

A Proposed Plan for National Park Service  
Policy and Program for the Care and Development of Natural  
History Collections

Display, Interpretive and Research Collections

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## PREFACE

This document proposes a policy and program to develop and care for display, interpretive and research natural history collections that belong or are entrusted to the National Park Service, U.S. Department of the Interior. This plan also synthesizes natural history collection information that already exists within the agency.

Many people contributed their knowledge to this document. They did so with the hope that their contribution would help create the most accurate account possible of the status of these collections, and the most enlightened statement as to what is eminently achievable vis-a-vis these collections in the future.

Special thanks is given to Arthur C. Allen, Chief, Division of Museum Services, Harpers Ferry Center, for his strong support throughout the development of this proposal. Appreciative acknowledgement of general helpfulness is extended to the other people at Harpers Ferry Center and still other National Park Service personnel of the Division of Science and Technology in Washington, D.C. In addition, appreciation is offered to both those who reviewed the earlier draft policy/program plan and those who will continue to express their interest as the plan evolves into a working policy and management program for natural history museum collections Servicewide.

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## EXECUTIVE SUMMARY

This proposed plan has been developed to ensure long-term support and management of natural history collections within the National Park Service. It is proposed because the National Park Service cannot discharge its legal and historical obligations to preserve the natural resources in its care unless it knows what these resources are, and much of this necessary knowledge comes from natural history collections--collections that document what once was or now is contained in parks. Additionally, the natural history type information now being recorded can become where added to collections, a permanent source for future reference.

In short, natural history collections can provide much of the data necessary for the accurate interpretation of parks; they support the interpretation of hard data and relevant concepts by providing illustrations. They form a valuable backdrop for our cultural and natural heritages.

As the groups of objects in these collections are government property and represent real financial investments, the personnel charged with their care could be most responsible for them by adhering to uniform standards and directions, and therefore, logic dictates, should receive standardized training in their use and care.

It is intended that this program, once implemented, ensure a high quality of care for all National Park Service natural history collections, field notes, logs, and photographs through the improvement of their individual condition and settings, as well as the directing of development of future

specimens in a collection, to the handling of specimens and their logistics and management.

Chapter IV traces the legal responsibility and authority the National Park Service has for developing natural history collections in its parks. Chapter V touches on several existing policy and management documents that have been published or distributed by the Service on the subject of collections.

Chapter VIII, Management and Administration, explains to field and Washington Office personnel alike the appropriate channels to work through, and how and to whom within these channels authority is delegated. Sources of consultation and training for use by managers of natural history collections are provided in Chapter VI.

This proposed program and policy is to be considered a working document as it contains sections subject to change. A five-year schedule that would begin in 1981/82 provides recommended steps for improving our inventory, quality and usefulness of National Park Service natural history collections.

The endorsement of this proposed plan and policy, and its incorporation into collections management would provide one mechanism by which the National Park Service can carry out its responsibilities towards preservation, interpretation, and enjoyment of the natural resources residing within its parks.

## I. INTRODUCTION

Since its beginning the National Park Service has held various categories of museum collections in its trust. Among these have been natural history collections and their associated field notes, logs and photographs. These collections are important to the parks in many ways.

First, natural history collections document the interpretive message of natural parks. That is, they can provide factual information for and substantiate many of the concepts used in interpretation by providing tangible examples. And, as many visitors come to national parks not only for recreation but also for the opportunity to gain information about and to observe wildlife or geological formations, some collections are valuable because they are used specifically to interpret key wildlife species or geological specimens.

Secondly, these collections are essential to the maintenance of habitat inventories and monitoring, and to assessments of damage to parks' natural resources. The numerous shifts in environmental protection policies and practices within the parks in years past witness to the need for standard procedures in building, maintaining and using collections for environmental purposes. Without knowing what all the parks' resources are, and their current conditions as well, the National Park Service (NPS) cannot adequately discharge its legal and moral obligations to preserve them. This vital information, needed in considerable depth, is recorded in large part in natural history collections.

Natural history collections also are invaluable records of the state of park ecosystems at different points in time. The herbarium at Great

Smoky Mountains National Park stands as a fine negative example of this point for once it was one of the most complete representations of any area's local flora. Now, however, significant portions of the collection have been discarded and no comparisons can be made, with substantiation, with the flora available in that locale today. Occasionally, this matter of comparisons can be a critical one. It was museum collections, including an NPS collection of egg shells, that most conclusively revealed the species-threatening effect of DDT on shell thickness in birds. As might be suspected, the importance of maintaining egg shell collections had been challenged prior to the DDT studies.

Fourthly, natural history collections serve as proof of identity for specimens said to range or habitat in a park, and are a necessary documentation for published accounts that state specific specimens exist in a particular locale.

Further, cultural values have a chance to develop when natural history collections are associated with prominent persons or events. For instance, the field logs and specimens from the Hayden Expedition in Yellowstone that were instrumental in the establishment of our first national park in 1872, and the specimens, drawings and notes left by John Muir, are all examples of natural history collections that have become part of our cultural heritage.

Natural History collections also have aesthetic value for most people. They enable visitors to parks to see examples of wild plants and animals which may be unusual, nocturnal or which may inhabit only the remote areas of the parks. Collections can illustrate the natural beauty of park resources. These can be examined close up. Varieties of specimens from different locations which show subtle to striking differences in color can enhance the visitor's appreciation for the fertility of our natural areas.

Lastly, in addition to their intangible aesthetic value, natural history collections represent sizeable assets with concrete financial value. Including the costs of materials and labor, it generally takes a minimum of \$25.00 to prepare a specimen for a collection. The Park Service's 127,007 cataloged specimens (1976) may well constitute a worth exceeding \$3,000,000.00 based only on this \$25.00 figure. The value of 107,044 uncataloged specimens and 4,606 additional specimens (1980) on display remains unassessed. Unlike park vehicles and office typewriters, collections appreciate in monetary value if properly maintained. For example, when a species is added to the endangered or extinct lists, specimens of that species, previously collected and now in NPS collections, gain inestimable value overnight. On the otherhand, specimens, notes, and other museum items improperly maintained deteriorate and quickly decrease, not only in scientific value, but in monetary value.

Therefore, to remain scientifically or monetarily valuable, a collection must be purposefully maintained. Preservatives must be changed or replenished regularly; the accessioning, identifying, cataloging, and organizing of specimens must be accomplished with the utmost care. And the collections must be examined regularly so that the rate of any specimen degeneration can be appropriately controlled.

The fragile nature of objects such as natural history specimens, field notes and photographs--all of which become more valuable with age-- requires knowledge and specific skills on the part of those who must ensure their proper care. Park curators, scientists, resources managers, interpreters, and rangers--whether full time or seasonal personnel--share in various degrees the responsibility for maintaining collections. Those with the largest share of the responsibility should be trained to that end; the others can acquire the how-to's

and the rationales behind them in the course of the work. Worthwhile information gained in the process can be turned over, in time, to the curious public.

This proposed plan for the long term support and management of natural history collections has been developed because these collections constitute a valuable portion of our cultural and natural heritage, and because they are government property and represent real financial investments.

The personnel responsible for these collections should adhere to uniform standards and procedures Servicewide. They should receive standardized training in their use and care. The Service's Chief Curator, a new coordinator in this field, is located in NPS' Washington Office, and is designated the focal point for policy and standards formulation vis-a-vis collections, working with regional curators and scientists.

By cooperating with recognized curatorial institutions, such as our own NPS Division of Museum Services, the Association of Systematic Collections, and the Museum of Natural History of the Smithsonian Institution, the National Park Service can raise the quality of its collections and can increase their various values to the parks, the scientific community, and the public. In providing national leadership through cooperative programs, NPS will be enabled to fulfill another of its responsibilities to further the preservation of our natural heritage.

II. GOALS, OBJECTIVES, BENEFITS AND SCHEDULE

- \* Overall Objectives of the Program
- \* Display and Interpretive Collections
- \* Research Collections
- \* Tasks for a Five-year Schedule:
  - 1981-1982 objectives
  - 1983-1985 objectives

## II. GOALS, OBJECTIVES, BENEFITS, AND FOUR-YEAR SCHEDULE

The goals of this program are to improve the condition of natural history collections that are now in the care of the National Park Service and to provide guidance for development of future collections, thus ensuring a standardized quality of care for natural history collections, field notes, logs and photographs located throughout the National Park System. To attain these goals, NPS collections must be developed and cared for in accord with the three functions which they accomplish: display, interpretation and research. As the development, care and restoration requirements for these three functions differ, the specific objectives of the program vary with each function.

### Overall Objectives of the Program:

1. Inventory the size, diversity and specific condition of natural history collections in NPS.
  - 1a. Trace all intact specimens collected in the parks and ensure their permanent availability as research specimens under the NPS trust.
2. Provide facilities and personnel or enter into cooperative agreements in order to curate and conserve specimens.
3. Formalize the establishment of natural history specimen maintenance capabilities in the conservation laboratories in Harpers Ferry, West Virginia.
4. Provide training for collecting, preparing, and maintaining natural history specimens, and for recording and preserving field notes and photographic specimens.
5. Provide guidance to the parks in their development of research collection
6. Establish a list of consulting specialists for specimen preparation and conservation.

7. Ensure specialized curatorial preparation and care for research collections.
8. Provide additional or enhance existing mechanisms for obtaining fiscal and personnel logistical support for the development and care of natural history collections.
9. Provide for the best possible long term maintenance of existing NPS research collections.
10. Provide for the best possible coordination of the development or expansion of research natural history collections with the development of the Service's baseline inventory and long-term monitoring programs.
11. Enhance the availability of NPS research collections to the research community who can return these data gotten from collections and provide the parks with insights on historical or ongoing trends in the status of their natural resources.

The accomplishment of these objectives will allow for more effective management and utilization of existing and future National Park Service natural history collections, as well as associated field notes, logs and photographs. The benefits for having better collections will be reaped with only minimal costs to the parks. Organizationally, maximum advantage will be taken of existing National Park Service programs, that can be adapted to natural history collections. Similar advantage will be taken of other existing Federal and State programs. Because of the routine administration of the program cooperation will significantly increase between the National Park Service and the scientific community through the use of accredited museums and universities. In addition, the program will provide assistance to park Superintendents and their staffs so that tasks not within their usual ranges of expertise can be performed. This availability of assistance will permit park personnel to focus their own efforts more effectively in those aspects of collection maintenance that directly in-

terface with public and educational, in-park programs.

TASKS FOR FOUR-YEAR SCHEDULE

1981-1983 Initiation of overall program objectives and specific program objectives for Display, Interpretation, and Research Collections.

1. Complete Draft Program Plan for NPS Museum Collections.
2. Obtain endorsement of Draft Program Plan for NPS Museum Collections.
3. Establish Priorities for detailed inventory and review of NPS Museum Collections.
4. Initiate a central library for information concerning natural history collections.
5. Initiate an inventory of collections.
6. Establish mechanisms and assign responsibilities for periodic revision of Draft Program Plan.
7. As requested, continue consultations with the parks on their inventories and special collections problems.
8. Complete in 1982 a list of consulting specialists. Make provisions for updating list.
9. Provide initial training for collections personnel.
10. Investigate logistic and fiscal support for Display and Interpretive Collections.
11. Conduct a feasibility study and begin tracing procedures for specimens collected in selected parks which are on loan or which are being housed in other institutions

1983-1985 Follow overall program objectives while specifically pursuing object for Display, Interpretation, and Research Collections.

1. Complete inventory.
2. Fully implement remainder of Plan

3. Review parks' compliance with NPS management policies and specific program policy.
4. Troubleshoot any newly discovered curatorial problems.
5. Establish first NPS Cooperative Research Unit in a museum if need is justifiable.
6. Incorporate specimen-tracing into collecting permits and park catalog.
7. Establish and activate a Restoration and Specimen Care Laboratory in the Division of Museum Services in Harpers Ferry.
8. Maintain a functioning collections policy/advisory/management structure.
9. Annually update a bibliography of museum references, curatorial manuals and field guides in central library for natural history collections.
10. Review the plan's effectiveness in 1985 and make recommendations for revisions.

### III. STATUS OF COLLECTIONS AND INVENTORY

The present status of natural history collections is uncertain. In 1976 an inventory of National Park Service collections was conducted by Jack Pound for the Division of Museum Services. Although the breadth of this survey was restricted and, the statistics were limited, it is still possible using Pound's summaries to surmise where collections exist in the National Park Service and their probable sizes. Unfortunately, no specifics are available on the taxonomic diversity of specimens, their status, their condition, or on the type of care they are receiving. A more comprehensive inventory which builds on the Jack Pound one is a critical first step in implementing this proposed program.

#### Numbers of Specimens -- Data from the Jack Pound Inventory, 1976

The 1976 inventory records a total of 127,007 cataloged natural history specimens existing in the National Park Service. In addition, 107,044 specimens are reported to be in parks but uncataloged, plus 4,606 specimens that are on display and uncataloged. Specimens are categorized in the Jack Pound inventory as follows:

| <u>Categories</u> | <u>Percentage of cataloged specimens</u> |
|-------------------|--|
| Mammals           | 9.5                                      |
| Birds             | 6.6                                      |
| Insects           | 8.3                                      |
| Wet specimens     | 5.8                                      |
| Botanical         | 42.0                                     |
| Geological        | 15.0                                     |
| Fossil            | 10.8                                     |
| Other             | <u>2.0</u>                               |
|                   | 100.0 %                                  |

Most research collections appear to be located in the National Park Service's Western and Rocky Mountain Regions (See Table 1), while most interpretive collections appear to be concentrated in the Southwest, Southeast and Midwest Regions. Clearly, more investigation is needed, and applications of any Servicewide program dealing with these National Park Service collections must be customized to Regional and individual park requirements. Table 1 lists park units which house NPS collections. These collections are categorized by sizes as follows:

|             | <u>Specimens per collection</u> |                  |
|-------------|---------------------------------|------------------|
| Small       | ---                             | 1 to 100         |
| Medium      | ---                             | 100 to 1,000     |
| Large       | ---                             | 1,000 to 10,000  |
| Extra-large | ---                             | 10,000 to 40,000 |

(Note that these are 1976 figures, and undoubtedly need revision).

TABLE 1. Park Collection Sizes

A. Listed units of the National Park System which have small natural history collections (1 to 100 specimens):

Pacific Northwest Region

Fort Clatsop National Memorial  
Sitka National Historical Park

Western Region

Lava Beds National Mounment  
John Muir National Historic Site  
Montezuma Castle National Monument  
Cabrillo National Monument  
Haleakala National Park  
Lehman Caves National Monument  
Redwood National Park  
Channel Islands National Monument

Rocky Mountain Region

Devils Tower National Monument  
Curecanti Recreation Area  
Mount Rushmore National Monument

Custer Battlefield National Monument  
Bighorn Canyon National Recreation Area  
Fort Laramie National Historic Site  
Pipe Spring National Monument

Southwest Region

Chalmette National Historical Park  
Pecos National Monument  
Hubbell Trading Post National Historic Site

Midwest Region

Voyageurs National Park  
Pictured Rocks National Lakeshore  
Jefferson National Expansion Memorial National Historic Site  
Indiana Dunes National Lakeshore  
Homestead National Monument of America  
Grand Portage National Monument  
St. Croix National Scenic Riverway

Southeast Region

Carl Sandburg Home National Historic Site  
Castillo de San Marcos National Monument  
Fort Caroline National Monument  
Guilford Courthouse National Military Park  
Fort Frederica National Monument  
Ocmulgee National Monument

North Atlantic Region

Roosevelt/Vanderbilt National Historic Sites  
Gateway National Recreation Area

Mid-Atlantic Region

Allegheny Portage Railroad National Historic Site  
Johnstown Flood National Monument

National Capital Region

Chesapeake and Ohio Canal National Historical Park  
Catoctin Mountain Park  
Fort Washington/Piscataway NCP-East  
Harpers Ferry National Historical Park

Table 1. (Continued)

B. Listed units of the National Park System which have medium-sized natural history collections (100 to 1,000 specimens):

Pacific Northwest Region

Craters of the Moon National Monument  
Denali National Park

Western Region

Fort Bowie National Historic Site  
Casa Grande National Monument  
Tonto National Monument  
Hawaii Volcanoes National Park  
Golden Gate National Recreation Area

Rocky Mountain Region

Arches National Park  
Florissant Fossil Beds National Monument  
Colorado National Monument  
Black Canyon of the Gunnison National Monument  
Glen Canyon National Recreation Area  
Grand Teton National Park  
Great Sand Dunes National Monument  
Yellowstone National Park  
Badlands National Park  
Wind Cave National Monument  
Cedar Breaks National Monument

Southwest Region

Hot Springs National Park  
Capulin Mountain National Monument  
Fort Davis National Historic Site  
Guadalupe Mountains National Park  
Lake Meredith National Recreation Area  
Alibates Flint Quarries National Monument  
Navajo National Monument  
Wupatki National Monument  
White Sands National Monument  
Bandelier National Monument

Midwest Region

Midwest Archeological Center  
Scotts Bluff National Monument  
Pipestone National Monument  
Effigy Mounds National Monument  
Agate Fossil Beds National Monument  
George Washington Carver National Monument  
Apostle Islands National Lakeshore

Table 1B. (continued)

Southeast Region

Biscayne National Monument  
Cape Hatteras National Monument  
Fort Jefferson National Monument

North Atlantic Region

Acadia National Park

Mid-Atlantic Region

Assateague Island National Seashore  
Colonial National Historical Park  
George Washington Birthplace National Monument  
Shenandoah National Park

National Capital Region

None

C. Listed units of the National Park System which have large natural history collections (1,000 to 10,000 specimens):

Pacific Northwest Region

Oregon Caves National Monument  
Olympic National Park  
Mount Rainier National Park  
Glacier Bay National Monument  
Crater Lake National Park  
North Cascades NPS Complex

Western Region

Joshua Tree National Monument  
Saguaro National Monument  
Organ Pipe Cactus National Monument  
Chiricahua National Monument  
Yosemite National Park  
Sequoia/Kings Canyon National Parks  
Point Reyes National Seashore  
Death Valley National Monument  
Lassen Volcanic National Park  
Petrified Forest National Park  
Lake Mead National Recreation Area  
Pinnacles National Monument

### Rocky Mountain Region

Rocky Mountain National Park  
Dinosaur National Monument  
Bryce Canyon National Park  
Capitol Reef National Park  
Theodore Roosevelt National Park  
Glacier National Park  
Mesa Verde National Park  
Timpanogos Cave National Monument

### Southwest Region

Carlsbad Caverns National Park  
Chickasaw National Recreation Area  
Padre Island National Seashore  
Big Bend National Park

### Midwest Region

Ozark National Scenic Riverway  
Mound City Group National Monument  
Isle Royale National Park

### Southeast Region

Gulf Islands National Seashore  
Virgin Islands National Park  
Natchez Trace Parkway  
Mammoth Cave National Park  
Cumberland Gap National Historical Park

### North Atlantic Region

Cape Cod National Seashore

### Mid-Atlantic

### National Capital Region

Great Falls - George Washington Memorial Parkway, Division of  
Rock Creek Park

- D. Listed units of the National Park System which have extra-large natural history collections (10,000 to 40,000 specimens):

### Pacific Northwest Region

### Western Region

Western Archeological Center  
Grand Canyon National Park

Rocky Mountain Region

Zion National Park

Southwest Region

Chaco Canyon National Monument

Midwest Region

Southeast Region

Everglades National Park  
Great Smoky Mountains National Park  
Blue Ridge Parkway

North Atlantic Region

Mid-Atlantic Region

National Capital Region

IV. SUPPORTING LEGISLATION

1. The National Park System Organic Act (1916)
2. Antiquities Act (1906)
3. Historic Sites, Buildings, and Antiquities Act (1935)
4. Management of Museum Properties Act (1955)
5. Archeological Recovery Act (1960)
6. Code of Federal Regulations: Title 36, Section 2.25
7. Archeological Resources Protection Act of 1979
8. The Redwood National Park Act of 1978

#### IV. SUPPORTING LEGISLATION

1. The National Park System Organic Act of 1916 (16 U.S.C.1) mandates that the National Park Service promote and regulate the use of the national parks to conserve the natural and historical objects contained in them and to preserve these objects in such a manner as to allow for their enjoyment by future generations. Collections preserve, and are available for display and to provide for the interpretation and study of objects. Therefore, the authority for having NPS natural history collections has an accepted basis in the Service's Organic Act. Collections are a proper means for carrying out Service responsibilities towards preservation, interpretation, and enjoyment.

2. The Antiquities Act of 1906 (16 U.S.C.431) gives the President of the United States the authority to declare as national monuments those lands owned or controlled by the U.S. Government that have upon them objects of scientific interest. The Act states that these monuments should be the minimum necessary for the proper care and management of the objects to be protected. The Act further states that permits for the gathering of objects may be granted to institutions that are properly qualified, but only if the examination and gathering are done to benefit reputable museums, universities, and other recognized scientific and educational institutions. Gatherings of objects are for increasing the information about such objects, and are to be made only for permanent preservation in public museums.

The Antiquities Act calls for the secretaries of the Department of Interior, Agriculture, and Defense to make and publish uniform rules and regulations periodically to carry out the provisions of the Act. These regulations give the Secretary of the Interior jurisdiction over objects of scientific interest in all Government-owned lands outside the Secretary of Agriculture's forest lands and the Secretary of Defense's military reservations, and the respon-

sibility to grant permits for gathering of objects of antiquity to reputable museums, colleges, and recognized scientific institutions.

The rules control the collecting of objects on Government-owned lands by defining procedures for permit applications and approvals. Furthermore, these regulations state that the collections are to be preserved in the public museum designated in the permit and are to remain accessible to the public. No permit will be granted for the removal of any object of antiquity which can remain an object of interest if it is permanently preserved under control of the United States in situ.

3. The Historic Sites, Buildings, and Antiquities Act of 1935 (16 U.S.C.461-467) declares as national policy that objects of national significance will be preserved for the inspiration and benefit of the people of the United States. The Act gives the National Park Service the following duties and functions for the care of historic objects:

- a. To secure, collate, and preserve drawings, plans, photos, and other data;
- b. To determine which objects possess exceptional value as commemorative or illustrative examples of United States history;
- c. To research for the true and accurate historical facts;
- d. To acquire property for the purposes of this Act;
- e. To restore, preserve, and maintain historic objects of national significance and, where deemed desirable, to establish and maintain museums in connection therewith; and
- f. To cooperate with and receive assistance from any federal, state, or municipal department or agency, or any educational or scientific institution or individual.

4. The Management of Museum Properties Act of 1955 (16 U.S.C. § 18f) is intended to increase public benefits by encouraging establishment of museums within National Park System areas that will inform the public concerning those areas and will preserve those valuable objects and relics that relate to the areas. To meet this purpose, the Act gives the Secretary of the Interior the authority to accept donations and then to purchase, from these donations, museum objects and collections. The Secretary may also exchange, borrow, pay the transportation costs for, and also loan out museum objects and collections without cost to the United States.

5. The Archeological Recovery Act of 1960 (16 U.S.C. 469-469c) takes the Historic Sites, Buildings and Antiquities Act a step further by providing for the preservation of historical and archeological data, including relics and specimens, that might otherwise be lost due to construction of a dam or alteration of terrain caused by a federal construction program or federally licensed activity or program. This Act authorizes the Secretary of the Interior to enter into contracts, make cooperative agreements, obtain services of experts and consultants, and accept and use funds to conduct surveys of sites affected by dam construction. In addition, the Secretary may recover, protect, and preserve significant scientific, prehistorical, historical, or archeological data (including analysis and publication) which, in the absence of such action, may be lost or destroyed due to construction of a dam. The Secretary, in consultation with interested Government agencies or educational, scientific and private organizations, is to determine the ownership of, and most appropriate repository for, any relics and specimens recovered.

6. Title 36 (Parks, Forests, and Public Property) of the Code of Federal Regulations, Section 2.25, Chapter 2, implements the aforementioned acts

with administrative regulations which allow plants, rocks, minerals, animal life or other natural objects to be collected in national park areas if a written permit is obtained in advance from the superintendent. In some cases, specimens are not to be collected if their removal would disturb or mar the appearance of the remaining natural features, unless it can be demonstrated that they are specially needed for scientific use and similar objects cannot be secured elsewhere. Permits may be issued only if the specimens will become part of a permanent public museum or herbarium collection, or if the specimens in some suitable way will be made permanently available to the public. Permits are issued only to persons who officially represent reputable scientific or educational institutions and who want specimens for research, group study, or museum display.

7. The Archeological Resources Protection Act of 1979 (16 U.S.C.470) provides protection of archeological resources (material remains of past human life or activities which are of archeological interest) in the same manner in which the Acts previously mentioned in this section protect historical and scientific objects.

The Archeological Resources Protection Act, also encourages increased cooperation and exchange of information among agencies of the Government, the professional archeological community, and private individuals having obtained collections prior to the date of enactment of this Act. The Act requires a permit for extracting archeological resources from public lands, states that the resources are to remain the property of the United States, and further states that such resources and associated archeological records and data are to be preserved by a suitable university, museum or other scientific or educational institution.

8. Section I of the Act of August 18, 1970 (84 Stat. 825), as amended by the Act of March 27, 1978 (92 Stat. 163),, otherwise known as the 1978 Redwood National Park Act, reaffirms that national park areas are to be regulated to the common benefit of all people in the United States and are to be consistent with the National Park Service mandate as described in the first section of the Organic Act of 1916. Additionally, the Act states that

"... the authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

In other words, the values and purposes stated in the existing legislation establishing the National Park Service and its park areas are reaffirmed. Therefore, the supporting legislation cited previously must be adhered to for the collection of objects and management of museums within areas of the National Park System. This is mandatory whether it applies to an area's establishment, purpose, scope, or permitting procedure.

Carrying out these legislative intents defines the National Park Service's responsibilities in preservation, interpretation, and enjoyment of natural historical objects.

## V. EXISTING POLICY AND MANAGEMENT DOCUMENTS

### Management Policies--Natural Resources Management

Chapter IV page 9, of Management Policies, Natural Resources Management refers to "providing research specimens for the National Park Service". NPS Policy indirectly requires that collections be available for reference by stipulating that when reintroductions are being considered to a national park, one criterion should be that "the species being reintroduced most nearly approximate the extirpated species or race" (Management Policies IV-11). Other statements contained in this chapter can only be construed to imply or assume the need for collections and their maintenance. It is very clear, here, that additions are needed to clarify NPS policy on collections in Chapter IV. Appendix A contains Chapter IV of Management Policies. This copy includes sections which are proposed as additions to the policies for natural history collections.

### Management Policies--Use of the Parks

Chapter VII of Management Policies, Use of the Parks (see Appendix B), discusses the distribution of responsibilities and the requirements for obtaining collecting permits. NPS Management Policies do not refer to the fate of specimens while the Code of Federal Regulations (see Appendix C) does when it states that specimens should be permanently available.

### Scope of Collections Reports

Copies of scope of collections statements are now available for many of the parks and provide orientation for an inventory on the use and type of collections that are available. These statements are on file at the NPS Division of Museum Services in Harpers Ferry and should be studied carefully before implementing any aspect of this program.

## Museum Handbook

The Museum Handbook, published by the National Park Service in 1967, is the most comprehensive tool within the National Park Service serving as a policy guide for developing and maintaining collections. The handbook is organized into four parts: Part I sets guidelines and defines National Park Service Trust; Part II deals with records, cataloging and accessing; Part III explains historic structure care; and Part IV describes exhibit maintenance and replacement.

Part I of the handbook, Specific treatment of Policy, contains the following introductory paragraph which is of particular interest:

"Museums shall be developed and maintained in the areas administered by the National Park Service when they are required for the preservation of original objects important to the parks or are needed in the interpretation of the parks."

The above statement recognizes that the function of collections is to fulfill National Park Service responsibilities to interpret, study and document. The efforts which are being planned here for natural history specimens are consistent with the guidelines of the Museum Handbook.

Donations, loans, purchases, and transportation costs are facilitated by the Museum Management Act of July 1, 1955 (16 U.S.C. § 18f), which permits the Secretary of the Interior to engage in active exchanges and accessions of specimens. In addition to the previous chapter on supporting legislation, Appendix A of the Museum Handbook (Part I), included in Appendix J of this manuscript, lists laws most frequently referenced in connection with collections.

2

It is not intended that this planning document for natural history collections compete with the efforts invested in the Museum Handbook, but that it complement and reinforce the usefulness of the Museum Handbook.

#### Scientific Photo Library

Appendix D includes the presently available documents describing the new scientific photographic library which was proposed 1980 to be housed at the Department of the Interior Natural Resources Library in Washington, D.C. This professionally staffed library would coordinate exchanges and loans of science and technology photographs, with access by researchers, and will provide researchers with a depository for their photographs. Although Woodbridge Williams originated the new library for use by the National Park Service, it would provide for the long term preservation, tracking, and curating of photographic originals for several agencies in the Department of the Interior. This project remained in the organizational planning stages as of July 1980.

## VI. TECHNICAL IMPLEMENTATION

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\*(Museum Handbook's Corresponding Chapters)

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Consultation Directory for preparation, maintenance and restoration of specimens (Part I, Appendix K and references made in Part I, Chap. 3)\*

Smithsonian Institution, Museum of Natural History

## Cooperative Programs

Cooperative Park Service Units and Proposed Cooperative Museum Units

## Training Sources and Priorities

## VI. TECHNICAL IMPLEMENTATION

### PLANNING DOCUMENTS

#### Scope of Collections Statements

Museum Handbook. The Scope of Collections written by the park Superintendent becomes park policy and guides the acquisition and disposal of museum specimens. The Scope of Collections Statement defines the growth of the collections and guards against "random expansion." It ensures that the collection represents the geographical area which the park covers, and must relate park capabilities to the values of having research, interpretive and display specimens. The document should be revised when changes occur affecting the collection. The Museum Handbook distinguishes between two types of collections: Exhibit series and Study series. In this plan, we distinguish "display" from "interpretive" collections and also recognize the "research" (or study) collection. A synopsis follows of how the Museum Handbook differentiates between the Exhibit and Studies series pertaining to scope of collections statements.

Exhibit series (=display and interpretive) specimens are those needed to illustrate or interpret the park story. An exhibit plan is developed in which there are short term and long term "want lists" that list what is needed to form a satisfactory exhibit. The Regional Clearinghouse may be useful in providing some exhibit specimens. Specimens accessed for exhibit preferably should be authentic (Museum Handbook, Part I, Chap. 3, pg. 24, 25) and in the best possible condition. The Division of Interpretation is responsible for providing input that will refine exhibits.

Study series specimens include specimens needed for research on park resources or the park story. Some provide permanent documentation of park resources or of data used in research. Some specimens provide references for guiding administrative decisions or are used by interpreters for instructing

seasonals and the public. "Under some circumstances, study specimens for research or documentation may be preserved and used to better advantage in a museum outside the park." In such cases, the "...park should maintain an active card file showing what and where these materials are." The Superintendent has the responsibility to know the locations of the specimens and must ensure that they receive the best possible care.

Chapter 1, pages 8 through 14 of the Museum Handbook discusses which specimens to include in Interpretive and Display collections for natural, historic and recreational areas. The list for natural areas (page 8) is well constructed and outlines basic needs of such collections.

One very important note is that the National Park Service deposits all "type specimens" <sup>1/</sup> collected in a national park in the National Museum of Natural History, Smithsonian Institution, Washington D.C.

Program Plans: Collections themselves fall into three functional categories: display, interpretation, and research, (including documentary collection).

Display collections are composed of specimens to be viewed by the public and are used to illustrate the park's history or resources. They may be used to illustrate methodologies in the management of park natural resources or museum work. Such specimens may be whole animals and plants or parts, such as shells or feet. These must be accurately identified and labeled so that the maximum amount of information they can convey is obtained. As display specimens are exposed to light and other destructive environmental factors,

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1. Type Specimen: The specimen which was used to scientifically describe the species, (genus or other taxon). These are usually kept under lock and key to ensure their protection since they have especially important historical and documentary value.

(even touching by visitors in some instances), their useful lives are shortened. Therefore, such specimens require a maintenance plan specific to the needs of the display collection. Specimens of significant scientific value should not be exhibited as a rule.

The contents of a display collection should be carefully planned in advance and should be specifically designed to educate the public about some aspect of the park. Every attempt should be made to use specimens already available, and collecting should be restricted to species that are not threatened or endangered and that commonly occur in the park. Sometimes, specimens can be obtained outside the park, or can be obtained on loan or traded with other parks or local museums.

All possible options should be explored for means of obtaining display specimens.

Interpretive collections can provide display specimens but are primarily composed of specimens that are stored but available for use by general park staff for reference or for interpretation to park visitors. Interpretive collections represent the more common species native to the park and include not more than a single example of seasonal color type of an adult male and female, juvenile, and eggs or larvae of one species for animals, and a reasonable selection of leaves, stems, flower and fruit for common plant species.

These collections should aid in identifying new specimens. Frequently, the collections can be used for class demonstrations, but with limited handling. Interpretive specimens may include whole or parts of animals, plants, or imprints. Correct identification and collection curation are essential and should be documented in the labels on the specimens, as well as in the catalog(s).

As for display collections, planning for interpretive collections should

foresee:

- a. the parts, types, sex, age classes, etc., needed for each species;
- b. the list of species to be represented in the collection;
- c. that collecting for these is minimized and restricted to non-threatened and common species; and
- d. that, if specimens from interpretive collections are issued to interpreters for seasonal reference use at stations away from the facility where the collection is regularly stored and curated, such stations be equipped with proper specimen storage cabinets and curatorial supplies to assure continued care.

As with display collections, additional specimens for interpretive collections sometimes can be obtained through loans or accessions. The Scope of Collections Statement should list all possible options for sources, care and development of interpretive collections.

Display and interpretive specimens require curatorial care and often specialized skills such as taxidermy. If in any case a park does not have the expertise in-house, this lack should be noted in the Scope of Collections Statement, followed by an outline of ways to obtain the expertise at regular intervals. Although normal chains of command must be respected, the following sources will be available for consultation:

- Regional Curator, Resources Manager or Chief Scientist
- WASO Chief Curator
- WASO Science Staff, Natural Sciences Division
- Harpers Ferry Conservation Laboratory
- Division of Interpretation
- Local and Regional Cooperative Research/or Museum Units

Any of the above can offer advice and once a strategy is decided upon it should be noted in the Scope of Collections Document.

Provisions should be made with the park staff for regular inspections of the collections to detect mold, insects (e.g. beetles eating skins or plants), evaporation of preservatives, and loose fur, feathers or other body parts. Detecting such problems quickly will allow these specimens to be treated and possibly restored; however, if the problem is not discovered, potentially valuable museum materials may be lost.

Some interpreters use natural history specimens as demonstration; in their talks and other activities, allowing visitors to pass them around and handle them. Such extensive use places these specimens in a separate category corresponding to the demonstration artifacts in living history programs. The specimens suffer comparatively rapid deterioration and must be considered as expendable property rather than as museum objects. As with living history material, the distinction should be clear-cut.

All specimens kept as part of a display or interpretive collection need to be identified and cataloged as precisely as possible, and pertinent information regarding the specimen should be recorded. The specimen should be labeled with the appropriate catalog number and the taxonomic name. A catalog should be kept which documents the handling of specimens, and each examination to determine condition, should indicate specifically what was examined and what treatment was given. The log should contain the catalog number with each corresponding entry, and it should be kept in a catalog folder file. A summary of the planned procedure should be included with the Scope of Collections Statement. Standardized procedures should be followed using the Museum Handbook (Part I, Chap. 1) and this document.

The Scope of Collections Statement should designate a position within the park that is to be accountable for carrying out the responsibilities of maintaining the display and interpretive collection. The Superintendent is responsible for evaluating the care received by collections. The Manual for Museums (Lewis, 1976) provides helpful guidance and examples of Scope of Collections Statements.

The program described above will be applicable to those parks that maintain their own collections either for display or interpretation and will serve to develop a standard for planning the care of natural history display specimens.

Research collections, whether in natural or recreational areas, must be planned and developed according to the research and management needs of the park for both short and long terms. A technical plan for a research collection's development, care and use must be written to address the over-

lapping concerns of collection, storage and use for a park's display and interpretive collections. The plan should describe the treatment to be given the collections by major taxonomic groups.

Administrative, budgetary, and research provisions need to be explained in depth, particularly if help is obtained from outside the NPS and outside cooperative NPS units. The Regional Curator, the Washington Division of Natural Sciences and the (Harpers Ferry) Division of Museum Services should be prepared to ensure that each park is assisted in every way possible.

Obtaining specimens for a research collection can sometimes be accomplished in the course of research projects conducted within a park. The collection can also be developed as documentation for basic resources inventories and for monitoring of the park resources. Collections also can be donated to the park, but any specimen donation must be in good condition, native to the park, and valuable to foreseeable endeavors pertinent to the park. Assessment of pertinence and condition is the responsibility of the Superintendent and should be delegated to history curator possibly consulting with a specialist on the taxonomic group of concern. When these collections are field notes and/or photographs, comparable expertise must be sought.

The maintenance of research collections includes all measures taken on behalf of display or interpretive collections. However, expertise required for proper maintenance as specialists normally curate specialty collections, such as taxonomic or systematic ornithologists for curating bird research collections. Specific taxonomic or systematic specialists should also be consulted to learn the best way to curate specific research collections. (The typical park will not have such technical expertise.)

The responsibility and cost for maintaining research collections are high because of their considerable value. It is unreasonable to impose responsibilities for research collections on parks without accommodating them with staff and funds specifically for this purpose. An alternative to having parks assume the burden of the research collection-- keeping such collections active and permanently curated-- is to draw up cooperative agreements with accredited natural history museums in different regions of the country.

Specimens in research collections are usually "series representations"<sup>1</sup> of individual taxonomic groups. It is usually advantageous to possess several replicate examples of sex, age, and molt or parts of a plant from each species represented in contrast to display and interpretive collections.

#### Collection Management Plans

The strategy for managing a park's natural history collection should be contained in a Division of Museum Service's Collection Preservation Guide or in the park's Resource Management Plan and will be addressed in Research Guidelines. If a park has not yet developed a Collection Preservation Guide, then it should have a section on collection management in its Resource Management Plan. This section should 1) include a list of the contents of a collection; a statement on a collection's condition, the care the collection is receiving, its storage and security; 2) describe the status of museum records and the care they receive; and 3) contain recommendations for improvement of the collection, particularly if expansion is planned. If

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<sup>1</sup> Series. In taxonomy, the sample which the collector takes in the field or the sample available for taxonomic study. Series representations are multiple specimens of a particular taxonomic group from a specific locality. Mayr, Ernst (1969) Principles of Systematic Zoology; McGraw-Hill, Inc., Section 13.48-13.56/ pp. 367-375.

the park has a natural history collection and a Collection Preservation Guide the guide should be included in the Natural Resource Management Plan with the natural history portions highlighted. Any of the information described above which is not included in a guide should be in the Resources Management Plan.

The same information that is important in the Scope of Collections Statement is critical here, although more detail is given to procedures here. Furthermore, the Collection Preservation Guide or the relevant section in the Resource Management Plan is compiled after experimentation has been made with the plans in the Scope of Collections Statements. Suggestions for improvement, expansion, or reduction of a park collection should be entered into the Preservation Guide.

The importance of the collection management plan or guide and its scope and detail increase significantly with the relative importance or function of a collection. The plan for managing collections should be revised by the park and redistributed as regularly as is feasible--perhaps once every 5 years.

#### Consultation Reports

Periodically, parks may determine a need for further assistance in examining specimens to correctly ascertain condition, the probable treatments required, and the possibilities of extending specimen storage lives. Such help should be given freely to the parks upon request, so long as this service does not encourage the parks to fall short of meeting their own responsibilities to the collection. Such consultation can be obtained from a cooperative unit, the Division of Museum Services, the WASO Chief Curator, the WASO Division of Natural Science or, if necessary, someone contracted to help the park. When determining the status of the collection during a consultation, assigned park pe

sonnel should take the time to learn the symptoms and indicators of specimen health and deterioration. Hopefully, this will improve a park's ability to examine its own display and interpretive collections.

Two consultation reports have been distributed by The Division of Museum Services in response to requests for assistance by the Washington Carver Museum and the Steamship Bertrand Collection. Appendix E contains the first of these reports, designed to meet the curatorial needs and questions of the George Washington Carver Museum at the Tuskegee Institute National Historic Site. Based on the findings of consultation reports, the Harpers Ferry Division of Museum Services can respond appropriately to the parks which are maintaining and restoring their collections. The recommendations made in such reports often provide information for what are often common curatorial problems. Consultation makes it simpler for appropriate NPS offices to assist in following through with the recommended changes; they provide additional technical information for maintaining and restoring specimens. Consultation reports are valuable records that should contain the following basic ingredients.

1. Description of collection and its purpose(s)
2. Reason for park seeking consultation
3. Statement of problem
4. Condition of specimens
5. Suggested remedies and alternatives for specimens: sources for additional consultation, sources for special equipment or parts and lists of essential measurements analyses and treatments
6. Photographs for the record with legends
7. Summary of conclusions and recommendations

The organization of the report should remain flexible and at the same time be comprehensive. It should also be understandable to a non-specialized audience and to those possibly unfamiliar with the specific problems at hand while not underestimating the potential sophistication of its audience by being too elementary. Consultation reports provide a logical approach to solving curatorial problems, thereby improving the management of collections.

## RECORDS

### Inventory of Collections, Field Notes and Logs

The first step in implementing a Servicewide management plan for NPS collections will entail a large-scale inventory of NPS Natural History Specimens containing the following categories of information. Although some of these questions can be answered by Resource Management Plans, by Data Systems (WASO) and by the efforts underway in the computerization of the museum catalog, the bulk of the survey will need to be conducted in the specific parks.

The Park - The first four items can be taken directly from the park Resource Management Plan.

1. Types of visitors to the park
2. Major types of research conducted
3. Outstanding features
4. Most rapidly changing natural history features
5. Existing types (display/interpretation/research) of collections
6. Annual operating budget for park, and for collections within the park
7. Number of interpreters, scientists, naturalists, and seasonals working in park
8. Staff hours/years spent on existing collections
9. Budget allotted annually for existing collection

10. Tracing mechanisms for specimens leaving the park
11. List of scientists currently giving assistance or consultation to the park for its collections
12. Persons and Positions responsible for care of collections

#### The Collection

1. General condition/housing
2. Taxonomic representation and replicates
3. Preserving media and types (mounts, study skins, wet specimens, dried, etc.)
4. Labels - types and information content
5. Logs of treatment/curating/use
6. Field notes
7. Research/interpret/display history of curation of collections
8. Number of Specimens

#### Specimens within a Taxonomic Series of Replicates (Research Study Collections)

1. Condition of specimens
2. Age of collection
3. Predominant mode(s) of deterioration (if any)
4. Need for conservator services
5. Special remarks (e.g. trends observable within series)

Because developing such an inventory by telephone or through correspondence is not feasible, a task force of Division of Natural Sciences personnel, selected park curators, interpreters, resource managers, scientists, and museum specialists should conduct the survey using standardized and consistent evaluating techniques. This first major inventory will provide a baseline from

which subsequent changes in the collections can be evaluated through periodic inventories. Later inventories also will reflect how successful the park staffs are in meeting their responsibilities. Repeated inventories are necessary to plan the care and expansion of collections, and also to determine restoration and outside curatorial assistance needs from the fiscal standpoint.

The first round of the major inventory should be completed within three years after the inception of the program. In order to maximize immediate returns from the inventories, parks will be inventoried in priority order based upon their interest, the sizes of their collections, and subjective preliminary evaluation of the relative importance of the collections to the National Park Service. A survey of specimens should be conducted yearly, accounting for specimens and their conditions. Copies of the work should be sent to the Regional Curator, and for research specimens to both the Regional Curator and Regional Chief Scientist.

#### Treatment of Specimens: Catalog Card and Curatorial Logs

Even for a small display collection, a catalog card and running updates kept in a file or log must be maintained to document the handling and care of the collection, any accidental damage occurring to the specimens, and any restoration or observations by those caring for or using the collection. Each entry should be dated and the individual making the entry should be identified. It should be specified which collection/series or specimen is being referred to and whenever possible catalog numbers of specimens specifically mentioned should be included. The primary value of these log records is for reference when tackling problems and for providing an early warning system for possible specimen deterioration. When abnormal deterioration is seen in a specimen, the success of the prescribed treatment for preservation or restoration will depend heavily upon having the history of the specimen or series. This procedure i

similar to a medical history file for patients used by doctors. If a specimen deteriorates because of the failure of a preservation treatment which normally works effectively, this log becomes extremely valuable in correcting the problem.

### Catalog

A central computerized catalog is being developed for all National Park Service specimens, including natural history specimens. The Division of Museum Services is coordinating the effort. However, each park must maintain its own accessions catalog on-site. Lewis (1976) discusses in detail the subjects of accessions and catalogs in Manual for Museums (Chapters 7 and 8). (Refer also to the NPS Museum Handbook). The most recent information on the NPS Catalog can be obtained from the Curator of National Catalog, Division of Museum Services.

### Specimen Labels

A specimen label is probably the single most important item for each recorded specimen and may often be more important than the specimen itself. The label contains the essential data associated with the specimen: its genus, species, sex and/or age class, locality, habitat, date of collection, collector's name and collector's field number, the catalog number and essential measurements or visual characteristics. The Division of Natural Science is in the process of making recommendations for standardized labels for NPS collections. Lewis (1976) also explains the essential data necessary for specimen labels.

### Photographs

Where specimens belonging to a National Park Service collection are especially valuable, it is good policy to photograph the specimens in several orientations. Each picture should include a specimen label and a suitable graduated scale for size reference. In this way, if the specimens are lost, deteriorated, or restored, records are available of the original or previous condition.

Photographs are also useful for specimens which do not preserve well, do not collect well, and/or are illegal to collect. Photographs are equally important for recording behavior or postures, or for monitoring habitat changes.

Eventually, original photographs will have to be sent to the Natural Resources Library in WASO (if initiated) and copies kept in the parks for reference. The most recent information available for the new photographic library is included in Appendix D for reference.

## SPECIMEN HANDLING

### Collecting

Specimens should be collected according to the normal NPS collecting permit procedures, as defined in NPS Management Policies. Every effort should be made to avoid wasting specimens when collecting. Specimens should not be collected by inexperienced persons, unless another is present with field collecting experience to act as instructor or advisor. The specimens must be immediately placed in an appropriate fixing medium to prevent deterioration or decay. Details on collecting techniques should be obtained from an experienced scientist in the National Park Service, or from a museum or university involved in such research. (See the Museum Handbook, Part I, Chap. 2).

### Preparation

Specimens should be prepared according to the most up-to-date techniques, obtainable from recent laboratory preparation manuals, conservograms, the Manual for Museums, and the NPS Museum Handbook (Part I, Chap. 3).

### Maintenance

Maintaining specimens is similar to the initial preparation of specimens.

tory techniques in specimen maintenance. (See the Museum Handbook, Part II, Chap. 4, and Part IV, Chap. 2). However, experience can be gained by working closely with someone who can lend experience. Additional information or help can be obtained from the Regional Curator, Regional Resources Manager and Chief Scientist, Regional Chief Interpreter, Regional Cooperating Museum, the Division of Museum Services, or the WASO Division of Natural Science. The NPS Museum Handbook contains valuable information on caring for a collection (Part I, Chapter 4).

### Conservation

Conservation of natural history specimens is either handled directly within the Region or the park. While some conservation services may have to be done by specialists outside the National Park Service, some can also be conducted in-house, using the facilities and talents available at Harpers Ferry conservation laboratories.

## SPECIMEN LOGISTICS AND MANAGEMENT

### Accessions

Specimens should not be acquired for a collection unless they are representative of the natural history resources of the park, are representative of the history of natural history research in the park, or are associated specifically with the park. Accession procedures need to be completed as soon as possible after receipt of specimens. The procedures used should be consistent and follow the standard guidelines set forth in the Museum Handbook. Inquiries about amendments to these procedures can be made to the Regional Curator. Keep all files up-to-date, as well as the accession book, catalog and accessions correspondence file. Those are "MJSTS." The curator of the National Catalog can be contacted for inquiries.

## Housing

Museum collections require specialized housing which should be tailored to the purpose of the collection, the types of specimens and their medium or mode of preservation. In the Manual for Museums, Lewis (1976) gives a thorough account of the type of housing required for different types of collections. It is always productive to check with the Regional Curator and the Division of Museum Services or a local accredited museum to find out if new advances in museum technology dictate new housing procedures.

If a park is unable to give its collections the proper housing, the park Superintendent should notify the Division of Museum Services and the Chief Curator, and formally state the problem and suggest or request suggestions for necessary remedies. Failure to do this will result in deterioration of a collection and will reflect poor management by the park staff.

## Criteria for Irreplaceable, Replaceable or Disposable Specimens

Frequently, questions arise within the park as to the worth of a collection or individual specimens, whether these are irreplaceable and should be kept under close observation and care, or whether they are disposable or useful for research demonstration or display. When the park has questions regarding such determination, the Regional Curator should be consulted. The Regional Chief Curator will, if necessary, consult with the Division of Museum Services, the Departmental Chief Curator, Science and Technology, or a local cooperative unit in an accredited museum. Most often the park will be referred to an individual, not necessarily working for the National Park Service, who is a recognized authority on the taxonomic group in question. The recommendations

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by any consultant as to the fate of specimens should be weighed carefully and a joint decision made by the park Regional Curatorial Staff and any other concerned offices in the Region or Washington, D.C.

There may be certain specimens within collections that were obtained before the passage of legal acts,<sup>1</sup> that limited the taking of specific species. Therefore, research on museum specimens of endangered and threatened species will likely be limited to older specimens. These specimens are extremely valuable and a first priority for management should be their preservation. Any proposed conservation work or changes in preparation techniques need to be scrutinized to avoid altering characteristics of scientific value. In considering the best fate of the specimens, it may be determined that a change in location (for example, out of the park and into a museum) is warranted.

Some specimens increase in value because of a shift in geographical range of a species which, once found in the park, is now absent. Such specimens are extremely valuable and should receive especially good care. For these, as for specimens associated with prominent scientific discoveries or prominent individuals, similar measures should be taken as described for endangered and threatened species.

When a park decides to retain on-site a collection of especially valuable specimens rather than to transfer it to a regionally located, specializing institution, the park must receive additional budgetary allotments to cover the extra costs of expert maintenance and consultation for the collection. If the necessary, additional money is not forthcoming, the park probably should effect the transfer of the specimens.

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<sup>1</sup> Such acts include the Endangered Species Act and the Marine Mammal Protection Act.

There are many plant and animal species which remain in a park in large numbers, reflecting persistent populations. Specimens of such species are not necessarily extremely valuable but they are irreplaceable as bits of scientific data taken from discrete points in time. They constitute the bulk of collections and provide the substantial masses of data for most studies. They are especially important for measuring changes which take place in the habitat over spans of time. These species that are usually represented in interpretive collections and displays, and they should receive the same standard of care as any museum or display collection.

Specimens may be considered disposable only if they are collected from outside the park, have no special association with the park's biological or cultural history, and have no other special significance. Park specimens which have little scientific or historic value and are deteriorated beyond use also may be disposable. If it is determined that a study specimen is replaceable and it is so badly deteriorated that it cannot be used in research, teaching or illustration, it may be disposed of, but only after consultation with the Regional Curator. A copy of the memorandum approving the disposal should be kept in permanent record (accession file). When an entire research collection, series, or a potentially valuable specimen is considered for disposal, the Regional Curator, a Curator from another Region, and one scientist expert in taxonomy should state in writing that the collection has no observable value. In any case, all labels and logs pertaining to the specimens should still be kept and preserved for a record of previous contents of the collections.

An entry into the logs should reference the catalog numbers of the specimens, the reasons for disposal and the official administratively responsible for approving the decision. In addition to this plan, reference should be made to the NPS Museum Handbook (Part I, Chap. 6) when disposing of specimens.

The division responsible for the NPS inventory of natural history museum collections and the curator of the National Catalog must be notified in writing of any acquisitions (periodic updates) of research specimens or decisions for research specimen disposals (prior to disposal date for each individual occurrence).

#### Assessing Value of NPS Natural History Specimens and Collections

One of the more difficult tasks in developing the natural history collection program is determining a means by which value, other than aesthetic value, can be attached to scientific interpretive and display specimens. Dollar values remain subjectively attached to specimens which are historically valuable or which have value because of their rarity.

The value of specimens is dependent upon several factors: previous care, the medium used for preparation, the chemical structure of the specimen, and the age, use, historical links, and type of specimen (i.e. common, extant, endangered or extinct). The presence of such specimens on the retail market also influences the value of specimens. If the specimens are responsible for important scientific discoveries, they automatically have an increased value.

No matter how valuable a specimen is initially, upon preparation for the collection the constant or increasing value of a specimen is almost directly linked to its care and frequency of handling. Care is all encompassing, of course, and includes preparation, pest prevention, humidity control, temperature control, maintenance of solutions or any assortment of treatments, and enclosures that affect the specimen's continued well-being and usefulness. Figures VI-1 and VI-2 demonstrate graphically the relationship between the value of specimens, time and care. The common starting point is a generali-

zation for a "typical" specimen. The figures assume that, all else being equal, specimens will approximate the trends represented if the scenarios of care, time and handling are realized. Figure IV-2 recognizes that specimens ultimately lose value when cared for poorly.

As mentioned earlier, the type of specimen determines in part its longevity, and the medium of preservation greatly determines the rest-- assuming that the care received is adequate and handling is minimal.

The museum lives of specific types of specimens are compared in Figure IV-3. Stable rock or minerals are the sturdiest specimens. Fossils also may stand the test of time relatively well because of the changes already undertaken in the fossilization process. Other inorganic or heavily structured parts such as bones and exoskeletons also preserve well. However, leathers, (i.e., skins or soft parts), easily deteriorate and may survive only if provided an optimum preserving medium and controlled atmospheric surroundings. Certain preservatives, such as formaldehyde, are known notoriously as contributors to the deterioration of certain types of specimens. Rapid deterioration causes specimens value to decrease and if this decrease exceeds a specimen's scientific value, the net value is lessened and the specimen ultimately becomes worthless. When a deterioration rate is countered by an increasing scientific or historic value, the net value of a specimen remains constant or increases.

One major factor in determining the cost of specimens is the cost of preparation, which is included in the determination of their value. Figure IV-4 illustrates in general terms the approximate relative costs for specimen preparation. Work requiring intensive labor and equipment is very expensive. Costs for these items, plus those for storage and maintenance (inflation and overhead), must be accounted for when determining the value of a collection.

Factors such as the number of hours of preparation time, the hourly wage, the type and size of the specimen, the increasing value of precious items of scientific importance, the inflation correctors, and the cost of maintenance, are all figured into value estimates.

How to Calculate the Rough Dollar Value of a Natural History Collection

From a scientific standpoint, it is not desirable to affix dollar values to specimens. Realizing, however, that in some cases valuation is the only accepted justification for obtaining maintenance funds or insurance, a sample procedure is recommended below for the process. This is by no means the only way to make evaluations but one of many practical approaches. Caution should be exercised in its use so that the cost of collections is not used negatively to justify reducing or eliminating them.

To calculate the dollar value of a collection, calculate the value for each individual specimen for small collections or for a representative set of specimens for larger collections. In the latter case, multiply the value of each representative of a series by the number of similar specimens in the series.

The Process of Calculation (Follow Table VI-1)

For most specimens, take the replacement cost ( $R_c$ ) and add it to the accumulated maintenance and storage expenses ( $M_s$ ) for that specimen to get the general valuation (GV) for that specimen. The replacement

$$GV = R_c + M_s$$

cost ( $R_c$ ) is equivalent to the sum of the proportion of collecting costs (c), fixing costs (f), preserving costs (p), mounting costs (m) and other similar

For specimens of threatened, endangered and extinct species<sup>1</sup>, or specimens which have outstanding historic value due to association with an event or person, the value may be beyond measure; however, a small estimate can be formulated for accumulated expenses and value contributed to the Collection. This is the Specific Status Valuation (SSV) which can be determined by multiplying the General Valuation (GV) figure times the number of years that the specimen has held the specific type of status.

$$SSV = (GV) \times (\text{No. yrs. since person's work, event or status declaration}).$$

For those common specimens rapidly deteriorating (RDV) due to frequent handling, lack of care, or for other reasons, divide the General Valuation (GV) or the Specific Status Valuation<sup>2</sup> (SSV) by the number of years since the deterioration was first apparent. For the specimens in which deterioration has been long evident, divide by the number of years it has been in the collection. In the latter case, the value of the specimen itself usually decreases to zero rapidly, but remember to keep the data on the specimen and its label in the best possible condition, so these can be copied if necessary.

$$RDV = \frac{GV \text{ or } SSV}{\# \text{ yrs in collection or } \# \text{ yrs since first appearance of deterioration}}$$

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<sup>1</sup> Each extinct specimen is, in fact, priceless, much as the original manuscript of Darwin's Origin of Species is priceless. Furthermore, copies cannot be made in this case. The valuation is a token justification for costs to cover maintenance and security for the specimen.

<sup>2</sup> This devaluation is not applicable to endangered or extinct, but not fossilized, specimens. In such cases great caution must be taken to prevent deterioration, and valuation is always a minimum estimate.

expenses devoted to that specimen up to but not including

$$R_c = c + f + p + m$$

maintenance and storage. The maintenance and storage expenses per specimen ( $M_s$ ) are equivalent to the product of the current yearly maintenance cost ( $M_a$ ) and yearly storage cost ( $s$ ) multiplied by the number of years (yrs) that the specimen has been in the collection.

$$M_s = (M_a + s) \text{ Yrs.}$$

The multiplication of the current cost times the number of years in the collection covers the inflation factor over the previous years' investments.

Though fewer dollars may have been spent per specimen in previous years, an assumption is imposed in the calculation: the proportion of total available dollars spent for the same type and amount of care received should remain relatively similar per specimen over a span of years. In determining the cost of collecting, fixing, preserving, maintaining and other labor-related tasks, multiply the current average hourly wage of the person(s) doing the work by the number of hours that person actively spends working only on the specific specimen <sup>1</sup>per task; and in the case of maintenance ( $M_s$ ), use "per year" in the calculation. Add the proportion of transportation and supply costs used in performing the work on that specific specimen during task performance for the specific specimen. Thus, the general valuation for the "average" specimen is the sum of  $R_c$  (replacement cost) and  $M_s$ .

$c, f, p, \text{ or } m = (\text{employee's average hourly wage} \times \text{hours of active labor}) +$   
 $\text{transportation and supply costs}).$

$$GV = R_c + M_s$$

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<sup>1</sup> If working on several specimens at the same time, divide cost into number of specimens being worked on simultaneously.

The Smithsonian is responsible for giving advice and for helping other federal agencies maintain collections. However, the Regional Curator and other available National Park Service sources should be utilized before approaching the Smithsonian to request the names of cooperating individuals available for consultation.

#### COOPERATIVE PROGRAMS/COOPERATIVE RESEARCH UNITS

Full advantage must be taken of cooperative agreements that exist with institutions which have NPS cooperative research units. Although the cooperative research units emphasis may not be on natural history collections, individuals working at cooperative units can provide avenues for obtaining local expertise. Therefore, the establishment of cooperative agreements with regionally located, accredited museums that have substantial natural history programs would provide the opportunity to increase this emphasis. The establishment of such "Cooperative Park Service Museum Research Units" would give several direct benefits to the National Park Service, including a direct source of consultation, housing for research on and responsibilities for specimens, and a decrease in park costs for maintenance of research collections. Other benefits are (1) the provision of access for park scientists to research collections other than NPS collections, and (2) the provision of local training facilities for park staffs in the subjects of curation and natural history. (Of course, the museums participating in this program would also benefit as the in-house NPS study collections would be readily available to them, and the cooperative agreements already signed would permit them to carry out research in the parks.)

In some cases, the region and museum may find mutual benefit in staffing the cooperative unit by following same pattern currently being used by NPS

Any sort of specimen valuation is a last resort mechanism of attaching value to specimens when all other, more aesthetic means of obtaining support have failed. One very fruitful by-product of such an exercise is the development of a consciousness of the temporal and financial investments already placed upon these resources.

## CONSULTATION

### Harpers Ferry/Washington

The Regional Curator and Division of Museum Services provide for parks the traditional channels of consultation on the subject of collection development and maintenance. In addition, the Directorate of Science and Technology, specifically the Natural Science Division, has the Servicewide responsibility for developing policy and providing scientific support for study or research of Natural History Collections.

### Consultation Directory

The Division of Natural Science, in conjunction with the Division of Museum Services, and the aid of the Association of Systematic Collections, is developing a directory of consultants who can give qualified advice on specimen preparation, maintenance and restoration. The directory will include consultants from both private and federal sectors, will be classified by regions and will be indexed by specialities.

### Smithsonian Institution

The Smithsonian Institution is the principal repository for federal collections<sup>1</sup> and especially for all "type" specimens collected by federal agencies.

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<sup>1</sup> The legal grounds for this are under investigation.

on such diverse topics as cataloging methods, storage methods, scope of collections preparation, use of reference services, accessions and curation, and provides lab exercises on keeping records and observing conservation techniques.

The contents of natural history collections of parks are locally defined by the endemic fauna and flora. Local training, therefore, would greatly increase the park's ability to maintain useful collections. Regional cooperative agreements with museums which have their own training centers is one source of such training, and cooperative agreements help establish rapport between park personnel and museum curatorial staffs.

Education can be a side benefit when consultants from outside or other areas of the NPS are asked to give curatorial assistance. Much can be learned from watching a trained specialist tackle specific curatorial problems.

### Training Priorities

Taking adequate care of present holdings is more important than expanding collections which have no guarantee of adequate long term maintenance. The skills of maintaining and developing collections need to be understood first to correctly plan a collection. Therefore, the first priority is teaching how to spot needs, problems, how to ask questions on conservation methods, or how to direct these questions to the proper sources. This can be accomplished in a very generalized discussion on the facets of curating and in discussions of available sources of consultation.

The second priority is to provide detailed instruction on collection maintenance and rehabilitation.

The third priority is to instruct how to develop or expand collections,

cooperative research units located in universities.

## TRAINING SOURCES AND PRIORITIES

The management of Natural History Collections that belong to the National Park Service depends largely on increasing the level of experience of interpreters and other personnel responsible for display and interpretive collections. While some training is currently available at Harpers Ferry Center, additional training specifically designed for natural history collections is needed at the local, regional and national levels. Potential sources for additional training lie in Harpers Ferry Center, the Natural Science Division of Science and Technology in Washington, D.C., and museums engaged in cooperative activities with the National Park Service.

A principal objective of the Natural Science Division is to increase the amount and availability of natural history training to NPS employees. While the training program is only in the initial stages, its first priority is to give practical instruction on how to ask questions, detect problems, use information sources, obtain help when tackling problems, and accept collection responsibilities. Once training in the basics is under way, the training program can be expanded to include information on how to enlarge or elaborate collections.

Successful implementation of a training program geared to yield healthy collections hinges on being able to permanently assign the responsibility for developing and maintaining collections to park positions (i.e., formal job descriptions and performance standards) rather than to park individuals.

### Training Sources

Each year Harpers Ferry Center sponsors a comprehensive course on the many facets of museum collection or curation. The workshop includes lectures

on such diverse topics as cataloging methods, storage methods, scope of collections preparation, use of reference services, accessions and curation, and provides lab exercises on keeping records and observing conservation techniques.

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Education can be a side benefit when consultants from outside or other areas of the NPS are asked to give curatorial assistance. Much can be learned from watching a trained specialist tackle specific curatorial problems.

### Training Priorities

Taking adequate care of present holdings is more important than expanding collections which have no guarantee of adequate long term maintenance. The skills of maintaining and developing collections need to be understood first to correctly plan a collection. Therefore, the first priority is teaching how to spot needs, problems, how to ask questions on conservation methods, or how to direct these questions to the proper sources. This can be accomplished in a very generalized discussion on the facets of curating and in discussions of available sources of consultation.

The second priority is to provide detailed instruction on collection maintenance and rehabilitation.

The third priority is to instruct how to develop or expand collections,

cluding specimen collection and preparation, and most importantly, to instruct ential collectors on the hazards of "random stamp collecting."

Specialized scientific training and collections training should be offered in each region and should be designed for taking into account the geology, biology, and geology of local habitats. Training of a broader scope how to collect, identify and curate most specimens should be offered generally. The latter would be done through the Harpers Ferry Division of Museum Services, with help from the Science and Technology Directorate and the Training Division in the Washington Office.

## VII. COMPLETED AND ONGOING PROJECTS (1979-1981)

Ongoing projects include development of this plan; consulting activities; recommending the types of care appropriate for the vegetable and other collections at the George Washington Carver Museum at Tuskegee National Historic Site, in Alabama; and recommending the types of care the appropriate form of the food cargo of the Steamship Bertrand at the DeSoto Wildlife Refuge in Iowa. Although the steamship is U.S. Fish and Wildlife Service property, temporary assistance in care and restoration has been given by the National Park Service. The Harpers Ferry center staff has restored the Yellowstone taxidermic collection with modern conservation techniques.

Preparations are being made to survey all NPS collections so that WASO and Harpers Ferry can anticipate long term needs in training, management and budget matters as these relate to NPS collections.

Exchange of information with and the obtaining of directories of consulting scientists from the Association of Systematic Collections is under way.

The WASO Division of Natural Science is developing a natural history collection and curation library.

Collecting permits are in the process of being revised and plans are being made for computer storage of collecting permit information.

A proposal for a photographic library has been developed for the Natural Resources Library of the Department of the Interior in Washington, D.C.

Key words such as "collecting" have been incorporated into the computerized thesaurus for the annual NPS Chief Scientist's report, which lists abstracts of scientific projects under way or completed in the parks.

The WASO Directorate of Cultural Resources has been awarded the position of "Chief Curator" for cultural resources.

A Taxonomy has been included in the Computerized Catalog of NPS Museum Specimens for Botany, Zoology, Geology, and Paleontology as well as for Cultural Resources (see Appendix F).

VIII. MANAGEMENT AND ADMINISTRATION

Contents

Determination of Policy

Consultation

Regional Administration

Field Stations and Parks

## VIII. MANAGEMENT AND ADMINISTRATION

### Determination of Policy

Overall responsibility for the development of policy regarding research natural history collections lies with the Science and Technology Directorate. The responsibility is delegated to a specific position within this directorate, this position includes scientific support duties for natural history collections. The individual in this position acts as the coordinator for NPS Research Natural History Museum Collections.

The Chief Curator is responsible for similar functions with regard to cultural collections and serves as the administrative focal point for all collection management. The more closely the science and cultural functions lie together, the more constructive and solid the program will develop. Strong support from the Directorates of Cultural Resources and Science and Technology will open avenues for increasing the quality of collections and internal museum resources that are provided to cultural resource management, to natural resource management, and to the external scientific community interested in the park story.

### Consultation

The Divisions of Natural Science, Cultural Resources, and Museum Services will serve as the consulting arms of the Chief Curator and the Regional Curator. Together these will provide aid to the parks. Hopefully, cooperative museum units will be established to provide regional consultation and, in some cases, to assume curatorial responsibility for research collections. Also, the Smithsonian Institution provides a tremendous resource for consultation; however, if individuals have not already established relationships with curatorial staff there, they should use the help of the Regional Curator and WASO to establish contacts

### Regional Administration

The responsibility of development, administration, justification, and funding of collections in each region rests ultimately with the Regional Chief Curator. All outside cooperative support and regional training will be coordinated by the Regional Curator in conjunction with the Regional Chief Scientist's office. Regional curators whose background is in cultural resources will need strong support in unfamiliar technical fields. The cooperation between these regional functions can be facilitated by the close relationship and combined support from Cultural Resources and Science and Technology in WASO.

### Field Stations and Parks

The administrative responsibility of natural history collections within a park rests with the park Superintendent, while the managerial or day-to-day responsibility rests with a designated position such as Park Curator, Interpreter, Park Scientist or Resource Manager. This position, which in turn may delegate the tasks, accounts to the park Superintendent for the quality of care received by the natural history collections. Ensuring proper care of collections shall be one element of both the Superintendent's and the designated position's performance standards and evaluations.

CHANGING FINANCIAL VALUE OF NATURAL HISTORY SPECIMEN

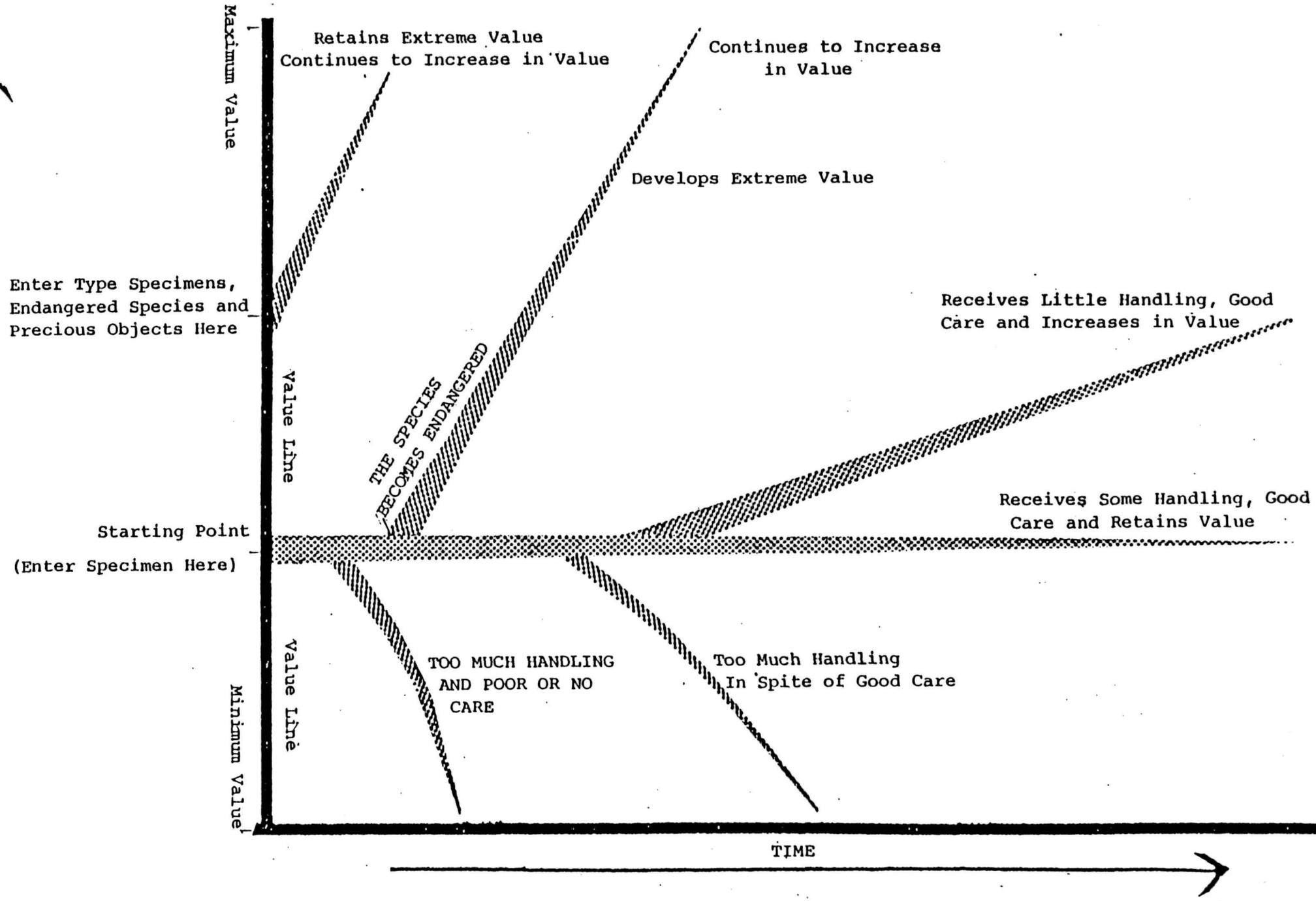


FIGURE VI-1: INFLUENCE OF TIME, HANDLING AND QUALITY OF CARE ON THE DETERIORATION OF NATIONAL PARK SERVICE NATURAL HISTORY SPECIMENS

CHANGING ENVIRONMENTAL CONDITIONS

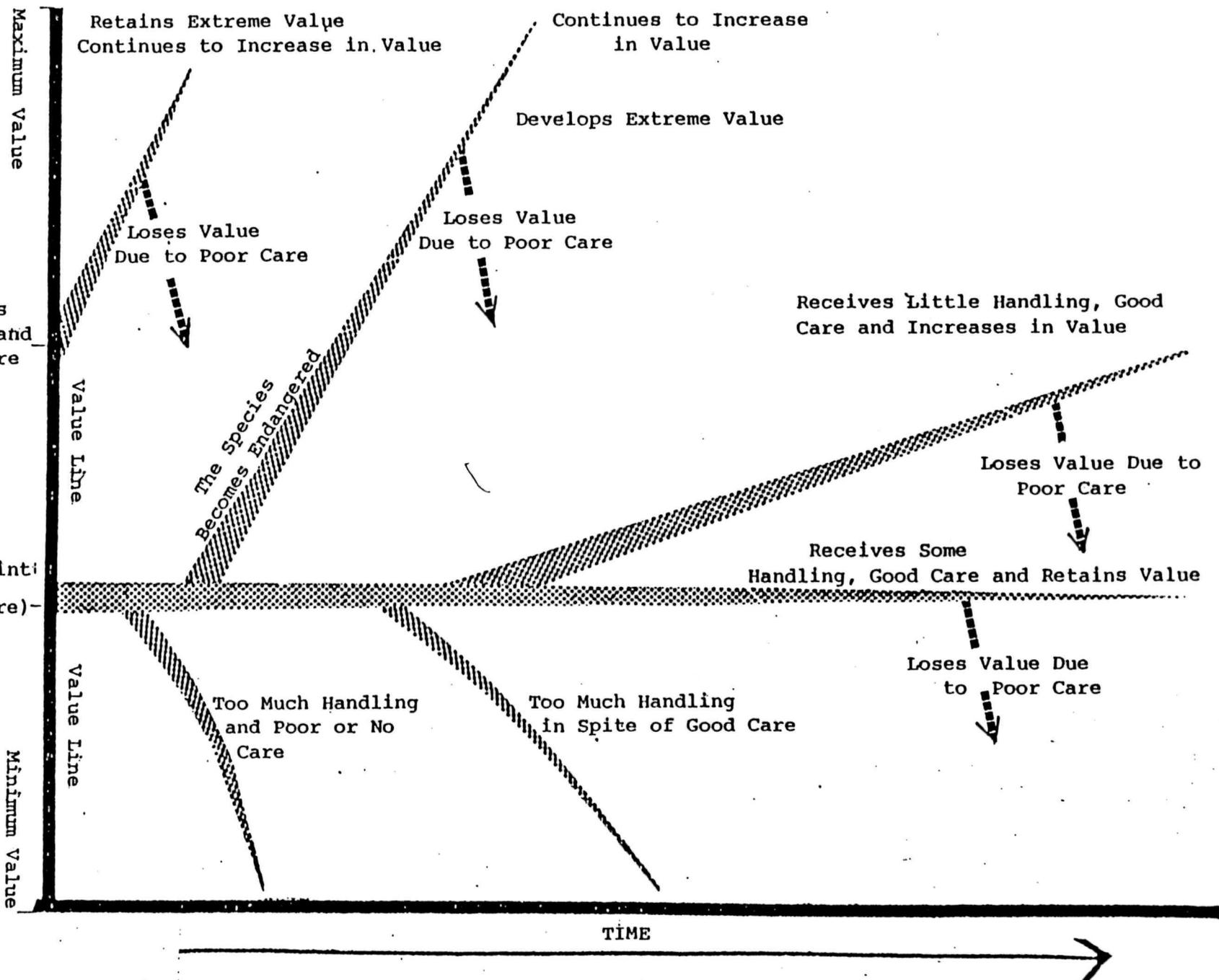


FIGURE VI-2: INFLUENCE OF TIME, HANDLING AND QUALITY OF CARE ON THE DETERIORATION OF NATIONAL PARK SERVICE NATURAL HISTORY SPECIMENS

FIGURE VI-3: Comparison of the approximate museum life of specific types of natural history museum specimens receiving adequate care.

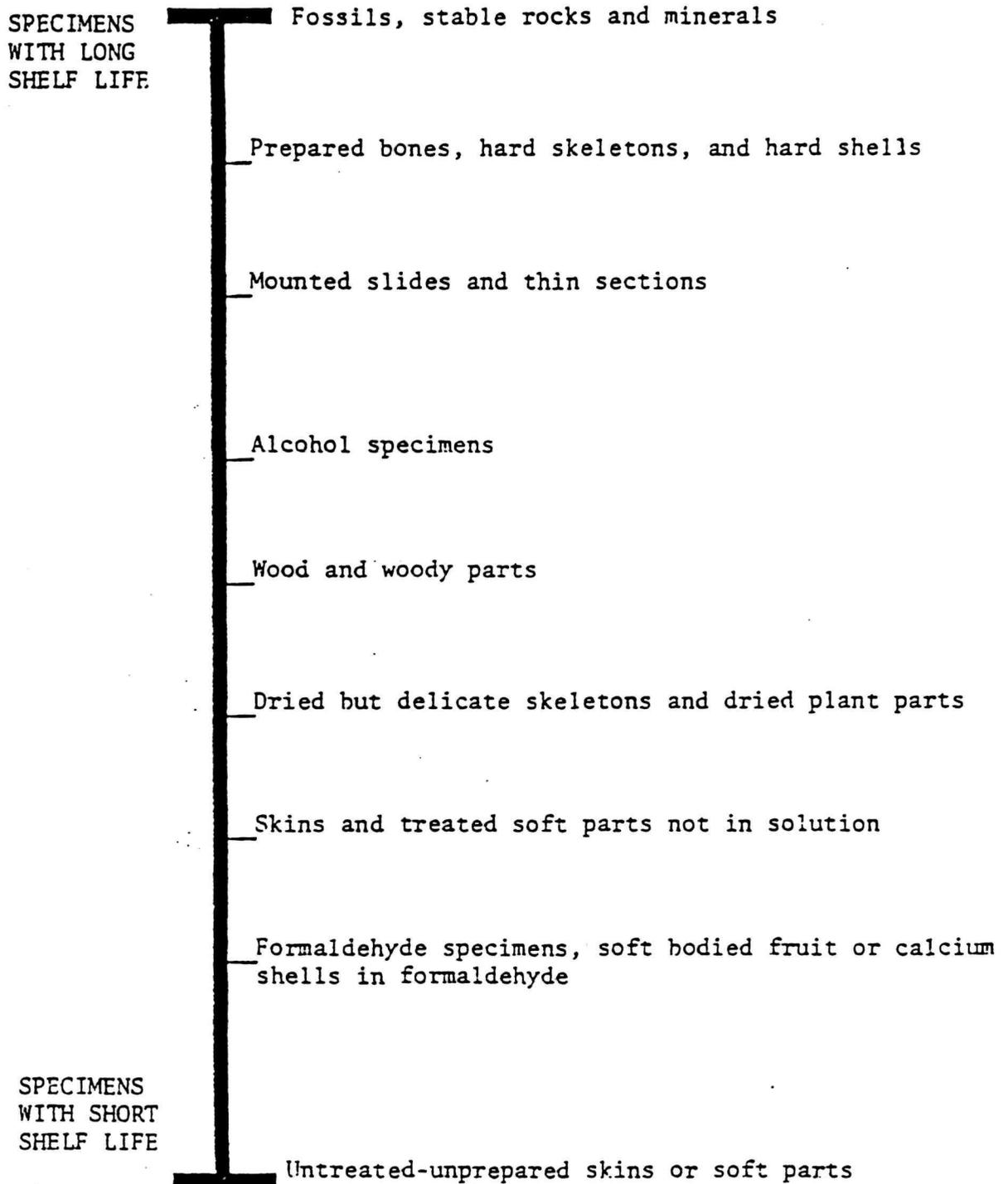




Table VI-1: Determination of Dollar Value of NPS Natural History Specimens

1. General Valuation ( $GV = R_C + M_S$ )

$$GV = (\text{Replacement Cost}) + (\text{Maintenance \& Storage Costs})$$

$$R_C \qquad \qquad \qquad M_S$$

$$R_C = (\text{Collecting Cost}) + (\text{Fixing Cost}) + (\text{Preserving Cost}) + (\text{Mounting Cost} + \text{all other tasks besides})$$

$$c \qquad \qquad \qquad f \qquad \qquad \qquad p \qquad \qquad \qquad m$$

$$M_S = (\text{Yearly Maintenance Cost} + \text{Yearly Storage Cost}) \times (\text{No. years specimen in collection})$$

$$M_a \qquad \qquad \qquad S \qquad \qquad \qquad \text{Yrs}$$

c, f, p, or m = (employee's average hourly wage x hours of active labor) + (transportation & supply costs)

2. Threatened, Endangered\*, Historic Valuation (Special Status Valuation)

$$SSV = (GV) \times (\text{No. years since person's work, event or status declaration})$$

\*Priceless

3. Rapidly Deteriorating Valuation (Specimens with too frequent handling or lack of care/storage)

$$RDV = \frac{GV \text{ or } SV}{\text{\#yrs in collection}}$$

OR

$$\text{\#yrs since first appearance of deterioration}$$

## Appendices

- A Management Policies; Natural Resource Management including recommended changes
- B Management Policies; Use of the Parks
- C Legislative Documents, Code of Federal Regulations, Title 36-Parks, Forests, and Public Property (revised July 1, 1979) Chapter 2, Section 2.25 NPS/Dept. of the Interior
- D Photographic Library
- E Sample Curatorial Consultation Report: Tuskegee Institute National Historic Site; report on specimens in collections located in Grey Collins and the George Washington Carver Museum
- F Draft Taxonomy for Museum Collections to be used in the Computerized Catalog

CHAPTER IV

NATURAL RESOURCE MANAGEMENT

Management Policies of the National Park Service  
United States Department of the Interior

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# Natural Resource Management

THE NATIONAL PARK SERVICE WILL MANAGE THE NATURAL RESOURCES OF THE NATIONAL PARK SYSTEM TO MAINTAIN AND PERPETUATE THEIR INHERENT INTEGRITY.

National Park Service planning provides for zoning of all park lands in one or all of four land classifications: natural, historic, park development and special use. Each zone in turn may have various subzones. Use and resource management within these zones and subzones are guided by the management policies and carried out through the planning process. Policies valid for any particular zone or subzone shall be the same for any unit of the System except where legal requirements or valid existing rights require exceptions.

Management of park lands possessing significant natural features and values is concerned with ecological processes and impact of people upon these processes and resources. The concept of perpetuation of a total natural environment or ecosystem, as compared with the protection of individual features or species, is a distinguishing aspect of the Service's management of natural lands.

Natural resources--vegetation, animal life, and water and geological features--occur in most areas of the System. The vegetation may be native plants surviving naturally in an isolated section of a large park. It may also be a formal garden laid out and cared for based upon the historic criteria of the period represented. The maintenance of the historic scene and of the integrity of cultural resources is a primary objective in historic zones.

Park development zones are managed and maintained for intensive visitor use. It is understood that roads, walks, buildings, and other visitor and management facilities may occupy much of the area, and that the natural aspect of the land will accordingly be altered. Historic features will be generally absent in park development zones. Management of the park development zone will aim at maintaining a natural environment if possible, given the use of the zone. Such management may be accomplished through the manipulation of the natural environment or by conformance with the approved historical or cultural theme in historical parks. Any manipulation will be the minimum necessary to achieve the planned use. For example, native vegetation should not be extensively replaced by exotic species for solely aesthetic reasons.

Legislation establishing some parks may permit various resource uses, such as grazing, mining and hunting, which are generally not allowed in the National Park System. In some parks, legislation and policies may also provide considerable latitude for active

management of certain resources. Even in such areas, resource management must seek to avoid unnecessary alteration of the natural scene or interference with natural processes.

In all parks it is necessary for the Service to consciously plan for and carry out the management for the priceless heritage entrusted to its care in the manner best designed to perpetuate that heritage now and in the future. Historic scenes may change due to natural processes. Certain ecological processes altered by human activities may need to be abetted to maintain the closest approximation of the natural scene where a truly natural system is no longer attainable. Prescribed burning in the Everglades sawgrass is an example. The effects of use on the natural resources of all areas must be monitored in order to take appropriate action to assure resource perpetuation.

The dynamic nature of plant and animal population, and human influences upon them requires that they be monitored to detect any significant changes. Action will be taken in the case of changes based upon the type and extent of change and the appropriate management policy.

Natural resources specialists will work closely with historians, visitor use specialists, planners and managers to assure that resource management is consistent with each park's purpose and objectives and Service policy.

*(See Management Zoning II-3 .)*

## SCIENCE PROGRAM

Natural and social science information is necessary for management of the National Park System. The National Park Service will, therefore, conduct a program of natural and social science, to support management in carrying out the mission of the Service and provide accurate scientific data upon which all aspects of planning, development, and management of the units of the System may be based.

The Service also may permit the use of parks by qualified investigators for scientific studies when such use shall be consistent with Service policies and contribute to the attainment of park objectives.

*(See Information Base II-1, Research Involving Cultural Resources V-6 , Research and Collection Permits VII-20.)*

## NATURAL RESOURCES MANAGEMENT PLAN

This plan defines the course of action, based on Service policy and law, for the continuous protection, management, and maintenance to perpetuate the resources, to achieve park purpose and objectives, and to appropriately regulate the effect of park use on these resources.

The plan defines the operating program related to all the natural resources and the science program necessary to address crucial aspects or refinements of those operations. In the absence of adequate knowledge, operational programs will be aimed at maintaining the status quo and avoidance of long term or possibly irreversible impacts until priority research can provide necessary information for management changes.

*(See The General Management Plan II-2, The Historic Scene V-24, Wilderness Management VI-6, Backcountry Use VII-10, Regulation of Special Uses VII-14)*

## RESOURCE UTILIZATION

As a general policy, the Service does not allow consumptive utilization of renewable or non-renewable park resources. However, the diversity of parks within the System, the occurrence of rights and privileges relating to resource uses continuing from prior to the establishment of certain parks, specific provisions of legislation, and management needs require exceptions and modifications for the management of the System. Where consumptive uses are permitted by law, and where it can be demonstrated that they are detrimental to the purpose of a park, the Service will recommend their elimination, limitation, curtailment, or modification through the legislative process.

In units of the System where specified by law, the Secretary of the Interior may utilize such statutory authority otherwise available to him or her for the conservation and management of natural resources where it furthers, is compatible with, or is not detrimental to the area's purpose.

*(See Research and Collecting Permits VII-20, Collecting Without Permit VII-21)*

## DISPOSAL OF TREES AND OTHER NATURAL RESOURCES

Natural resource products accumulated as the result of approved development, vista clearing, and other resource management activities must be salvaged or disposed of in accordance with Service instructions and applicable laws or procedures. Residue resulting from

natural phenomena such as storms and floods will be recycled through the ecosystem, if feasible, but when it poses a threat to human safety or resources, it will be handled in accordance with the same procedures described above.

(See Landscape and Vegetative Manipulation IV-19.)

#### FIREWOOD

Aesthetically pleasing and energy conserving wood fires may be allowed in designated sites. Foraging for firewood may be prohibited in all or part of parks where such activity is adversely impacting the natural or historic scene. Wood salvaged by the Service as a result of conditions described in the preceding section may be supplied for campfires at the discretion of the Superintendent.

Concessioners may sell wood for campfires in park areas if campfire use is consistent with park regulations. Such wood must be obtained from outside the park or purchased from the Service when available under conditions described in the preceding section, "Disposal of Trees and Other Natural Resources."

#### AGRICULTURAL USES

Natural Zones - Agricultural uses are not permitted in natural zones on parks.

Historic Zones - In historic zones, agricultural activities, including demonstration farms, are permitted where they conform to those that occurred during the historic period and where they do not detract from the principal interpretive purposes.

Agricultural uses that do not conform to those in practice during the historic period are permitted where they contribute to the maintenance of a historic scene, are permitted by law, or are required pursuant to acquisition agreements or similar documents.

Agricultural Subzone - Agricultural practices may be permitted to achieve desirable land uses, in accordance with the area's theme and objectives. Leases or special permits may be issued for the management by others of such agricultural and wildlife enhancement land.

Employee and Community Gardens - Service and concessioner employees living in the parks may cultivate gardens in park development zones and historic zones for personal use, under terms set by the Superintendent, where such use does not deplete or pollute available water supplies, impinge on the visitor's enjoyment of the historic or natural scene, or adversely affect important park resources. In metropolitan parks such as National Capital Parks, community gardens

for recreational gardening may be designated when it has been determined that no significant historic or natural resources are adversely affected, and where such use does not pollute or deplete available water supplies. Pesticide use will be in accordance with established Service regulations and guidelines.

(See Pesticide Use IV-13.)

#### GRAZING

Commercial grazing is not permitted in any park where such use is detrimental to the primary purpose for which it was established. Grazing on park land is permitted where authorized by law or permitted for a term of years as a condition of land acquisition.

Grazing and raising of livestock is also permitted in historic zones where desirable to perpetuate and interpret the historic scene.

(See Special Use Zone II-4 .)

Control and Regulation of Commercial Grazing - Where the Service has direct control over regulation of grazing, it will require that livestock numbers or trail stock use be kept at a level, and distributed spatially and seasonally, to keep them within the carrying capacity of the area being grazed, and to assure that the needs of wildlife in the same area will be met. Where conduct of grazing occurs through others, such as the Bureau of Land Management, the Service will consult and cooperate to achieve the same goal.

Grazing of Trail Stock - Trail stock (horses, mules, and burros) used by the Service, concessioners, or private parties may graze in natural zones of the parks only incidental to passage through these areas. Such grazing may be curtailed in these areas wherever necessary to restore full use by native wildlife and natural fire regimens. When conditions warrant, Superintendents may publish regulations closing portions of a park to stock or establishing the times and places within natural zones when food for trail stock must be carried by the trail party. Where Service and concessioner trail stock must be quartered in parks, they must be limited to designated areas away from significant park features.

(See Grazing and Stock Driveways VI-3 .)

Commercial Grazing Fees - Fees will be charged on an annual basis and will conform to fees set by the Bureau of Land Management, the Forest Service or private land owners, whichever applies to the area involved.

Elimination of Grazing - Where grazing is permitted and its continuation is not in the best interest of public use or maintenance of the park ecosystem, it will be eliminated, wherever possible, through orderly and cooperative procedures with the individuals concerned.

#### MINERAL EXPLORATION, LEASING, AND MINING

Mineral exploration, leasing, and mining are not permitted except where expressly authorized by law, except that the Secretary of the Interior has authority for the utilization of resources in certain units of the National Park System. Such utilization is authorized when it will promote, or is compatible with and does not significantly impair, public recreation and the conservation of scenic, scientific, historic, or other values contributing to public enjoyment. Administrative authorization shall be contingent upon compliance with the Procedures for the Protection of Historic and Cultural Properties promulgated by the Advisory Council on Historic Preservation. The National Park Service will strive to control mineral leasing, and eliminate mining activities that are inimical to the purpose of any unit of the National Park System.

(See Special Use Zone II-4, Wilderness--Mining and Prospecting VI-4.

Reference: Regulation of Park Mining Act, September 28, 1976, P.L. 94-429.

#### MANAGEMENT OF ANIMAL POPULATIONS

The Service will perpetuate the native animal life of the parks for their essential role in the natural ecosystems. Such management, conformable with general and specific provisions of law and consistent with the following provisions, will strive to maintain the natural abundance, behavior, diversity, and ecological integrity of native animals and plants in natural portions of parks as part of the park ecosystem.

In order to maintain the natural abundance, behavior, diversity and ecological integrity of native animals, plants resources of every park shall be located, inventoried and evaluated for significance. This will provide the substantive data needed to formulate management proposals. It shall be periodically reviewed and updated in a progressive effort toward completion of inventories. The NPS shall develop and maintain a comprehensive data bank for recordation, retrieval of all primary and synthesized data.

Native species are those that occur, or occurred due to natural processes on those lands designated as the park. These do not include species that have moved into those areas, directly or indirectly as the result of human activities.

Native animal life in the National Park System shall be given protection against harvest, removal, destruction, harassment, or harm through human action, except where:

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- hunting and trapping are permitted by law;
- fishing is permitted by law for either sport or commercial use or is not specifically prohibited;
- control of specific populations of wildlife is required for the maintenance of a healthy park ecosystem; or
- removal or control of animals is necessary for human safety and health.

Natural processes shall be relied upon to regulate populations of native species to the greatest extent possible. Unnatural concentrations of native species, caused by human activities, may be regulated if those activities causing the concentrations cannot be controlled. Non-native species shall not be allowed to displace native species if this displacement can be prevented by management. The need for, and results of, regulating animal populations, either native or non-native, shall be documented and evaluated by research studies.

(See Wildlife Observation VII-7.)

#### HUNTING

Hunting, trapping, or other methods of harvest of native wildlife, is not permitted by the public in natural and historic zones, except where specifically permitted by law. Where specifically authorized by Congress, public hunting shall be in accordance with applicable State and Federal laws and regulations. However, the Service may designate zones where, and establish periods when, no hunting shall be permitted for reasons of public safety, administration, or other public use and enjoyment of the area. Under the above provision, the Service, in consultation with States, may ban hunting in part or all of a park for any or all legally huntable game or non-game species for reasons of their:

- being officially designated as endangered, threatened, or locally of rare or unusual occurrence in the park;
- occurring in numbers below the natural capacity of their range; or
- being of greater overall value for wildlife viewing and interpretation.

Regulations prescribing such restrictions shall be issued after consultation with the States.

## FISHING

Fishing has been traditionally permitted in the National Park System since the establishment of Yellowstone. The Service will continue this practice, but, in so doing, it affirms that:

- Waters may be closed to fishing to protect rare, threatened, or endangered plant and animal species in the waters on in adjacent habitat.
- Portions of park waters may be closed to fishing when the fish life and other aquatic life has greater value to greater numbers of visitors for the appreciation of plant and animal life, for scientific study, interpretation, or environmental education.
- Fishing may be prohibited in certain waters and at certain times when necessary to protect spawning grounds of endemic fish species or to maintain natural distributions of densities of native wildlife species that use fish for food.
- Fishing may be permitted in historic zones when it does not intrude adversely on the historic scene or harm cultural resources.

Where fishing is permitted, such fishing shall be carried out in accordance with applicable State and Federal laws and regulations. Park regulations may be different for native and non-native species and may be modified for specified waters. Commercial fishing is permitted only where authorized by law.

Natural Zones - Fisheries management shall be:

- specifically aimed towards preservation or restoration of the full spectrum of native species, including fish; and
- regulated for native species so that mortality is compensated by natural reproduction.

No artificial stocking of exotic fish species will occur; artificial stocking of fish may be employed only to reestablish native species. Areas that are added to the National Park System that have had an artificial stocking program shall phase it out. Waters naturally barren of fish will not be stocked with either native or exotic fish species but will be allowed to remain in, or revert to, their natural state.

Special Use Zones - Reservoirs, occurring in a number of areas, represent altered natural environments which may reduce populations of some native species of fish and encourage others. New ecological environments and niches are created which may be most successfully filled by exotic fish species; however, native species will be given precedence over exotic species wherever they are adaptable to the altered environment. Rivers and streams may be stocked with exotic species of fish when it has been determined that exotic species are already present and established and where scientific data indicate the introduction of exotics would not seriously diminish native species populations. Accordingly, the Service, in cooperation with State fish and game officials, may work out programs of fish stocking of reservoirs and other waters for purposes of recreational fishing, using either exotic or native species, or both. Active fishery management programs are encouraged in such waters.

#### WILDLIFE AND FISH MANAGEMENT IN SPECIFIED AREAS

In areas set aside with legal requirements for wildlife and fish management, the Service will still perpetuate native animal life and protect the integrity of natural ecosystems. Management will be directed towards maintaining populations of fish and wildlife for aesthetic, ecological, recreational, educational or scientific value. In those areas where recreational hunting, trapping, and fishing programs are authorized by law and consistent with park objectives, management programs may be directed toward the maintenance and enhancement of habitat for game animals (including fish, amphibians, mammals, birds, mollusks, and crustaceans). The management of fish and wildlife in these areas must be a cooperative endeavor with the States. These cooperative endeavors will be effected through a Memorandum of Understanding with the respective State.

#### REGULATION OF WILDLIFE POPULATIONS

Regulation of native animal populations in natural zones shall be permitted to occur by natural means to the greatest extent possible. In parks where hunting is not authorized by law, public hunting on land outside of the park is recognized as a means of controlling wildlife populations that move in and out of park boundaries. Cooperative studies and management plans with States and other Federal agencies will be initiated or continued to facilitate desirable public hunting outside of park boundaries, especially through extended or special seasons established by the States.

Other control measures to be used as necessary may include (1) live trapping in the areas for transplanting elsewhere; (2) providing research specimens for National Park Service and cooperating

scientists; and (3) direct reduction by Service personnel. It is recognized that it may be necessary, on occasion, to carry on various phases of this program simultaneously. The Service will adjust the use of these control measures to meet varying weather and other relevant conditions, giving highest priority to the opportunities for public hunting outside the parks and live trapping within parks for transplanting purposes.

The Service will control wildlife populations or individual animals when necessary for visitor safety and health. Where persistent control problems exist, the Service must determine whether or not curtailment or modification of visitor use and other human activities might not be a desirable alternative. Control may include trapping and transplanting or, only when necessary, destruction of offending animals.

#### DISPOSAL OF SURPLUS WILDLIFE AND CARCASSES

Where the Service removes animals from the parks, consistent with Service policy, the animals or their carcasses shall be disposed of in accordance with applicable agreements, laws, and regulations. Generally, first priority for disposal of ungulates, both live and as carcasses, is with the various Indian tribes in furtherance of their programs.

Cooperation with States - The Service will consult with the appropriate State fish and game departments in carrying out programs of control of populations of fish and wildlife, or research programs involving the taking of such fish and resident wildlife, including the disposition of carcasses. The Service will refer any resultant disagreements to the Secretary of the Interior, who shall provide for a thorough discussion of the problems with representatives of the affected State fish and game department and the Service for the purpose of resolving the disagreement.

#### REINTRODUCTION OF NATIVE PLANTS AND ANIMALS

The reintroduction of native species into parks is encouraged, provided that:

- adequate habitat exists in the park and on adjacent public lands and waters to support the species;
- the species, based on an effective management plan, does not pose a serious threat to the safety of park visitors or park resources, or to persons or property outside of park boundaries;

- the species being reintroduced most nearly approximates the extirpated subspecies or race;
- the species disappeared, or was substantially diminished, because of human-induced changes--either directly or indirectly--to the ecosystem; and
- confinement of the animals by fencing will be permitted only until the animals become thoroughly accustomed to the new area or they have become established sufficiently that threats from predators, poaching, disease, or other factors have been minimized.

Such programs will be carried out in cooperation with other affected parties and agencies.

#### THREATENED AND ENDANGERED PLANTS AND ANIMALS

The Service will identify all threatened and endangered species within park boundaries and their critical habitat requirements. As necessary, the Service shall control visitor use and access to such habitat, including closure to entry for other than official purposes. Active management programs, where necessary, may be carried out to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystem on which they depend, in accordance with existing Federal laws.

The Service will cooperate with the Fish and Wildlife Service, which is recognized as the lead agency in matters pertaining to threatened or endangered species, including delineation of critical habitat on parklands.

Plant and animal species considered to be rare or unique to a park shall be identified also and their distribution within the park mapped. Management actions for their protection and perpetuation shall be incorporated into the natural resources management plan.

Reference: Endangered Species Act of 1973, December 28, 1973,  
(P.L. 93-205, 87 Stat. 884)

(See Natural Resources Management Plan IV-3, Research and Collecting Permits VII-20.)

#### EXOTIC PLANTS AND ANIMALS

Definitions - Exotic species are species that occur in a given place, area, or region as the result of direct or indirect, deliberate or accidental introduction of the species by humans. For example, species that humans deliberately have introduced into, and established in, the

wild in North America for use as free-roaming game animals on private and non-park public lands clearly are exotic species on National Park System lands that have been set aside for preservation of examples of the natural or historic features characteristic of the United States. Such exotic species are not natural components of the ecological systems characteristic of the given location, and as a result, have not evolved in concert with the evolution of those species that are native to the location. The native species are species which presently occur, or once did occur prior to some human influence, in a given place, area, or region as the result of ecological processes that operate and have operated without significant direct or indirect, deliberate or accidental alteration by humans. For the purposes of this section, direct or indirect, deliberate or accidental introductions by humans are ones that have permitted species to cross natural barriers to their dispersal capabilities thus giving those species opportunities to become established in areas previously inaccessible to them because of natural forces. For example, the stocking of a fish-free portion of a river above a waterfall with fish taken from a portion of the same river below the waterfall is a human act that permits a species to cross a natural barrier to dispersal and thus is an act of deliberate introduction of an exotic species.

Introduction of New Exotic Species - Decisions on whether to introduce to a park species that are not native to the park will be controlled by the purposes and designated zones of the park. In natural zones, non-native plant and animal species may not be introduced except in rare cases where they are the nearest living relatives of extirpated native species or where they may be used to control established exotic species. In historic zones, non-native plant and animal species may be introduced in rare cases similar to those identified for natural zones. In addition, non-native species that are a desirable part of the domestic historic scene being represented in an historic zone may be introduced, but only if they are controlled and maintained by recognized domestic techniques, such as cultivation, tethering, herding, or pasturing. In park development and special use zones, non-native species of plants and animals may be introduced to carry out programs consistent with park objectives only when it can be shown: 1) that the most appropriate native species are extinct, 2) that other native species will not meet the needs of the management program, 3) that, based on scientific advice from appropriate Federal, State, local, and non-governmental sources, each species proposed for introduction will not become a pest, and 4) that such introductions will not spread and disrupt desirable adjacent natural plant and animal communities and associations, particularly those of natural zones.

Reference: Executive Order 11987, Exotic Organisms, May 24, 1977

Control of Exotic Species Already Present in a Park - Manipulation of population numbers of exotic plant and animal species, up to and including total eradication, will be undertaken whenever such species threaten protection or interpretation of resources being preserved in the park. Examples of threatening situations include: 1) being detrimental to public health, 2) disrupting the faithful presentation of the historic scene, 3) damaging historic and archeological resources, 4) threatening the perpetuation of natural features, native species (including especially those that are endangered, threatened, or otherwise unique), natural ecological communities, or natural ecological processes, and 5) significantly hampering the management of adjacent park or non-park lands. Control programs will most likely be taken against exotic species which have a high impact on protected park resources and where the program has a reasonable chance for successful control; programs are least likely to be initiated against exotic species which have almost no impact on park resources and where there is a minimal probability for successful control. The decision to initiate a control program will be based on existing and newly acquired, scientifically valid resource information that identifies the exotic status of the species, demonstrates its impact on park resources, and indicates alternative control methods and their probabilities of success. Development of a control plan and implementation of actions to protect the park resources will be done according to established planning procedures and will include provisions for public review and comment. Care will be taken that programs to control exotic species do not result in significant damage to native species, natural ecological communities, natural ecological processes, or historic objects.

#### INSECT AND DISEASE CONTROL

Native insects and diseases existing under natural conditions are natural elements of the ecosystem. Accordingly, populations of native insects and the incidence of native diseases will be allowed to function unimpeded except where control is required (1) to prevent the loss of the host or host-dependent species from the ecosystem; (2) to prevent outbreaks of the insect or disease from spreading to forests, trees, other vegetative communities, or animal populations outside the area; (3) to conserve threatened or endangered, or unique plant specimens or communities; (4) to conserve and protect flora and fauna in developed zones; or (5) for reasons of public health and safety.

The basic objective of insect and disease control in historic zones is to preserve, maintain, or restore the historical integrity of the area. A concerted effort will be made to prolong the life of any

historically significant tree, grove, woodland, forest, or other plant community extant at or representative of the time of the event commemorated. The occurrence of normal endemic populations may be typical of historic, pesticide-free times.

Control operations may be initiated (1) to protect the integrity of the historic scene and (2) to prevent outbreaks from spreading to uninfested forests or trees outside the area.

The measure of control in wilderness areas will be the minimum necessary to prevent escape from the wilderness environment.

#### PESTICIDE USE

Chemical pesticides of any type will be used only where feasible alternatives are not available or acceptable. The Service's use of All pesticides shall be approved by the Director. Application shall be in accordance with applicable laws, Departmental and Service guidelines, and Environmental Protection Agency and Occupational Health and Safety Administration regulations.

(See Water IV-17.)

# DRAFT

#### COOPERATIVE RESEARCH

The Service shall promote and encourage cooperative research relationships with recognized educational and scientific institutions, including prominent accredited Natural History Museums. The physical and documentary resources of the Service and its facilities and assistance shall be made available to qualified scholars, whether professional or amateur, to the extent consistent with the Service's mission and operational requirements.

#### SCIENTIFIC ARCHIVES AND NATURAL HISTORY COLLECTIONS

The National Park Service shall provide for the appropriate care, storage, disposition, and selective display of Natural History specimens (plants, animals, fossils, rocks and minerals), and materials entrusted to its care and shall acquire, as needed, those specimens and materials essential to the achievement of park purposes and objectives, or directly related to research requirements.

# DRAFT

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#### DOCUMENTARY RECORDS

The disposition of official records generated in the course of park operations is governed by records management schedules jointly agreed on by the National Park Service and the National Archives and Records Service and periodically reviewed to insure their consistency with archival standards. Regional offices are responsible for transferring official records from both their offices and parks to the records centers. When records maintained in parks have served their purpose as operating records and are eligible for disposal according to the National Park Service Records Disposition Schedule, parks are encouraged to retain notes or copies of historically significant records relevant to management and interpretation and such materials as are needed for exhibit or to document museum collections.

The acceptance and retention of private collections of relevant natural history specimens by parks is encouraged, provided they are confined to reference or display specimens, photographs, maps and copies of original documents. The criteria for acquisition are: (1) adequate storage facilities which meet the Association of Systematic Collections museum standards, (2) a continuity of trained curatorial personnel, or long term cooperative agreements with reputable accredited natural history museums which can care for and store the specimens., and (3) ready access or research. When original documentary collections are offered to or are already in a park which does not meet the above criteria, effort should be made to have them placed in an appropriate accredited natural history museum preferably in the same region and with a binding cooperative agreement with the Service. If a collection is a major natural history resource, retention of the collection on site entails a responsibility to provide perpetual, specialized professional care.

Where park specimens, archival or natural history-library collections contain rare items (including those on fragile sulfide paper, or other media) preservative treatment and photocopying shall be undertaken.

#### AQUISITION AND CARE OF NATURAL HISTORY SPECIMENS

A scope of collection statement, in which the limits of museum collection are detailed, must be prepared and approved for every park.

Natural history specimens related directly to the biology, geology or history of an area may be acquired by gift, loan, exchange, or purchase, in conformance with legal authorizations, and existing procedures, and preserved in the area for study and interpretive purposes. A reasonable number of specimens not related directly to the natural history of an area may be included in a collection for purposes of comparative study. Natural history specimens may be collected from the area only in conformance with scientific research policies by professionally qualified persons operating within the scope of assigned duties, under contract, or under provisions of an Antiquities Act, Threatened and Endangered Species Act or Marine Mammal Protection Act permit. The original fabric of historic or anthropological structures shall not be mutilated to secure specimens for museum collections. Where some original fabric is removed incidental to structural repair, representative portions of the removed elements shall be preserved in the museum collection if they reveal significant facts about the structures or habitat.

The Service shall document, record, and protect for optimum preservation all natural history objects entrusted to its care. It may cooperate with other qualified institutions in the accession, protection, and preservation of historic objects and, under appropriate circumstances may place objects on loan to such institutions.

References: Ralph H. Lewis, Manual for Museums, Part I, Washington, U.S. Department of the Interior, 1976.  
C. M. Schonewald-Cox and Marie Zack, Program and Policy for the development of display, interpretive and research natural history collections belonging or entrusted to the National Park Service, 1980.

## CATEGORIES OF SIGNIFICANCE

The significance of objects acquired or cataloged must be evaluated according to criteria standardized in the Museum Handbook, Manual for Museums and Program and policy for the development of display, interpretive and research natural history collections belonging or entrusted to the National Park Service.

### GEOLOGICAL AND PALEONTOLOGICAL RESEARCH

# DRAFT

(Refer also to Archeological research, V-7)

Geological and Paleontological research involving excavating or collecting, no matter how well conceived or executed, can be a destructive process representing an irreversible and irretrievable commitment of cultural resources. Accordingly, any Service proposal for research physically affecting geology or paleontology resources shall:

1. be based on an approved research proposal closely defining the scope and methodological basis of the research; and outlining in detail any collecting that is necessary to carry out the project.
2. establish that the research is essential to the acquisition of data needed by management, or to National Park Service or visitor understanding of the geological history or structure of the park, or to the preservation of in situ structures or remains;
3. establish that the purpose of the work proposed can be substantially met only by excavation work at the site(s) proposed;
4. provide for appropriate recordation of data, dissemination of results, and preservation of natural history resources affected.

Non-Service proposals for Geological, Paleontological research in parks involving excavating or collecting shall:

1. provide a research proposal closely defining the scope and methodological basis for the proposed work;
2. establish that the research is essential to the acquisition of data directly related to current significant paleontological or geological concerns that cannot reasonably be accomplished by investigation of paleontological and geological resources outside the park;

3. establish that sufficient institutional commitment and capability exist to fully recover, analyze, synthesize, and publish the results of the work; to meet curatorial responsibilities for the materials and artifacts removed; to provide for appropriate preservation for these in a local accredited natural history museum, preferably with a cooperative agreement with the National Park Service; and to provide for appropriate preservation of in situ remains;
4. establish that the principal investigator has a serious, longterm commitment to the paleontological and geological resources proposed for the study.

All paleontological and geological research proposals shall comply with the requirements of (Executive Order 11593, Section 106 of the National Historic Preservation Act of 1966 (?)) and the provisions of the Antiquities Act of 1906 and the Archeological Resources Protection Act of 1979.

#### PRESERVATION OF FIELD NOTES AND COLLECTIONS

# DRAFT

Field notes and collections of natural history specimens retrieved in the conduct of research in zoology, botany, geology, paleontology, behavior (ethology) or ecology, or during habitat manipulation projects, shall be preserved for the benefit of future investigators and as an aid to continued preservation.

Where practicable, geological or structural habitat elements shall be left in place. If they must be removed for preservation, significant or representative samples shall be carefully, tagged, cataloged and stored.

#### FIRE MANAGEMENT

Fire is a powerful phenomenon with the potential to drastically alter the vegetative cover of any park.

The presence or absence of natural fires within a given ecosystem is recognized as a potent factor stimulating, retarding or eliminating various components of the ecosystem. Most natural fires are lightning-caused and are recognized as natural phenomena which must be permitted to continue to influence the ecosystem if truly natural systems are to be perpetuated.

The fire management program of all parks must be designed around park objectives. In natural systems this may include the need for some areas to proceed through succession toward climax while others are set back by fire. Natural zones should represent the full spectrum of the parks' dynamic natural vegetative patterns. Sharply defined zones or blocks of vegetation limited to certain species locked in over time are not natural and only rarely justified. In historic zones fires may be controlled or used to perpetuate the historic scene.

(See Wilderness--Fire Management VI-8.)

## MANAGEMENT FIRES

Management fires, including both prescribed natural fires and prescribed burns, are those fires which contribute to the attainment of the management objectives of a park through execution of predetermined prescriptions defined in detail in the Fire Management Plan, a portion of the approved Natural Resources Management Plan.

Prescribed natural fire is the preferred means to achieve the prescriptions in natural zones. This use of natural ignition may be adopted when analysis of past fire occurrence, distribution, control, and influence, indicates that natural vegetative accumulation and composition has not been significantly altered by past management of fire control. It may also be used where the prescription provides for a transition from an altered state back to historic fuel loading.

In ecosystems modified by prolonged exclusion to fire, prescribed burning may be used to restore fuel loading or vegetative composition to natural levels followed by a prescribed natural fire program, or to create narrow fuel breaks along boundaries of a fire management area and thereby reduce the probability of wildfires crossing into or out of that area.

Prescribed burning may be used as a substitute for prescribed natural fire in natural zones only where the latter cannot meet park objectives. This determination will be documented in the Fire Management Plan. In natural zones, the objective for prescribed burning is to simulate, to the fullest extent, the influence of natural fire on the ecosystem. In other zones it may be used to recreate or perpetuate a historic setting or to attain other resources management objectives.

Clearly defined limits will be established in the prescription of all management fires, beyond which limited or complete control action will be undertaken.

Management fires in the park will be suppressed if they threaten:

- human life;
- cultural resources or physical facilities of the park;
- threatened or endangered species;
- to escape from predetermined zones or from the park, except where cooperative agreements provide for certain fires to cross such boundaries; or
- to exceed the prescription.

## WILDFIRE PREVENTION AND CONTROL

All fires not classed as management fires are "wildfires" and will be suppressed.

An active fire prevention program will be conducted in all parks and in conjunction with other agencies to protect human life, prevent modification of park ecosystems by human-caused wildfire, and prevent damage to cultural resources or physical facilities.

Human-caused fires will be controlled to prevent damage and to eliminate impact to the park ecosystems.

The fire suppression methods used in the parks should be those causing the least resource damage, commensurate with effective control.

Cooperative agreements will be developed to facilitate reciprocal fire management activities for land within and adjacent to the parks.

## WATER RESOURCES

The waters of a park are a primary resource on par with the wildlife, forest, and geological and historic features, and emphasis should be placed on conservation of water to allow for increased visitation without the need for additional water development. Therefore, the park shall make only those water developments which are absolutely necessary for the visiting public and the operation of the park. Conservation and protection of the water resource are of primary concern to management. Park waters, surface or ground, may be withdrawn for consumptive use so long as such withdrawal is necessary for the use and management of the park and does not significantly alter natural processes and ecosystems. A continuous vigilance will be maintained by observing and monitoring upstream diversions and ground water withdrawals as to their effect on the occurrence, quantity, and quality of water necessary for the continued preservation of the park ecosystem it supports.

Whenever possible, ground water sources should be developed in lieu of, or for replacement of, surface water diversion in parks as being less susceptible for pollution and requiring less maintenance.

All such water shall be adequately treated so that its return to water courses meets or exceeds applicable State and Federal water quality standards. Irrigation in order to maintain exotic ecosystems or plantings shall be avoided, except where such irrigation is part of an approved management program essential to achieve park objectives, and dependable supplies are available. Wherever possible, park developments will secure water from municipalities or regional suppliers outside the park.

Before new water systems or extensions of existing systems are constructed, it must be determined that reasonable economies in the use of existing water systems will not cover anticipated needs. No new waste treatment plant should be constructed nor should existing plants be enlarged because of increased sewage flow until it has been determined that reductions in water use are not possible.

(See *Pollution Control and Abatement IV- 12*)

#### WATER RIGHTS

Water necessary for the development, use, and management of the National Park System will be obtained and used in accordance with the "reserved right" principle where applicable. The "reserved right" principle is applicable on lands withdrawn or reserved from the public domain for authorized purposes without ever having been in territorial or State ownership. The right to use of water to accomplish authorized purposes is also reserved. In cases where that principle is applicable, the proper State agency may be notified, as a matter of comity, of current and foreseeable future water requirements in a manner to be developed with each State. Where the principle is not applicable, water rights will be obtained in accordance with State laws.

Comity notifications and water rights filings shall include a disclaimer as to State jurisdiction, i.e., "Nothing herein shall constitute a waiver of any other right which the United States may have to the same water."

All rights to the use of water diverted to or used on Federal lands in areas of the National Park System by the United States, its concessioners, leasees, or permittees shall be perfected in the name of the United States.

Valid existing water rights of concessioners and land-use permittees on Federal lands will be acquired by the United States as funds, legal authority, and overall management objectives permit.

Water rights owned by inholders within parks will be acquired in connection with the acquisition of such private lands when practicable. Conveyance deeds should cite the quantity of water purchased with the property, and appropriate decree and permit numbers. Similarly, private water rights within parks, attached to impoundments where no land is involved, will be acquired as practicable.

Owners of land or interests in land within or adjacent to parks, under the National Park Service General Authorities Act of 1970 (P.L. 91-838, 84 Stat. 825), may be granted, by special-use permit,

the privilege of developing and using water or sources of water owned by the Service only when it is administratively determined that the use of such water facilitates the management programs of the Service. Such permits will not be issued if any other reasonable source of water supply is available. An application docket containing a draft of the special use permit, background material, and recommendations must be sent to Washington for submission to appropriate congressional committees for review and concurrence prior to consummating any binding commitments. Development costs, including cost of access between the private lands to be served and the source of water, shall be borne by the permittee. In all cases, the Service shall retain the right to use water from such a development. If and when such retained rights are exercised by the Service, it shall share in the cost of the water rights development on an equitable basis.

Owner of lands or interests in lands within or adjacent to Congressionally designated recreation areas may be granted, by special-use permit, the privilege of installing, at no cost to the Government, pipelines or other means to transport water across Federal lands administered by the Service when the water rights are either owned by the permittees or another agency of the Government. An appropriate charge for such rights-of-way shall be made.

(See Inholdings IX-2.)

## POLLUTION CONTROL AND ABATEMENT

The Service will adhere to all applicable provisions of Executive Order 11752 for the prevention, control, and abatement of environmental pollution at Federal facilities. The Service will also adhere to all other applicable Federal, State, and local laws regarding avoidance, amelioration, or elimination of environmental pollution, and will cooperate with the Environmental Protection Agency to this end.

### WATER

The Service and its agents will, consistent with applicable Federal, State, and local laws and regulations, maintain the quality of all waters:

1. originating within the boundaries of parks through
  - a. provisions of adequate sewage treatment and disposal for all public-use and administrative facilities, including the requirement for self-contained boat sewage storage units;

- b. control of erosion induced by human activities;
  - c. prevention of direct pollution by livestock through elimination of streamside or lakeside corrals or pastures, or direct watering sites on natural waters;
  - d. regulation and control, as necessary, of fuel-burning water craft;
  - e. avoidance of contamination by toxic substance, such as certain pesticides, herbicides, and heavy metals;
  - f. regulation of the intensity of use in certain areas and at certain times when determined as being necessary based on water quality monitoring; and
2. flowing through or bounding on park areas
    - a. by applying the methods listed under 1(a), above, for any water use within the park; and
    - b. by entering into cooperative agreements or compacts with other agencies and governing bodies for cooperative measures to avoid water pollution.

Whenever possible, park sewage and water systems will be connected to outside systems.

*(See Pesticide Use IV-13, Water Resources IV-15)*

#### AIR

The quality of the air in the parks plays a vital role in both visitor enjoyment and perpetuation of historic or natural resources. Efforts will be made to control, mitigate or eliminate adverse alteration of the air quality of the parks by industrial/mechanical sources.

Management of in-park pollutant sources and of influences on the parks from outside sources will require close coordination with regional air shed authorities and adjacent agencies. Pollution from transportation, heating, and power generation sources need particular attention. The Service will comply with the Clean Air Act Amendments of 1970, as amended (P.L. 91-604, Dec. 31, 1970; P.L. 95-95, Aug. 7, 1977; 42 USC 7401 et.seq.), directives and other pertinent regulations.

*(See Fire Management IV-13, Formal Campgrounds III-8.)*

#### SOLID WASTE

Proper disposal of all solid waste generated in a park area is the responsibility of the area manager, whether such disposal occurs

inside the Federal reservation or outside. All disposal will be in compliance with guidelines promulgated in the Solid Waste Disposal Act, which apply to waste generated by visitors, concessioners, contractors, park staff, and all other park users. In addition, any park area which issues any license or permit for disposal of solid waste on Federal property shall, before issuance of such license or permit, consult with the Environmental Protection Agency to insure compliance with guidelines contained in this Act.

The Service shall promote the use of biodegradable materials and the reuse and recycling of materials to the degree possible. Waste disposal sites outside of the park will be chosen whenever practical, but if this is impossible, in-park sites for disposal by sanitary landfill shall be carefully selected. Incineration as a means of solid waste disposal shall be used only if there is no other feasible alternative and shall be in compliance with applicable laws and regulations.

*(See Comfort Stations III-10, Wilderness--Refuse Disposal VI-6, Backcountry Sanitation VII-12.)*

#### NOISE

Activities causing excessive or unnecessary noise in and adjacent to parks will be monitored and action taken to avoid or minimize noise which detracts from the visitor's enjoyment of park values, unduly disturbs the peace of adjacent neighborhoods, or adversely affects park resources. Maximum noise limits tolerated will, at least, be consistent with OSHA regulations and applicable State and local laws and regulations.

*(See Design and Construction Considerations III- 5.)*

#### LANDSCAPE AND VEGETATIVE MANIPULATION

Within the four primary management zones that may occur in parks, programs of landscape and vegetative manipulation have differing purposes and are carried out to achieve approved uses.

Examples are Turkey Run Farm in Washington, D.C., and the pastoral area at Point Reyes National Seashore. Management may include but is not limited to:

- encouragement of certain species of plants for aesthetic or wildlife and vegetative management purposes;
- maintenance of certain plant associations for approved livestock or agricultural uses;

- increasing the ability of certain areas to absorb recreational use through vegetative management; and
- retention of provision of open areas, meadows, vistas.

(See Management Zoning II- 3, Disposal of Trees and Other Natural Resources IV- 3, Exotic Plants and Animals IV-11, Fire Management IV- 13, Inventory of Cultural Resources V- 4, Proposal Formulation Affecting Cultural Resources V- 11, Pesticide Use IV-13.)

#### NATURAL ZONES

Manipulation of terrain and vegetative cover may be carried out to restore natural conditions on lands altered by human activity through, but not restricted to the following:

- removal of man-made features, restoration of natural gradients, and revegetation with native park species on acquired inholdings and sites from which park development is to be removed;
- restoration, to a natural appearance, of areas disturbed by fire control activities; and
- minor or infrequent rehabilitation of limited visitor impacted areas. Regular activities such as vista clearings should be limited to defined Landscape Management Area Subzones.

Conditions caused by natural phenomena such as landslides, earthquakes, floods, and natural fires will be modified as little as possible commensurate with public safety and the reconstruction-- if necessary and desirable--of public use facilities in the affected area.

#### HISTORIC ZONES

Trees, other vegetation, and other natural features in a historic zone shall be managed to reflect the historic scene which prevailed during the historic period.

Every effort shall be made to extend the lives of specimen trees dating from the historic period. An individual tree of historical value posing a safety hazard, and diseased beyond recover, shall be removed and replaced. Provisions should be made, while unique trees or shrubs are healthy, for their eventual replacement by progeny through sprout, seed or cuttings.

(See Exotic Plants and Animals IV-11, Insect and Disease Control IV-12, The Historic Scene V-24.)

## SPECIAL USE ZONES

Primary authority over these lands rests with entities other than the National Park Service. The management of the national resources of these zones will be directed (to the maximum extent possible) toward achievement of the defined objectives of the park. Vegetative manipulation may be used to achieve these objectives.

*(See Exotic Plants and Animals IV-11.)*

## PARK DEVELOPMENT ZONES

Management of landscape and vegetation in developed areas shall be commensurate to the greatest extent possible with the purpose of a given park. The landscape and vegetation should be managed to affect the transition between park developments and the terrain, biota, and physical appearance of surrounding management zones commensurate with the requirements and impacts of visitor use.

Rehabilitation and maintenance is expected on areas impacted by visitor use including, if necessary, the redesign, relocation, removal--or the provision--of facilities to avoid or ameliorate adverse visitor impacts on the ecosystem.

*(See Construction III- 6 , Design Quality and Control III- 5 , Employee and Community Gardens IV- 4 , Exotic Plants and Animals IV-11 .)*

## WEATHER MODIFICATION

Weather modification projects affecting parks generally are in conflict with the congressional mandate to perpetuate the integrity of the park environment. Therefore, the National Park Service is opposed to modification proposals unless it can be conclusively demonstrated that weather modification will not influence the natural or historic environments of National Park System areas.

*(See Hydrometeorologic Devices VI- 6 .)*

## CAVE MANAGEMENT

The National Park Service will manage caves for the perpetuation of their natural, geological and ecological conditions, and historic associations.

Developments such as artificial entrances, enlargement of natural entrances, pathways, lighting, interpretive devices, ventilation

Appendix D Photographic Library

A RESOLUTION MODULAR RECOVERY DESIGN  
FOR RESEARCH PHOTOGRAPHY IN THE NATIONAL PARKS

Purpose: To develop a baseline visual system for the scientific recording and verification of existing and past park resources (1)

Design: In order to avoid current problems in the structuring of a standard nomenclature for biological systems in a photo library, we propose the use of entry fields based on subject resolution or scale. In this design two data bases are arranged in descending order of image size and increasing magnification; and within each base a set of discrete fields are arranged according to image to subject ratios. Such ratios, magnifications, and subject resolutions are mathematically determined by optics of the lens. Thus they offer an international standard by which objects of similar size may be neatly arranged. Furthermore, in examining these relationships, we find that our data bases fit two widely used taxonomies, which, likewise can be broken out according to size.

By referring to our tabulation of resolution fields, you will observe that the first base, field one to four, covers a biogeographical taxonomy of descending size, while the second base, field five to ten, covers a Linnean taxonomy of descending size. Entrance to the design, therefore, begins with a statement of physical size. Later this is refined by subject within a specific field.

For example, according to our tabulation, the entire algal flora of a Yellowstone hot spring could be recovered from field 8 (100:1), while photographs describing the hot spring would come from field 3 (1:1000), and a panoramic view of the Yellowstone thermal

systems would come from field 2(1:60,000). Finally, these photos can be recovered with only two subject references, the keywords: Yellowstone and hot springs. In this way, a conceptual modular base would lead quickly to an economic subject recovery.

Also, within this recovery plan, the scientist may find a tool for budgeting photography only to fields essential in the research program. This approach will identify the equipment required for new photography, and the areas where existing resources may be tapped such as Landsat imagery from EROS.

The model may be conceived as an inverted triangle with the base symbolizing an area covered by a Landsat image of  $184 \text{ km}^2$  and the apex of the triangle as a point symbolizing the highest resolutions gained by electron microscopy or x-ray diffraction. Within the visible electromagnetic spectrum this model would cover scales between 1:1,000,000 and 1000: 1, or a subject range of state-size to approximately an  $0.2\mu$  resolution in the shortest wave lengths of visible light.

| <u>Data Base</u> | <u>Field Number</u> | <u>Scale</u>       | <u>Platform</u>                         | <u>Subjects</u>   |
|------------------|---------------------|--------------------|---|---|
| I                | 1                   | 1:1,000,000+-      | Satellite                               | Regions or large provi  |
|                  | 2                   | 1:60,000+-         | Aircraft                                | Small Provinces or Bio  |
|                  | 3                   | 1:1000             | Low aircraft<br>and Ground              | Communities & Habitats<br>within communities  |
|                  | 4                   | 1:100              | Cherry pickers<br>Big Tripods<br>Ground | Communities, Habitats<br>within communities,<br>specific sites and<br>constructions     |
| II               | 5                   | 1:50+-             | ground                                  | Large specimens   |
|                  | 6                   | 1:10+-             | ground                                  | Medium to small specime   |
|                  | 7                   | 1:1 to 50:1        | ground or<br>mount                      | Macrophotography & Diss<br>ting Microscope Analyssi<br>Tiny specimens, soil<br>analysis |
|                  | 8                   | 100:1 to<br>1000:1 | stage                                   | Compound microscope<br>analysis   |
|                  | 9                   | 10,000:1+-         | mount                                   | Electron microscope<br>analysis   |
|                  | 10                  | -                  | mount                                   | x-ray diffraction<br>analysis   |

Keywords will be entered in an appropriate library system, according to their fields, as new subjects are added. In this way we shall develop a thesaurus based on actual use.

Photograph House - The Facts

1. Photograph House is a joint bureau-department enterprise that comes of a long standing need to preserve scientific photographs. No pen, no computer can possibly store such raw information with the accuracy and completeness of a photographic image. Such images are essential to the success of several current pilot projects to monitor ecosystem changes, particularly in ecological preserves in the Federal Domain.
2. Yet, today, within the ranks of some 100 working scientists in the National Park Service, there are probably 100 private photo libraries made at Government expense. Within a short time, according to present and past experience, these photo documents will disappear or revert to the private sector...a movement hardly compatible with the requirements of the long-term monitoring of ecosystems.
3. With these facts in mind, the Acting Associate Director for Science and Technology approved on July 17, 1979 a program to rectify this situation. When the plan was mentioned to the Assistant Secretary, he concluded that it would be of great interest to other bureaus in his jurisdiction. Thus we take pleasure in introducing Photograph House to the Joint Science Committee. Certain highlights of the photo flow may be of interest:
  - a. Success of the program requires standardization of field observations. This can be done by all hands using the same field card, one carrying a unique number like a bank check. This number starts the permanent file address of each picture.
  - b. Success of the program requires storage area with proper air conditioning for archival preservation of films and prints. In this respect our program took form at a point where the Departmental Natural Resources Library had recently acquired new floor space in Clarendon, Virginia. After several meetings with the staff, we were presented with the keys to over 900 square feet of properly climatized space, as well as access

to their rare book room for storage of our most valuable images. In effect the most important key step in the implementation of the science photo library has been acquired in stately grace, and at no additional cost to bureau or Department. In our estimation, Photograph House is now physically equipped to manage the entire photograph resources of the Department...but we do not advise such a precipitous move.

- c. Success of the program requires one year of working with small, carefully chosen pilot projects in the National Parks and Biosphere Reserves. During this time flow details can be designed within the highest state of the current technology for photo storage and recovery. Staffing can be better evaluated and employed without an overburden of backlogged work.
- d. And, finally, success of Photograph House has only one legitimate measure -- the quality of service rendered the field areas. The total resource must be available through a simple phone call or letter:

4. Thus, at this point, we have the know-how, and the space. Now what is needed is a strong baseline funded authority to firmly implant this program within the Department structure. We estimate that a budget of \$150,000 is suitable for the coming fiscal year. This sum would cover the employment of three, and the acquisition of the necessary basic hardware, and some money to support field operations. It is our recommendation that the program be structured within the framework of the Natural Resources Library, and that it be supported jointly on equal shares by the natural resources bureaus making use of the service. Eventually the budget for Photograph House should become a baseline item in order to maintain the consistency of service and research required for long-term monitoring of natural systems.

In conclusion, we recommend that this committee prepare jointly a position paper for the approval of the Assistant Secretary. But before concluding our presentation with questions and discussion, I take pleasure in introducing Mary Huffer, Director of our fine Library and Information Service. She and her colleague, Philip Hamond, Chief of the Library Extension Services, are instrumental in bringing true life to Photograph House.

A RESOLUTION MODULAR RECOVERY DESIGN  
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| <u>Data Base</u> | <u>Field Number</u> | <u>Scale</u>       | <u>Platform</u>                         | <u>Subjects (2)</u>   |
|------------------|---------------------|--------------------|---|---|
| I                | 1                   | 1:1,000,000+-      | Satellite                               | Regions or large provi  |
|                  | 2                   | 1:60,000+-         | Aircraft                                | Small Provinces or Bio  |
|                  | 3                   | 1:1000             | Low aircraft<br>and Ground              | Communities & Habitats<br>within communities  |
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|                  | 8                   | 100:1 to<br>1000:1 | stage                                   | Compound microscope<br>analysis   |
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|                  | 10                  | -                  | mount                                   | x-ray diffraction<br>analysis   |

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1. Nicholas Chura
2. Christine Schonewald

July 26, 1979

The Establishment of a Scientific Photo  
Library in the Department of the Interior

A recent study made by the Office of Science and Technology in the National Park Service has found that a sizeable and priceless environmental resource is being lost through the failure to establish a permanent home for scientific photographs. This study found that visuals are either being kept by individual scientists, or at the most, within isolated laboratory situations. No interlocking or cooperative pathways through this archipelago of some 100 scientists could be identified. Neither could a national plan for permanent storage and recovery of this resource be found, even among those devoted to long-term monitoring of ecosystems.

With these facts in mind, on July 17, 1979, the Acting Associate Director for Science and Technology approved a program to rectify this situation so that the visual record of expensive research does not continue to revert to the private sector, or be lost to future research needs.(1) (2). On the basis of this authority, we ask the reader to review our preliminary recommendations and offer suggestions for improvement.

IDENTIFICATION

In order to identify this proposal effectively, and with a touch of humanity, we recommend that it be called "Photograph House".

POLICY

The mandate of Photograph House is to serve the "field", and in particular, those who are involved in long-term monitoring of ecosystems. (2) This service must begin with a sustained effort to curate, store, preserve, and recover photography in the fields of biology, physics, chemistry and sociology. Only within the scope of this broad spectrum can the photographic effort be adequately applied in understanding, protecting, and, in some cases, saving the national parks for future generations.

In order to carry out this program, Photograph House must be physically located within a stable organization with at least a 50 year life insurance policy. The program should lead through an administrative (active use) period to archival status. But at all times, regardless of status, the images must be quickly recovered for field use. On these terms, Photograph House could well become a model for certain international programs, such as MAB and AID, where visuals are important in communicating their programs.(3)

## CRITERIA

Photograph House must be:

1. A professionally-run library, not a production unit.
2. A relative of existing government libraries - possibly serving as a model for their future improvement.
3. A coordinator for exchanges and loans in a network of both government and private collections of science and technology photographs.
4. A methodical innovator that will start operations with a few pilot projects in the field. (For a time only new photos will be accepted by Photograph House.)
5. A two-layered service, one with access at both manual and electronic levels of information retrieval.
6. A recorder of photo field observations that are standardized and made compatible for entry into a computer system designed by the Office of Science and Technology, NPS.
7. A continuous service...supported by baseline funding, and, thereby retaining its own identity within the parent organization.
8. Finally, a recipient of important photographic gifts in the fields of science and technology.

## ORGANIZATION

In exploring the "home" options for Photograph House, we visited the National Park Service's Interpretive Design Center at Harpers Ferry, their Denver Service Center, and the Department of the Interior's Natural Resources Library. Among these three options, the Interior Library was the only one to meet the requirements of Photograph House.

At this time, we found that none of the Park Service units can qualify for long-term storage programs - ones that must span several generations. In discussing these options with field personnel, we found a unanimity of agreement in that there should be a science photo library; and that it should be in the Department Library. We now visualize Photograph House as a companion to the book library. Here field photography produced by the bureaus should be stored. This type of cooperation will only come, in our opinion, if the participating bureaus can be assured of a rapid access and recovery service.

## IMPLEMENTATION

The following steps have been, or are being taken, to establish Photograph House:

1. Approval of the NPS Office of Science and Technology;
2. Establishment of the NPS participation and coordination in the Natural History Division;
3. Permanent assignment to the program of M. Woodbridge Williams;
4. Arrangements have been initiated for three pilot photo projects in the U.S. MAB Biosphere Reserves. Here researchers will submit photographs for testing the proposed photo storage and recovery system. In the initial stage, the system will be operated manually, based on a design for the photography of the Alaska Task Force in 1972-1973. (7).
5. A Memorandum of Interest in Photograph House has been issued by Mary A. Huffer, Director, Office of Library and Information Services, dated June 14, 1979.(6)
6. A basic design for Photograph House has been presented to the Office of Science and Technology, and approved on July 17, 1979 (5).

Compiled by M. Woodbridge Williams, July 24, 1979

Consultants: Vernon C. Gilbert  
Craig L. Shafer  
Christine M. Schonewald

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2. DOI Departmental Manual 471 DM 2.1 Chapter 2 - Still Photography.
3. Botkin et al, Woods Hole, 1978: A Pilot Program for Long-Term Observation and Study of Ecosystems in the United States. Report of a Second Conference on Long-Term Ecological Measurements, National Science Foundation.
4. 1979 Environment and Natural Resources: Expanded Information Base. AID project paper by the Development Support Bureau.
5. 1979 Williams, M. Woodbridge, A Resolution Modular Design for Research Photography in the National Parks.
6. 1979 Huffer, Mary A., Memorandum to M. Woodbridge Williams, "Visual Scientific and Technical Library".
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Department of the Interior  
DEPARTMENTAL MANUAL

10 copies

Organization

Part 145 National Park Service

Chapter 10 Headquarters Associate Director,  
Science and Technology 145 DM 10.1 A(1)

technology applications laboratory, located at NASA, Wallops Island, Virginia, at which aircraft remote sensing applications for the national park areas on the Eastern Coast of the United States are conducted. The Wallops Island Laboratory is responsible for a program of research and resources management supporting the mission of the seashore parks.

(2) Natural History Division. This division is responsible for establishing policy, standards, methods, and procedures for all the natural history and natural area preservation programs of the Service. Natural history research activities of the Service include, but are not limited to, preparing faunas and floras of the parks, checklists of commonly observed species of plants and animals, collections of the fauna and flora for scientific study, and for deposit in approved herbaria and zoological museums, and park natural history and systematic collections, geological and paleontological specimens, and collections of scientific photography of the parks. This division is responsible for assuring the establishment and maintenance of permanent ecosystem sampling plots in all major ecosystems of the parks. The division is responsible for establishing and monitoring the natural history specimen collection permit policy for the Service. The division is responsible for all aspects of natural area preservation and the monitoring of man's impact on these areas, with particular reference to the preservation of the genetic materials they contain. This program includes the Man and the Biosphere Program and the Service's natural areas involvement in the World Heritage Trust. This division is responsible for developing and implementing all cooperative international programs relating to science and technology, including cooperative research programs. The division provides natural history research input into the outline for planning requirements of the General Management Plan, the Interpretive Plan, and other action plans as required. This division is responsible for the administration of the natural area portion of the National Park System Plan and all scientific and technical studies which are an integral part of the Plan; it makes recommendations for the priorities of natural area suitability-feasibility studies based strictly on scientific values, such studies being necessary to fulfill the intent of Section 8 of the General Authorities Act of 1976 and other applicable legislation, and is responsible for any needed scientific input into these studies; it makes recommendations based on all of the above studies for sites to be included on the list submitted annually to the Congress as required by Section 8 of the General Authorities Act of 1976. The division is responsible for all scientific and natural history publications of the Service. This division provides scientific and technical liaison to the HCRS and the Federal Committee on Ecological Reserves and formulates policy and evaluates programs for environmental study areas, research natural areas, ecological reserves, and scientific preserves. The division represents the Service to the scientific community of research naturalists, natural history interpreters, and the Association of Systematic Collections.

(3) Research Evaluation Division. This division is responsible for program evaluation and monitoring of the overall scientific research and

7/20/78 #2104

New

Department of the Interior  
DEPARTMENTAL MANUAL

Information.

Part 471 Visual Media

Chapter 2 Still Photography

471 DM 2.1

2.1 Scope. The provisions of this chapter apply to all photographs resulting from the use by any employee of the Department of the Interior of photographic equipment and/or supplies purchased with appropriated funds. All such negatives and/or color transparencies are the property of the Government, must be handled accordingly, and must be made available as required. All contracts and agreements with non-Government photographers which involve reimbursement by the Government for taking official photographs will specify that resulting selected and purchased negatives and color transparencies are to become the Government's property.

2.2 Policies:

A. The procurement and retention of photographic equipment and supplies will be kept to the minimum consistent with the photographic mission and needs of the user organization.

B. Offices and bureaus with significant photographic operations will coordinate with one another to minimize duplication of effort and to provide mutual assistance whenever feasible.

C. An adequate photographic retrieval system is essential to enable the Department and its component organizations to research and obtain rapidly those photographic assets necessary or desirable in the conduct of their operations.

2.3 Responsibilities.

A. The Office of Administrative Services is responsible for exercising staff supervision over the Department's still photo operations.

B. The Office of Public Affairs in conjunction with the Office of Administrative Services is responsible for:

(1) Assisting all Departmental organizations to develop and maintain productive still photo operations commensurate with their missions.

(2) Planning and implementing special or recurring events or programs to enhance the professional stature of the Department's photographic personnel.

C. Heads of offices and bureaus are responsible for:

2/7/78 #2064

Replaces 3/20/75 #1738

Department of the Interior  
DEPARTMENTAL MANUAL

Information

Part 471 Visual Media

Chapter 2 Still Photography

471 DM 2.3C(1)

(1) Instituting policies, procedures and practices by which the general purposes contained in 471 DM 2.1 and 471 DM 2.2 can be achieved.

(2) Appointing a Photographic Officer for their respective organizations.

D. Photographic Officers are responsible for:

(1) Maintaining liaison with the Office of Public Affairs and with the Photographic Officers of other offices and bureaus.

(2) Assuring that plans for obtaining and adequately indexing all usable negatives and color transparencies produced by personnel of their respective offices or bureaus and/or by non-Government personnel under contract are developed and implemented. An indexing system must, as a minimum, enable rapid identification to be made of (a) the general subject; (b) the specific subject; (c) where and when the photograph was taken; and (d) the name of the photographer.

2.4 Credit Line. Official photographs distributed for reproduction will carry the following credits: (a) Department of the Interior; (b) the name of the bureau or office; and (c) the name of the photographer.

2.5 Advertising. Still photographic materials of the Department may not be used in advertising illustrations which connote Department approval of the product, service, or the firm named in the advertisement.

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|                  | 2                   | 1:60,000+-      | Aircraft                          | Small provinces or biomes  |
|                  | 3                   | 1:1000          | Low aircraft and ground           | Communities & habitats within communities  |
|                  | 4                   | 1:100           | Cherry pickers big tripods ground | Communities, habitats within communities specific sites and constructions          |
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|                  | 6                   | 1:10+-          | Ground                            | Medium to small specimens  |
|                  | 7                   | 1:1 to 50:1     | Ground or mount                   | Macrophotography and dissecting microscope analysis; tiny specimens, soil analysis |
|                  | 8                   | 100:1 to 1000:1 | Stage                             | Compound microscope analysis   |
|                  | 9                   | 10,000:1+-      | Mount                             | Electron microscope analysis   |
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# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

JUN 14 1979

Memorandum

To: M. Woodbridge Williams, Division of Natural History,  
National Park Service

From: Director, Office of Library and Information Services

Subject: Visual Scientific and Technical Library

We have considered the project you posed to us during our meeting on Friday, June 8, 1979. We are interested in aiding you in preparing a feasibility study for the development of a visual scientific and technical library, possibly as a part of the Natural Resources Library. This visual library will receive, house, organize and make available photographs and other visual materials pertaining to natural resources.

The Natural Resources Library would appear to be an excellent choice as the site for this service and we will cooperate fully to this end if the final recommendations should be this. Funding and staffing for the establishment of the visual library would, of course, be the responsibility initially of the National Park Service and we will work closely with you on this aspect of the project.

We understand that you came to the Office of Library and Information Services at the suggestion of the librarian and the archivist at Harpers Ferry Center. We are pleased to be associated with you on this project and we look forward to a successful and productive relationship.

  
Mary F. Huifer



*Save Energy and You Serve America!*