Kenya, Cambodia, Colombia, Argentina, and Sweden provided models for discussions of land management and sustainable development and a conclusion that more work is needed to make biosphere reserves ideal, functioning models for sustainable land, coastal, and marine resource management. Recommendations for carrying out this work include: using social science-based efforts to increase the active partnership of local communities and nongovernmental organizations; developing information systems that incorporate traditional knowledge, enhance information exchange among partners, and generate technical approaches regarding land use and land tenure decisions and conflict resolution in biosphere reserves; applying clearly stated management objectives to integrating biosphere reserves into regional plans and monitoring the success of bios-



phere reserves in contributing to regional-scale sustainable development; and publishing examples of successful integration of biosphere reserves into their broader regions.

Canada, Germany, Niger, China, Uganda, and Argentina provided examples for examining possible roles of biosphere reserves in helping to develop quality economies. Recommendations focus on three broad themes. There is need to highlight the importance of sustainable economic and social development and demonstrate approaches to achieving this development, especially with respect to fostering diverse agricultural activities. Economic activities must be profitable, sustainable, and socially and environmentally responsible. Efforts to develop new economic activities should build on and complement existing regional activities by drawing on special characteristics of the region and its cultural identity and by creating and marketing brand names and symbols that reflect the special character of the region.

TABLE 1.
UNITS OF THE U.S. NATIONAL PARK SYSTEM AND ASSOCIATED BIOSPHERE RESERVES

PARK UNIT	BIOSPHERE RESERVE	YEAR DESIGNATED, EXTENDED
Big Bend National Park (TX)	Big Bend	1976
Channel Islands National Park (CA)	Channel Islands	1976
Denali National Park and Preserve (AK)	Denali	1976
Everglades and Dry Tortugas National Parks (FL)	Everglades & Dry Tortugas	1976
Glacier National Park (MT)	Glacier	1976
Noatak National Preserve (AK) and Gates of the Arctic National Park (AK) (part)	Noatak	1976, 1984
Olympic National Park (WA)	Olympic	1976
Organ Pipe Cactus National Monument (AZ)	Organ Pipe Cactus	1976
Rocky Mountain National Park (CO)	Rocky Mountain	1976
Sequoia and Kings Canyon National Parks (CA)	Sequoia and Kings Canyon	1976
Virgin Islands National Park (VI)	Virgin Islands	1976
Yellowstone National Park (WY, MT, ID)	Yellowstone	1976
Haleakala and Hawaii Volcanoes National Parks (HI)	Hawaiian Islands	1980
Isle Royale National Park (MI)	Isle Royale	1980
Big Thicket National Preserve (TX)	Big Thicket	1981
Redwood NP (CA)	California Coast Ranges	1983
Congaree Swamp National Monument (SC)	South Atlantic Coastal Plain	1983
Death Valley and Joshua Tree National Parks (CA)	Mojave and Colorado Deserts	1984
Cape Lookout National Seashore (NC) and Cumberland Island National Seashore (GA)	Carolinian-South Atlantic	1986
Glacier Bay National Park (AK)	Glacier Bay-Admiralty Island	1986
Golden Gate National Recreation Area and Point Reyes National Seashore (CA)	Central California Coast	1988
Great Smoky Mountains National Park (TN, NC)	Southern Appalachian	1988
Mammoth Cave National Park (KY)	Mammoth Cave Area	1990, 1996

COORDINATION, COOPERATION, AND COMMUNICATION

Presentations from Russian Federation, Estonia, Benin, and United States provided the basis for an exploration of different approaches for managing biosphere reserves that concluded that coordination is the key function in managing biosphere reserves. Recommendations focus on creating specific institutional mechanisms to support coordination, including (as key components) a capacity to encourage participation and consensus, the ability to integrate knowledge into common projects, and the ability to speed the flow of information. Additional recommendations encourage having the international biosphere reserve program develop guidelines for creation, roles, and functions of these institutional mechanisms.

Discussion of how to coordinate national biosphere reserve networks drew on presentations from China, Canada, France, India, Ukraine, Cuba, and Belarus that emphasized that coordinating structures need dedicated support if they are to achieve their functions of information exchange, project coordination and development, and fund-raising and advocacy. To advance the functioning of biosphere reserves, the work group recommended close coordination between individual biosphere reserve coordinators and their national biosphere coordinating structure; creation of an adequately supported human and financial structure at the time a biosphere reserve is nominated for

international recognition; and international cooperation in fund-raising and personnel exchanges as a means of helping foster individual biosphere reserves.

Other participants examined ways for raising visibility and support for the world network of biosphere reserves using case studies from Madagascar, Morocco, Belarus, Argentina, and Brazil. Broad discussions regarding communication, publication of success stories, importance of biosphere reserves for generating income for local human populations, and the coordination role of regional networks led to six recommendations. Key points include needs for guidelines on how to approach potential donors to projects, for awareness-raising mechanisms, and for increasing the involvement of nongovernmental organizations in biosphere reserve activities designed to bring biosphere reserves together.

An examination of the linkage of biosphere reserves to decision making at the national level drew on examples from Cuba, Republic of Korea, Ecuador, Finland, and Germany and concluded that the biosphere reserve concept is not yet well appreciated at this level. Recommendations to improve this linkage urge MAB national committees to demonstrate within the context of their own national situations the added values that biosphere reserves bring in areas of social and sustainable develop-

“Coordination is the key function in managing biosphere reserves.”

ment, science, technical assistance, conflict resolution, capacity building, and citizen participation in environmental concerns. The recommendations also urge MAB national committees to participate in developing national strategies for sustainable development, promote biosphere reserves as places in which nations can implement activities as part of international environmental programs, and encourage international exchange activities as a means of raising national awareness of and pride in a nation's own biosphere reserves.

Presentations from Russian Federation, South Africa, Spain, Egypt, Democratic Republic of Congo, and the MAB international office supported an exploration of education, awareness building, and training regarding biosphere reserves that developed themes concerning awareness of economic and social benefits, information exchange regarding education and public awareness, awareness of characteristics of recipient groups, need to use a diversity of methods, and importance of two-way communication. Recommendations evolving from these themes include: connect biosphere reserves using information webs, develop education and awareness programs to use two-way communication involving diverse methods, and encourage biosphere reserves to help develop environmental awareness and opportunities for equitable sharing of benefits through activities that bring together a wide range of participants and information sharing actions.

PERIODIC REVIEWS NEEDED

Article 9 of the Statutory Framework for biosphere reserves encourages countries to review each of their biosphere reserves every 10 years. Presentations of review experiences in United Kingdom, Indonesia, Switzerland, Argentina, Egypt, and Poland showed the practical value of this process in helping nations understand and improve the awareness, support, and function of these dynamic conservation and sustainable use models. Recommendations include using the review to ensure that biosphere reserves fulfill all three key functions of a biosphere reserve: conservation, sustainable development, and support of research, education, and training. Other recommendations pertain to actively involving in the review both local stakeholders and multidisciplinary groups of experts through workshops and field visits; stimulating development and use of new evaluative indicators of success of a biosphere reserve; and sharing the experiences of national reviews internationally to help other nations conduct their own productive reviews.

ASSESSMENT AND OPPORTUNITIES FOR U.S. BIOSPHERE RESERVES

The Seville Strategy, Statutory Framework, and recommendations of the Pamplona review meeting together offer the world a strong, interactive tool for exploring techniques to achieve environmental conservation and sustainable development. The United States Man and Biosphere Program, including the national park system, has a large and well distributed number of sizable, active, and in some places multiorganizational biosphere reserves. The USMAB, again including the national park system, also has clear examples of biosphere reserves that, in terms of the Pamplona review, are failing to contribute research and monitoring, are focal points for people who oppose any program affiliated with the United Nations, are not viewed as models of sustainable development, are lacking in effective coordination, are not supporting quality economies, have not been reviewed, antagonize national decision makers, and are failing to educate stakeholders about the opportunities that biosphere reserves can bring to regions of the United States.

The experiences reported by other nations at Pamplona offer ideas for USMAB. The success of some U.S. biosphere reserves and dysfunction of others suggest a need for USMAB to conduct periodic reviews and to compare the results with those of other countries. Given other countries' experiences, a USMAB review likely would reveal advantages U.S. biosphere reserves could gain by having dedicated biosphere reserve coordinators, active and multiorganizational awareness programs, well developed research and monitoring programs, and demonstration projects designed to explore the characteristics, economic and conservation benefits, and costs of sustainable uses of landscapes and to involve the cooperation of public and private entities. Similarly, such a review likely would identify steps that USMAB would need to take at both national and local levels to make biosphere reserves productive models of conservation and sustainable development. Many of the steps this review likely would reveal would provide mechanisms for implementing actions identified in the USMAB Strategic Plan for the United States Biosphere Reserve Program. As USMAB moves from the State Department to the USDA Forest Service and as it undergoes a new self-evaluation, now is the time for it to apply its Strategic Plan to make the U.S. biosphere reserves effective models of conservation and sustainable development. 

ABOUT THE AUTHOR

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