

**LONG-RANGE INTERPRETIVE PLAN**

**PETRIFIED FOREST  
NATIONAL PARK**

**SEPTEMBER 2000**



SCANNED

11/19/01

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## NATIONAL PARK SERVICE

Harpers Ferry Center

P.O. Box 50

Harpers Ferry, West Virginia 25425-0050

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PEFO

JAN 31 2001

Memorandum

To: Superintendent, Petrified Forest National Park

From: Acting Associate Manager, Interpretive Planning, Harpers Ferry Center

Subject: Distribution of Approved Long-Range Interpretive Plan for Petrified Forest National Park

The Petrified Forest National Park Long-Range Interpretive Plan was approved by your memorandum dated January 2, 2001. All final comments have been incorporated in this approved LRIP.

Twenty bound copies are being sent to you with this memorandum. We ask your office to directly handle the appropriate distribution of copies to the region and to park staff using your stock of copies. We are also enclosing one unbound copy for your use in making additional copies as needed in the future.

We have certainly appreciated the fine cooperation and help of your staff on this project.

/s/ Don Kodak

Donald E. Kodak

Enclosure (21)

Copy to:  
Tessy Shirakawa, PEFO  
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bcc:

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**LONG-RANGE INTERPRETIVE PLAN**

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**Petrified Forest National Park**

**September 2000**

**prepared by**

**Department of the Interior  
National Park Service**

**Petrified Forest National Park**

**Harpers Ferry Center  
Interpretive Planning**

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# TABLE OF CONTENTS

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INTRODUCTION .....	1
Purpose and Context of the Plan .....	1
Background .....	2
Park Mission .....	3
Park Purpose .....	3
Resource Significance .....	4
Mission Statement: Division of Interpretation & Education .....	5
Primary Interpretive Themes .....	6
Visitor Experience Goals .....	9
Existing Visitor Experience and Conditions .....	11
Visitation and Visitor Use Patterns .....	15
IMPLEMENTATION STRATEGIES .....	17
Information and Orientation .....	17
Pre-Arrival .....	17
On-Arrival .....	18
Interpretation .....	21
Painted Desert Visitor Center .....	21
Rainbow Forest Museum .....	22
Painted Desert Inn National Historic Landmark .....	23
Tour Roar and Trails .....	24
Personal Service .....	29
Education Program .....	30
Partnerships .....	30
SUMMARIES .....	33
Special Populations .....	33
Staffing and Training .....	34
Program Support Resources and Facilities .....	37
Implementation Priorities .....	38
Planning Team and Consultants .....	40
APPENDICIES .....	41
A. Programmatic Accessibility Guidelines .....	41
B. Architectural Design Issues .....	54
C. Table of Implementation Priorities .....	58

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# INTRODUCTION

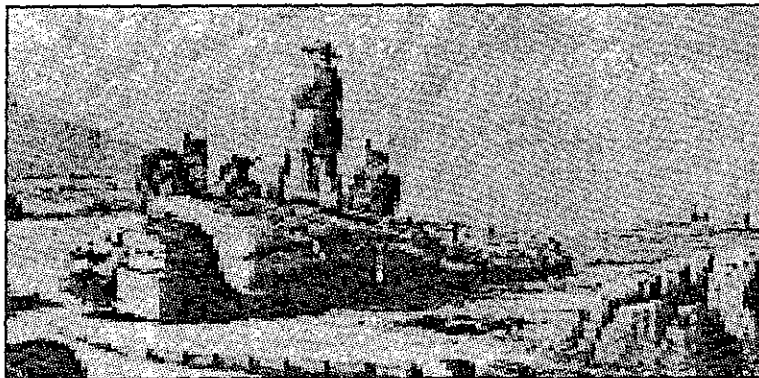
## Purpose and Context of the Plan

This Long-Range Interpretive Plan (LRIP) for Petrified Forest National Park (PEFO) is a component of the Park's Comprehensive Interpretive Plan (CIP), as outlined in the National Park Service Interpretive Guidelines (NPS-6). Using the park's mission, purpose, resource significance statements, plus the primary interpretive themes and visitor experience goals, this plan articulates the vision for the park's interpretive future, and recommends the media and programs best suited for meeting visitor needs, achieving management goals, and telling the park stories. These foundation elements come directly from or are based on similar statements in the park's Strategic Plan and the 1992 General Management Plan. The park is currently undergoing a GMP Revision to address issues that are no longer valid in the 1992 GMP. The GMP Revision will address visitor experience, space utilization and compatible use of historic structures. Plan completion is scheduled for 2003.

The last interpretive plan for the park was completed in 1986. Since then, a number of changes have occurred (or are proposed) in facility use, resource knowledge, interpretive themes and media, and management goals. The existing visitor centers are no longer able to effectively accommodate increased visitation. In addition, both visitor centers and the Painted Desert Inn are managed as historic structures, and as such, present challenges in preserving architectural character while continuing to meet increased visitor demand.

The park's active and ongoing research programs continually add to the resource knowledge base, and sometimes require changes in interpretive themes and media. Theft of petrified wood represents an ever-present resource threat, and the park continually seeks better ways to affect visitor behavior in this regard.

This plan is not an end in itself, but rather, it establishes the overall framework for the next phases of the process-program planning, and media planning, design, and production over the next 10-15 years. Further, as stated in NPS-6, the park also needs to develop Annual Implementation Plans and an Interpretive Database to complete the CIP.



# BACKGROUND

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Before the establishment of the park, increasingly large amounts of petrified wood were being removed from the area. Railroad boxcars loaded with petrified wood were shipped to eastern states and made into table tops, mantel pieces, and other ornaments. Local residents became alarmed that the wood soon would disappear, and in 1895, the Arizona Territorial Legislature petitioned the U.S. Congress to have the petrified forests set aside as a national park. Lester F. Ward, a paleobotanist with the U.S. Geological Survey, examined the area and in 1899 recommended that homesteaders no longer be able to claim that land. He too suggested the establishment of a national park.

The passage of the Antiquities Act allowed President Theodore Roosevelt to establish the Petrified Forest National Monument on December 8, 1906. This act gave protection to over 60,776 acres of petrified wood sites. Since then, there have been numerous changes in the park boundary, and on December 9, 1962, the park's status was changed from national monument to national park. Today the park contains 93,533 acres.

On October 23, 1970, as a result of the 1964 Wilderness Act, 50,260 acres of park land were set aside to be managed as wilderness. This area, along with a portion of Craters of the Moon National Monument, became the first wilderness areas in the National Park System.

In addition to the primary natural and cultural resources, the two main visitor centers have attained a degree of historical and architectural significance. The Rainbow Forest Museum was built by the Civilian Conservation Corps (CCC), and the Painted Desert Visitor Center (and surrounding complex) was the work of architect Richard Neutra during the NPS "Mission 66" facility improvement project.

The Painter Desert Inn (originally named the "Stone House"), was built by Herbert Lore in 1924, near the newly constructed Route 66. Travelers could stop for food, obtain a sleeping room, or buy souvenirs in the trading post. The National Park Service purchased the Inn and surrounding structures plus 2,727 acres in 1936. The CCC renovated the Inn to its present pueblo-style. Now a National Historic Landmark, it serves as a museum, bookstore, and location for special events.

Geographically, the park is located 115 miles east of Flagstaff, AZ; 25 miles west of Holbrook, AZ; and 205 miles west of Albuquerque, NM. Although the park is remote from centers of population, it is bisected by Interstate 40, a major east-west highway. Depending on the direction of travel, visitors are directed to the northern or southern entrance. Paralleling I-40 to the south is the Burlington Northern Santa Fe Railroad, also bisecting the park.

# **PARK MISSION & PURPOSE**

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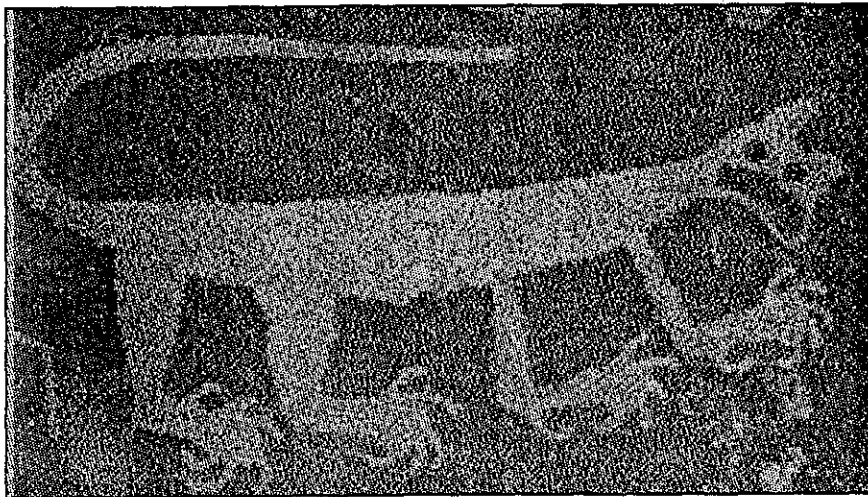
## **Park Mission**

Petrified Forest National Park preserves, protects, and interprets a globally significant example of a Late Triassic ecosystem and a continuum of human use in a high desert/short grass prairie environment. It preserves wilderness values for re-creation, solitude, natural quiet, long distance views, and night skies. It provides outstanding opportunities for scientific research and education.

## **Park Purpose**

The purpose of Petrified Forest National Park is to:

- Preserve and protect Petrified Forest, its outstanding paleontological sites and specimens, its associated ecosystems, cultural and historical resources, and scenic and wilderness values for present and future generations.
- Provide opportunities to experience, understand, and enjoy the Petrified Forest and surrounding area in a manner that is compatible with the preservation of the park's resources and wilderness character.
- Facilitate orderly, regulated, and continuing research.
- Promote understanding and stewardship of resources and park values by providing educational opportunities for students, scientific groups, and the public.





# RESOURCE SIGNIFICANCE

Petrified Forest National Park is globally renowned for the abundant concentrations of colorful petrified wood. They are preserved in the Chinle Formation of Late Triassic age and include nearly all elements of a complete 225 million-year-old terrestrial ecosystem. Research now shows that the park contains a wide variety of other Late Triassic fossils ranging from the remains of fungi and other microscopic plants to giant reptiles, amphibians, early dinosaurs and giant trees. These fossils are of particular interest because few Late Triassic terrestrial fossils are known, and it is unusual to have so many representatives of an ancient ecosystem concentrated in such a small area. Because the Chinle Formation is well exposed in the park, it is possible to relate the fossils to their environment of deposition. The fossil resources of Petrified Forest National Park are especially significant because the modern ecosystem has roots in the Triassic and the park contains a comprehensive record of this transition.

The park also contains more than 600 archeological and historic sites chronicling a prehistoric interchange of cultures. The Puerco River corridor has long been a transportation and trade corridor.

The park's remnant short grass prairie ecosystem is perhaps the best example of its kind in northeast Arizona.

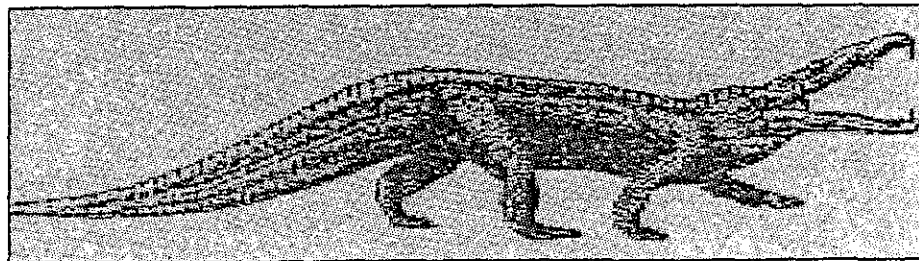
The park's scenic values are exemplified through its expansive vistas of colorful eroding badlands, stark landscapes, and the rainbow hues of petrified wood, and enhanced by exceptional air quality.

The park protects the outstanding scenic and ecological values of modern flora and fauna in a rare high desert/short grass prairie ecosystem.

Archeological and historic sites within the park preserve examples of an extensive and varied prehistory, reflecting a 10,000-year continuum of human adaptation, cultural interaction, and technological change.

The park contains over 50,000 acres of park land designated and managed as wilderness.

Petrified Forest National Park offers an outdoor laboratory for researchers to study globally significant natural resources of the Late Triassic to the present and cultural resources of the last 10,000 years.



# **MISSION STATEMENT**

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## **Division of Interpretation and Education**

The Division of Interpretation and Education in Petrified Forest National Park functions as a key component of park management for protection of globally significant resources. Interpretation of identified park themes, information and orientation for park visitors through personal and non-personal services, and education services for multiple audiences, all combine as a catalyst for translating scientific and historical information in an intellectual and emotional way, fostering a spirit of stewardship and a desire for preservation.

# **PRIMARY INTERPRETIVE THEMES**

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Primary interpretive themes are those ideas/concepts about Petrified Forest National Park that ideally, every visitor should understand. These themes, which are based on the park's mission, purpose, and resource significance, provide the foundation for all interpretive media and programs in the park. The themes do not include everything that may be interpreted, but they do address those ideas that are critical to understanding and appreciating the park's importance. All interpretive efforts (through both media and personal services) should relate to one or more of the themes, and each theme should be addressed by some part of the overall interpretive program.

The following theme statements, divided into major topics, will provide the basis for interpretation at Petrified Forest National Park. The topics and primary themes appear in bold, followed by key supporting statements.

## **Terrestrial Life of the Late Triassic Period**

**Like the leaves of a book, the Chinle Formation in Petrified Forest National Park contains a nearly complete fossil record of a Late Triassic environment with linkages to the Jurassic Period and the dawn of dinosaurs.**

Petrified Forest National Park protects one of the world's greatest concentrations of colorful petrified wood—the mineralized remains of an early Mesozoic forest.

Petrified Forest National Park is more than a repository for petrified wood or a place of "oddities and curiosities." Petrified wood is only one fossil clue to the Late Triassic environment.

The natural processes of weathering and erosion sculpt the landforms of the Painted Desert badlands, revealing an abundance of plant and animal fossils that together depict a remarkably detailed picture of terrestrial life during the Late Triassic, 225 million years ago.

Fossil records allow scientists to review and compare dramatic geologic, meteorologic, and biologic changes that occurred over 225 million years.

## **High Desert/Short Grass Prairie Ecosystem**

**Although fast disappearing from the American landscape, Petrified Forest protects a remnant of an intact and functioning high desert and short grass prairie ecosystem.**

Though a seemingly harsh environment, the park is a refuge for a diverse community of short grass prairie plant and animal indicator species.

This diverse natural community preserves a standard by which environmental change can be measured.

The high desert, short grass prairie community represents a remnant ecosystem as an "island in time and space."

## A Crossroads

**The area that is now Petrified Forest National Park has been a "crossroads" for cultures and natural processes for many thousands of years.**

Natural landforms created a "crossroads" that has promoted a continuum of passage for people and their cultures since prehistoric times.

Though the environment of Petrified Forest National Park appears inhospitable, archeological evidence indicates overlapping cultures who chose to live here for over 10,000 years.

A large concentration of recently discovered solar calendars allow archaeoastronomers to study solar interactions and make connections to early inhabitants and their understanding of the solar system and their environment.

The Painted Desert Inn National Historic Landmark has been an icon on the rim of the Painted Desert since 1924, providing travelers along the Santa Fe Railroad, historic Route 66, and present day Interstate 40 with a respite from traveling.

Plants, animals, and people moved through these natural corridors, and some found conditions suitable to live here.

## Research and Outdoor Laboratory

**As an outdoor laboratory, Petrified Forest National Park hosts a vital, active, and globally significant research program.**

New knowledge gained from the resources helps to piece together a more complete story about the park.

Research in Petrified Forest is globally significant to the scientific community and is shared with many educational institutions, museums, and the public at large.

Curriculum field explorations are designed and conducted by students as research projects that contribute to scientific data by providing ongoing resource monitoring information.

## Preservation of Park Resources

**The high rate of petrified wood theft threatens the very resource the park was created to protect.**

Local citizens, concerned about the theft of petrified wood and lobbying for its protection, resulted in the establishment of Petrified Forest National Monument in 1906.

Though petrified wood is available legally outside the park, Petrified Forest National Park continues to lose petrified wood by theft at an alarming rate of about 12 tons each year.

PRIMARY INTERPRETIVE THEMES

Petrified Forest National Park provides an opportunity for park constituents to develop a stewardship ethic for the protection of petrified wood and all other resources within national parks.

In the year 2000, the National Parks and Conservation Association (NPCA) listed Petrified Forest National Park as one of the top ten threatened parks in the country due to theft of petrified wood.

**Wilderness**

**Wilderness in Petrified Forest National Park, one of the first proclaimed in the United States, allows natural processes to continue undisturbed, and to be experienced by visitors on nature's terms—a significant chapter in America's heritage, and legacy to global citizens.**

Petrified Forest National Park offers opportunities for experiencing dramatic skies and weather patterns, long distance views in excess of 120 miles, brilliant night skies, natural quiet, solitude, and re-creation and reflection.



# VISITOR EXPERIENCE GOALS

Implementation of this long-range interpretive plan will help achieve the following list of visitor experience goals. Gaining an understanding and appreciation of the interpretive themes from the previous section should be regarded as cognitive visitor experience goals. These goal statements describe future conditions that would exist, rather than identifying specific actions to achieve them.

Interpretation in Petrified Forest National Park will provide visitors with opportunities to:

- Engage in a variety of activities and programs, alone or in groups

- Experience wilderness and wildness

- Enjoy solitude

- Meet and talk with park employees

- See and touch Late Triassic fossils, both physically and metaphorically

- See and experience examples of the continuum of human occupation in the area

- Explore multiple perspectives in viewing the land, the history, and the geologic past

- View extensive vistas and be inspired by this landscape

- Experience elements of the park's outdoor laboratory and share in the sense of discovery

- See and experience the wildlife and plant life of the high desert/short grass prairie environment.

- Easily obtain accurate information and orientation

- Plan a visit that is based on individual/family interests, time constraints, and point of arrival

- Find multiple levels of interpretive media and programs

- Know and understand the rules and regulations and why they are needed

- Easily find their way around the park

- Experience the park and the extremes of the high desert in a safe manner

- Develop a sense of stewardship toward protecting park resources and values

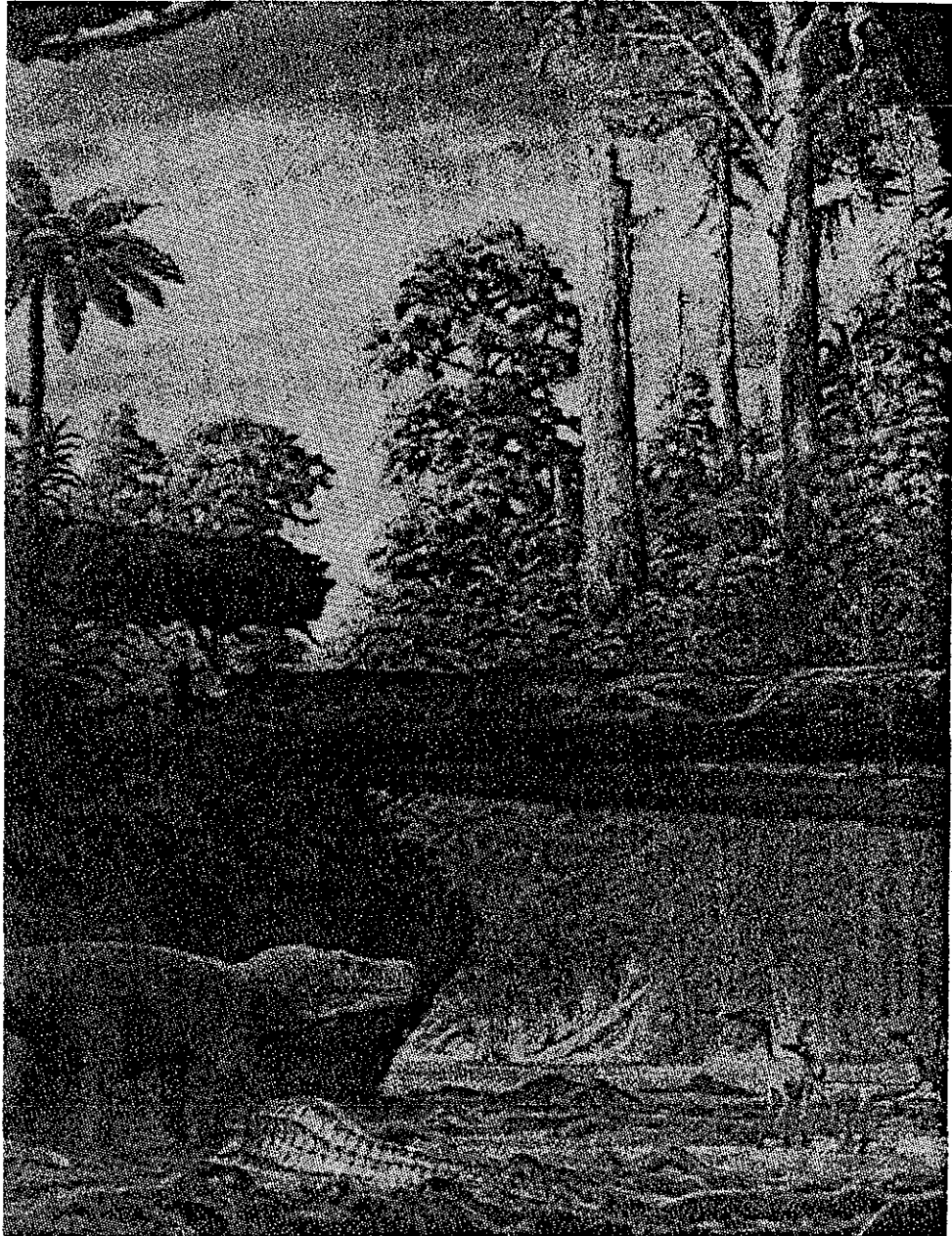
- Understand the threats to park resources

- Appreciate the inspiration expressed by others through words, music, art, etc.

*VISITOR EXPERIENCE GOALS*

Understand that Petrified Forest National Park contains part of the Painted Desert

Understand the significance of the National Park System and the role of the National Park Service



# **EXISTING VISITOR EXPERIENCE**

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## **Existing Visitor Experience and Conditions**

The following is a summary description of the visitor experiences and conditions as they existed at the onset of this long-range interpretive planning process. This section provides a baseline to help justify many of the plan's proposed actions.

### **Approaches**

Visitors can enter or exit the park from either the north or south entrance. Signs on Interstate 40 alert travelers of the appropriate exits. However, some confusion exists regarding which exit is best for east- or west-bound travelers, and over the names Petrified Forest and Painted Desert.

As visitors approach either the Painted Desert or the Rainbow Forest developed areas, the visitor centers are not clearly identified. At both places, the first thing visitors see is the Fred Harvey store. Most people do find the visitor centers, but sometimes after first entering the concession building.

### **Information and Orientation**

#### **Pre-Arrival**

General trip planning and park information are provided by telephone inquiry, by mail, and by e:mail requests. The park is currently working on the final version of an expanded website. Since there are not enough official park folders to distribute outside the park, rack cards have been printed, and stock is provided to neighboring Chambers of Commerce, hotels, information centers, and travel businesses.

#### **On-Arrival**

Depending on their direction of travel, travelers enter the park either from the northern or southern entrances. The northern entrance (I-40) brings visitors to the Painted Desert Visitor Center. From there, they proceed to the entrance station where they pay their fees, receive the park brochure and resource protection messages, both verbally and in print. Entering through the southern entrance (US-180), it is two miles to the Rainbow Forest Museum. From either entrance, visitors then travel north or south along the 28-mile park road.

The State of Arizona does not recognize Daylight Savings Time and remains on Mountain Standard Time year-round, except for the Navajo Reservation where daylight savings is recognized. Because the park is only 60 miles from the New Mexico border where Daylight Savings Time is recognized, west-bound travelers arrive, and are quite confused by the time change. To minimize this confusion, a clock is placed at park gates. Also, each visitor facility has a series of clocks to indicate the time for Arizona, New Mexico, and the Navajo Reservation. Park gates close at 5:00 p.m. and reopen at 8:00 a.m. (extended hours during summer).



### **Painted Desert Visitor Center**

The current public space in the Painted Desert Visitor Center is inadequate to meet visitor needs. The lobby, which also contains several exhibits and a cooperating association sales area, is frequently crowded. The information desk, which also handles bookstore sales, is staffed primarily by cooperating association employees. The limited exhibits highlight some, but not all, of the primary themes.

An audiovisual theater seats 45 people. The park 20-minute video provides orientation to the park resources, information on how to see the park from north to south, and safety and resource protection messages—specifically regarding wood theft. The auditorium entrances are located to the left and right of the screen. This can be distracting when visitors enter while the film is in progress. Also, people exiting the theater add to the congestion in the narrow lobby. Further compounding the problem, the auditorium is a later addition in the original lobby/interpretive space.

The large courtyard is underutilized. Currently, the space offers little shade, and other than the modern sculpture of a park petroglyph, there is little to draw visitors into this area.

While the current public use space is limited, the Painted Desert complex has a great deal of empty or inefficiently used space. There is potential to adapt existing spaces to meet present and future needs for both the public and park staff, and still maintain the architectural character of the complex.

### **Rainbow Forest Museum**

The public use space at Rainbow Forest Museum is inadequate to meet present visitor needs. The center portion of this historic building contains a staffed information desk, cooperating association sales area, and exhibit room. To access the Giant Logs self-guiding trail, visitors must pass through the visitor center. On busy days the building is congested. The restrooms, which are not fully accessible, flank the information and sales area and aggravate congestion. Traffic flow in the parking area also is confusing to visitors.

The exhibits represent a mixture of design styles, and some are quite dated. The media is cramped, and due to ongoing research, exhibit information needs to be updated. People entering from the south do not have an opportunity to view the park orientation video before touring the park.

As with the Painted Desert Visitor Center, there is potential to improve space utilization to meet present and future staff and visitor needs.

### **Painted Desert Inn National Historic Landmark**

This National Historic Landmark building has an interesting history and a number of classic architectural features. The former trading post room is used primarily for cooperating association sales and association employees, who are the only staff for the building, answer most visitor questions.

The exhibits are old; however, the park has contracted for some temporary displays that will address various stages of the building's and the park's history. Some historic furnishings are found in the dining room, and the Hopi murals are important interpretive elements. The tavern and the former guest rooms are not generally open to the public. Rodent problems, especially on the bottom floor, present potential health hazards. The building itself is moving due to a layer of clay bentonite under the foundation. This movement is impacting structural integrity, the Kabotie murals, and visitor and employee safety.

Many visitors are confused by the building's name. Thinking it is truly an inn, many visitors do not stop, even though the sign clearly states "museum." Upon entering the building visitors encounter what appears to be an unstaffed hotel registration desk. This adds to the impression that the building is a place for lodging, and may turn more people away.

The building also presents accessibility challenges.

### **Tour Road and Trails**

The tour road and trails represent major components of the park experience. Wayside exhibits at various pullouts and overlooks interpret significant features in the landscape. Trailhead signs provide information about the trails and warn visitors about not taking petrified wood. A parkwide wayside exhibit plan has been implemented; however, some deficiencies and inaccuracies have been noted.

Park interpreters lead guided walks from several points along the road. During the peak season, interpreters also are stationed at Puerco Pueblo, Newspaper Rock, and Blue Mesa, but there is no shade or central point of contact. There are accessibility issues on most trails in the park.

### **Cooperating Association**

The Petrified Forest Museum Association (PFMA) operates bookstores at each of the three visitor contact facilities in the park and at the Historic Courthouse in Holbrook. Each sales outlet carries a wide variety of theme-related publications. The outlet at the Painted Desert Inn focuses more on cultural topics.

The association works in partnership with the park interpretive staff in producing the park newspaper and other free publications. In addition to the official park folder, the park newspaper is offered free at the entrance stations, visitor centers, and at other regional attractions. The "Young Explorer," the junior ranger publication, is another partnership endeavor between the park and the association. PFMA also prints numerous site bulletins on specific subjects and the resource education curriculum notebooks.

### **Personal Services**

Throughout the year, but especially during peak months, visitors can experience a variety of interpretive and educational programs at Petrified Forest National Park. Activities include guided walks, talks, demonstrations, informal roving contacts, etc. Offsite programs, special events, and curriculum-based

education and elderhostel programs also make up vital elements of the overall personal service activities.

#### **Petrified Wood Sales**

The park concessionaire is currently authorized to sell petrified wood. Visitors are directed to buy wood samples through the in-park stores or from vendors outside the park. Both the concessionaire and the reputable vendors outside the park sell petrified wood gathered outside the park boundary. A small sign in the park gift shops informs customers of this fact; however, many people probably do not see them. The gift shops and the food service facilities offer excellent opportunities to inform people about illegal collection of petrified wood in the park, and to address other resource management and interpretive issues. [Note: NPS Management Policies are being revised, and the sale of paleontological resources (i.e., petrified wood) in the park may be discontinued.]

# **VISITATION & VISITOR USE PATTERNS**

The following information regarding park visitors and use patterns is derived from various park documents (including the GMP), discussions with park staff, and data maintained by the National Park Service (NPS) Socio-Economic Services Division (WASO) in Denver. Except for the WASO data, there have been no recent or accurate visitor use studies for Petrified Forest National Park.

The following statements are extracted from the 1994 Annual Statement for Interpretation:

The park experiences a slight increase in retirement age visitors during the spring and fall months.

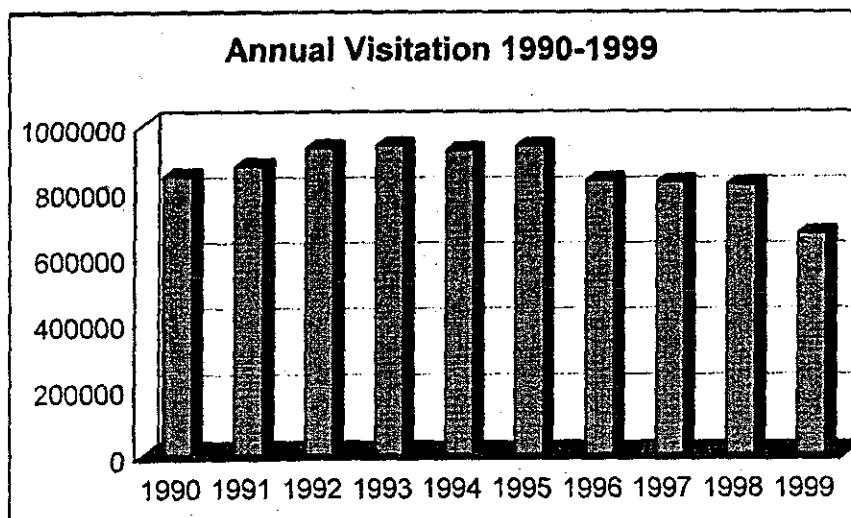
A large number of school groups visit in the spring and fall.

An increase in visitation generally is noted between mid-December through early January, as people travel for the holidays and to and from the Fiesta Bowl and Rose Bowl games.

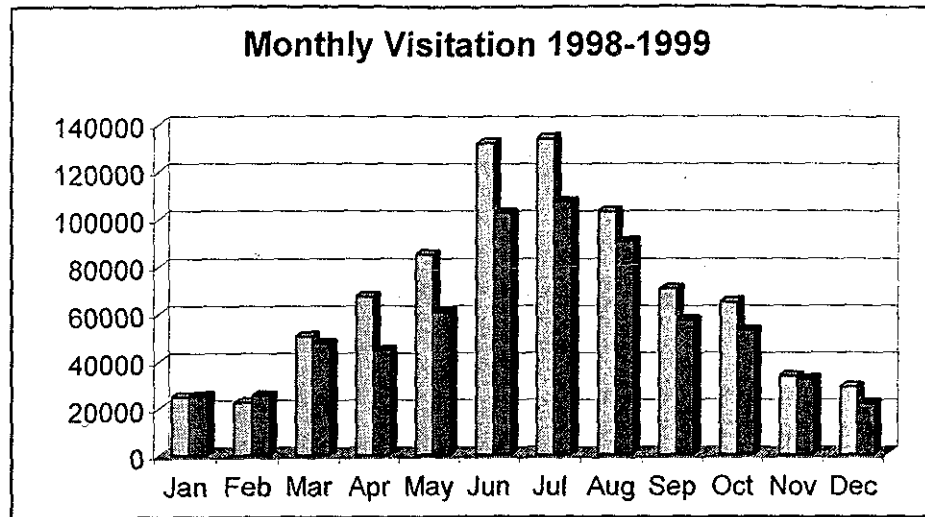
From year to year, spring and fall visitation can fluctuate dramatically due to changing weather conditions. Visitation also increases during this time when people from northern climates migrate south for the winter.

Visitor use patterns are fairly typical of all cross-country travel trends. It appears, but has not been statistically verified, that increased lengths of stay are replacing the number of places visited during an average trip.

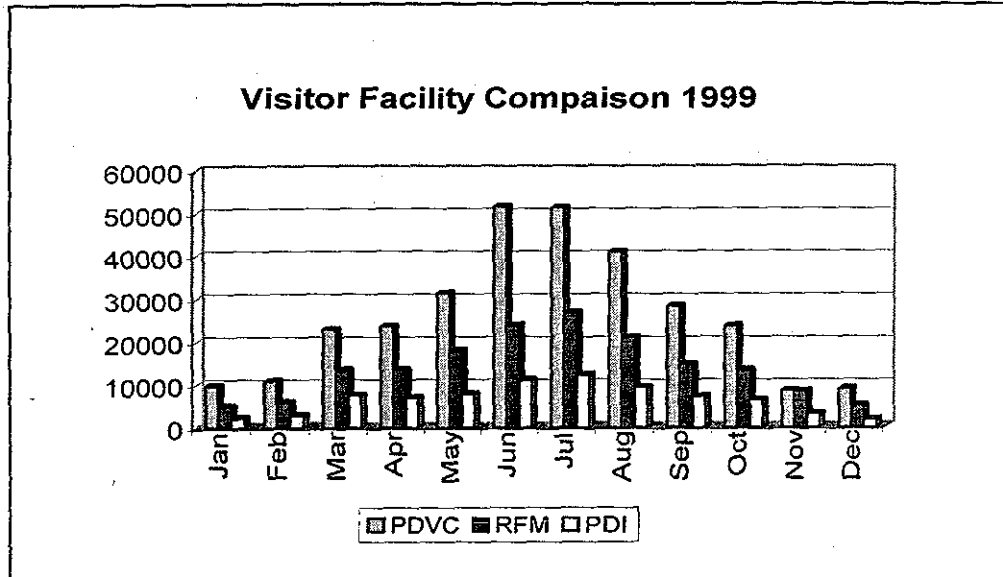
The following chart shows total annual recreation visits for the ten-year period of 1990-1999:



This graph illustrates total monthly visitation for 1998 and 1999:



The next chart compares visitation at the three major visitor facilities-the Painted Desert Visitor Center (PDVC), Rainbow Forest Museum (RFM), and the Painted Desert Inn (PDI). The first two facilities, to some extent, also reflect the numbers of visitors entering the park from the north and south entrances:



# **IMPLEMENTATION STRATEGIES**

The following is a description of program and media recommendations designed to further define, support, and implement the mission, goals, themes, and objectives of the interpretive program for Petrified Forest National Park. The discussion of each program or media proposal identifies its purpose, special considerations, and sometimes suggests means of presentation. It is important to remember that the latter are only suggestions, and should not in any way limit the creativity that is essential during the media or program design processes. On the other hand, most proposals will be specific enough to define parameters in which these creative energies can flow.

This plan suggests the consideration of some interactive computer technologies and somewhat sophisticated audiovisual equipment. Whatever ends up being developed and installed will need to be easily maintained, as technological assistance is not readily available in this remote area.

Since the protection of petrified wood is a major resource management concern, the park staff, as well as media planners/designers will need to tap into research and proven methodologies that address effective ways to positively affect visitor behavior and protect resources. Along these same lines, this plan recommends initiating a variety of visitor use studies. The results of these studies may influence future interpretive media and program development. In addition to NPS sources, regional colleges and universities may be able to assist in these areas.

Also, a number of proposals address the American Indian peoples (past and present) who lived in or passed through this area. It is essential that the park initiate and maintain a continuous dialogue with area tribes regarding the planning, design, and production of interpretive media and programs.

## **Information and Orientation**

### **Pre-Arrival**

General and trip planning information regarding PEFO will continue to be provided through traditional means by answering regular mail, telephone, and e-mail requests. All mailed materials should include the park's web address, and some items should include the electronic addresses of closely related sites and NPS areas.

Basic information, including addresses, phone numbers, etc., for trip planning, also will continue to be available from the park web page. Other on-line information will include descriptions of visitor services, special events, interpretive activities, and information regarding the education programs. Additional visuals on the website will give people a better idea of what they will see when they visit the park.

The park web page also will be expanded to include educational and interpre-

tive materials. In addition to descriptions of various programs and activities, the website will introduce elements of the primary interpretive themes, significant resources, and critical issues. This material will be valuable to prospective visitors, and even to those (including school groups worldwide) who may never have the opportunity to visit Petrified Forest. The web page also will establish links to other theme-related sites, and eventually include electronic access to items in the park's museum collections.

On a regional scale, PEFO information will be available at area tourism offices and major attractions, at other nearby NPS sites, and in prominent regional tourism literature such as the "Horizon" newspaper. When feasible, the staff will continue to assist in providing accurate and timely information and technical assistance to those involved in the preparation of tourism literature that mentions the park.

Since it is felt that many travelers decide to stop at PEFO the night before they arrive, the inexpensive PEFO rack cards will continue to be distributed to motels and information stations within a day's drive of the park. The current rack cards will be redesigned to attract attention with a distinctive and attractive design, perhaps including a graphic and a unigrid format.

The park will continue to support and or initiate an effort to promote the region as a big park. Perhaps through a theme of "time travel" or "the wild west," the region itself could become a destination. The park also will explore the potential of working in partnership with others in developing a video program on what to see and do within a day's drive of places like Holbrook. A program of this type could be shown over a cable television channel and be available to motel guests throughout the region and on bus tours.

Information about the park also will be incorporated into the Interstate Intelligence System, an interactive computer program available at points along I-40 and in adjacent visitor centers and chambers of commerce. These programs provide information on road conditions, weather, attractions, etc., and can be updated daily.

Pre-arrival information will include the basics, such as hours of operation, fees, and major attractions. The information also will help people decide which interstate exit is best for them, and prior to their arrival, people will receive some information regarding the protection of petrified wood.

#### **On-Arrival**

Park staff will continue to work with the highway department to ensure that the signs along Interstate 40 give travelers clear directions for reaching the park. This will include making sure that people are not confused by signs stating "Petrified Forest", "Painted Desert", and "Rainbow Forest".

The addition of a Travelers Information Station (TIS), a low-watt radio broadcasting system, will give Interstate travelers more detailed information about the park before they reach the appropriate exits. Information will include: how

to reach the park for both east and west bound travelers, fees, hours of operation, and another caution about protecting park resources. The information will need to be brief and pertinent. Signs will be required to inform people to tune their car radios to the appropriate frequency. The program also will have the potential to be updated at any time, which would allow the announcement of special events or seasonal activities.

An informational wayside exhibit (possibly with a bulletin case) is recommended near each of the two main entrance signs. Since the gates are closed each night, these wayside exhibits will give the hours of operation, fee schedule, and provide information about the park that will encourage people to return during regular hours. The wayside exhibits will not interfere with photo opportunities in front of the main entrance signs. Redesigned and more attractive gates would create a balanced image of an inviting but yet secure and protected park.

The staff needs to analyze its directional signing program to ensure that it is standardized throughout the park. The signing and the approaches to both visitor centers will be redesigned so visitors will clearly know where to turn, where to park, and where to find the facilities. The visitor centers will become the primary visual element, eliminating current visitor confusion. Specifics regarding this redesign are beyond the scope of the plan, and may require separate design concept level planning.

In addition to fee collection, staff at the entrance stations will continue to provide each vehicle with a copy of the official park folder, the park newspaper, and a verbal and printed warning about not removing petrified wood. Entrance station employees also will continue to answer visitor questions or to direct them to places where other staff can provide assistance.

All visitor centers will continue to provide information and orientation services, and will continue to have staffed information desks. The desks will be equipped with telephones, space for storing maps, folders, and other free literature, a cash register for handling cooperating association sales, and perhaps a public address system and remote controls for starting the audiovisual program. A changeable display case containing samples of various site bulletins will be located near the desk. A sign will inform visitors that copies of the folders are available on request at the information desk. Another option would be to sell the site bulletins on an honor system. Some key publications also will be available in different languages, perhaps including a guide to the wayside exhibits along the tour road.

Each visitor center will have an area devoted to trip planning. This might include some seating where people could examine various publications and discuss their plans. Informational exhibits will highlight some of the park's primary resources, vistas, and activities. These displays could include an interactive computer or audiovisual component. The program could address questions such as: what animals are found here, how do I get to..., what flowers are in bloom, or where to learn more about.... Interpretive program schedules,



#### IMPLEMENTATION STRATEGIES

resource management issues, virtual tours of Late Triassic landscapes, or introductions to other parks in the region also could be included. Trip planning options will be geared to the amount of time visitors have available (i.e., one hour, three hours, a half-day, etc.). Also, since regional time zones can be confusing, clocks showing the correct time at various area locations will continue to be displayed. At the Painted Desert Visitor Center, some elements of the trip planning station could be provided outside in the courtyard.

The interpretive components of the visitor centers are discussed in the following section.

# INTERPRETATION

## Painted Desert Visitor Center

The Painted Desert Visitor Center is situated within the Painted Desert Complex which was designed by Richard Neutra during the "Mission 66" movement, and may be eligible for nomination to the National Register of Historic Places. As stated earlier, the existing public space in the Painted Desert Visitor Center is currently inadequate to meet visitor use levels, and to provide proper information, orientation, and an introduction to the primary interpretive themes. In considering changes to existing spaces, the architectural character of the structure needs to be preserved. In this regard, a space utilization study, conducted with the assistance of a historic architect, is proposed for the Painted Desert Visitor Center complex in conjunction with the GMP Revision planning process. Some of the initial thoughts, including a list of necessary functions and space requirements, are found in Appendix B.

Upon entering the renovated building, visitors will find the information desk, information/orientation exhibits, elements of the trip planing station, and the cooperating association sales area. The information desk will continue to be staffed primarily by cooperating association employees, and the desk will need to house the cash register for handling bookstore sales.

The redesign of the interior spaces will create a separate exhibit room. Here, each of the primary interpretive themes will be introduced. Aspects of each theme will be presented to a moderate depth. Since some visitors stop at the Painted Desert Visitor Center, but do not proceed further into the park, these exhibits, along with the audiovisual program in the theater, will serve to entice people to stay and learn more. Even if some people continue on their travels, the exhibits should motivate some to want to return and spend more time.

In developing the theme-based exhibits in a compelling manner, designers should consider using prominent objects from the park's collections and possibly incorporating interactive and/or audiovisual components. The research and outdoor laboratory theme especially lends itself to interactive devises. Controlled views through microscopes could be used to illustrate small objects. The short resource protection and safety film that is currently in production also could be incorporated into the exhibits; however, the potential for "sound pollution" will need to be analyzed. Also, since the Rainbow Forest Museum is closer to in situ paleobotany resources, the Painted Desert Visitor Center may offer a slightly greater emphasis on paleozoology.

To explore some elements in greater depth, the exhibits and the audiovisual program will emphasize the importance of visiting the Painted Desert Inn and the Rainbow Forest Museum.

The theater will be designed to seat about 80-90 people. The current video program will continue to be shown. This program provides a general orientation

to the themes and significant resources, offers suggestions on touring the park, conveys messages on safety, and gives warnings against collecting petrified wood. A longer version of the film is available for purchase, and the park should explore the options for offering the program in a variety of languages.

There is great potential for making the courtyard an attractive and well used public space, as was the intent of the original architectural design. With the addition of shade and other features that would be in keeping with the architectural character, for much of the year the courtyard could serve as an extension of the visitor center. Elements of the trip planning media could be placed here, perhaps a place where families could gather and discuss their options. This outdoor space also could be developed for the Junior Ranger program, and could include some interactive elements or even theme-related sculptural components. The large planters will be restored and used to display and interpret native plants. And, the area would be used periodically for interpretive demonstrations, and as a staging area for organizing guided tours and/or educational groups. Interpretation of the architectural significance of this Neutra-designed complex may also be accomplished within the courtyard.

Over the years, the existing entrances have been changed from their original design intent. This is partially why visitors get confused and enter the gift shop first. The redesign of the visitor center will need to explore architecturally compatible options for making the building entrance more prominent as people approach from the parking lot. Ways to improve visitor circulation through the facility also will be addressed.

### **Rainbow Forest Museum**

Rainbow Forest represents a cultural landscape within Petrified Forest National Park, and the museum is a significant component of that landscape. Like the Painted Desert Visitor Center, the Rainbow Forest facility is inadequate to serve park visitors and to perform the necessary information, orientation, and interpretive functions. It too is a historic structure and any alterations must be sensitive to the architectural character. This visitor center and its necessary functions also will benefit from a space utilization and accessibility study, and Appendix B describes some of the initial redesign options, and interpretive program needs.

One option in providing additional public space is to use one or both of the building wings that are currently used for offices, work area, and storage. Moving some or all of these functions elsewhere will allow for the possible relocation of the bookstore and/or the addition of a small theater.

Requiring visitors to pass through the visitor center to access the Giant Logs, a self-guiding trail needs to be retained. This arrangement seems to significantly reduce the amount of petrified wood theft from this area. However, during peak visitation periods, the arrangement can create congestion inside the building. Alternative design solutions will look for ways to alleviate this interior congestion.

Visitors entering and exiting the building will pass by an information desk. This not only adds to the security of the site resources, but also offers visitors an arrival and departure point of contact with an employee. The information desk will continue to be staffed primarily by cooperating association employees, and the desk will need to house the bookstore cash register.

All of the exhibits will be redesigned, although a few elements and numerous artifacts may work well in the new scheme. The exhibits will offer an overall introduction to each of the interpretive themes, although a special and more in-depth emphasis will be placed on the themes directly related to the site. Here is the place to lay out the paleontological story, perhaps with a slight accent on paleobotany. Visitors will come away with a clear picture of the Late Triassic environment that once existed here, and the ability to use these images to interpret the present park landscape.

Since the building space is limited, even with the possibility of using one or both of the wings, the stories told through exhibitry will need to be carefully evaluated. The Giant Logs area provides opportunities to tell a number of theme-related stories in the true environment, and literally extend the exhibit area into resource. With this in mind, the limited interior space will focus on other topics, or reinforce theme elements presented elsewhere.

As with the Painted Desert Visitor Center, in developing the theme-based exhibits in a compelling manner, designers will consider using prominent objects from the park's collections and possibly incorporating interactive and/or audiovisual components. The research and outdoor laboratory theme especially lends itself to interactive devices. Controlled views through microscopes could be used to illustrate small objects. A short audiovisual program, perhaps as a component of an exhibit, could focus on petrified wood, the fossilization process, visually placing these once living things into their Late Triassic context. It also is especially important at this visitor center to strongly convey the resource protection messages and warnings.

One of the building wings could be used to show the park video. The program may require some alterations for viewers who will be traveling through the park from south to north. This would allow visitors arriving through either entrance to see virtually the same introductory program and get the same safety and resource protection messages. A sign may be needed to alert visitors who saw the video at the Painted Desert Visitor Center that this is the same program. The full-length version of the program will continue to be available for sale in the bookstore.

Many personal service activities originating at the Rainbow Forest Museum will be designed to use both the indoor and outdoor resources. An accessible building entrance and restrooms need to be provided.

### **Painted Desert Inn National Historic Landmark**

The park needs to resolve the confusion visitors have over whether this structure is an interpretive facility or an inn. Better signage conveying the building's current function will be explored.

The design for new interpretive media in the building should include the creation of a welcoming entrance. If the old NPS information desk, etc. is not considered part of the historic fabric, consideration should be given to removing it. Designers should have the freedom (within the constraints of respecting the historic character) to turn the entry space into a welcoming experience that will draw visitors further into the building. An accessible entrance requires attention, since the current main entrance is not compliant.

Interpretive media in the building will focus on the more "recent" historical topics, leaving the visitor centers and other sites (such as Puerco Pueblo) to address more of the prehistory stories. Specific topics would include Fred Harvey, Herbert Lore, Route 66, Civilian Conservation Corps (CCC), Work Projects Administration (WPA), Mary Jane Coulter, and the Fred Kabotie murals.

Other exhibits will interpret the history of the building itself, along with some of its distinctive architectural features. The latter will be accomplished through a mixture of contemporary exhibits and through the use of historic furnishings. The potential for upgrading the furnishings for the dining room will be explored, as will the options for furnishing one of the former guest rooms, the kitchen, perhaps partially furnishing the tavern and/or trade room.

The cooperating association sales area will be redesigned to better present the flavor of the building's former use as a trading post. This outlet will continue to focus on selling themes-related and site-related items. PFMA will continue to support cultural demonstrations at the Inn.

The future of the large mountain lion petroglyph, often used as a logo, needs to be discussed with the Indian tribes in the region. Consultation with the tribes also will occur for all proposals that address interpretation of Indian cultures.

Implementation of the interpretive media recommendations will be supplemented with a variety of personal services programs. This will include guided tours of the building, and a staging area for other ranger-led interpretive and educational activities.

The Painted Desert Inn and associated structures are possible sites for the proposed Petrified Forest field institute program. Elements of this proposed program are described in the Partnership section of this document. This building also will be analyzed as part of the proposed space utilization study.

### **Tour Road and Trails**

Two of the most important visitor experiences at PEFO are driving the tour road and walking some of the trails. This section addresses the interpretive components of these experiences. While the staffed visitor contact facilities (discussed above) are an integral part of the total park experience, the tour road brings visitors into direct contact with the vistas and many of the significant cultural and natural resources.

Along the tour road, interpretive media and programs are more focused at some sites than at others. Specific recommendations for these sites are discussed below. However, the majority of the interpretive spots along the tour road have been addressed in the recently completed parkwide wayside exhibit plan. This plan does propose some additions or modifications to the wayside exhibit plan, and these also will be noted below. The park road and some of the trails are potentially eligible for the National Register.

### **Rim Trail**

This one-half-mile self-guiding interpretive trail between the Painted Desert Inn and Tawa Point is currently being developed. The views from the trail present an excellent opportunity to interpret aspects of the geologic story. Likewise, vegetation along the route lets people get close to some of the plant life. Visitors will access the trail from either end, and these points will be marked with trailhead wayside exhibits.

Two trailhead panels and four interpretive wayside exhibits are proposed along the trail to address aspects of the geologic story and desert adaptations, along with twelve plant identification signs focusing on ethnobotany. The smaller signs could be moved or changed as various plants go in and out of season. Where feasible, the content of the geology waysides will make connections with the plants by indicating how certain geologic features and processes influence where various plants and animals live. This, in turn, has influenced human use patterns in this desert environment.

### **Kachina Point**

Kachina Point is an excellent place to interpret the geology of the badlands and Black Forest. It also is a good place to point out the proximity of the Navajo and Hopi Reservations. A new or revised wayside exhibit is recommended to reinforce this point.

### **Wilderness**

The park wilderness area can be viewed from several overlooks. At one or more of these points, and at the wilderness trailhead, a new wayside exhibit is recommended to inform visitors that the area they see is managed as wilderness. The exhibit also will interpret the significance of these areas not only to PEFO, but also to the National Park System, and to the American people.

### **Place Names**

At several viewpoints throughout the park, wayside exhibits identify landscape features by contemporary names. Visitors should realize that many of the prominent landmarks were known by different names by the various Indian tribes in the area. Early explorers and park managers also had some different place names like First, Second, and Third Forests. Where possible wayside exhibits will incorporate some of these other names.

### **Pintado Point**

The current wayside exhibit at Pintado Point does not identify one of the most prominent landscape elements-Pilot Rock, elevation 6,235 feet. The graphic needs to be modified or redone to include this feature.

### **Route 66**

A new turnout and wayside exhibit is recommended at or near the point where the tour road intersects the trace of Route 66, near the I-40 overpass. The turnout should be wide enough to allow most vehicles to turn around at this point. For some visitors, following Route 66 is their primary interest, and these people may not wish to proceed further on the tour road.

### **Grasslands**

A wayside exhibit interpreting the grassland environment is proposed between I-40 and the railroad crossing. As with the Route 66 exhibit, a new turnout will need to be designed. The wayside exhibit will point out how grasslands protected within the park have regenerated. It will emphasize the Pleistocene river terraces, aspects of grassland biodiversity, and the abundance of wildlife. It also could address the effect of the transportation corridor on wildlife. In this regard, visitors will be told of the high mortality rate for wildlife along this section of the tour road, and be cautioned to drive carefully.

### **Railroad**

The wayside exhibit at the north end of the Puerco Pueblo parking lot interprets the Santa Fe Railroad. There is a good view of the railroad from here, but very few visitors notice this exhibit. It is located at the opposite end of the lot from the trail to the pueblo, and when the lot gets busy, the wayside is difficult to find.

Since the wayside exhibit does not work well in its present location, it should be relocated, or left as a "discovery" exhibit for those people who do manage to find it. A small directional sign at the trailhead to the pueblo could direct people to the "Santa Fe Railroad exhibit." Another alternative would be to develop a separate turnout for interpreting the railroad.

### **Puerco Pueblo**

Interpretation at Puerco Pueblo will stress the time period of 1250-1380, when this Ancestral Pueblo community was at its peak. In addition to exploring the various structures and learning about their functions, visitors will discover some of the many petroglyphs, and the solar calendar. The overall experience will help visitors better understand the people who once lived here, and offer insights into aspects of their lifestyles. Visitors also will appreciate the connections and the significance this and other ancient pueblo sites have to present day descendants in the region.

The walk through the site will continue to be a self-guiding experience. However, if the present wayside exhibits continue to be used to mark the inter-

pretive stops, then some mechanism needs to be developed to inform visitors about the number of stops and the suggested route of the trail. This could be accomplished by indicating interpretive stops on the trailhead wayside exhibit. Consideration also should be given to an additional wayside exhibit that would focus on the surrounding vistas and interpret the pueblo inhabitants' strong ties to the land. Final solutions will be developed through the amendment to the parkwide wayside exhibit plan.

To give visitors a clearer picture of how the pueblo appeared originally, some type of tactile 3-dimensional model is proposed. Exhibit designers will need to evaluate various materials for durability against weather and potential vandalism.

Some type of shade structure is proposed as a base for personal service interpretive programs at Puerco Pueblo. There are plans to build new restrooms adjacent to the parking lot and convert the 1930s restroom/checking station to an interpretive shelter.

The shelter will be the center for various interpretive talks, demonstrations, and a gathering place for guided walks. Traveling interpretive kits would be developed for interpreters to use when stationed at the site. The kits would include various interpretive props and publications, such as site bulletins about the pueblo and pueblo culture. The use of appropriate cultural demonstrators would add a new dimension to the visitor experience, and reinforce the fact that people once lived here and that their descendants still live nearby.

### **Newspaper Rock**

The most important recommendation for the interpretation of Newspaper Rock, and other Indian cultural sites in the park, is for the park staff to consult with the tribes in the region on how best to communicate the significance of these cultural resources. It is generally felt that visitors should learn that the meanings of various petroglyphs provide insights into how the people who made them lived, what they thought, and what was important to them. However, visitors also need to appreciate that, unless you had been there as part of the time and/or the culture, some petroglyphs are impossible to interpret.

If appropriate after consultation, the park will consider additional ways of getting visitors closer visually to the petroglyphs. This would include the continued use of binoculars/telescopes, and continuing to search for brands that are resistant to fine dust. The use of non-magnifying spotting tubes also could be considered. These would help people locate the prominent rocks and then use their own binoculars to get better views.

New wayside exhibits at the overlook also could replicate magnified views of the carvings. The wayside exhibit design could explore the potential of a tactile display, where visitors would actually feel the petroglyph patterns. In addition, the text would make ties to the natural setting by pointing out that the surrounding area was used by the pueblo people for agriculture.



## **Blue Mesa**

Wayside exhibits at the Blue Mesa overlook will interpret the prominent landforms, the prehistoric stream channel that contains the rich fossil deposits, and the importance of some of the paleontological discoveries made at this area. The bulletin case in the shade shelter will be upgraded, and interpretive panels installed to present site-related paleoecology stories in greater detail. Signs warning visitors about the steep terrain and the protection of petrified wood also will be posted.

The wayside exhibits along the self-guiding interpretive trail will be upgraded. This could be done through the amendment to the parkwide wayside exhibit plan, or through park-produced signs similar to the ethnobotany signs proposed for the Rim Trail.

## **Crystal Forest**

The historic exploitation of petrified wood, and the dramatic changes to the landscape from erosion and theft are images that need stronger emphasis at Crystal Forest. An additional wayside exhibit, perhaps in association with the large warning sign, could effectively communicate these messages. The shade structure will be upgraded and interpretive panels installed that present site-related paleoecology stories in greater detail.

## **No Name Overlook**

This turnout between Crystal Forest and Long Logs/Agate House offers an excellent opportunity to view and interpret erosional features of the Chinle Formation, including lakeshores, sand dunes, point bars, and shoals. A new wayside exhibit (and perhaps a name) is proposed at this view point.

## **Long Logs/Agate House**

In addition to the two trailhead waysides and the wayside exhibit at Agate House, other interpretive messages need to be conveyed at these sites. Visitors should understand that Agate House is more indicative of the ancestral pueblo cultural sites in the region than is Puerco Pueblo. People also should learn that these early inhabitants indeed made use of petrified wood as building material and that the high abundance of petrified wood flakes also reflects its use for tools and weapons. Interpretation of the viewshed also should help place these former residents in context with their surroundings.

As with Puerco Pueblo, some type of tactile 3-dimensional model of Agate House is proposed. This will help visitors better visualize how it appeared originally. Exhibit designers will need to evaluate various materials for durability against weather and potential vandalism. Interpretation of the model will relate elements of the WPA excavations, and explain how restoration/preservation methods and technology have improved over time.

The bulletin case in the shade shelter will be upgraded, and interpretive panels installed to explore site-related stories in greater detail. At least one panel will

illustrate a Late Triassic scene to help people place the petrified logs to their prehistoric environment.

The 1992 General Management Plan calls for the removal of the Long Logs access road and parking lot, to be replaced with a trail beginning at the museum. The trail will be for visitors who have more time and want to hike to a more secluded site. Additional wayside exhibits can provide more in-depth interpretation of paleontology or cultural history, including the Rainbow Forest cultural landscape and the role of the CCC.

### **Giant Logs**

The park will explore the use of more durable and attractive materials for the numbered posts along the self-guiding trail. Two options include porcelain enamel or routed sandstone.

### **Personal Services**

Personal service activities will continue to be an essential component of the overall interpretive program at Petrified Forest National Park. These programs have the unparalleled advantage of being inspiring, versatile, alive, and tailored to the needs of individuals or groups. An interpretive staff presence also can help with the protection of fragile resources. Interpreters, whether behind an information desk, roving, leading a tour, giving a talk, or conducting a demonstration are the best of all interactive tools in enabling visitors to experience, understand, appreciate, and make personal connections with park resources.

In spite of their advantages, however, personal service interpretive programs have limitations. They are often limited in number, and sometimes reach only a small percentage of visitors. Quality and accuracy of personal service programs must be maintained through regular audits and continual education and training.

Discussions and recommendations regarding personal service interpretation appear throughout this document as part of the individual site proposals.

Because personal service interpretive programs are so flexible, they can easily be evaluated and changed. This can occur both on an individual basis and for the program as a whole. Turnover continually changes the mix of special talents and skills on an interpretive staff. Although the programs will always be focused on presenting elements of the park themes, individual activities should be flexible enough to capitalize on the individual talents of the interpreter. This is especially important when utilizing volunteers and park partners to assist with these types of activities. Flexibility also is critical in maintaining staff morale, a spirit of creativity, and fresh programs for park visitors. And, personal service programs need to continually adapt to changing management issues and emergencies.

In addition to evaluating individual personal service programs, the staff will periodically (at least once a year) assess the overall program. This can involve

a variety of techniques, including an end-of-season staff meeting to freely discuss all elements of the program and make suggestions for the next season.

### **Education Program**

The park will continue to encourage young visitors to participate in the Junior Ranger program. Each of the staffed facilities will continue to actively promote the Junior Ranger materials and reward children for their efforts.

The curriculum-based education programs will continue; however, the park will work with area educators to develop more activities to address natural history themes. Workshops also will help train teachers to lead many of the in-park activities on their own, with a minimum of ranger assistance. The park will develop higher level curriculum programs for junior high and high school students.

This plan recommends that the park explore the potential of establishing a Petrified Forest National Park Institute program. Serving primarily adults and elderhostel groups, a program of theme-related field classes would be developed. The program would require a full-time coordinator, but instructors could be recruited from area colleges and universities, park staff, and other researchers. Necessary facilities would include a classroom/meeting room with some informal audiovisual capabilities, and perhaps some laboratory equipment. An office for the coordinator, a reference library, and storage space for field equipment and teaching supplies also would be required. The park already has initiated elderhostel programs with the Northern Arizona University.

### **Partnerships**

The implementation of elements of this Long-Range Interpretive Plan will depend on the continuation of existing partnerships and the establishment of new ones. Many of these cooperative efforts have been discussed in other sections of this plan, but are consolidated here to illustrate the importance of these relationships.

Partnerships are successful when all parties contribute and gain something from the alliance, when all parties are involved in defining the goals and responsibilities of each participant, and when there is a continuous liaison among all members.

For interpretation, these special arrangements might include coordinated efforts in providing information, orientation, education, training, research, special programs, seminars, other personal service activities, and development of exhibits and publications.

### **Information Services**

This plan has recommended a number of partnership opportunities and vehicles for coordinating and distributing information about PEFO and in promoting the region as a tourist destination. In addition to various publications, multiple sets of portable exhibit displays will be developed for use at Interstate

information centers, major motels in the area, Chambers of Commerce, etc. A set of panels also could be used for county fairs and a variety of offsite programs.

### **Petrified Forest Museum Association**

The Petrified Forest Museum Association (PFMA) will continue to offer a wide variety of theme-related items through sales outlets in each of the three major visitor contact facilities. The cooperating association sales outlets should be viewed as additional interpretive exhibits—pieces of which people can buy and take home. Tools exist that can help the association evaluate its inventory with regard to themes, age groups, price ranges, interest levels, and other criteria.

Specific items for which there is a current need include publications on the history of the Rainbow Forest area and the Painted Desert Inn. New audio tours for traveling north or south on the tour road could be rented or offered for sale. In addition, the association will encourage and even facilitate the publication of some of the park research projects. This could include publishing annual abstracts of current research projects, and/or the proceedings of past and future research symposia.

PFMA is a participating member of the Peaks, Plateaus, and Canyons Association (PPCA) which is comprised of other cooperating associations on the Colorado Plateau, and other non-profit museums, educational institutions, and foundations. This group will continue working together to develop or assist in the development of publications which address regional themes and topics, resource education materials, and training opportunities.

### **Fred Harvey**

The sale of petrified wood through the park concessionaire is an important partnership and contract issue. While petrified wood sales represent a large portion of the concession income, there is a shared responsibility to ensure that all visitors know that the wood is not collected inside the park. Also, it is essential that visitors know the rationale behind allowing wood sales in the park, and this should be presented through a variety of media and locations. This information needs to be at the point of sales, with prominent signs incorporated into the displays and perhaps including a certificate of authenticity with each purchase. Additional messages could be placed on things such as table tents in the restaurant. The visitor centers also will convey the wood sales policy. [Note: The NPS Management Policies are currently being revised, and states that parks will not sell paleontological materials. When the policies are approved, petrified wood will no longer be sold by the park concessionaire. This will certainly affect their income and become a possible contract issue.]

Fred Harvey is an important aspect of the park's history. The potential for developing new exhibits in the various interpretive facilities, as well as in the concession buildings, will be explored. Proposed exhibits in the Painted Desert Inn National Historic Landmark will address the Fred Harvey contributions to the park's history.

## **Indian Tribes**

As stated throughout this document, it is essential for the park to foster and maintain a continual dialog with the various affiliated American Indian tribes in the region. Through this consultation the park will have a more complete picture for interpreting park themes, especially those that deal with past and present Indian cultures and their associations with this land. The park also will learn through the tribes' perspectives what cultural elements are most important to interpret, as well as those that perhaps should not be addressed. The result of these partnership and consultation efforts with the tribes will give visitors a better understanding and appreciation of American Indian ties to this environment.

## **Colorado Plateau Parks and Agencies**

Many of the national, state, and local parks in the region share some of the same interpretive themes and similar resources. PEFO is encouraged to initiate and participate in cooperative efforts aimed at sharing resource and visitor information, interpretive/educational strategies, and the results of relevant research projects. Further involvement could include staff training, and the development of publications focusing on regional themes and topics. A new wayside exhibit could explain and define the "Colorado Plateau."

Specific non-NPS entities would include Homolovi State Park, Arizona Game and Fish Department, Colorado Plateau Field Station, Museum of Northern Arizona, Northern Arizona University, and other regional colleges and universities. These and other agencies and institutions will explore the potential of re-establishing an annual or biennial research symposium to share the results of park and regional projects.

## **Education**

Additional partnership agreements with regional colleges and universities will focus on developing and conducting a variety of educational programs. Agreements with Northland Pioneer Community College will continue to provide internships to assist with the park's curriculum-based education program. In exchange, the interns will earn course credits. The newly established partnership with Northern Arizona University has resulted in the development of an elderhostel program. Additional agreements with these and other institutions can expand the education program in several new directions, and provide unique learning opportunities for all participants. The development of the field institute program will offer still more options for educational partnerships.

# SUMMARIES

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## Special Populations

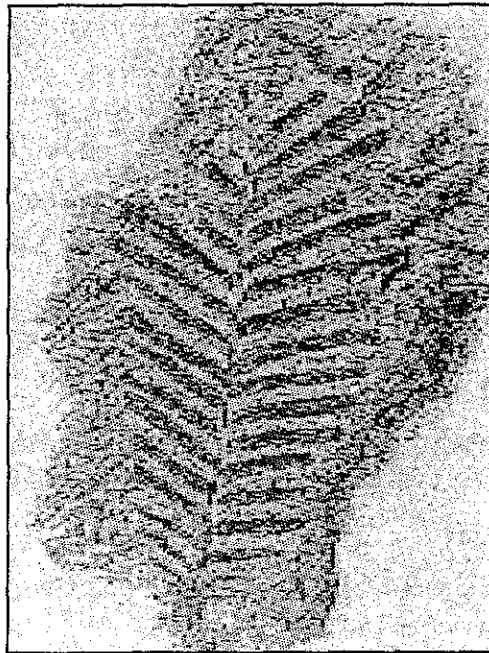
Provisions will be made to accommodate the needs of special populations who visit Petrified Forest National Park. Special populations are identified as those with sight, hearing, learning, and mobility impairments; visitors who do not speak English; and the elderly and young children.

Accommodations will be made for access to the sites, as well as to most of the interpretive media. Since all of the interpretive facilities are located in historic structures, special consideration will need to be given to preserving historic fabric. The multiple levels of the Painted Desert Inn will require special attention in developing accessibility solutions. Guidelines and regulations are available to assist staff and media/facility designers. Generally, these accommodations will benefit all visitors.

Public Law 90-480, the Architectural Barriers Act, and the Americans with Disabilities Act of 1990 establish standards for physical access. Any new facilities constructed, as a matter of course, will be designed for accessibility for physically disabled visitors and employees.

Other regulations, laws, and standards include Section 504 of the Rehabilitation Act of 1973, Director's Orders No. 42, and Accessibility for Visitors with Disabilities in National Park Service Programs, Facilities, and Programs.

All new interpretive media will conform to National Park Service, June 1999 Programmatic Accessibility Guidelines for Interpretive Media (see Appendix A).



# STAFFING AND TRAINING

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## Staffing

Petrified Forest National Park experiences year-round interpretive needs consisting of personal and non-personal services on and offsite. Interpreters are needed to:

- Staff three visitor facilities year-round.
- Present competent conducted hikes, talks, and demonstrations year-round for park visitors.
- Provide interpretive skill training for interpreters, other park divisions, other parks, affiliated sites, and employees of partners and cooperators.
- Manage and coordinate the operation of three park visitor facilities.
- Manage and coordinate the park's resource education and science-based curriculum programs.
- Write, edit, design, and produce park publications.
- Write, edit, design, and produce indoor and outdoor exhibits.
- Design, manage, and maintain the park's website and interactive information computers.
- Manage the park's volunteer program.
- Provide liaison with Branch of Resource Management & Research for accurate interpretation of natural and cultural resource subject matter and current research findings.
- Manage and maintain the park's museum collections in accordance with NPS standards and meeting GPRA goals.
- Manage and maintain the park collections which include: two libraries, photographs, historic photographs, slides, and archives.
- Manage and maintain the park's audiovisual equipment.
- Coordinate special events and initiatives on and offsite.
- Meet media needs through review of articles and publications, onsite tours and talks, interviews, and publication of articles to provide communities with current park news.

To meet these identified needs, and to implement the recommendations in this long-range interpretive plan, a recommended staffing plan will include:

- Chief of Interpretation, GS-12
  - Oversight for parkwide interpretation, education, information services, and collections management

- Long-range planning
- Member of park's management team
- Supervisory Park Ranger – Operations Leader, GS-11
  - Maintain orderly daily operations
  - Provide interpretive training, coaching, mentoring, and evaluation
  - Assure effective implementation of Interpretive Development Program (IDP) and interpretive certification/competencies program
- Park Ranger, GS-9
  - Develop and present interpretive programs
  - Manage park volunteer program
- Park Ranger, GS-9
  - Develop and present interpretive programs
  - Coordinate special events and manage special initiatives
- Park Ranger, GS-9
  - Writer/Editor: review/rewrite existing published materials about the park; develop new park publications; write text for exhibits; manage park website and interactive computer programs
  - Accessibility Coordinator
- Park Ranger, GS-9
  - Resource education coordinator
  - Manage and coordinate park's resource education programs (Fascinating Fossil Factory, Science in the Parks, Global Learning and Observation to Benefit the Environment (GLOBE))
- Park Ranger, GS-9
  - Resource management and research liaison
  - Manage and coordinate park collections
- Museum Technician, GS-7
  - Maintain and monitor park museum collections
- (5) Park Guides, GS-5
  - Provide orientation information for visitors at three year-round visitor facilities
  - Present interpretive programs on- and offsite
  - Provide roving interpretation for protection of park resources

In future years, the scope and complexity of the writer/editor, resource education specialist/resource management and research liaison positions may war-



rant a reclassification of position descriptions. Requests for OFS increases for interpretation have been submitted.

## Training

In addition to ongoing training in interpretive skills and knowledge of the resources, park interpreters and others who deal with the visiting public need to keep abreast of current research, technologies, programs, and activities. By working across operational division lines, effective and efficient ways to alert and/or involve staff in new or ongoing projects can be explored. All interpreters will actively participate in the Interpretive Development Program (IDP), obtaining certification for their full-performance level.

The park also will continue to explore opportunities to offer interpretive skills and resource training to non-NPS folks who engage in interpretive activities. Training could be offered through scheduled courses, workshops, etc. Potential trainees include tribe members, cooperating association and concession employees, interagency staffs, and others in the region and local communities who offer interpretive and informational services. Training also will be offered to all volunteers, researchers, interns, and employees in other divisions.



# PROGRAM SUPPORT RESOURCES & FACILITIES

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Adequate space for various interpretive program support functions sometimes gets overlooked in building designs and from determinations of space requirements. Since this plan proposes some major space reallocations, the following will serve as a partial checklist for interpretive support needs:

## **Painted Desert Visitor Center Complex**

- Library (general and Triassic)
- Offices for staff and volunteers
- Museum collection
- Break room
- Slide/Photo file storage
- Audiovisual equipment storage
- Projection room
- Storage for interpretive props and materials
- Mail processing room
- Workroom
- Darkroom
- Storage for publications (NPS and cooperating association)
- General interpretive storage (for changing, temporary exhibits, etc.)
- Storage for VIP supplies
- Storage for education program supplies
- Storage for maps, blueprints, etc.
- Meeting space/multi-purpose room

## **Rainbow Forest Museum Complex**

- Offices for staff
- Break room
- Audiovisual equipment room
- Storage for publications (NPS and cooperating association)
- Projection room

## **Painted Desert Inn National Historic Landmark**

- Storage for publications (NPS and cooperating association)
- Break room
- Office/work space for institute/elderhostel programs

# **IMPLEMENTATION PRIORITIES**

Due to the magnitude and complexities of some of the facility recommendations in this long-range interpretive plan, implementation will need to be phased. Changes in staff, funding, and other unforeseen circumstances can alter priorities, especially when they contain specific details. Consequently, the following list shows only general phasing priorities. Specific components of each general item can be found in the Implementation Strategies section of this document. These general priorities should serve as a guide in developing funding requests and in preparing the annual work program component of the Comprehensive Interpretive Plan. The items below are presented in table form in Appendix C.

The implementation priorities for the PEFO Long-Range Interpretive Plan are grouped into three categories. Also consult the Staffing section for personnel needs.

## **First Steps**

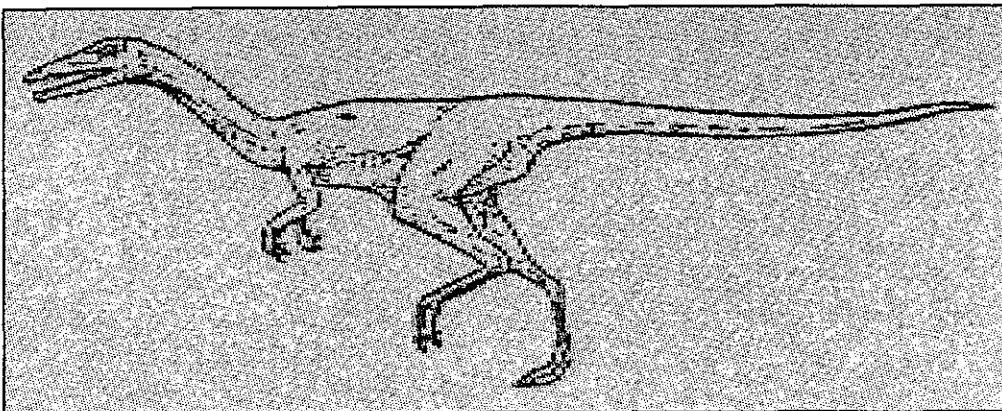
- Conduct space utilization studies for the Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Museum so management decisions can be made for actual space allocations.
- Conduct a Historic Furnishings Study for Painted Desert Inn.
- Start shade and other landscape plantings for the Painted Desert Visitor Center plaza.
- Evaluate the parkwide directional sign system and implement recommendations.
- Develop design concept plans for Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Museum and address accessibility needs within these historic structures.
- Upgrade park website and links.
- Re-design and produce rack cards for regional distribution.
- Conduct cooperating association publications evaluation and develop Scope of Sales Plan.
- Develop interpretive messages for concession sale of petrified wood.
- Assist in development of regional destination tourism materials.
- Incorporate PEFO information into Interstate Intelligence System interactive computers.
- Develop new or revise existing Accessibility Plan.
- Develop partnership and implement elderhostel program.
- Develop portable exhibits for offsite use.

## Second Steps

- Develop exhibit plans/designs for Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Museum (some may include audiovisual elements).
- Produce amendment to the parkwide wayside exhibit plan.
- Plan, design, and produce self-guiding trail wayside exhibits (in-house).
- Plan/design tactile models for Puerco Pueblo and Agate House.
- Plan/design the interpretive shelter for Puerco Pueblo.
- Conduct and implement parkwide site bulletin assessment/revisions (including foreign language publications).
- Organize and develop PEFO Institute program.
- Expand natural history elements of the curriculum-based education program materials.
- Develop curriculum-based education programs for junior high and high school students.

## Third Steps

- Complete renovation plan for the Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Visitor Center.
- Produce and install new exhibits in the above facilities.
- Produce and install new wayside exhibits per the amended plan.
- Construct interpretive shelter at Puerco Pueblo.
- Produce and install tactile models at Puerco Pueblo and Agate House.
- Develop new audio tours.
- Develop new turnouts along tour road.



# **PLANNING TEAM & CONSULTANTS**

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## **Petrified Forest National Park**

Michele Hellickson, Superintendent  
Tessy Shirakawa, Chief of Interpretation  
Pat Thompson, Park Ranger, Interpretation & Resource Management  
Paula Branstner, Training Specialist  
Rita Garcia, Park Ranger, Interpretation  
Janet Fernandes, Park Ranger, Interpretation & Education  
Joshua Wenger, Operations Manager, PFMA  
Hallie Larsen, Park Ranger, Interpretation  
Mary Knight, Park Ranger, Interpretation  
Bill Grether, Park Ranger, Resource Management  
Pat Quinn, Chief of Operations  
Lisa-Marie Dale, Museum Technician  
Lorna McNeil-Cox, Park Ranger, Interpretation

## **Intermountain Support Office-Denver**

Sayre Hutchison, Architect  
Kim Sikoryak, Interpretive Specialist

## **Consultants**

Ailema Benally, Park Ranger, Interpretation, Canyon de Chelly National Monument  
Trinkle Jones, Supervisory Archeologist, Western Archeological & Conservation Center  
Dr. Sidney Ash, Paleontologist  
Erika Nowak, Biological Technician, U.S. Geological Survey  
Charles Drost, Zoologist, U.S. Geological Survey

## **Harpers Ferry Center**

Gary Cummins, Manager (and former PEFO Superintendent)  
Michael Lacome, Exhibit Designer  
Karine Erlebach, Audiovisual Producer/Director  
Paul Lee, Interpretive Planner

# APPENDIX A

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## Special Populations: Programmatic Accessibility Guidelines for Interpretive Media

National Park Service  
Harpers Ferry Center

June 1999

Prepared by  
Harpers Ferry Center  
Accessibility Task Force

Contents  
Statement of Purpose  
Audiovisual Programs  
Exhibits  
Historic Furnishings  
Publications  
Wayside Exhibits

## STATEMENT OF PURPOSE

This document is a guide for promoting full access to interpretive media to ensure that people with physical and mental disabilities have access to the same information necessary for safe and meaningful visits to National Parks. Just as the needs and abilities of individuals cannot be reduced to simple statements, it is impossible to construct guidelines for interpretive media that can apply to every situation in the National Park System.

These guidelines define a high level of programmatic access which can be met in most situations. They articulate key areas of concern and note generally accepted solutions. Due to the diversity of park resources and the variety of interpretive situations, flexibility and versatility are important.

Each interpretive medium contributes to the total park program. All media have inherent strengths and weaknesses, and it is our intent to capitalize on their strengths and provide alternatives where they are deficient. It should also be understood that any interpretive medium is just one component of the overall park experience. In some instances, especially with regard to learning disabilities, personal services, that is one-on-one interaction, may be the most appropriate and versatile interpretive approach.

In the final analysis, interpretive design is subjective, and dependent on aesthetic considerations as well as the particular characteristics and resources available for a specific program. Success or failure should be evaluated by examining all interpretive offerings of a park. Due to the unique characteristics of each situation, parks should be evaluated on a case by case basis. Nonetheless, the goal is to fully comply with NPS policy:

**"...To provide the highest level of accessibility possible and feasible for persons with visual, hearing, mobility, and mental impairments, consistent with the obligation to conserve park resources and preserve the quality of the park experience for everyone."**

NPS Special Directive 83-3, Accessibility for Disabled Persons

### **Audiovisual Programs**

Audiovisual programs include video programs, and audio and interactive programs. As a matter of policy, all audiovisual programs produced by the Harpers Ferry Center will include some method of captioning. The Approach used will vary according to the conditions of the installation area and the media format used, and will be selected in consultation with the parks and regions.

The captioning method will be identified as early as possible in the planning process and will be presented in an integrated setting where possible. To the extent possible, visitors will be offered a choice in viewing captioned or uncaptioned versions, but in situations where a choice is not possible or feasible, a captioned version of all programs will be made available. Park management will decide on the most appropriate operational approach for the particular site.

### **Guidelines Affecting Visitors with Mobility Impairments**

1. The theater, auditorium, or viewing area should be accessible and free of architectural barriers, or alternative accommodations will be provided. UFAS 4.1.
2. Wheelchair locations will be provided according to ratios outlined in UFAS 4.1.2(18a).
3. Viewing heights and angles will be favorable for those in designated wheelchair locations.
4. In designing video or interactive components, control mechanisms will be placed in accessible location, usually between 9" and 48" from the ground and no more than 24" deep.

### **Guidelines Affecting Visitors with Visual Impairments**

Simultaneous audio description will be considered for installations where the equipment can be properly installed and maintained.

### **Guidelines Affecting Visitors with Hearing Impairments**

1. All audiovisual programs will be produced with appropriate captions.
2. Copies of scripts will be provided to the parks as a standard procedure.
3. Audio amplification and listening systems will be provided in accordance with UFAS 4.1.2(18b).

### **Guidelines Affecting Visitors with Learning Impairments**

1. Unnecessarily complex and confusing concepts will be avoided.
2. Graphic elements will be chosen to communicate without reliance on the verbal component.
3. Narration will be concise and free of unnecessary jargon and technical information.



## Exhibits

Numerous factors affect the design of exhibits, reflecting the unique circumstances of the specific space and the nature of the materials to be interpreted. It is clear that thoughtful, sensitive design can go a long way in producing exhibits that can be enjoyed by a broad range of people. Yet, due to the diversity of situations encountered, it is impossible to articulate guidelines that can be applied universally.

In some situations, the exhibit designer has little or no control over the space. Often exhibits are placed in areas ill suited for that purpose, they may incorporate large or unyielding specimens, may incorporate sensitive artifacts which require special environmental controls, and room decor or architectural features may dictate certain solutions. All in all, exhibit design is an art which defies simple description. However, one central concern is to communicate the message to the largest audience possible. Every reasonable effort will be made to eliminate any factors limiting communication through physical modification or by providing an alternate means of communication.

## Guidelines Affecting Visitors with Mobility Impairments

Note: The **Americans with Disabilities Act Accessibility Guidelines (ADAAG)** is the standard followed by the National Park Service and is therefore the basis for the accessibility standards for exhibits, where applicable.

1. Height/position of labels: Body copy on vertical exhibit walls should be placed at between **36"** and **60"** from the floor.
2. Artifact Cases:
  - a. Maximum height of floor of artifact case display area shall be no higher than **30"** from the floor of the room. This includes vitrines that are recessed into an exhibit wall.
  - b. Artifact labels should be placed so as to be visible to a person within a **43"** to **51"** eye level. This includes mounting labels within the case at an angle to maximize its visibility to all viewers.
3. Touchable Exhibits: Touchable exhibits positioned horizontally should be placed no higher than **30"** from the floor. Also, if the exhibit is approachable only on one side, it should be no deeper than **31"**.
4. Railings/barriers: Railings around any horizontal model or exhibit element shall have a maximum height of **36"** from the floor.
5. Information desks: Information desks and sales counters shall include a section made to accommodate both a visitor in a wheelchair and an employee in a wheelchair working on the other side. A section of the desk/counter shall have the following dimensions:
  - a. Height from the floor to the top: **28** to **34** inches. (ADAAG 4.32.4)
  - b. Minimum knee clearance space: **27"** high, **30"** wide and **19"** deep of

clearance underneath the desk is the minimum space required under ADAAG 4.32.3, but a space **30" high, 36" wide and 24" deep** is recommended.

c. Width of top surface of section: at least **36 inches**. Additional space must be provided for any equipment such as a cash register.

d. Area underneath desk: Since both sides of the desk may have to accommodate a wheelchair, this area should be open all the way through to the other side. In addition, there should be no sharp or abrasive surfaces underneath the desk. The floor space behind the counter shall be free of obstructions.

## 6. Circulation Space:

a. Passageways through exhibits shall be at least **36" wide**.

b. If an exhibit passageway reaches a dead-end, an area **60" by 78"** should be provided at the end for turning around.

c. Objects projecting from walls with their leading edges between **27"** and **80"** above the floor shall protrude no more than **4"** in passageways or aisles. Objects projecting from walls with their leading edges at or below **27"** above the floor can protrude any amount.

d. Freestanding objects mounted on posts or pylons may overhang a maximum of **12"** from **27"** to **80"** above the floor. (ADAAG 4.4.1)

e. Protruding objects shall not reduce the clear width of an accessible route to less than the minimum required amount. (ADAAG 4.4.1)

f. Passageways or other circulation spaces shall have a minimum clear head room of **80"**. For example, signage hanging from the ceiling must have at least **80"** from the floor to the bottom edge of the sign. (ADAAG 4.4.2)

## 7. Floors:

a. Floors and ramps shall be stable, level, firm and slip-resistant.

b. Changes in level between **1/4"** and **1/2"** shall be beveled with a slope no greater than **1:2**. Changes in level greater than **1/2"** shall be accomplished by means of a ramp that complies with ADAAG 4.7 or 4.8. (ADAAG 4.5.2)

c. Carpet in exhibit areas shall comply with ADAAG 4.5.3 for pile height, texture, pad thickness, and trim.

## 8. Seating - Interactive Stations/Work Areas: The minimum knee space underneath a work desk is **27" high, 30" wide and 19" deep**, with a clear floor space of at least **30" by 30"** in front. The top of the desk or work surface shall be between **28"** and **34"** from the floor. (ADAAG 4.32, Fig.45)

## Guidelines Affecting Visitors with Visual Impairments

1. Tactile models and other touchable exhibit items should be used whenever possible. Examples of touchable exhibit elements include relief maps, scale models, raised images of simple graphics, reproduction objects, and replaceable objects (such as natural history or geological specimens, cultural history items, etc.).
2. Typography - Readability of exhibit labels by visitors with various degrees of visual impairment shall be maximized by using the following guidelines:
  - a. Type size - **No type in the exhibit shall be smaller than 24 point.**
  - b. Typeface - The most readable typefaces should be used whenever possible, particularly for body copy. They are: Times Roman, Palatino, Century, Helvetica and Universe.
  - c. Styles, Spacing - Text set in both caps and lower case is easier to read than all caps. Choose letter spacing and word spacing for maximum readability. Avoid too much italic type.
  - d. Line Length - Limit the line length for body copy to no more than **45 to 50 characters per line.**
  - e. Amount of Text - Each unit of body copy should have a maximum of **45-60 words.**
  - f. Margins - Flush left, ragged right margins are easiest to read.
3. Color:
  - a. Type/Background Contrast - Percentage of contrast between the type and the background should be a **minimum of 70%** .
  - b. Red/Green - Do not use red on green or green on red as the type/background color combination.
  - c. Do not place body copy on top of graphic images that impair readability.
4. Samples: During the design process, it is recommended that samples be made for review of all size, typeface and color combinations for labels in that exhibit.
5. Exhibit Lighting:
  - a. All labels shall receive sufficient, even light for good readability. Exhibit text in areas where light levels have been reduced for conservation purposes should have a minimum of 10 footcandles of illumination.
  - b. Harsh reflections and glare should be avoided.
  - c. The lighting system shall be flexible enough to allow adjustments on-site.
  - d. Transitions between the floor and walls, columns or other structures

should be made clearly visible. Finishes for vertical surfaces should contrast clearly with the floor finish. Floor circulation routes should have a minimum of 10 footcandles of illumination.

6. Signage: When permanent building signage is required as a part of an exhibit project, the ADAAG guidelines shall be consulted. Signs, which designate permanent rooms and spaces, shall comply with ADAAG 4.30.1, 4.30.4, 4.30.5, and 4.30.6. Other signs, which provide direction to or information about functional spaces of the building, shall comply with ADAAG 4.30.1, 4.30.2, 4.30.3, and 4.30.5. Note: When the International Symbol of Accessibility (wheelchair symbol) is used, **the word "Handicapped" shall not be used** beneath the symbol. Instead, use the word "Accessible".

#### **Guidelines Affecting Visitors with Hearing Impairments**

1. Information presented via audio formats will be duplicated in a visual medium, such as in the exhibit label copy or by captioning. All video programs incorporated into the exhibit, which contain audio, shall be open captioned.
2. Amplification systems and volume controls should be incorporated with audio equipment used individually by the visitor, such as audio handsets.
3. Information desks shall allow for Telecommunication Devices for the Deaf (TDD) equipment.

#### **Guidelines Affecting Visitors with Learning Impairments**

1. The exhibits will present the main interpretive themes on a variety of levels of complexity, so people with varying abilities and interests can understand them.
2. The exhibits should avoid unnecessarily complex and confusing topics, technical terms, and unfamiliar expressions. Pronunciation aids should be provided where appropriate.
3. Graphic elements shall be used to communicate non-verbally.
4. The exhibits shall be a multi-sensory experience. Techniques to maximize the number of senses used in the exhibits should be encouraged.
5. Exhibit design shall use color and other creative approaches to facilitate comprehension of maps by visitors with directional impairments.

#### **Historic Furnishings**

Historically refurbished rooms offer the public a unique interpretive experience by placing visitors within historic spaces. Surrounded by historic artifacts visitors can feel the spaces "come alive" and relate more directly to the historic events or personalities commemorated by the park.

Accessibility is problematical in many NPS furnished sites because of the very nature of historic architecture. Buildings were erected with a functional point of view that is many times at odds with our modern views of accessibility.

The approach used to convey the experience of historically furnished spaces will vary from site to site. The goals, however, will remain the same, to give the public as rich an interpretive experience as possible given the nature of the structure.

#### **Guidelines Affecting Visitors with Mobility Impairments**

1. The exhibit space should be free of architectural barriers or a method of alternate accommodation should be provided, such as slide programs, videotaped tours, visual aids, dioramas, etc.
2. All pathways, aisles, and clearances shall (when possible) meet standards set forth in UFAS 4.3 to provide adequate clearance for wheelchair routes.
3. Ramps shall be as gradual as possible and not exceed a 1" rise in 12" run, and conform to UFAS 4.8.
4. Railings and room barriers will be constructed in such a way as to provide unobstructed viewing by persons in wheelchairs.
5. In the planning and design process, furnishing inaccessible areas, such as upper floors of historic buildings, will be discouraged unless essential for interpretation.
6. Lighting will be designed to reduce glare or reflections when viewed from a wheelchair.
7. Alternative methods of interpretation, such as audiovisual programs, audio description, photo albums, and personal services will be used in areas which present difficulty for visitors with physical impairments.

#### **Guidelines Affecting Visitors with Visual Impairments**

1. Exhibit typefaces will be selected for readability and legibility, and conform to good industry practice.
2. Audio description will be used to describe furnished rooms, where appropriate.
3. Windows will be treated with film to provide balanced light levels and minimize glare.
4. Where appropriate, visitor-controlled rheostat-type lighting will be provided to augment general room lighting.
5. Where appropriate and when proper clearance has been approved, surplus artifacts or reproductions will be utilized as "hands-on" tactile interpretive devices.

#### **Guidelines Affecting Visitors with Hearing Impairments**

1. Information about room interiors will be presented in a visual medium such as exhibit copy, text, pamphlets, etc.
2. Captions will be provided for all AV programs relating to historic furnishings.

### **Guidelines Affecting the Visitors with Learning Impairments**

1. Where appropriate, hands-on participatory elements geared to the level of visitor capabilities will be used.
2. Living history activities and demonstrations, which utilize the physical space as a method of providing multi-sensory experiences, will be encouraged.

### **Publications**

A variety of publications are offered to visitors, ranging from park folders, which provide an overview and orientation to a park, to more comprehensive handbooks. Each park folder should give a brief description of services available to visitors with disabilities, list significant barriers, and note the existence of TDD phone numbers, if available.

In addition, informal site bulletins are often produced to provide more specialized information about a specific site or topic. It is recommended that each park produce an easily updatable "Accessibility Site Bulletin" which could include detailed information about the specific programs, services, and opportunities available for visitors with disabilities and to describe barriers which are present in the park. A template for this site bulletin will be on the Division of Publications website for parks to create with ease, a consistent look throughout the park service. These bulletins should be in large type, 16 points minimum and follow the large-print criteria below.

### **Guidelines Affecting Visitors with Mobility Impairments**

1. Park folders, site bulletins, and sales literature will be distributed from accessible locations and heights.
2. Park folders and Accessibility Site Bulletins should endeavor to carry information on the accessibility of buildings, trails, and programs by visitors with disabilities.

### **Guidelines Affecting Visitors with Visual Impairments**

1. Publications for the general public:
  - a. Text
    - (1) Size: the largest type size appropriate for the format.  
(preferred main body of text should be 10pt)
    - (2) Leading should be at least 20% greater than the font size used.
    - (3) Proportional letterspacing
    - (4) Main body of text set in caps and lower case.
    - (5) Margins are flush left and ragged right
    - (6) Little or no hyphenation is used at ends of lines.
    - (7) Ink coverage is dense

(8) Underlining does not connect with the letters being underlined.

(9) Contrast of typeface and illustrations to background is high (70% contrast is recommended)

(10) Photographs have a wide range of gray scale variation.

(11) Line drawings or floor plans are clear and bold, with limited detail and minimum 8 pt type.

(12) No extreme extended or compressed typefaces are used for main text.

(13) Reversal type should be minimum of 11 point medium or bold sans-serif type.

b. The paper:

(1) Surface preferred is a matte finish. Dull-coated stock is acceptable.

(2) Has sufficient weight to avoid "show-through" on pages printed on both sides.

2. Large-print version publications:

a. Text

(1) Size: minimum 16 point type.

(2) Leading is 16 on 20pt.

(3) Proportional letterspacing

(4) Main body of text set in caps and lower case.

(5) Margins are flush left and ragged right.

(6) Little or no hyphenation is used at ends of lines.

(7) Ink coverage is dense.

(8) Underlining does not connect with the letters being underlined.

(9) Contrast of typeface and illustrations to background is high (70% contrast is recommended)

(10) Photographs have a wide range of gray scale variation.

(11) Line drawings or floor plans are clear and bold, with limited detail and minimum 14 pt type.

(12) No extreme extended or compressed typefaces are used for main text.

(13) Sans-serif or simple-serif typeface

(14) No oblique or italic typefaces

(15) Maximum of 50 characters (average) per line.

(16) No type is printed over other designs.

(17) Document has a flexible binding, preferably one that allows the publication to lie flat.

(18) Gutter margins are a minimum of 22mm; outside margin smaller but not less than 13mm.

b. Paper:

(1) Surface is off-white or natural with matte finish.

(2) Has sufficient weight to avoid "show-through" on pages printed on both sides.

3. Maps:

a. The less clutter the map, the more visitors that can use it.

b. The ultimate is one map that is large-print and tactile.

c. Raised line/tactile maps are something that could be developed in future, using our present digital files and a thermaform machine. Lines are distinguished by lineweight, color and height. Areas are distinguished by color, height, and texture.

d. The digital maps are on an accessible web site.

e. Same paper guides as above.

f. Contrast of typeface background is high. (70% contrast is recommended)

g. Proportional letterspacing

h. Labels set in caps and lower case

i. Map notes are flush left and ragged right.

j. Little or no hyphenation is used as ends of lines.

k. No extreme extended or compressed typefaces are used for main text.

l. Sans-serif or simple-serif typeface.

4. The text contained in the park folder should also be available on audiocassette, CD and accessible web site. Handbooks, accessibility guides, and other publications should be similarly recorded where possible.

5. The official park publication is available in a word processing format. This could be translated into Braille as needed.

#### **Guidelines Affecting Visitors with Hearing Impairments**

Park site bulletins will note the availability of such special services as sign language interpretation and captioned programs.

#### **Guidelines Affecting Visitors with Learning Impairments**

1. The park site bulletin should list any special services available to these visitors.



2. Publications:

- a. Use language that appropriately describes persons with disabilities.
- b. Topics will be specific and of general interest. Unnecessary complexity will be avoided.
- c. Whenever possible, easy to understand graphics will be used to convey ideas, rather than text alone.
- d. Unfamiliar expressions, technical terms, and jargon will be avoided. Pronunciation aids and definitions will be provided where needed.
- e. Text will be concise and free of long paragraphs and wordy language.

**Wayside Exhibits**

Wayside exhibits, which include outdoor interpretive exhibits and signs, orientation shelter exhibits, trailhead exhibits, and bulletin boards, offer special advantages to visitors with disabilities. The liberal use of photographs, artwork, diagrams, and maps, combined with highly readable type, make wayside exhibits an excellent medium for visitors with hearing and learning impairments. For visitors with sight impairments, waysides offer large type and high legibility.

Although a limited number of NPS wayside exhibits will always be inaccessible to visitors with mobility impairments, the great majority are placed at accessible pullouts, viewpoints, parking areas, and trailheads.

The NPS accessibility guidelines for wayside exhibits help insure a standard of quality that will be appreciated by all visitors. Nearly everyone benefits from high quality graphics, readable type, comfortable base designs, accessible locations, hard-surfaced exhibit pads, and well-landscaped exhibit sites.

While waysides are valuable on-site "interpreters," it should be remembered that the park resources themselves are the primary things visitors come to experience. Good waysides focus attention on the features they interpret, and not on themselves. A wayside exhibit is only one of the many interpretive tools which visitors can use to enhance their appreciation of a park.

**Guidelines Affecting Visitors with Mobility Impairments**

1. Wayside exhibits will be installed at accessible locations whenever possible.
2. Wayside exhibits will be installed at heights and angles favorable for viewing by most visitors including those in wheelchairs. For standard NPS low-profile units the recommended height is 30 inches from the bottom edge of the exhibit panel to the finished grade; for vertical exhibits the height of 6-28 inches.
3. Trailhead exhibits will include information on trail conditions which affect accessibility.

4. Wayside exhibit sites will have level, hard surfaced exhibit pads.
5. Exhibit sites will offer clear, unrestricted views of park features described in exhibits.

#### **Guidelines Affecting Visitors with Visual Impairments**

1. Exhibit type will be as legible and readable as possible.
2. Panel colors will be selected to reduce eyestrain and glare, and to provide excellent readability under field conditions. White should not be used as a background color.
3. Selected wayside exhibits may incorporate audio stations or tactile elements such as models, texture blocks, and relief maps.
4. For all major features interpreted by wayside exhibits, the park should offer non-visual interpretation covering the same subject matter. Examples include cassette tape tours, radio messages, and ranger talks.
5. Appropriate tactile cues should be provided to help visually impaired visitors locate exhibits.

#### **Guidelines Affecting Visitors with Hearing Impairments**

1. Wayside exhibits will communicate visually, and will rely heavily on graphics to interpret park resources.
2. Essential information included in audio station messages will be duplicated in written form, either as part of the exhibit text or with printed material.

#### **Guidelines Affecting Visitors with Learning Impairments**

1. Topics for wayside exhibits will be specific and of general interest. Unnecessary complexity will be avoided.
2. Whenever possible, easy to understand graphics will be used to convey ideas, rather than text alone.
3. Unfamiliar expressions, technical terms, and jargon will be avoided. Pronunciation aids and definitions will be provided where needed.
4. Text will be concise and free of long paragraphs and wordy language.

# APPENDIX B

## Architectural Design Issues

The following report was prepared in conjunction with the long-range interpretive planning workshop held August 3-7, 1998 at PEFO.

### **Architectural Design Issues for the Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Visitor Center.**

Prepared by A. Sayre Hutchison, IMDE-CNR Regional Architect

As part of the interpretive planning session, the team requested design concepts for the Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Museum. The below mentioned concepts for each of these structures have been written down rather than sketched. This has been done due to the lack of a space utilization plan. Such a study would assign spatial needs with the square footage required, instead of randomly allocating people/functions within existing spaces. The concern is the staff might "buy-off" on floor plans that were intended only as concepts. Without a space utilization plan, it is nearly impossible to determine if the space and the proposed use will work.

Both the Painted Desert Inn (PDI) and the Rainbow Forest Museum (RFM) are designated historic structures, while the Painted Desert Visitor Center (PDVC) is considered eligible for listing on the National Register of Historic Places as a "Mission 66" structure. For this reason, both the Deputy Director of the National Park Service and the Intermountain Field Director have issued a "cease and desist" order on all major renovations until such time as a "statement of significance" can be prepared for the "Mission 66" context. As the park explores possible design concepts, they should consider the overall architectural character and the design intent. With these two points in mind, it is possible to design new functions and add new technology to the historic structures in a sympathetic and compatible manner.

#### **A.) Painted Desert Visitor Center (PDVC)**

The interpretive planning team saw the primary functions for the PDVC as being:

1. Information/Orientation
2. Theater Area
3. Cooperating Association Sales Area
4. Exhibit Area
5. Outdoor Exhibits/Courtyard Development
6. Possible location for the PEFO Institute

The planning team identified the following goals for long-range planning at the PDVC:

- a.) The exhibit space needs to be nearly three times its current size.
- b.) There needs to be a visual separation between the cooperating association sales area and the exhibit area.
- c.) The theater should hold 70+ visitors, including spaces for five wheelchairs.
- d.) The main entry to the visitor center is confusing, due to its orientation to the parking lot.
- e.) The courtyard should be utilized in a more effective and aesthetically pleasing manner.

The existing structure as it is currently used would require some modification to accommodate the recommendations identified by the team. The following concepts might be utilized to facilitate the long-range goals:

- a.) Enlarge the Exhibit Area—In order to increase the size of the exhibit area, two possible solutions might be explored:

1. The first would be to remove the existing theater, restoring the full extent of the exterior glass curtain wall. In addition, the offices directly south of the existing exhibit area would also be removed, allowing for the southern expansion of the exhibit area.

2. Expand into a portion or all of the first floor apartment area in the south wing. If this solution is pursued, it would be best to retain at least one of the apartments intact.

- b.) Theater Area—Remove the existing theater and move it to the space directly west of its current location. By placing the theater along the common wall with the maintenance area, no windows would be required, which is in keeping with the extant structure.

- c.) Main Entry—Reorient the main doors to the visitor center so they face north toward the parking area. In order not create a “wind tunnel” directly into the sales/exhibit area, the inner set of doors would be offset.

Another possible solution might be to somehow connect the Fred Harvey sales entrance with the main entrance to the visitor center.

- d.) Courtyard—The existing courtyard should be enhanced to encourage visitors to use the space. Interpretive exhibits could be added to compliment the courtyard design. In addition, if the south exterior wall of the Fred Harvey facility was restored to all glass, it would further encourage visitors to move into the space. Replacement of the dead or missing vegetation also would enhance the space and encourage public use.

### **B.) Rainbow Forest Museum (RFM)**

The planning team saw the primary functions for the RFM as being:

- 1) Information/Orientation
- 2) Park Orientation Audiovisual Area

- 3) Cooperating Association Sales Area
- 4) Exhibit Area
- 5) Triassic Wood Audiovisual Area (perhaps as an element of the exhibit area)
- 6) Giant Logs Trail

The planning team identified the following needs for the long-range planning at the RFM:

- a.) Expansion of the Exhibit Area
- b.) Addition of an Audiovisual Area

The logical way to increase the flexibility of this structure would be to incorporate both north and south wings of the building. These are currently used for offices and storage. Once the space utilization plan is developed, the offices could be moved to another location.

Another possible solution would be to increase the size of the existing "sun-room" or even remove it entirely and replace it with a new addition. This would allow for additional exhibit space as well as enhance the circulation flow.

### **C.) Painted Desert Inn (PDI)**

The team saw the primary functions for the PDI as being:

- 1) Interpreting the below mentioned topics
- 2) Site information and orientation
- 3) Cooperating association sales area
- 4) Possible location for the PEFO Institute

The planning team identified the following needs for long-range planning at the PDI:

- a.) Provide handicapped access to both the building entry as well as to the interior spaces.
- b.) Complete a historic furnishing plan for the PDI so that the building can be restored to a specific period appearance.
- c.) Determine the best period for building restoration and interpretation.

The team felt that the following theme-related topics were most important to the PDI:

- a.) Herbert Lore
- b.) CCC/WPA/NPS
- c.) Fred Harvey
- d.) Route 66
- e.) Fred Kabotie/Hopi Murals
- f.) Ethnography Continuum
- g.) Mary Jane Coulter

The group discussed having two separate functions in the PDI, an educational field institute in conjunction with the interpretive uses. Depending on the specific requirements for the institute, the PDI could possibly accommodate both functions. The kitchen/loading dock and basement areas could be used for the institute, while the remainder of the building would be left for interpretive purposes. The spatial arrangement allows for a normal separation/privacy of the two uses.

As for wheelchair accessibility, there are two issues: 1.) how to get a visitor into the building, and 2.) how to move people between the various levels. There are two logical entry points to the building:

1a.) Existing Loading Dock—Wheelchair access at this point brings the visitor up onto the loading dock and through the historic kitchen. This solution will work, although the visitor is coming in the back door and led through a secondary space prior to seeing the “real” PDI interior.

1b.) Patio Entry—A ramp could be installed leading from the sidewalk along the exterior wall and onto the patio. From there the visitor would gain entry through an enlarged opening, made to resemble the historic entry, into the Kabotie room. This solution would require the removal of four feet of patio wall and enlargement of the existing door opening. While there is a slight impact to the building, the visitor would not be brought through the “back door”.

2.) Accessibility to Multiple Levels—The multiple floor levels in the PDI make the wheelchair access issue more complex. Further study is required to identify what levels need to be made accessible. The space utilization study may find that access is not required for all the levels. It also may be determined that access could be gained from the exterior walks and patios. The key to making the building accessible is to identify exactly which spaces need to be accessed. The final accessibility plan should compliment the architectural character of the building.

### Conclusion

These concepts by no means represent all the possible ideas for these three historic structures. Neither do they address each of the issues identified by the interpretive planning team. Only the major concepts were discussed. Many of the above mentioned ideas will need to be aligned with the space utilization plan once it is completed. These concepts have attempted to stay within the existing confines of each structure in order to maintain each building’s architectural character. There may be many more concepts that look “outside the box” that could and should be considered.

# APPENDIX C

## Table of Implementation Priorities

FIRST STEPS	<ol style="list-style-type: none"> <li>1. Conduct space utilization studies for the Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Museum.</li> <li>2. Conduct Historic Furnishings Study for Painted Desert Inn.</li> <li>3. Start shade and other landscape plantings for the Painted Desert Visitor Center plaza.</li> <li>4. Evaluate parkwide directional sign system and implement recommendations.</li> <li>5. Initiate design concept plans (DCP's) for Painted Desert Visitor Center, Painted Desert Inn, and the Rainbow Forest Museum.</li> <li>6. Upgrade park web site and links.</li> <li>7. Redesign and produce rack cards for regional distribution.</li> <li>8. Conduct cooperating association publications evaluation.</li> <li>9. Develop interpretive messages for concession sale of petrified wood.</li> <li>10. Assist in development of regional tourism materials.</li> <li>11. Incorporate PEFO information into Interstate Intelligence System interactive computers.</li> <li>12. Develop new or revise existing Accessibility Plan.</li> <li>13. Develop partnerships and implement Elderhostel program.</li> <li>14. Develop portable exhibits for offsite use.</li> </ol>
SECOND STEPS	<ol style="list-style-type: none"> <li>15. Develop exhibit plans/designs for Painted Desert Visitor Center, Painted Desert Inn, and Rainbow Forest Museum.</li> <li>16. Produce amendment to parkwide wayside exhibit plan.</li> <li>17. Plan, design, and produce self-guiding trail wayside exhibits (in-house).</li> <li>18. Plan/design tactile models for Puerco Pueblo and Agate House.</li> <li>19. Plan/design interpretive shelter for Puerco Pueblo.</li> <li>20. Conduct and implement parkwide site bulletin assessment/revisions (including foreign language publications).</li> <li>21. Organize and develop PEFO Institute program.</li> <li>22. Expand natural history elements of curriculum-based education program materials.</li> <li>23. Develop curriculum-based program for junior high and high school students.</li> </ol>
THIRD STEPS	<ol style="list-style-type: none"> <li>24. Complete redesign of Painted Desert Visitor Center, Painted Desert Inn, and Rainbow Forest Museum.</li> <li>25. Produce and install new exhibits in above facilities.</li> <li>26. Produce and install new wayside exhibits per the amended plan.</li> <li>27. Construct interpretive shelter at Puerco Pueblo.</li> <li>28. Produce and install tactical models at Puerco Pueblo and Agate House.</li> <li>29. Develop new audio tours.</li> <li>30. Develop new turnouts along tour road.</li> </ol>