

Draft Biosphere Reserve White Paper

Hawaii Volcanoes National Park (HAVO) has been recognized as an International Biosphere Reserve and a World Heritage Site. This designation provides opportunities for adjacent land areas to participate in the Biosphere Reserve Program and develop projects, policies, and practices to manage, protect, and conduct research within designated areas. The program encourages participation of local communities and land owners to develop ways to sustainably manage the natural and cultural resources while allowing sustainable development within the area. The biosphere reserve program goals for HAVO are to “conserve the diversity of a designated site's ecosystems and provide areas and facilities for international ecological and environmental research, education and training.” There are a number of different types of approaches that biosphere reserves around the world have developed. Special projects, research, policies and regional and international cooperation are some of the ways that biosphere reserves have developed their programs. This paper provides information on the biosphere reserve fundamentals, history, case studies, and suggestions for engaging the Ka`u stakeholders and the public. Different approaches will be explored in this paper to provide an overview of the options available for Ka`u in defining their relationship and involvement with the biosphere reserve.

The most important component to keep in mind for success is that the local stakeholders and community understand the biosphere reserve program and volunteer to engage in this process. It must be a ground up approach to enable buy in and participation. The National Park Service can provide technical expertise if the community would like to develop programs, projects, and (or) guidelines as part of the biosphere reserve program.

Background and History

The National Park Service¹ (NPS) defines Biosphere Reserves (§4.3.6) as “sites that are part of a world- wide network of natural reserves recognized for their roles in conserving genetic resources; facilitating long- term research and monitoring; and encouraging education, training, and the demonstration of sustainable resource use”. NPS guidelines direct superintendents, to the extent practicable, to incorporate biosphere reserve objectives into general management plans, implementation plans, action plans, and park interpretive programs. These guidelines also state: “...Superintendents will pursue opportunities to use the biosphere reserve designation as a framework for local, regional, and international cooperation.”

The United Nations Education, Scientific, and Cultural Organization (UNESCO) Man and the Biosphere (MAB) program provide criteria for biosphere reserve designation. Guidelines and approaches to conservation and sustainable development have evolved over the years as research, best practices, and threats have evolved. UNESCO's Biosphere Reserve Program consists of a dynamic and interactive network of sites that has expanded over the past 10 years. There are now 531 biosphere reserves in 105 countries, including 47 reserves in the U.S. The

¹ 2006 Management Policies (Chapter 4 Natural Resource Management)

Madrid Action Plan (MAP), developed and agreed upon at the 3rd World Congress of Biosphere Reserves in 2008, provides guidance and direction to develop and implement biosphere reserve programs. Biosphere reserves can serve as learning sites for policy professionals, decision-makers, research and scientific communities, management practitioners and stakeholder communities to work together to translate global principles of sustainable development into local action. The biosphere reserve also provides international recognition, dissemination of information, sharing of resources, and the potential for leveraging funding opportunities.

In 1973-1974, UNESCO expert panels, including leaders from the United States, expressed concern that major segments of the world's biota and valuable genetic materials could be lost, and that this would have profound significance for humankind. They determined that a major program should be launched to conserve natural areas, representative of the world's biotic regions. The International Union for Conservation of Nature (IUCN) and UNESCO worked together to define the regions, and identify the national parks and equivalent reserves in each region². The resulting recommendations included the development of an international network of "biosphere reserves" that would "conserve for present and future use the diversity and integrity of biotic communities of plants and animals within natural and semi-natural ecosystems, and to safeguard the genetic diversity of species on which their continuing evolution depends."³ It was recognized then that conservation, research and education needed to be carried out in close cooperation with local communities.

UNESCO designated the first U.S. biosphere reserves in 1976. The first reserves were typically properties managed by NPS, the Forest Service, or the Agricultural Research Service. The parks served as strictly protected "core areas" for conservation and as benchmarks for monitoring ecological change against which to compare the effects of human activities in the surrounding region. Where possible, these separately designated biosphere reserves were paired to encourage cooperative research that could help regional interests formulate management goals. HAVO is currently paired with Haleakala National Park. In 1984, UNESCO approved the Action Plan for Biosphere Reserves that clarified the concerns, characteristics and objectives of biosphere reserves, and recommended implementing actions for consideration by international organizations and National MAB Committees. These considerations included a focus on sustainable development and working with the communities in and around the "core" areas. Regional approaches were also promoted.

The U.S. MAB, a voluntary, interagency effort, was established in 1974 to "explore, demonstrate, promote, and encourage harmonious relationships between people and their environments": The U.S. MAB operates under a national committee that is currently dormant. The U.S. MAB is responsible for nominating biosphere reserves and in the 1980's, used a multisite approach to strengthen regional cooperation in implementing biosphere reserve concepts. This continued in the 1990s where regional cooperative biosphere reserve programs were established involving many agencies, private interests, and participating sites. The U.S.

² Biotic Provinces of the World. IUCN Occasional Paper No. 9, Morges, Switzerland, 1974

³ D. Dean Bibles, Chair, National Committee U.S. Man and the Biosphere Program 1995

MAB provided guidance, nominations, funds, and coordination. Concerns from special interest groups and individual citizens on UN involvement and sovereignty rights had an impact on the U.S. MAB (see next section) resulting in its current dormant status. Following the 2008 3rd World Congress of Biosphere Reserves, US representatives are urging US participation and reinstating the U.S. MAB.

Biosphere reserves are nominated by national governments and must meet a set of criteria and adhere to a minimal set of conditions. Each biosphere reserve looks at conservation, sustainable development and logistical support for research, environmental education and training related to local, national, and global issues of conservation and sustainable development. According to the Seville Strategy, adopted in November 1995 by the UNESCO General Conference on Biosphere Reserves, the biosphere reserve concept includes three elements – the core area, a clearly identified buffer zone, and a flexible transition area. The core area is a securely protected site(s) for conservation, non-destructive research and other non-destructive uses. This is why many American National Parks are biosphere reserves as they meet the criteria and have protection. The buffer zone surrounds or borders the core areas and can be used for activities such as education, recreation, ecotourism, and applied and basic research. The transition area is generally where local communities live, practice agriculture, and other economic interests. Some countries enacted legislation to establish biosphere reserves. In other countries, the core and buffer zones are designated as protected areas under national law. Others, like HAVO, have core areas that are protected through national park designation and regulations.

Biosphere reserves allow the dissemination of scientific knowledge to many stakeholders. U.S. representatives at the 2008 3rd World Conference reported that “today the U.S. can demonstrate its commitment to sustainability by reviving its biosphere reserve program and reconnecting with the partners in the World Network of Biosphere Reserves.” The Biosphere Reserve program is unique in that it addresses conservation of genetic resources, species and ecosystems; scientific research and monitoring; and promoting sustainable development in communities of the surrounding regions. It also promotes regional cooperation and a network to share information.

HAVO staff recently attended the Pacific Biosphere Reserve Network (PacMAB) that could offer additional opportunities and information sharing to better develop and sustain local programs and practices. There are some very successful biosphere reserve programs in Pacific Island countries that have incorporated traditional resource management into their biosphere reserve programs. By participating in the biosphere reserve, there are opportunities to learn from these programs. The current focus and direction for biosphere reserves is found in the Madrid Action Plan (MAP), developed out of the 3rd World Congress of Biosphere Reserves. It identified three interrelated challenges to address during the period, 2008-2013, as follows:

- Accelerated loss of biological and cultural diversity with unexpected consequences that impact the ability of ecosystems to provide services critical for human well-being.
- Accelerated climate change with consequences for societies and ecosystems.

- Rapid urbanization as a driver of environmental change.

The first two areas are relevant for Ka`u. For a description of the full U.S. recommendations from the MAP and the meeting in Madrid, please see Appendix A.

Sovereignty and property rights issues

The reasons for the current inactive state of the U.S. MAB resulted from a misunderstanding of property rights and sovereignty issues. Some members of Congress have opposed the U.S. Biosphere Reserve program because of concerns that biosphere reserves could violate U.S. sovereignty and the rights and interests of private property owners. Representatives of the U.S. Biosphere Reserves Association met with representatives of Sovereignty International, Inc., the leading opponent of biosphere reserves. After more than two years of constructive dialogue, the two sides agreed that the biosphere reserve program can make a significant contribution to conservation of ecosystems, species and genetic resources, and that private property owners should participate voluntarily, if the goals and functions of biosphere reserves are clearly defined, and that the U.S. program has Congressional approval. Reconstitution of the U.S. MAB Committee and adoption of criteria for U.S. Biosphere Reserves is the next step to revive the program nationally. Currently, there is no national organizing body to guide and facilitate coordination and cooperation among Biosphere Reserves within the U.S. American representatives who attended the Madrid meeting concluded that the US National Commission for UNESCO should “reconstitute the U.S. National Committee for MAB so that effective collaboration in areas of research, ecological monitoring, land use practices and education programs can occur on the national and international scale” (see Appendix A for recommendations).

Potential Opportunities for Ka`u

The biosphere reserve program provides opportunities for Ka`u community members and interested stakeholders to develop sustainably, contribute to research and management, develop training and youth programs, and protect key core areas from threats. This section looks at the opportunities and constraints associated with the program.

Opportunities

The County of Hawaii is currently updating the Ka`u Community Development Plan (CDP). This plan could facilitate the introduction of the biosphere reserve to the community. Since community outreach has been conducted, there are opportunities to develop a dialog with the community and/or key stakeholders on how the biosphere reserve program could meet their concerns and visions for the future of Ka`u. Existing suggestions and comments that have been developed as part of the public scoping for the CDP could be used as a way to explain the program and the opportunities for the communities and enterprises within Ka`u. A basic plan or approach could then be developed at the community/stakeholder level for engaging its neighbors (including HAVO) to initiate involvement in the biosphere reserve program.

HAVO and the Three Mountain Alliance (TMA) have management plans that support the key concepts of a biosphere reserve. The General Management Plan Review for HAVO is another opportunity for the public to become involved in the development of the biosphere reserve and world heritage program. The biosphere reserve program could interface with these existing and developing plans to bring in the local communities as part of the management and protection. It could also develop projects, research, and programs that would be shared among the network associated with the biosphere reserve. It would be a mechanism to support many of the existing and recognized activities and studies that are currently going on and bring in locally managed opportunities. For example, The Ka`u-Kapapala unit of the TMA has priority projects that have been identified in their management plan. The Biosphere Reserve could focus on priority projects that the community could become involved in as well as add additional project(s) that would be distinct to the BR. As there are recommendations from the MAP, these areas could be the basis for special projects. The idea is to avoid duplicating efforts that are currently going on, rather, complement them by bringing in the components unique to biosphere reserves.

Limiting Factors

The MAB program relies on countries to coordinate efforts and participate in a global dialog to further the goals and objectives of the program. The U.S. organizing body is currently dormant, thus not playing that important role. As such, many biosphere reserves have not been active in participating in a global and regional communication. With sovereignty and property rights issues resolved in some circles, there is still a hesitation among some areas and schools of thought within the U.S. to acknowledge and embrace international efforts overseen by the U.N. While the fears and suspicions of land grabs and sovereignty have been discussed and debated, there is always the potential for these issues to resurface and stall the development of the program. In addition, funding and technical support to develop projects and efforts is not provided through the U.S. MAB program. If the U.S. MAB organizing entity is reinstated, this could bring in additional support and resources that could assist in the development of innovative programs for communities and the park.

Because of the sovereignty and property right issues that are part of the biosphere reserve debate within the U.S., it is recommended that community involvement and development of biosphere reserve zones and projects be led and driven by the local community and key stakeholders. NPS has staff who can assist to develop the process and can bring in technical support, but it should be the will of the local community and stakeholders to design and develop what it means for Ka`u. NPS can provide the research, technical support, and assistance to facilitate this process.

Wording

Controversy can often occur when there is a misunderstanding of meaning. Terminology for the biosphere reserves is aimed to provide guidance on ways to promote sustainable development while protecting areas of high biological and cultural resources. It is not a

program that is designed to limit property rights or sovereignty; however, there are groups and individuals who believe that the program does threaten these rights. The MAB program defines three areas for biosphere reserves with the goal of preserving those areas that need the protection. These are the core, buffer, and transition zones. While the purpose of these classifications is to allow sustainable development, it is often translated into restricting property rights and altering zoning for the area. An option for Ka`u to consider is using different terminology to negate fears that this program will impact property rights and sovereignty. The goals are to promote sustainable development and to develop economic opportunities that help to protect the key resources that make Ka`u, Ka`u. It provides a framework to assist the community in developing geo-tourism (ecotourism), assist in research, develop youth programs, community stewardship and management, and develop relationships with their neighbors, especially HAVO.

Biosphere Reserve Case Studies

The following case studies provide a snapshot of successful biosphere reserves around the world and the different ways that the sites developed their programs.

Ngaremeduu Bay (Palau)

The Ngaremeduu Bay Region lies on the west coast of the Babeldaob Island, the largest island of Palau, located in the South Pacific. The Biosphere Reserve corresponds to the Ngaremeduu Conservation Area. The area has one of the richest biodiversity in Micronesia with a range of both marine and terrestrial species. Ngaremeduu Bay is also known to provide habitat for several endangered and threatened species such as the dugong, salt-water crocodile, and sea turtles. The program works closely with the local communities to implement conservation measures and promote responsible tourism.

The core areas and buffer zones are mostly marine areas and there are only some 60 people living in the Biosphere Reserve and most of the Palauans in the villages still depend on subsistence fisheries and farming. It is estimated that there are over 80 cultural and historical sites within or around the Biosphere Reserve. These include traditional villages consisting of stone platforms, stone paths, monoliths, burials, stone piles and docks. Conservation of these sites is important since they can be used to attract tourists as part of an income-generating project. Other income-generating projects include aquaculture with the construction of milkfish ponds, and ecotourism with adventure kayak tours, nature trails and visits of historical culture sites. The three core areas correspond to a Fish conservation area, a Clam conservation Area and a Mangrove crab conservation area that have been established by community members. This type of management is traditionally known as a 'bul' in Palauan, that is, when traditional leaders decide to protect a certain area to allow a species to recover from being over-harvested. By allowing traditional management, the Biosphere Reserve promotes socio-culturally sustainable conservation practices.

The Management Plan of the Biosphere Reserve provides the framework to achieve biodiversity conservation and sustainable development through a community participatory approach. The Conservation Area Coordinating Committee (CACC) is the decision-making body that oversees the management of the overall Ngaremeduu Conservation Area and Biosphere Reserve. It relies heavily on traditional management systems and has been successful.

Clayoquot Sound Biosphere Reserve⁴ (Canada)

The Clayoquot Sound Biosphere Reserve in British Columbia, Canada provides an excellent example of how biosphere reserves can work with the communities and provide a structure for sustainable development, conservation, and empowerment. The biosphere reserve uses core, buffer, and transition areas and works with the Nuu-chah-nulth First Nations and other members of the communities within this area. The Clayoquot Sound UNESCO Biosphere

⁴ <http://clayoquotbiosphere.org/>

Reserve adopted the Nuu-chah-nulth First Nations philosophy "Hishuk ish ts'awalk", or "everything is one." This stresses the importance of recognizing and learning about the interconnections within and between ecosystems in order to promote truly sustainable local communities and economies, while protecting the environment for future generations.

This region was split by controversy over land use management prior to the biosphere designation. The establishment of the reserve encompasses a vast range of ecosystems with core areas including the Long Beach Unit of Pacific Rim National Park Reserve and 16 provincial parks. The UNESCO designation of Clayoquot Sound brings with it recognition, respect and acknowledgement of:

- The rights, interests and stewardship responsibilities of First Nations and other local communities;
- The need for diversified local economies, including renewed and vibrant fisheries and forestry sectors, and tourism;
- The need to better understand natural and economic processes through the application of traditional and local knowledge and scientific research, inventory and monitoring efforts;
- The training and education requirements of local people, and local and international researchers and students; and
- The role of youth and elders in designing a sustainable future.

The Reserve is administered by the Clayoquot Biosphere Trust (CBT). CBT was established in 2000 as the organization responsible for upholding the spirit and intent of the Biosphere Reserve designation. The CBT is not a resource management, planning or governance body — its mandate is to advance the spirit and intent of the UNESCO Biosphere designation by initiating and sustaining partnerships, programs and projects in support of research, education and training opportunities towards healthy and sustainable communities in the Biosphere Region.

Southern Appalachians Biosphere Reserve (USA)

The Great Smoky Mountains National Park (GRSM) established cooperative relationships with communities, agencies and institutions in the region and was instrumental in providing criteria and guidelines for U.S. biosphere reserves. The Southern Appalachian Man and the Biosphere Program (SAMAB) grew from a pair of biosphere reserve units in 1976: Coweeta Hydrologic Laboratory (U.S. Forest Service) and GRSM (National Park Service) to a program covering portions of six states and including six biosphere reserve units. A Southern Appalachian Assessment was prepared by SAMAB participating agencies and institutions. From the assessment, natural resource and socioeconomic data systems were developed, which helped communities and natural resource managers in the region to manage their resources more effectively. SAMAB forums on air quality led to the development of the Southern Appalachian Mountain Initiative (SAMI) - a multi-agency, multi-state initiative that has led to a regional approach to air quality management.

UNESCO recognized the area as one of the best to exemplify the biosphere reserve concept.

US- Mexico Collaboration: La Michilia Biosphere Reserve (Mexico)

U.S. and Mexican scientists, local officials, and ranchers worked together, under leadership of the Mexican Institute of Ecology, to improve conservation of the natural resources of this region in Durango, and raise the economic standards of people living in and around the reserve. Activities included a thorough assessment of the natural resources in the areas and of the district's needs, involving local people throughout the process. Improvements were made in local buildings and structures, using better designs and local materials. Apiculture was developed and improved; and experiments in deer and cattle raising resulted in improved management practices. The success of this project, involving local people and relying on leadership of scientists and cooperation of local government, set the stage for establishing other biosphere reserves, one of which focuses on conservation of *Zea diploperennis* (Teosinte), which has important benefits for humankind.

San Joaquin Experimental Range Biosphere Reserve (California, USA)

San Joaquin Experimental Range (SJER), designated a biosphere reserve in 1976, is a richly diverse area of grass-oak-pine woodlands in Central California, managed by the California State University at Fresno in partnership with the U.S. Department of Agriculture- Forest Service. Activities that are enhanced and expanded because of the areas status as a biosphere reserve include research, education and demonstration focusing on maintaining the integrity of the ecosystems of Central California. Specific activities include training of students in hand on management of a beef herd on rangelands, and rotation of grazing areas. Education in this outdoor laboratory is a prime objective of the biosphere reserve.

SJER was recently selected as a National Environmental Observatory Site (NEON) core site because of the significance of the research and education program.

Parks Canada - Biosphere Reserve Benefits and Costs

Parks Canada commissioned a study in 2004 that examined the benefits and costs in four biosphere reserve areas associated with national parks. The study found considerable non-financial benefits related to protection, research and monitoring, engaging local communities, education, regional cooperation, and interagency cooperation. The study found that biosphere reserves assisted municipalities acquire data on natural areas, helped acquire lands and conserve key habitats, and reduced development pressures outside the park. It provided external funding for research projects, attracted university researchers, operated forest biodiversity monitoring plots within the greater park ecosystem, and trained high school students in monitoring.

Biosphere reserves provided community forums to address local issues, showcase ecologically sustainable issues through workshops, and promote sustainable land use within the greater

park ecosystem. Biosphere reserves supported and guided studies by university students; organized study tours; incorporated park-related themes into local school curricula and developed environmental programs in local schools; trained municipal councils in GIS technology. Biosphere reserves provided a mechanism to consult with and engage residents on regional conservation issues, and develop networks, partnerships and projects that assisted park managers. Biosphere reserves helped to mobilize resources to support planning and management in the park and surrounding region.

Financial benefits outweighed the financial costs, with the annual net benefit for the areas totaling \$3,187 for 2004. Park managers for these areas were unanimous in their opinions that involvement in biosphere reserves was well worth the costs. (Jim Birtch, Parks Canada. 2006)

APPENDIX A

Recommendations from US Representatives following the Madrid Meeting

U.S. participants suggest the following actions:

1. U.S. National Commission for UNESCO should reconstitute the U.S. National Committee for MAB to allow a coordinated effort to effectively interact within the national network and internationally in areas of research, ecological monitoring, land use practices and education programs. A united front will allow U.S. agencies and organizations to develop partnerships and funding strategies for national and mission-focused activities.
2. The MAB National Committee will elaborate Criteria and Guidelines for U.S. Biosphere Reserves (Criteria are incorporated in draft legislation to authorize the U.S. MAB Program), initiate a review of the U.S. Biosphere Reserves in collaboration with the U.S. Biosphere Reserves Association, and take steps to reengage with the World Network of Biosphere Reserves and many national and international and international organizations to advance research, monitoring and education programs.
3. The U.S. National Commission, U.S. MAB Committee, and participating agencies and institutions will support the workshops, task forces and other means, to develop biosphere reserve partnerships, such as those described above, in support of U.S. interests and priorities for conservation, education and sustainable development.