

BIG THICKET NATIONAL PRESERVE



United States Department of the Interior

NATIONAL PARK SERVICE
Great Smoky Mountains National Park
Gatlinburg, Tennessee 37738



IN REPLY REFER TO:

N22

January 9, 1985

Memorandum

To: Superintendent, Big Thicket National Preserve

From: Assistant Superintendent, Resources Management and Science
Great Smoky Mountains National Park

Subject: Follow-up to Request for Clarification of Biosphere Reserve and
World Heritage Sites

At a discussion with several superintendents that followed the Conference on the Management of Biosphere Reserves, several pointed out the need to clarify the differences between Biosphere Reserves and World Heritage Sites. I agreed to send out some useful information that had been prepared earlier to clarify these areas. Here 'tis.

Two items are included: (1) the draft item marked "Addendum A" was prepared by Craig Shafer and Bill Gregg several years ago in response to one of the NPS obligations listed in the 1981 prevention/mitigation State of the Parks report, under the topic "Special Protection Zone Guidelines." This effort was shelved by Dr. Briceland. Craig Shafer (December 1984) told me that he tried again, after I left, with the same results. Although their product is now a little out of date, and any official release would require a rewrite, I think it provides some good information and is of value.

Item (2) is titled, "Biosphere Reserves or World Heritage Sites - Which is Which?". I prepared this item this week because I felt the first package might be a little too cumbersome to articulate the differences and similarities between the two programs. I also promised Jean Matthews to send her a summary paragraph or two for use in the next Park Science; she plans on writing an article on the conference.

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Roland H. Wauer

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BIOSPHERE RESERVES OR WORLD HERITAGE SITES - WHICH IS WHICH?

Two very significant concepts for protecting natural and cultural resources--Biosphere Reserves and World Heritage Sites--were designed in the mid-1970s and implemented by the international community as part of a progressive and worldwide conservation strategy.

These two concepts have many similarities, because both are designated for preserving significant resources throughout the world. Both attempt to bring greater international visibility to the sites, and to use public support as a means to safeguard the important natural and cultural resources therein.

The creation of World Heritage Sites evolved from the idea that certain natural and cultural sites have universal value and are worthy of international recognition, respect and protection. This program has authority through the Convention Concerning the Protection of the World Cultural and Natural Heritage, ratified by the United States Senate on October 26, 1973, and the Natural Heritage Protection Act Amendment of 1980.

Criteria for World Heritage Site selection include those truly unique sites that had an impact upon history, illustrate significant geological processes, may be crucial to the survival of threatened plants and animals, or contain features of superlative natural beauty. The natural sites "ensure the maintenance of the natural diversity upon which all mankind depends."

The World Heritage program includes a World Heritage Fund that is designated to support individual efforts of countries to preserve their cultural and natural heritage, and to meet emergency conservation needs to save a property which is in imminent danger of destruction.

A World Heritage Committee acts to further the goals of the program, which include: (1) developing and maintaining a site list; (2) preparing a list of World Heritage in Danger (both lists are updated every two years); (3) establishing a fund to assist participating countries in identifying, preserving, and protecting World Heritage designated properties; (4) providing technical assistance upon request; and (5) the promotion and enhancement of public knowledge and understanding of the importance of heritage conservation at the international level.

The creation of Biosphere Reserves evolved from the Man And the Biosphere (MAB) program, a product of UNESCO, as a method of protecting animal and plant resources in a coordinated worldwide network of designated areas. Participation in the Biosphere Reserve program is strictly voluntary. There is no international convention or legal basis for designation or methods of operations. Authority relates to Agency establishment acts and other land protection legislation.

Criteria for Biosphere Reserves include: (1) areas that can for network of international understanding of purpose, standards and exchange of scientific information; (2) representative of examples of natural

biomes, communities or areas with unusual features of exceptional interest, examples of harmonious landscapes resulting from traditional patterns of land-use, and/or examples of modified or degraded ecosystems that are capable of being restored to more-or-less natural conditions; (4) areas large enough to be an effective conservation unit, and to accommodate different uses without conflict; (5) provide opportunities for ecological research, education, and training; (6) areas with adequate long-term legal protection; and (7) areas to coincide with, or incorporate, existing or proposed protected areas.

The primary goals of Biosphere Reserves are to (1) conserve for present and future use the diversity and integrity of biotic communities of plants and animals within natural and semi-natural eco-systems and to safeguard the genetic diversity of species which their continued evolution depends; (2) provide areas for ecological and environmental research, including baseline studies, both within and adjacent to such reserves; and (3) provide facilities for education and training. The Biosphere Reserve program is designed to place heavy emphasis on conservation, research, monitoring, education and cooperation.

There presently is a total of 165 World Heritage Sites in 43 countries; eleven of the 165 sites are located in the United States (June 1984). There is a total of 226 Biosphere Reserves in 62 countries; 40 of the 226 sites are located in the United States (October 1984).

- Ro Wauer
December 17, 1984

ADDENDUM A

I. PURPOSE

To maximize the effectiveness of National Park Service protection, planning, and management of natural resources, the Service should adopt and make greater use of a number of recognized natural area designations as a complement to its management zoning system. This directive/guideline compares and contrasts a variety of the designations proposed for use and provides direction on how they can be applied to park management. Specifically, this guideline describes existing designation authorities and procedures for identifying, evaluating, selecting, and managing designated sites.

II. POLICY

It is NPS policy to initiate within-park site designations, participate in national or international programs that provide designations for entire units or parts of units in the System, and apply the NPS management zoning system to parks, for the purpose of better managing the resources therein.

III. HISTORICAL BACKGROUND

During 1932-1940, the Service established at least 18 sites in at least 8 national parks¹ called "research reserves". In a policy statement dated January 31, 1946, it was stated that the purpose of designating "research reserves" was to support existing or potential research programs, and that the use of the designation for protection of fragile sites in the absence of research activity was not a sufficient reason in itself for their establishment. In 1963, the Service dropped the term "research reserves" and encouraged parks to designate "scientific reserves" - tracts set aside primarily to protect rare or unique resources of scientific value but which would also be available for research.

Research Natural Areas

In 1966, the Service participated in a governmentwide effort being made to identify and establish "research natural areas" - physical or biological units in which current natural conditions are maintained insofar as possible, and set aside exclusively for long term research purposes. The result of this effort, "A Directory of Research Natural Areas on Federal Lands of the United States of America" put out by the Federal Committee on Research Natural Areas (created in 1966), listed 56 such sites within the National Park System (out of a total of 366 in all Federal lands). In May 1968, the Service added Chapter 9 on research natural areas to the old "Natural Sciences Research Handbook." In 1975, the name of the Federal Committee on Research Natural

1. Glacier, Grand Canyon, Great Smoky Mountains, Lassen Volcanic, Mount Rainier, Rocky Mountain, Sequoia, Yosemite. The tracts within these sites may not still be recognized as special areas.

Areas was changed to the Federal Committee on Ecological Reserves,² and a new charter was adopted. The Service did another inventory of research natural areas in the System for what ultimately became the 1977 revision of "A Directory of Research Natural Areas on Federal Lands of the United States of America." The 1977 revision contains a listing of research natural areas on Federal lands, defines experimental ecological areas,³ contains a policy which has been approved and adopted by all pertinent Federal agencies (19), including NPS, and indicated that NPS administered research natural areas had increased to 58.

National Natural Landmarks

The National Natural Landmarks Program was started in 1963 to identify and encourage the preservation of areas that illustrate the ecological and geological character of the United States by designating them as national natural landmarks. To date, 543 sites on public and private lands have been designated by the Secretary of the Interior. In past years it was the policy of the Department of the Interior not to designate National Natural Landmarks within the National Park System, although ten landmarks do exist in parks as they were designated prior to the establishment of the park (e.g., Cowles Bog in Indiana Dunes National Lakeshore).

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2. The Federal Committee on Ecological Reserves is an interagency group made up of representatives from the major Federal landholding agencies and observers from private conservation organizations. Its members are full-time employees of their respective agencies who meet periodically to discuss and further the objectives of the Federal Committee within their own agencies' programs. The Federal Committee has no legislative basis or authority, no direct Federal or Congressional funds, and does not operate on an annual budget. It is officially recognized as neither an independent Federal agency of the executive branch, nor a part of any other government agency. It is, however, recognized by the agencies which contribute to its membership as an autonomous body which has, through its members, influenced and initiated natural area programs within the Federal government since its creation in 1966.
 3. An "experimental ecological area" was defined by the Federal Committee on Ecological Reserves in 1975 to indicate sites to be used for manipulative research on Federal lands, and to complement the "research natural area" designation which had been in existence since 1966. In 1977, the Institute of Ecology prepared a report for the National Science Foundation proposing the establishment of 67 "experimental ecological reserves", which represented sites inventoried on Federal, State, and private lands. Designation of 96 sites have so far been endorsed by NSF upon recommendations by the Institute of Ecology. Both designation concepts indicate manipulative research is permitted on the site.

Biosphere Reserves and World Heritage Sites

In addition to the above described activities which focus on designating usually smaller tracts "within" parks for preservation or research purposes, two internationally recognized designations exist that are frequently contemporaneous with park boundaries - Biosphere Reserves and World Heritage Sites. A Biosphere Reserve is part of a world-wide network of natural reserves set aside for purposes of preserving genetic resources, facilitating long-term research and monitoring, and encouraging education and training. A World Heritage Site is a natural or cultural area determined to possess "outstanding universal value to mankind."

As part of the U.S. participation in UNESCO's Man and the Biosphere (MAB) program, specifically Project 8, the first thirteen biosphere reserves in the United States were designated in 1976--Big Bend, Channel Islands, Denali, Everglades, Glacier, Great Smoky Mountains, Noatak, Olympic, Organ Pipe, Rocky Mountains, Sequoia-Kings Canyon, Virgin Islands, and Yellowstone; four more have since been added--Big Thicket, Haleakala, Hawaii Volcanoes, and Isle Royale. In accordance with the World Heritage Convention ratified by the U.S. Senate (1973), and in compliance with Title IV of the Historic Preservation Act, as amended (1980), the first U.S. World Heritage Sites were designated in 1978--Yellowstone and Mesa Verde National Parks. Since that time, nine other sites--all components of the National Park System--have been added to the World Heritage List: Grand Canyon, Everglades, Wrangell-St. Elias, Redwood, Olympic, Yellowstone, Mesa Verde, and Mammoth Cave National Parks, and Independence Hall.

IV. GUIDELINES FOR SITE DESIGNATIONS

A. Research Natural Area

Definition

A physical or biological unit in which current natural processes are allowed to continue, or natural conditions are maintained insofar as possible. The tracts are permanently set aside and managed exclusively for approved non-destructive research purposes and established within typical examples of the major ecological community types, preferably ones having been little disturbed in the past. (This is a more restrictive definition than that adopted by the Federal Committee on Ecological Reserves, which gives equal importance to the strictly preservational benefits of setting aside natural tracts.)

Guiding Principle

It is highly desirable to notify scientists of the existence and description of specially designated tracts within a park set aside specifically for scientific research, mainly because many types of research not only can be conducted here as appropriately as elsewhere in the park, but also will receive the important benefit of non-interference because of use restrictions. Furthermore, the establishment and use of a specific tract for scientific research over long periods of time, as well as its use as a permanent monitoring station, will allow the accumulation of various baseline data and can

eventually create a scientifically valuable environmental benchmark. Therefore, any research and scientific use will be encouraged in such an area provided it does not disturb the tract's basic ecological integrity.

Benefit to Park

Establishment of research natural areas encourages scientific research in parks by providing a suitable environment for observational research and by promoting the development of a long-term site-specific research record. More scientific research and monitoring carried out in parks, especially over the long term, increases the probability of useful information being generated to guide park natural resources management.

Authority

Act of August 25, 1916

36 CFR 2.6

Applicable References

Federal Committee on Ecological Reserves, 1977. A Directory of Research Natural Areas on Federal Lands of the United States of America. Forest Service, Department of Agriculture.

The Nature Conservancy, 1975. Preserving Our Natural Heritage Volume I: Federal Activities. Chapter Eleven: Federal Committee on Ecological Reserves. U.S. Government Printing Office.

National Park Service, 1965. Natural Sciences Research Handbook. Chapter Nine: Research Natural Areas. Unpublished.

Criteria for identification, evaluation, and selection of sites

Research natural areas should be selected usually from typical, preferably undisturbed, biotic community types. A map of these biotic community types in the park is a useful starting point. It is preferable that the site be relatively accessible. At least one site in each of the major biotic community types would be a desirable long-range goal. Integrated systems, combining aquatic and terrestrial ecosystems, are desirable if feasible, including upper watersheds. Larger areas are more acceptable than very small ones. Areas that may be impacted by future park development should be avoided. The Superintendent may want to initiate a survey to identify the best potential sites, using in-house or other expertise including the disciplines of plant ecology, geomorphology, landscape architecture, etc. An interdisciplinary team of scientists and resource managers would be most appropriate to accomplish this. Sites selected should be classified according to the various ecological or other schemes provided in the Directory (p. 268).

Designation procedures

The Superintendent should complete and forward a Form 10-229 and accompanying topographic map through the Regional Director to WASO for review. If it appears to qualify, it will be submitted to the Director for approval. If approved, it will subsequently be documented in the "Federal Register" and appear in any possible update of the Directory compiled by the Federal Committee on Ecological Reserves. Newly established sites can only be disestablished by the Director via proper procedures, such as notification in the Federal Register and coordination with existing research natural area data bases. Designation should in most instances be considered a permanent and long term action.

Management

The overall policy and management guidelines for research natural areas, found in the front of the 1977 publication "A Directory of Research Natural Areas on Federal Lands of the United States of America," applies to the Service as well, as this document was reviewed and approved by 19 Federal agencies prior to its publication.

Zoning

The designation will occur in the Outstanding Natural Feature Subzone or Natural Environmental Subzone, if these subzones are recognized in the GMP. If not, they can be designated without them.

Relationship to legislative designations

They can occur in legislatively mandated designations like a Wilderness Area.

Resources management considerations

Visitor use should be managed in such a way as to not permit any activity that could lessen the site's integrity, or permit interference with ongoing research projects. Consequently, camping, trail construction, facility erection (with the exception of temporary research structures), vegetation management, range and pasture use, or mineral entry should never be permitted. It may be appropriate to exclude all uses except non-destructive research. The site should be located both narratively and on maps in the General Management Plan, and on-ground posting or fencing is an option. Size can be small or large, provided it can be realistically maintained with necessary use restrictions over time. Unless mitigating action is required under NPS policy, catastrophic natural events, such as insect infestations, fire, and climatological phenomena should be allowed to take their course. Other guidelines on management can be found in the Directory (pp. 273-274) and are essentially parallel with those for units of the National Park System.

Science program considerations

Baseline inventory and long-term ecological research should be emphasized in these areas, as their foremost purpose is to create an ecological/environmental benchmark over time. Research and monitoring results at the site should be on file in the park for use by scientists. Temporary, semi-permanent, or permanent research structures are permitted, if absolutely necessary.

Outside scientists not requiring funding should submit a research proposal to the Superintendent for his review and approval at least 60 days before commencing their project. Within-house research or that funded by NPS will be generally guided by the research needs outlined in the Resources Management Plan. Four copies of a report showing results of the researcher's study shall be furnished to the Superintendent. Two of these shall be retained for the park files, one should be retained in the Regional Office, and one should go to the Director for inclusion in the research report files in the Office of Science and Technology, WASO.

It is particularly pertinent that a file be set up within the park for all research findings generated from within these site categories. This way scientists will have the benefit of ready access to all research findings generated from the site thereby documenting and encouraging the establishment of environmental baselines. The Superintendent will be encouraged in the future to identify, in the Superintendent's Annual Report, research projects conducted in officially designated sites, which may be then possibly keyed to the specific designated tract in any future publication of the "Annual Report of the Chief Scientist."

Interpretation

Since the primary function of the site is to provide scientists with a permanent tract where non-interference with their research can be expected, interpretation which encourages an influx of visitors should be discouraged, unless it involves very well supervised interpretation of ongoing research.

Educational use

Educational use is compatible with the purposes of the designation provided visitors do not negatively impact the integrity of the site in any way or cause interference with scientific studies.

Public recreational use

Any type of active, or potentially destructive, recreational pursuits should not be allowed in these tracts, because of the likelihood of negatively impacting the landscape.

Development

Development is not permissible with the exception of temporary, semi-permanent, or permanent research structures.

Publicity

The existence of these sites must be made known to scientists through incorporation in the publication "A Directory of Research Natural Areas on Federal Lands of the United States of America." Research publications should reference the RNA where research was conducted.

Program coordination

The overall research natural area activity in the Service will be coordinated by the Washington Office through creation of master files on existing sites throughout the System, update of the Directory as required, Service representation to other agencies, and policy oversight. However, implementation of the activity is the responsibility of the NPS regions. Interagency transfer of information about ongoing activities and research results is encouraged.

Budgetary considerations

No funds will likely be designated specifically for research in research natural areas. However, research natural areas can accommodate many park research needs and their use in this way, especially for long-term research, should be encouraged.

Personnel management considerations

It is desirable to have someone on the park staff responsible for continuity of activities relative to these sites as part of his job description.

B. Experimental Ecological Area

Definition

Specific tracts set aside (permanently or temporarily) and managed for approved manipulative research purposes, e.g., habitat manipulation such as cutting, burning, etc. Such tracts should be established within areas of the park landscape that have been previously disturbed.

Guiding Principle

Historically, the Service has set aside tracts for various types of manipulative research, generally on a case-by-case basis, in order to generate information that will allow the development of a better management strategy for a particular resource. The Service is not widely recognized to allow this activity. Such discretionary use of small parts of the park landscape is projected to become increasingly necessary in the future; therefore, Resources

Management Plan drafters should be cognizant of a general NPS policy to establish such areas in occasional circumstances. It is recommended that Experimental Ecological Areas be established only when related to the management and research requirements of a park, e.g., when initiated by NPS biologists/contractors or when initiated by outside scientists provided the research proposal is compatible with the identified Resources Management Plan. They might be established in part of the park landscape already previously disturbed by man or natural causes, e.g., abandoned developments, road beds, farmland, dumps, logged areas, storm impact areas, etc., but could occur in undisturbed habitat if necessary, such as in studies related to fire ecology, pest management, exotic species, etc. If the manipulative research is to extend over a long period of time, such establishment gives it exactly the same attributes beneficial to science/researchers, and potentially to management, as the Research Natural Area, though it is recognized as an Experimental Ecological Area. At the conclusion of the research project, the tract can be allowed to recover to undisturbed conditions over time, or it can be given permanent status, in which case formal establishment procedures are required.

Benefit to Park

Same as for Research Natural Area. Some limited and well-supervised manipulative research may be crucial in securing certain types of information that can guide natural resources management strategies.

Authority

Act of August 25, 1916

36 CFR 36

Applicable References

Federal Committee on Ecological Reserves, 1977. A Directory of Research Natural Areas on Federal Lands of the United States of America. Forest Service, Department of Agriculture.

The Nature Conservancy, 1975. Preserving Our Natural Heritage Volume I: Federal Activities. Chapter Eleven: Federal Committee on Ecological Reserves. U.S. Government Printing Office.

The Institute of Ecology. 1977. Experimental Ecological Reserves: A Proposed Network. U.S. Government Printing Office.

The Institute of Ecology. 1981. Experimental Ecological Reserves: Final Report on a National Network. Institute of Ecology.

Criteria for identification, evaluation, and selection of sites

They should preferably be established in part of the park landscape already previously disturbed by man or natural causes. Other considerations relate to the type of biotic community that requires

manipulative research. Ideally, interdisciplinary study teams should do a review for potential sites, and park Resources Management Plans should be consulted.

Designation procedures

Same as for Research Natural Areas, except that no "experimental ecological areas" have yet been incorporated in the Directory. They may be in the future. Ninety-six "experimental ecological reserves", a parallel concept described by the Institute of Ecology, have been designated.

Management

The 1977 publication "A Directory of Research Natural Areas on Federal Lands of the United States of America," defines experimental ecological areas. Although the management policy for research natural areas in this publication does not explicitly state it is for experimental ecological areas as well, NPS might regard such policy as applicable for both designations. The 1981 publication "Experimental Ecological Reserves: Final Report on a National Network" does not give specific management policy for the parallel designation "experimental ecological reserve".

Zoning

These sites could be located in the Natural Zone or Special Use Zone, if these zones are recognized in the GMP. If not, they can be designated without them.

Relationship to legislative designations

This site should not be located within a Wilderness Area because destructive research is not permitted and would be against the management intent of a wilderness area, except possibly under certain well constrained conditions.

Resources management considerations

Same as for Research Natural Areas, except that manipulative research is permissible.

Science program considerations

Same as for Research Natural Areas.

Educational use

Same as for Research Natural Areas. Educational value could be considerable if interpretation is very well supervised.

Public recreational use

Same as for Research Natural Areas.

Development

Same as for Research Natural Areas.

Publicity

Same as for Research Natural Areas. However, since the longevity of the Experimental Ecological Reserve may be briefer, publicity sensitivity may not be as crucial.

Program coordination

Same as for Research Natural Areas.

Budgetary considerations

Same as for Research Natural Areas.

Personnel management considerations

Same as for Research Natural Areas.

C. Protected Natural Areas

Definition

Sites given extra protection and surveillance because they possess rare, unique, or outstanding geologic, biologic, or other resources typically other than the park's foremost natural features. Examples of such areas include a remnant virgin forest stand, a rare section of alpine tundra vegetation still in essentially presettlement condition, a small portion of the park landscape containing an endangered or threatened species, a gorge harboring a rare relict plant species, etc.

Guiding Principle

Identifying the location of exceptional sites within the landscape decreases the probability that the site's integrity could be harmed by potential ignorance of the resource it contains.

Benefit to Park

Formally locating and identifying certain rare, unique, fragile, or outstanding small tracts in parks increases the likelihood that their importance will be appreciated and their integrity preserved over time. Such an information base can be consulted relative to all types of park management actions, and will be readily available regardless of shifts in park personnel. Park staff will thereby be better able to protect these tracts if they are formally recognized as significant, and planning documents contain a description of their significant features and location.

Authority

Act of August 25, 1916

Applicable References

None. This is a new NPS initiated designation.

Criteria for identification, evaluation, and selection of sites

These sites are simply rare, unique, fragile, or unusually valuable tracts, and require adequate professional assistance to identify and select them. They can be variable in size, but since they are typically other than the park's well-known and foremost natural features, they are usually small. The location of the sites should appear in the park General Management Plan. Widely circulated documents may not contain information about the site due to the possibility of the resource being impacted by over-visitation, unless park staff are certain they can both protect and interpret these areas.

Designation procedures

Designation can be accomplished by the park, and concurrence by the Regional Director would be desirable. A copy of information about the site's description and location should be provided for WASO master files. The designation should be considered permanent or semi-permanent. A file with the description and location of these sites should be created in each park, in addition to their identification in the General Management Plan.

Management

Zoning

The designation will occur in the Outstanding Natural Feature Subzone or Natural Environmental Subzone, if these subzones are recognized in the GMP. If not, they can be designated without them.

Relationship to legislative designations

Sites can and will occur within Wilderness Areas and should be designated whether they are within or without.

Resources management considerations

Because of the need to maintain these areas in completely undisturbed condition, visitation will need to be regulated. In fact, some areas could require being closed to the public under the authority of 36 CFR 2.6. Others may be sensitive enough to require no publicity about their existence to the general public, including incorporation in park Resources Management Plans.

Science program considerations

Research can take place in these areas as well as elsewhere in the park provided it is non-manipulative and will not impact the site's integrity. However, preservation is primary and research, unlike in the Research Natural Area, is secondary.

Interpretation

Appropriate activities such as nature study and observation, photography, etc. are acceptable; activities which are likely to create negative impacts on the site should be avoided.

Educational use

Same as above.

Public recreational use

Same as above.

Development

None permissible, unless rare circumstances exist.

Publicity

May require no publicity about their existence in some instances due to their sometimes fragile character.

Program coordination

A master file on Servicewide existence of these sites will be retained in WASO, along with overall policy direction. Responsibility for implementation remains with the NPS regions.

Budgetary considerations

A park may elect to provide specific funding to inventory, designate, and manage such sites.

Personnel management considerations

The park ranger or natural resources management staff should provide frequent surveillance of such sites designated, and this responsibility should be incorporated in their respective job descriptions.

D. Biosphere Reserves

Definition

A site, usually representative of a biogeographic province and therefore typically large in size, that is part of a world-wide network of natural reserves set aside for the purposes of conserving genetic resources, facilitating long-term research and monitoring, and encouraging education and training. The idealized biosphere reserve consists of a core (strict preservation) and a buffer zone (manipulative research). There are 38 biosphere reserves in the U.S., 17 of which are national parks, and 215 in the world as of June 1982.

Guiding Principle

Establishment of biosphere reserves in biogeographical provinces of the world can create a world-wide system of protected areas all with common management goals. They are all dedicated to long-term research to better understand how ecosystems function and man's influence upon them. The system also establishes a communications network for exchanging research results between countries through the framework of Man and the Biosphere (MAB) National Committees, specifically MAB Project 8. In the U.S., biosphere reserve boundaries are usually congruent with park, refuge, or forest boundaries, and the core-buffer concept has been handled by designating two different but geographically close areas, e.g., national park as core and experimental forest as buffer. In most existing U.S. biosphere reserves, boundaries are congruent with previously existing parks, refuges, or experimental research areas, though in some parts of the world the concept has been used on occasion to establish new preserves.

Biosphere reserves are also intended to be educational, demonstration, and training centers for communication about how ecosystems operate, methods of managing them, and ways to support sustainable and integrated development on a regional basis. The designation gives NPS areas an expanded mission, to serve as baseline areas for collection of resource information, as well as centers for the study of natural undisturbed ecosystems, which can provide improved perspective on resource management and land use problems of local, regional, national, and global significance.

Benefit to Park

Biosphere reserve designation attempts to focus more research on a specific tract, particularly long-term research. It allows the park to be both a contributor and a beneficiary of research generated in other similar biosphere reserves in the country and the world through a formal network of information exchange. Long-term research is critically needed to better understand ecosystem structure and function, as well as man's influence on such ecosystems, and thereby provide the information needed to guide intelligent resources management strategies and actions.

Authority

Act of August 25, 1916

Applicable References

UNESCO. 1973. Expert Panel on Project 8: Conservation of Natural Areas and the Genetic Material They Contain/Final Report. UNESCO.

UNESCO. 1974. Criteria and Guidelines for the Choice and Establishment of Biosphere Reserves. MAB report Series No. 22. UNESCO

UNESCO. 1981. Guidelines for Identification, Evaluation, and Selection of Biosphere Reserves in the United States. UNESCO.

UNESCO. 1981. Interim Guidelines for Identification and Selection of Coastal Barrier Reserves. UNESCO.

UNESCO. 1981. Communication to the Public in U.S. Biosphere Reserves. U.S. MAB Report NO. 4. UNESCO

Designation procedures

Candidate areas are identified by a multidisciplinary scientific review panel, and then forwarded to the U.S. MAB Project 8 committee for review. The National Committee must obtain approval of the site administrator before transmitting the designation to the MAB International Coordinating Council in Paris for final approval and designation.

Management

Zoning

Since biosphere reserves are frequently contiguous with park boundaries, zoning is not of particular importance here.

Relationship to legislative designations

Biosphere Reserves can incorporate Wilderness Areas within their boundaries if the park has all other necessary qualifications.

Resources management considerations

National parks have been utilized as the "core" area for biosphere reserves. As such, they represent an essentially undisturbed landscape relative to the companion "buffer" zone. Management of the "core" area of biosphere reserves should thus be compatible with wise management as a national park.

Science program considerations

Biosphere reserves represent sites where long-term environmental monitoring is encouraged. As such, research carried out in the park should be mindful of this overriding theme or purpose.

Interpretation

Same standards as for national parks, except that biosphere reserves should capitalize on such status to interpret how the site relates to the goals of MAB Project 8 and MAB in general. The biosphere reserve plaque is intended to encourage this. Demonstration and training activities should also be encouraged.

Educational use

Same as above.

Public recreational use

Same as for national parks, being mindful that the "core" of a biosphere reserve is intended to represent an essentially undisturbed, unmanipulated and protected area.

Development

Should be discouraged, although previously existing development prior to designation should be tolerated.

Publicity

Because of the honor that goes with designating a site as part of an international network, this fact should be recognized through plaques, brochures, and other materials describing the MAB program and the significance of the designation. The availability and location of biosphere reserves should be made widely known to the public to promote their appreciation and use without harming their integrity.

Program coordination

MAB Project 8 activities are coordinated by a MAB Project 8 committee which is one of 14 under the U.S. MAB National Committee, which derives its overall policy direction from the MAB International Coordinating Council in Paris. MAB projects areas are being reviewed now and some will be dropped. Not all are active in the U.S. Integration of activities with other biosphere reserves in the region and globally is a particularly important objective.

Budgetary considerations

Government agencies are responsible for funding their own research in biosphere reserves, although financial assistance can be obtained for some projects through a U.S. Interagency Consortium. Particular priority should be given to funding long-term research

Personnel management considerations

All park personnel should be informed about the purpose of biosphere reserve status so they can communicate or interpret its role to the public. Scientific staff should maintain close liaison with the MAB Project 8 Coordinator in WASO. Superintendents of biosphere reserves have as part of their responsibilities the development and operation of a program of interdisciplinary research which meets short-term and long-term management needs.

E. National Natural Landmark

Definition

A natural area that is an outstanding representative example of terrestrial or aquatic communities, landforms, geological features, habitats or native plant or animal species, or fossil deposits. The Secretary can designate a site a National Natural Landmark if he judges it meets the criteria for "national significance". They range in size from less than an acre to over a million acres and are designated on both public and private land. There are presently 543 National Natural Landmarks in 48 states, American Samoa, Guam, Puerto Rico, and the Virgin Islands.

Guiding Principle

Designation of National Natural Landmarks seeks to encourage the preservation of outstanding natural areas in the U.S. by recognizing their significance. Landmarks are designated regardless of ownership, and participation in an agreement to protect the designated site is entirely voluntary. Not to be confused with the protected Natural Area. The Secretary will designate nationally significant National Natural Landmarks, while NPS will designate (established by Superintendent and approved by WASO). Protected Natural Areas which may be of a lesser significance, although one site could conceivably have both designations.

Benefit to Park

Designation of National Natural Landmarks through the actions of the NPS National Natural Landmarks Program, such sites being recognized as "nationally significant", contributes to the park information base on the location of rare, unique, or exceptional tracts within the park and helps park managers in land use planning just as do Protected Natural Areas. The only difference between Protected Natural Areas and National Natural Landmarks is that National Natural Landmarks are part of a nationwide system of nationally significant sites recognized by the Secretary, and the Protected Natural Areas are sites within the National Park System recognized as exceptional by the park staff. Available information on and recognition of the existence and location of exceptional areas enhances the likelihood that their integrity will be preserved over time. The National Natural Landmarks Program gives park staffs the opportunity to recommend areas that they believe to be of special signi-

Authority

Historic Sites Act of 1935

Applicable References

Federal Register. National Natural Landmarks Program: Final Procedures. Volume 45, No. 238. Tuesday, December 9, 1980.

Federal Register. National Registry of Natural Landmarks. Vol. 45, No. 232. Monday, December 1, 1980.

Criteria for identification, evaluation, and selection of sites

A National Natural Landmark must be nationally significant, i.e., contain a representative example(s) of the nation's natural history, including terrestrial communities, aquatic communities, landforms, geological features, or habitats of native plant and animal species, illustrating or interpreting the nation's natural heritage. The primary criterion for national significance is that the area must contain one or more high quality examples of ecological or geological features, while the secondary criteria include consideration of inherent diversity, condition, viability, education and research, geographic location, and critical features or habitats. The above criteria are different from national significance criteria developed for national parks as expressed in the Management Policies. National natural landmarks can also be research natural areas or protected natural areas, and can occur in parks also designated as biosphere reserves, world heritage sites, or wilderness areas.

Designation procedures

Designations are made by the Secretary of the Interior upon recommendation of the National Park Service. Potential landmarks are identified in contracted natural region surveys, and through recommendations made by knowledgeable individuals or interested agencies (e.g., State natural area programs or Federal land management units). Each potential landmark is evaluated and reviewed by a panel of experts. Sites which appear to qualify as natural landmarks are forwarded to the Secretary for designation as nationally significant natural areas.

ManagementZoning

National Natural Landmarks will likely occur in the Outstanding Natural Feature Subzone or the Natural Environmental Subzone, if these subzones are recognized in the GMP. If not, they can be designated without them.

Relationship to legislative designations

Resources management considerations

Sites should be managed in such a manner as to not permit any negative impact to the site's integrity.

Science program considerations

Sites can be used as research sites; however, like the Protected Natural Area, protecting the site's integrity is primary while potential use as a research site is subsidiary.

Interpretation

Unless the site is fragile, natural landmarks provide an excellent opportunity for interpretation of special park resources.

Educational use

Same as above.

Public recreational use

Because of the recognized national significance of the site, recreational use may need to be more restricted than elsewhere in a park to prevent potential human impact.

Development

Should not be permitted, unless it is compatible with the resources and needed for interpretation/educational uses.

Publicity

Some National Natural Landmarks can represent areas whose integrity could be jeopardized by over-visitation. The location should not be widely publicized unless their protection during visitation/interpretation is assured.

Program coordination

Although national natural landmark designation in the past has excluded the National Park System from consideration, this policy is now changed. Park staff may wish to suggest features for consideration as potential National Natural Landmarks.

Budgetary considerations

There are no funds available to assist in better managing National Natural Landmarks, though technical assistance can be provided.

F. World Heritage Site

Definition

A property, either natural or cultural, is added to the World Heritage List if the World Heritage Committee determines that it has "outstanding universal value to mankind." There are 9 designated in the U.S. (all on NPS lands) and 112 in the world in 32 countries.

Guiding Principle

Listing properties on the World Heritage List is intended to encourage their preservation by recognizing their outstanding universal significance. Participating countries may request technical and financial assistance to protect, preserve, and restore World Heritage sites. The World Heritage Convention came into force in 1976. The World Heritage Committee, an elected 21-member nation body responsible for implementing the Convention, is assisted in this function by UNESCO, the International Union for the Conservation of Nature (IUCN), and the International Council on Monuments and Sites (ICOMOS).

Benefit to Park

Addition of a park to the World Heritage List recognizes the resources as having "outstanding universal value" and thus a heritage of interest and concern to the world. Such recognition can provide park managers with the opportunity to better interpret park values as well as more leverage for preserving the resource.

Authority

Convention Concerning the Protection of the World Cultural and Natural Heritage, ratified by the United States Senate, October 26, 1973.

Title IV, National Historic Preservation Act Amendments of 1980 (PL 96-515; 160 S.C. 470a-1).

Applicable References

Convention Concerning the Protection of the World Cultural and Natural Heritage.

Federal Register. World Heritage Convention - Final Rules. May 27, 1972.

Bennett, Peter H. 1977. "Operational Guidelines for World heritage Convention." Parks 2(3): 5-7.

Criteria for identification, evaluation, and selection of sites

The World Heritage Committee has adopted the following criteria which cultural or natural properties must satisfy to be included on the World Heritage List:

Criteria for the Inclusion of Cultural Properties on the World Heritage List

A monument, group of buildings or site—as defined in Article I of the Convention—which is nominated for inclusion on the World Heritage List will be considered to be of outstanding universal value for the purposes of the Convention when the Committee finds that it meets one or more of the following criteria and the test of authenticity. Each property nominated should therefore:

- (a)(i) represent a unique artistic achievement, a masterpiece of the creative genius; or
- (ii) have exerted great influence over a span of time or within a cultural area of the world, on developments in architecture, monumental arts or town-planning and landscaping; or
- (iii) bear a unique or at least exceptional testimony to a civilization which has disappeared; or
- (iv) be an outstanding example of a type of structure which illustrates a significant stage in history; or
- (v) be an outstanding example of a traditional human settlement which is representative of a culture and which has become vulnerable under the impact of irreversible change; or
- (vi) be directly and tangibly associated with events or with ideas or beliefs of outstanding universal significance; and
- (b) meet the test of authenticity in design, materials, workmanship or setting.

Criteria for the Inclusion of Natural Properties on the World Heritage List

A natural heritage property—as defined in Article 2 of the Convention—which is submitted for inclusion on the World Heritage List will be considered to be of outstanding universal value for the purposes of the Convention when the Committee finds that it meets one or more of the following criteria and fulfills the conditions of integrity set out below. Properties nominated should therefore:

- (i) be outstanding examples representing the major stages of the earth's evolutionary history. This category would include sites which represent the major "eras" of geological history such as "the age of reptiles" where the development of the planet's natural diversity can well be demonstrated and such as the "ice age" where early man and his environment underwent major changes; or
- (ii) be outstanding examples representing significant ongoing geological processes, biological evolution, and man's interaction with his natural environment. As distinct from the periods of the earth's development this focuses upon ongoing processes in the development of communities of plants and animals, landforms, and marine and fresh water bodies. This category would include for example (a) as geological processes, glaciation and volcanism, (b) as biological evolution, examples of biomes such as tropical rainforests, deserts and tundra, (c) as interaction between man and his natural environment, terraced agricultural landscapes; or
- (iii) contain superlative natural phenomena, formations or features or areas of exceptional natural beauty, such as superlative examples of the most important ecosystems, natural features, sweeping vistas covered by natural vegetation and exceptional combinations of natural and cultural elements; or
- (iv) contain the most important and significant natural habitats where threatened species of animals or plants of outstanding universal value from the points of view of science or conservation still survive.

In addition to the above criteria, the sites should also fulfill the conditions of Integrity.

Designation procedures

States party to the Convention nominate properties that appear to qualify for inclusion on the World Heritage List to the World Heritage Committee. The U.S. employs an annual (Jan. - Dec.) process to identify and prepare nominations to the World Heritage List. The Assistant Secretary for Fish and Wildlife and Parks, in cooperation with the Federal Interagency Panel for World Heritage, nominates approved properties to the World Heritage Committee for consideration. The National Park Service coordinates the preparation of U.S. World Heritage nominations.

Management

Zoning

Usually contiguous with park boundaries, though it does not have to be, as the boundary of the internationally significant resource may not parallel the park boundary. Hence zoning within a park is generally not a consideration. Independence Hall, a component of Independence National Historical Park, represents a site on the World Heritage List whose boundary is not contiguous with the park boundary.

Relationship to legislative designations

Sites can be designated wherever qualified areas exist, including those already having other legislative or non-legislative designations. Sites must have previously been determined to be nationally significant, e.g., national natural or historic landmarks.

Resources management considerations

Sites should be managed in such a manner as to not permit any negative impact to the site's integrity. The nominations for the site must include evidence of the legal protective measures taken to ensure the preservation of the property and its environment.

Science program considerations

Same as for national parks.

Interpretation

Same standards and considerations as apply to national parks. However, since a World Heritage Site has been determined to possess outstanding universal value to mankind, this recognition should be publicized at the site through bronze plaques, explanatory brochures, and related interpretive programs covering the range of the program's implications from site specific to international: concept of "World

Public recreational use

Same as for national parks.

Development

Same as for national parks.

Publicity

Because of the honor that goes with international recognition, this fact should be recognized through plaques, brochures, and other materials describing the World Heritage Convention and the significance of the site.

Program coordination

The World Heritage Committee, supported by UNESCO, guides the activity worldwide, while the Assistant Secretary for Fish and Wildlife and Parks, in cooperation with the Federal Interagency Panel for World Heritage, guides the activity in the United States.

Budgetary considerations

The World Heritage Fund, administered by UNESCO, provides a minimal amount of money which all participating countries in the world can apply for.

Personnel management considerations

The performance of administrators of World Heritage Sites should be based in part on how well the values of the site are interpreted and managed.

G. Wilderness Area

Definition

A unit of the National Wilderness Preservation is a site designated by Congress and legally protected as wilderness in perpetuity. The Act defines wilderness as follows: ". . . generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable. . ." In the case of Alaska, legislation establishing parks there can have provisions which modify the Wilderness Act relative to its application in the lower 48 states. Since passage of the Wilderness Act of 1964 (P.L. 88-577), 257 sites in the U.S. have been established, including 26 in NPS lands.

Benefit to Park

Wilderness designation provides legislative support for protecting certain areas of a park from further development, and certain recreational uses, as well as additional support against potential resource exploitation activities.

Authority

Wilderness Act of 1964.

Applicable References

Wilderness Act of 1964.

Criteria for identification, evaluation, and selection of sites

Each unit must be at least five thousand acres or be of sufficient size as to make practicable its preservation and use in an unimpaired condition. Agencies review their lands and make nominations to the Congress. An act of Congress is required to create a unit of the National Wilderness Preservation System.

Management

Zoning

Wilderness is usually confined to the Natural Zone, but may contain limited acreages in other zones.

Relationship to legislative designations

A Wilderness Area is the only legislatively mandated designation discussed in this guideline.

Resources management considerations

Only those practices necessary for preservation of wilderness values are permissible. See Chapter VI of the Management Policies for specifics. Alaskan parks have provisions which modify the Wilderness Act and hence the above policies.

Science program considerations

The scientific value of wilderness areas is recognized via their potential use as outdoor laboratories, and as such research is encouraged, provided it does not negatively impact the resource, intrude on the aesthetics, or interfere with recreational enjoyment.

Interpretation

Educational use

The emphasis here is education through the provision of a wilderness experience.

Public recreational use

Primitive trails for foot and horse travel are permissible, but no improvements are allowable for the convenience of visitors, except for some trailside shelters, unless exceptions prevail.

Development

Only those structures necessary for preservation of wilderness values are permissible by law, i.e., patrol cabins and structures associated with saddle and pack stock control, unless exceptions prevail.

Publicity

The availability and location of Wilderness Areas should be made widely known to the public to promote their enjoyment without harming their integrity.

Program coordination

Each Federal agency has the responsibility of complying with the requirements of the Wilderness Act of 1964.

Budgetary considerations

Each Federal agency has the responsibility of managing wilderness areas as appropriate.

Personnel management considerations

The performance of managers of units of the National Wilderness Preservation System should be based in part on how well they manage the wilderness tract.

V. GUIDELINES FOR NATURAL ZONES

Two subzone classifications already appear in the "Planning Process Guidelines (NPS-2)," although they are erroneously referred to as site designations. The definitions as given in this document are as follows:

- A. Outstanding Natural Feature Subzone. For public appreciation and interpretation of geological or biological features possessing unusual intrinsic value or uniqueness, e.g., Yosemite Falls, Hob Rainforest, Crater Lake.
- B. Natural Environmental Subzone. For provision of environmentally compatible recreational activities. Where recreational activities are not now occurring, these areas are undeveloped and managed to conserve natural resources.

Type of System	Year Established	Application	Number Designated NPS	Number Designated USA/World	Principal Uses	Coordinating Body	Comments
National	1966	Usually small parts of units; NPS designates	58	426	Observation monitoring and research. Principal sites for acquiring benchmark environmental and ecological information.	Federal Committee on Ecological Reserves	An old concept on NPS lands but the activity has never received necessary support and direction. This will now change as of this directive, and this activity will now receive high priority.
National	1974	Usually small parts of units; NPS designates	0	67	Experimental research involving disturbance of natural ecosystems	Federal Committee on Ecological Reserves	This designation is a new concept for NPS lands, although manipulative research has been carried out occasionally in the past to carry out certain important research projects. None established yet. NPS will proceed in assessing potential sites for designation. See Foot-note 3.
NPS	1981	Usually small parts of units; NPS designates	0	-	Basically a "red flag" designation recognizing a natural site as unique, rare, fragile, or outstanding. In contrast to the Research Natural Area or Experimental Ecological Reserve, the primary purpose is preservation of the resource while research may be secondary.	NPS	A new concept conceived strictly for NPS lands, but none designated as yet. May be applied to many areas not of "national significance". Like the Research Natural Area, this designation will now receive high priority. A site must be either a Research Natural Area or Preservation Natural Area but not both, based on the character of the resource and intended use.

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<u>Designation</u>	<u>Type of System</u>	<u>Year Established</u>	<u>Application</u>	<u>Number Designated</u>		<u>Principal Uses</u>	<u>Coordinating Body</u>	<u>Comments</u>
				<u>NPS</u>	<u>USA/World</u>			
National Natural Landmarks	National	1963	Usually small parts of units; Secretary designates.	10	537	Variable. Major emphasis on protection of "nationally significant" natural features	NPS	Designation has not yet been applied to National Park System. NPS makes recommendations to the Secretary. However, three do exist in parks where designation occurred prior to park establishment. It is conceivable some National Natural Landmarks could also be either Research Natural Areas or Protected Natural Areas.
Wilderness Areas	National	1964	Parts of units; Congress designates.	26	257	Primitive recreation, protection of natural resources and atmosphere of solitude.	Congress	Addition to National Wilderness Preservation System legally restricts most development and many types of land uses and protects in perpetuity. Designations to the National Wilderness Preservation System for NPS areas are substantially complete, except in newly authorized units.

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<u>Designation</u>	<u>Type of System</u>	<u>Year Established</u>	<u>Application</u>	<u>Number Designated NPS</u>	<u>Number Designated USA/World</u>	<u>Principal Uses</u>	<u>Coordinating Body</u>	<u>Comments</u>
Biosphere Reserves	Inter-national	1974	Entire units or multiple units; UNESCO designates	17	38/220	Natural sites for long-term ecological monitoring/research; public/scientific education and demonstration, protection of genetic resources. Applies to areas that have outstanding international suitability for research and education.	MAB Project 8 within country MAB National Committees. The International Coordinating Council guides MAB worldwide supported by the MAB Secretariat headquarters in Paris.	NPS System is estimated to be approximately 50% complete. Located in 58 countries. In U.S., multiple sites the same biome are increasingly being joined together to form biosphere reserves.
World Heritage Sites	Inter-national	1973	Entire units or parts of units; World Heritage Committee designates.	9	9	Natural and cultural sites recognized as of outstanding universal significance" and added to the World Heritage List to encourage their continued preservation and public appreciation.	NPS coordinates program in U.S. The World Heritage Committee worldwide, supported by a Secretariat in Paris at UNESCO headquarters.	Located in 32 countries. A few World Heritage Sites are also Biosphere Reserves. To all in U.S. are on lands. More will likely be designated in the U.S.