

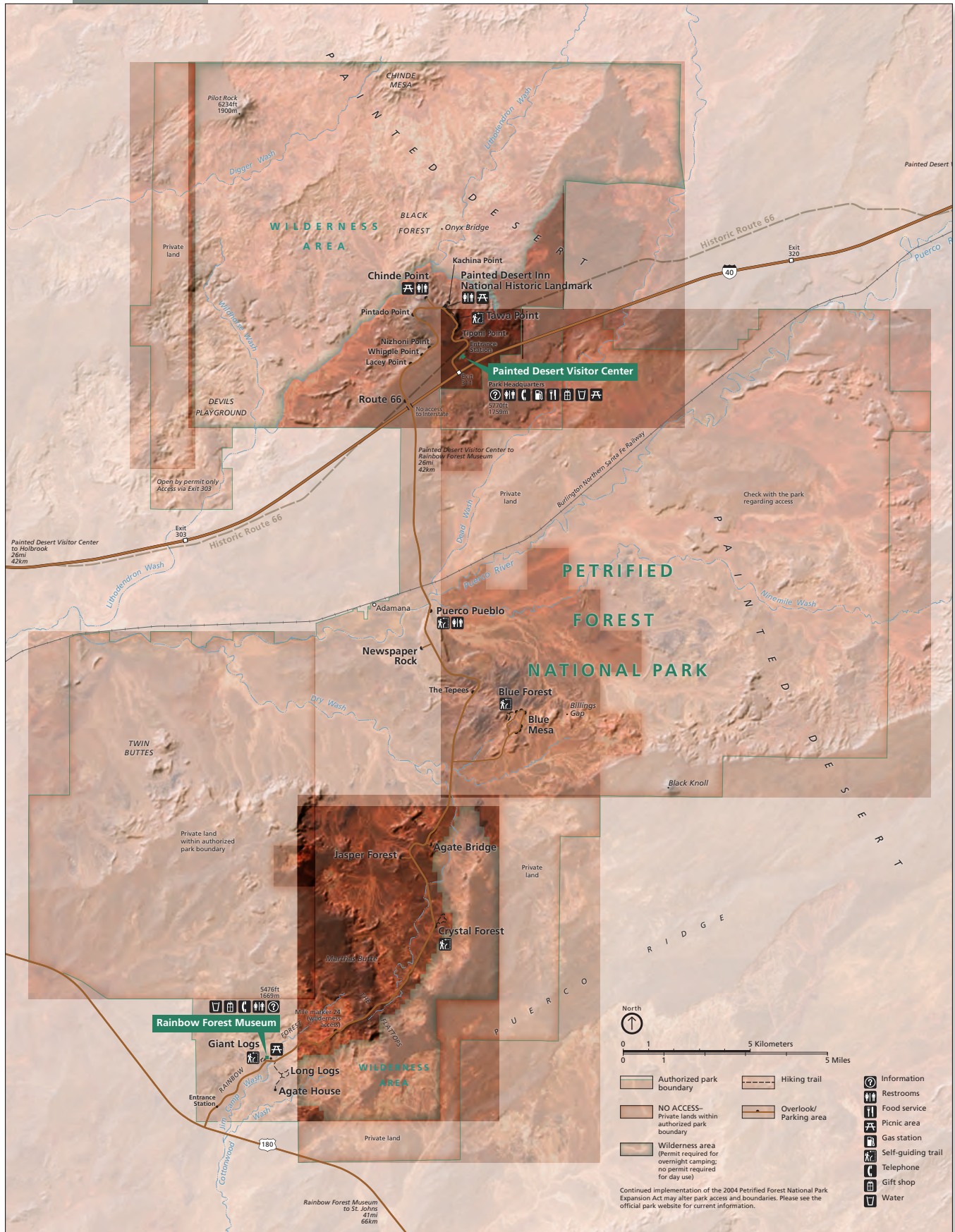


Foundation Document Petrified Forest National Park

Arizona

December 2015

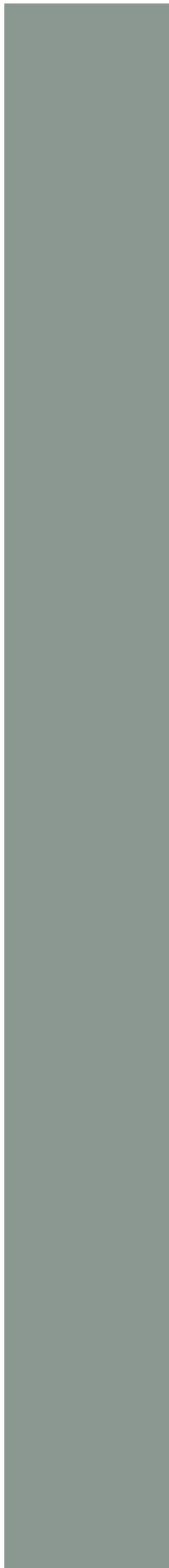




Continued implementation of the 2004 Petrified Forest National Park Expansion Act may alter park access and boundaries. Please see the official park website for current information.

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Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship:** We share a commitment to resource stewardship with the global preservation community.
- **Excellence:** We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity:** We deal honestly and fairly with the public and one another.
- **Tradition:** We are proud of it; we learn from it; we are not bound by it.
- **Respect:** We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior. While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and comprises more than 400 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.



The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park’s purpose, significance, fundamental resources and values, other important resources and values and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for Petrified Forest National Park can be accessed online at: <http://insideparkatlas.nps.gov/>.



Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

Brief Description of the Park

Petrified Forest National Park is in a remote area of northeastern Arizona about 100 miles east of Flagstaff and 27 miles east of the gateway city of Holbrook. The park contains one of the largest and most colorful concentrations of petrified wood in the world (some petrified logs of ancient conifer species measure more than 190 feet) along with the multihued badlands of the Chinle Formation that are part of the renowned Painted Desert of Arizona. The park stretches between Interstate 40 on the north and Highway 180 on the south, and is bordered by the Navajo Indian Reservation as well as private, state, and US Bureau of Land Management lands.

Initially proclaimed a national monument in 1906 by President Theodore Roosevelt, Petrified Forest was redesignated as a national park in 1962. In 1970 Congress designated more than 50,000 acres in the park as one of the first NPS wilderness areas. The wilderness lands are arranged in two separate units—the Painted Desert unit in the northern section of the park, and the Rainbow Forest unit in the southeast section of the park. Passage of the 2004 Petrified Forest National Park Expansion Act (Public Law 108-430) increased the authorized park boundary by approximately 125,000 acres. The expansion lands include 16 miles of the 22-mile Puerco River Valley escarpment, an east/west trending series of bluffs and badlands that contains one of the world's most significant records of fossils from the Late Triassic.





Located near the southern edge of the Colorado Plateau, the park's remarkable geological formations consist of the Late Triassic Chinle Formation and the more recent (Late Miocene / Early Pliocene) Bidahochi Formation that contain the fossilized evidence of ancient environments within sedimentary rock layers. The colorful badland hills, flat-topped mesas, and sculptured buttes of the Painted Desert are primarily made up of the Chinle Formation with deposits formed by fluvial (river-related) processes occurring between 225 and 205 million years ago. The dramatic setting of mesa cliffs and escarpment rimrock is a result of the geologic processes of uplift and erosion, with resistant sandstone and lava caprock overlying more easily eroded layers of clay and shale. The colorful mudstones and claystones of the Painted Desert badlands are composed chiefly of bentonite, a product of altered volcanic ash. Bentonite's expansion and contraction properties inhibit the establishment of vegetation, and only a few grasses and tenacious shrubs manage to survive in isolated pockets scattered throughout the eroding hills and sandy desert washes.

In addition to the Painted Desert, the park's other distinctive geographic areas include the Puerco River Valley and the Rainbow Forest. The shortgrass prairie along the Puerco River Valley provides habitat for much of the park's wildlife, including pronghorn antelope, coyotes, and other large mammals. The shortgrass prairie and desert shrubland of the Rainbow Forest area are widely interspersed with badlands. Large deposits of colorful petrified wood are scattered throughout the area. Blue Mesa, Jasper Forest, Crystal Forest, Long Logs, and Giant Logs are petrified wood areas easily accessible from the park road. High points on Blue Mesa and the Flattops offer wide panoramas of the clay hills of the fossil-rich Chinle Formation.

In stark contrast to the high, arid grassland environment that characterizes the park today, the humid tropical climate that existed during the Late Triassic supported dense vegetation, giant reptiles and amphibians, early dinosaurs, fish, and many invertebrates. The landscape was then dominated by the winding waterways of a vast river system. Paleontologists have recently made significant strides researching the park's Late Triassic resources, including a resource inventory and assessment that relocated and documented all known paleontological sites, and led to the discovery of more than 300 new sites. There are now more than 700 known sites. The fossilized skeletons of aetosaurs, phytosaurs, and other archosaurs are among the notable animal discoveries, and fossilized plant and tree species have been discovered as well. The scientific value of the park's paleontological resources is due in large measure to the rare accessible associations of animals and plants that often represent entire ecosystems, making it possible to learn more about the Late Triassic period than anywhere else in North America. New fossil sites are discovered as paleontologists here continue to investigate the park's badlands areas and explore the recently acquired park expansion lands.

The park also contains a wide range of significant cultural resources that document the area's human history, including archeological sites that span thousands of years of prehistoric American Indian use and settlement. The Puerco River Valley provided a natural corridor for trade, travel, and migration for many diverse cultural groups. More than 1,000 prehistoric sites have been recorded in the park representing the Paleo-Indian, Archaic, Basketmaker, and Puebloan cultural periods. Historic Navajo sites have also been identified. A wide array of site types exist ranging from small campsites, lithic and ceramic scatters, pictographs and petroglyphs (e.g., Newspaper Rock), to house structures and large pueblo sites (e.g., Puerco Pueblo). Traces of trails used by explorers, wagon trains, and even an experimental US Army camel train provide evidence of Euro-American explorations. There is a potential for historic archeological resources to exist associated with these activities and those of later settlers. Ethnographic resources of cultural importance to the Hopi Tribe, the Pueblo of Zuni, the Navajo Nation, and other contemporary groups, are also present and connect these American Indians to park places and resources.

Historic buildings and structures include the Painted Desert Inn at the edge of the Painted Desert, a Pueblo Revival structure and national historic landmark originally constructed in 1924. It is used today for visitor information, orientation, and limited exhibit displays. The Rainbow Forest area, constructed primarily by the Civilian Conservation Corps during the early 1930s, served as an early visitor contact area and headquarters for the park. The Rainbow Forest and Crystal Forest developed areas were determined eligible for the National Register of Historic Places as historic designed landscapes. The buildings at Rainbow Forest are also listed in the national register as contributing structures to the Rainbow Forest Historic District. The Painted Desert Community Complex (the main park headquarters area) was one of the most ambitious projects of the NPS Mission 66 development program (1956–1966); the historic district is listed in the national register and is under consideration for national historic landmark designation.

Visitors to the park have multiple opportunities to experience immense vistas and colorful landscapes that showcase the dynamic interplay of light and shadow on geologic formations. The visual qualities of the scenery can change depending on the time of day, season, and weather conditions. The 28-mile park road offers overlooks with long-distance vistas of the Painted Desert and access to hiking trails, picnic areas, and the designated wilderness. Visitors are allowed to camp in the wilderness areas with a permit. Under the Clean Air Act, the park is designated a Class I area and park staff work to perpetuate the best possible air quality to provide outstanding opportunities for viewing the night sky and distant mountain peaks in the high elevation, arid environment.



Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Petrified Forest National Park was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. In 1906, President Theodore Roosevelt designated Petrified Forest National Monument by presidential proclamation. In 1958, Congress authorized the establishment of Petrified Forest National Park (PL 85-358) and the park was officially established in 1962 upon fulfillment of the conditions for acquiring title to authorized lands. (See appendix A for enabling legislation and subsequent amendments). The purpose statement lays the foundation for understanding what is most important about the park.

The purpose of PETRIFIED FOREST NATIONAL PARK is to preserve and protect globally significant fossils, including petrified wood, nationally significant prehistoric and historic resources, as well as scenic values, in order to foster scientific research, public understanding, and enjoyment.

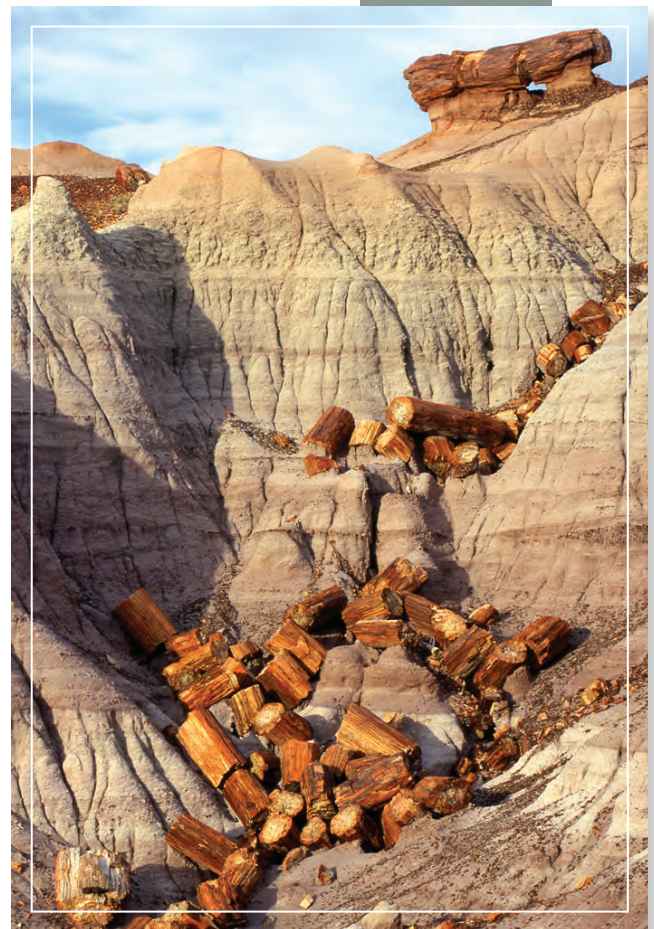


Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of Petrified Forest National Park, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for Petrified Forest National Park. (Please note that the sequence of the statements does not reflect the level of significance.)

1. The park has one of the largest and most colorful deposits of mineralized fossil wood in the world.
2. Petrified Forest National Park preserves the most comprehensive record of Late Triassic vertebrate evolution in North America. No other park possesses such an uninterrupted stratigraphic record, number of fossils, history of research and collection, and opportunity for radiometric dating of the period.
3. Petrified Forest National Park contains a complex array of archeological resources that illustrate a continuum of more than 10,000 years of human land use. Regional patterns of settlement, trade, and migration create a diversity of nationally significant cultural sites and features that are still important to modern American Indians.
4. Modern transportation corridors, including US Route 66, that follow prehistoric routes influenced historic use of the area. A century of park service stewardship is reflected in the collection of nationally and regionally significant historic resources.
5. The area of Petrified Forest National Park has been a research environment for more than 100 years, leading to discovery of new paleontological species and their evolution, deeper understanding of prehistoric land use, and a record of ancient and modern climate change. Research provides opportunities for public outreach and education.
6. Petrified Forest contains the largest example of protected native grassland in the southern Colorado Plateau region. This arid shortgrass prairie preserves habitats for a variety of flora and fauna and provides refuge for several animals of concern, such as pronghorn and Gunnison's prairie dogs.
7. Petrified Forest National Park provides unparalleled opportunities for visitors to explore a unique, engaging landscape of badlands, grasslands, and escarpments. These opportunities range from accessible frontcountry to rugged trail-less backcountry.
8. Petrified Forest National Park is the first national park to have lands designated as part of the national wilderness preservation system. The clear air and expansive, colorful landscapes create distinctive scenic vistas. The park offers opportunities to experience an unusual variety of resources in an untrammeled setting, as well as exceptional challenge and solitude for visitors.



Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park’s legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

The following fundamental resources and values have been identified for Petrified Forest National Park:

- **Paleontological Resources.** Diverse paleontological resources in the Chinle Formation at Petrified Forest National Park include one of the largest and most colorful deposits of mineralized fossil wood in the world, as well as exceptionally well-preserved fossilized ecosystems and some of the oldest dinosaur bones in North America. The clear stratigraphic sequence tells the story of species extinction, evolution, and climate change from 225 to 205 million years ago and leads to discoveries of important new species and new knowledge of Late Triassic environments.
- **Geological Resources.** Petrified Forest National Park contains some of the best exposures of Late Triassic terrestrial rocks and strata in the world. Ancient sedimentary environments are clearly represented in the exposed, extensive Chinle Formation, while modern erosional forces actively shape the rugged badlands topography and sculpt features such as arroyos, plateaus, buttes, hoodoos, and escarpments, as well as overlooks of the Painted Desert.





- **Archeological Resources.** Petrified Forest National Park shows evidence of more than 10,000 years of continuous use and occupation, from Paleo-Indian to modern American Indian cultures. Resources include hunter-gatherer sites and early large pithouse villages, thousands of documented petroglyphs, and one of the most diverse arrays of ceramics in the United States, demonstrating the importance of the area as a crossroads of trade routes and cultural exchange.
- **Research and Museum Collections.** Petrified Forest National Park has been a research environment for more than 100 years and possesses an expansive museum collection and a voluminous bibliography of scientific studies. Numerous holotypes and voucher specimens of fossil plants and animals, and a huge depth of archeological collections, make the museum and archives at the park an invaluable repository. The park's unique paleontological and archeological settings provide limitless potential for further scientific study and important new discoveries.
- **Wilderness and Scenic Values.** High quality clean air and expansive, colorful landscapes create distinctive vistas at Petrified Forest National Park, such as of the spectacular Painted Desert. Night skies remain largely unpolluted by unnatural light, visibility often exceeds 100 miles, and the natural soundscape retains a high degree of integrity. The park was among the first in the nation to have lands designated as wilderness, and today it protects the wilderness character of more than 50,000 acres for appropriate scenic, recreational, scientific, educational, conservation, and historical uses.
- **Public Enjoyment.** With very few places that visitors cannot go, Petrified Forest National Park provides a range of opportunities to experience the vibrant natural and cultural landscape of the Painted Desert. Driving tours and scenic overlooks, accessible trails, rugged wilderness, and diverse interpretive programs all enhance public enjoyment of the park.
- **Biological Resources.** The park protects the outstanding ecological values of a rare high desert / shortgrass prairie ecosystem, as well as ephemeral water resources and vast badlands, preserving habitat for a variety of flora and fauna and providing refuge for several animal species of concern.

Other Important Resources and Values

Petrified Forest National Park contains other resources and values that are not fundamental to the purpose of the park and may be unrelated to its significance, but are important to consider in planning processes. These are referred to as “other important resources and values” (OIRV). These resources and values have been selected because they are important in the operation and management of the park and warrant special consideration in park planning.

The following other important resources and values have been identified for Petrified Forest National Park:

- **Historic Resources.** Many of Petrified Forest National Park’s historic resources exemplify key elements in the story of trade, exploration, and tourism in the southwest, from early expedition routes to the iconic Route 66. The park preserves several historic properties listed in the National Register of Historic Places related to these critical transportation corridors as well as the Painted Desert Inn (a national historic landmark) and other developed areas. The Painted Desert Community Complex (the main park headquarters area) was designed by renowned architect Richard Neutra and developed as part of the NPS Mission 66 building program of the mid-20th century.
- **Nonhistoric Facilities.** The park contains a wide array of nonhistoric facilities and infrastructure (e.g., roads, trails, bridges, utilities, and other structures) that are vital to ongoing park operations. Park managers proactively plan, design, and manage these facilities in a manner that best exemplifies environmental stewardship and promotes cooperative partnerships to achieve operational needs.



Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements and fundamental and other important resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for Petrified Forest National Park:

- With one of the largest and most colorful deposits of mineralized fossil wood in the world, as well as a globally significant fossil record of the Late Triassic, the Petrified Forest elicits a sense of wonder and discovery that invites enjoyable learning.
- The richly fossiliferous exposures of the Late Triassic Chinle Formation in Petrified Forest National Park constantly yield new specimens, new data, and new knowledge of the past that continually enriches understanding of the world.
- The tranquil yet evocative scenic vistas of Petrified Forest National Park compel contemplation of the connections between self, place, and time.
- The continuing importance of the park’s heritage resources to associated people—the abundant evidence of use and occupancy in what might seem to some an uninhabited land—offers opportunities to explore the powerful and complex concept of “homeland.” Major tangible elements of this theme are presented below. This list is in order of importance, but is not exhaustive.
 - High concentration of thousands of petroglyphs and dozens of pictographs
 - More than two dozen solar calendars
 - An unusually diverse array of ceramics (type sherd collection, which is a representative collection of artifacts for use in instructing interpreters and in interpretive programs)
 - Well-preserved pithouse villages (with examples of earliest use of pottery)
 - Ranching history
 - The 35th parallel transportation corridor
 - Prehistoric trade routes
 - Beale Camel Trail
 - Overland Stage Route
 - Whipple Expedition Route
 - immigrant routes to California
 - Santa Fe Railroad
 - stagecoach stops
 - Civilian Conservation Corps and Works Progress Administration (New Deal history)
 - Route 66
 - Interstate 40 corridor (interstate highway system history)
- The landscape of grassland, steppe, and its native inhabitants protected within Petrified Forest National Park invites contemplation of the value of parks as places of refuge, healing, and rejuvenation.

Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental and other important resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in enabling legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for Petrified Forest National Park. The following are special mandates for the park:

- Petrified Forest National Wilderness Area was one of the first designated wilderness areas in the national park system. It was designated by Congress on 23 October 1970 (84 Stat. 1105). At that time, the park's wilderness area was identified as consisting of 50,260 acres in two separate units (the northern or Painted Desert unit, and the southern or Rainbow Forest unit). Subsequent technological advances using geographic information system (GIS) data have enabled more accurate calculations of the wilderness area: 51,728 overall acres (43,526 acres in the Painted Desert unit and 8,202 acres in Rainbow Forest unit). Park staff protects the qualities contributing to wilderness character in accordance with NPS policies and the Wilderness Act of 1964.



- The Petrified Forest National Park Expansion Act of 2004 has a provision that permits the continuation of grazing on land transferred to the National Park Service to the same extent as was permitted on such lands as of July 2004, subject to applicable laws and regulations. Grazing can be voluntarily terminated by the lease holder.
- Private land within the expanded boundary may be acquired from a willing seller, by donation, purchase with donated or appropriated funds, or exchange. Approximately 36% of the lands authorized for acquisition have been purchased from willing sellers and another 18% are under lease from the State of Arizona. These figures are anticipated to change before the end of 2015.
- State land within the expanded boundary may be acquired with the consent of the state, in accordance with state law, by donation, purchased with donated or appropriated funds, or exchanged. The Secretary of the Interior may enter into an agreement with the state that would allow the National Park Service to manage those lands. Petrified Forest National Park holds a grazing lease on approximately 23,000 acres of state trust lands (through 2014) and is seeking a negotiated permit to allow public access to these lands.
- Under the Clean Air Act [section 162(a)], Petrified Forest National Park is designated a Class I area, providing special protection for air quality, sensitive ecosystems and clean, clear views in managed areas. The act bestows an “affirmative responsibility” on federal land managers to protect designated areas from the adverse effects of air pollution.



For more information about the existing administrative commitments for Petrified Forest National Park, please see appendix B.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park’s fundamental and other important resources and values, and develop a full assessment of the park’s planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

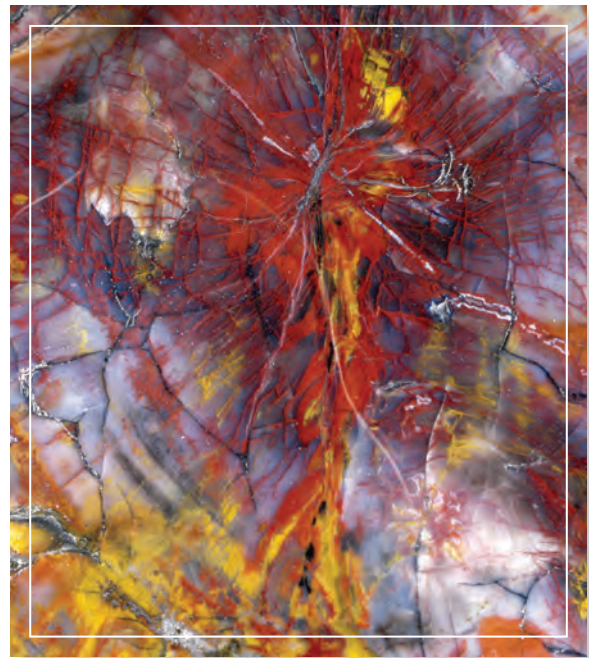
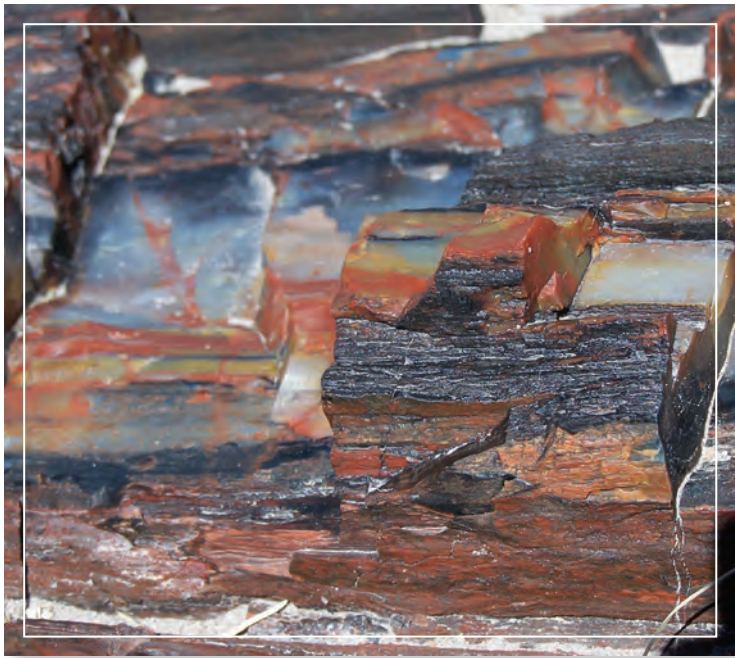
There are three sections in the assessment of planning and data needs:

1. analysis of fundamental and other important resources and values
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value.



Fundamental Resource or Value	Paleontological Resources
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • The park has one of the largest and most colorful deposits of mineralized fossil wood in the world. • Petrified Forest National Park preserves the most comprehensive record of Late Triassic vertebrate evolution in North America. No other park possesses such an uninterrupted stratigraphic record, number of fossils, history of research and collection, and opportunity for radiometric dating of the period. • The area of Petrified Forest National Park has been a research environment for more than 100 years, leading to discovery of new paleontological species and their evolution, deeper understanding of prehistoric land use, and a record of ancient and modern climate change. Research provides opportunities for public outreach and education.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • There are 753 documented paleontology localities in the park, 58% of which have known GPS coordinates. • A significant amount of the petrified wood remains below ground. • The park uses the assistance of institutional partners to address inventory goals. • The park’s bibliography of research has close to 900 geology and paleontology references. • There are more than 300 species of fossil plants and animals known from the park based on paleontological records. • The park currently has a fossil preparator but it is not a permanent position. • The park’s student internship in paleontology program has been a success since it began in 2002. <p>Trends</p> <ul style="list-style-type: none"> • Approximately 15–20 new paleontology localities are added per year. • The number of paleontological research papers published each year is increasing, consequently increasing the scientific relevancy of the park. • There have been periodic booms in the amount of research conducted in the park, especially in the 1920s, 1940s, 1980s, and 2000s. • The park’s first paleontologist was employed in 1992–1993. The position was reestablished in 2001 and became permanent in 2007.

Fundamental Resource or Value	Paleontological Resources
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • There is a threat from theft and vandalism of petrified wood and other in-situ fossils. • Increased storm frequency and/or severity projected for the region as a result of climate change could increase erosion rates and exposure of paleontological resources. • There is a risk of loss of institutional paleontological knowledge due to the low number of paleontologists in the National Park Service. • The scientific value of fossils is higher when they can be put in the setting of the geologic formations in which they resided, so exposure by erosion can lead to a loss of valuable contextual information. A lack of staffing and/or partners would result in an inability to collect fossils after erosive events. • Fossils and petrified wood on private land within the expanded authorized boundary are not well protected from removal or destruction. They are also generally unavailable for scientific research. • There is a lack of adequate staff to inventory and monitor fossil resources. Staff will be stretched even thinner as land is acquired within the authorized expansion. • The lack of museum support staff renders collected paleontological resources less accessible for scientific study and interpretation. • Fossils can only be prepared by a trained fossil preparator, and fossils not prepared continue to deteriorate and cannot be used for education or research. <p>Opportunities</p> <ul style="list-style-type: none"> • There is a high potential for further significant paleontological discoveries in the highly fossiliferous Chinle Formation. • High rates of erosion increase the chances of finding significant fossils. • The park could conduct research while surveying the newly acquired park lands to accomplish inventory goals. • Develop collaborations with other NPS units and parks worldwide containing Triassic resources (State Parks as well). • Significance of park resources attracts valuable research partners.
<p>Existing Data and Plans Related to the FRV</p>	<ul style="list-style-type: none"> • 1993 general management plan and 2004 general management plan revision. • NPS Paleontological Resources Inventory for the Southern Colorado Plateau. • Paleontological resources protection plan (draft). • Nearly 900 publications and theses on the park geology and paleontology.
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Comprehensive update of paleontology databases. • LiDAR mapping, photogrammetry of petrified wood. • Update the collections records; identify backlog cataloguing needs.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • None identified.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Paleontological Resources Preservation Act of 2009 • Wilderness Act of 1964 • Management of Museum Properties Act of 1955 • Federal Land Policy and Management Act of 1976 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS <i>Natural Resource Management Reference Manual 77</i>

Fundamental Resource or Value	Geological Resources
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest National Park provides unparalleled opportunities for visitors to explore a unique, engaging landscape of badlands, grasslands, and escarpments. These opportunities range from accessible frontcountry to rugged trail-less backcountry. • The area of Petrified Forest National Park has been a research environment for more than 100 years, leading to discovery of new paleontological species and their evolution, deeper understanding of prehistoric land use, and a record of ancient and modern climate change. Research provides opportunities for public outreach and education.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Stratigraphy is well studied and understood. • There is significant published research concerning park geology. • There is a rock core for nearly the entire depth of the Chinle Formation in the park, done in collaboration with the International Continental Drilling Program. • The park has active seismic monitoring stations that constantly generate new data. • Rotation of the Colorado Plateau is measured at a high resolution GPS base station in the park. • Several universities collaborate with the park to conduct geologic studies and field schools. • The park has good petrographic slide collection and a distinctive geologic column that is time calibrated and easily readable. <p>Trends</p> <ul style="list-style-type: none"> • The park has gained a much better understanding of its ancient geology and modern soils through in-house and collaborative research.
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Potash mining poses threats to geologic resources adjacent to and under the park expansion, as the park does not own the mineral estate. Mining interest in Arizona potash deposits will likely continue to correlate with fluctuating market prices for the mineral. • There is a minor threat in the park from subsidence, particularly to infrastructure (e.g., on the Blue Mesa Loop Road) and the Painted Desert Inn. • Climate change could impact erosion rates and dune stabilization and change the exposure rates of archeological and paleontological resources. • There is a remote threat of uranium radioactivity and elevated background radiation levels. • Park lacks a dedicated geologist position which hinders effective research and resource management. <p>Opportunities</p> <ul style="list-style-type: none"> • Expand partnerships with universities. • Partner with the Grand Canyon Field Institute.
<p>Existing Data and Plans Related to the FRV</p>	<ul style="list-style-type: none"> • Geologic resources inventory report, 2010. • Soils data map from 1990s including county soils data. • In depth paleosols (ancient soils) and paleoclimate study – (through Baylor University). • The park has an updated and published geology map (1:24000 scale) of lands within the pre-2004 expansion boundary. • Nearly 900 publications and theses on the park geology and paleontology.

Fundamental Resource or Value	Geological Resources
Data and/or GIS Needs	<ul style="list-style-type: none"> • Geological/hydrological information including investigations of the impacts of flash floods and grazing on geological resources. • Erosion mapping (GIS need). • The park's geological resources map needs to be expanded to include the expansion lands. • Resource condition assessment.
Planning Needs	<ul style="list-style-type: none"> • None identified.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Paleontological Resources Protection Act of 2009 • Clean Water Act of 1972 • Federal Cave Resources Protection Act of 1988 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Natural Resource Management Reference Manual 77



Fundamental Resource or Value	Archeological Resources
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest National Park contains a complex array of archeological resources that illustrate a continuum of more than 10,000 years of human land use. Regional patterns of settlement, trade, and migration create a diversity of nationally significant cultural sites and features that are still important to modern American Indians. • The area of Petrified Forest National Park has been a research environment for more than 100 years, leading to discovery of new paleontological species and their evolution, deeper understanding of prehistoric land use, and a record of ancient and modern climate change. Research provides opportunities for public outreach and education.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • There are approximately 1,000 recorded archeological sites in the park (795 sites documented in the Archeological Sites Management System and 178 from last two years of expansion lands survey). Current recording backlog of 204 sites. • There are thousands of documented petroglyphs and hundreds of pictographs of high integrity, several of which are in the National Register of Historic Places. • About 5% of the park has been surveyed for archeological sites, and the majority of the surveys have expired. • Agate House Pueblo, Flattops Site, Newspaper Rock Petroglyphs and Archeological District, Painted Desert Petroglyphs and Ruins Archeological District, Puerco Ruins and Petroglyphs, and Twin Buttes Archeological District are all listed in the National Register of Historic Places. • There is one semi-permanent archeologist on staff in the pathways program. • The park is behind on its archeological monitoring and in recording its backlog. • Some archeological sites are being stabilized in place, others are in need of stabilization. • Archeological museum items include ceramic and lithic collections, shell and bone artifacts, and additional historic materials. • The park carries out preservation maintenance for selected archeological sites. • Some archeological sites have sacred significance to associated tribes and have been closed to the public at the request of concerned tribal officials. • Managing for archeological resources is complex with checkered state and federal land and private inholdings. • Most of the archeological work is project-funded, some through the Vanishing Treasures program. • Dedicated staff time and attention is required to comply with provisions of the Native American Graves Protection and Repatriation Act regarding inadvertent discoveries of human remains and the disposition of objects of cultural patrimony currently held in museum collections. <p>Trends</p> <ul style="list-style-type: none"> • The park is conducting archeological inventories again for the first time in several years. • There has recently been an effort to better interpret archeological resources and stories through public and professional presentations and social media outreach. • Archeological records are being modernized with GIS and GPS. • Significant maps concerning archeological sites were recently found in archives. • There have been increased efforts to reach out to the park’s friends group to generate nontraditional funding. • Archeological work occurs in pulses as funds and staffing permit. • The park has collaborated with Grand Canyon National Park to organize archeological data.

Fundamental Resource or Value	Archeological Resources
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • There are different surveying standards for the National Park Service (Western Archeological and Conservation Center) and the State of Arizona. • Secretary of Interior Standards require that site recording and documentation are done by an archeologist with an advanced degree. It is difficult to hire temporary employees with this ability as there is no established temporary position description that requires these qualifications. • New sites in park expansion lands and within former park boundaries are at risk from looters and pot hunters. • Boundaries are unfenced and there is minimal patrolling of archeological sites. • Ranchers and park neighbors know the locations of some sites better than park staff. • Some of the site records and documentation that were previously prepared were inconsistent or incorrect (did not fully meet professional standards). • Park and or other repositories do not have adequate storage space. • Fire poses a risk to locality records. • Non-permanency of archeological staff poses a threat to institutional knowledge. • Lack of staff hinders required monitoring activities as well as meeting annual goals for required site condition assessments. • The increased mean annual temperature and storm frequency and/or severity projected for the region as a result of climate change could impact archeological sites that are not stabilized. <p>Opportunities</p> <ul style="list-style-type: none"> • Study and document a large archeological site identified in the newly acquired park lands. • Install a fire resistant safe to increase the safety of collected archeological resources. • Collaborate with partners and field schools to expand archeological research activities. • Increase consultation regarding cultural resource issues with associated American Indian tribes and stakeholders. • Attend outreach events and regional archeological events to meet potential interns and volunteers. • Increase staffing to better manage archeological field work needs. • Enter more sites into FMSS and determine if cyclic funding is available. • Generate funding through outreach to friends group. • Train archeological staff in GIS tools.
<p>Existing Data and Plans Related to the FRV</p>	<ul style="list-style-type: none"> • 1993 general management plan and 2004 general management plan revisions.
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Comprehensive archeological database updates/renovation. • Updated collections records. • GIS mapping of roads, utilities, buildings, waysides, and other infrastructure. • National register evaluations for historic structures. • Update of the List of Classified Structures.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Stabilization plan for Wallace Tank, Chaco Outlier, Saddlehorse Pueblo. • Inadvertent discovery plan. • Rock art resources management plan.

Fundamental Resource or Value	Archeological Resources
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Antiquities Act of 1906 • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • Archeological and Historic Preservation Act of 1974 • American Indian Religious Freedom Act of 1978 • Archaeological Resources Protection Act of 1979 • Native American Graves Protection and Repatriation Act of 1990 • Management of Museum Properties Act of 1955 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Religious Freedom Restoration Act E.O. 13175 Consultation and Coordination with Indian Tribal Governments Department of the Interior Policy on Consultation with Indian Tribes <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • Director's Order 28: <i>Cultural Resource Management</i> • Director's Order 28A: <i>Archeology</i> • <i>NPS Museum Handbook</i>, parts I, II, and III • <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i>

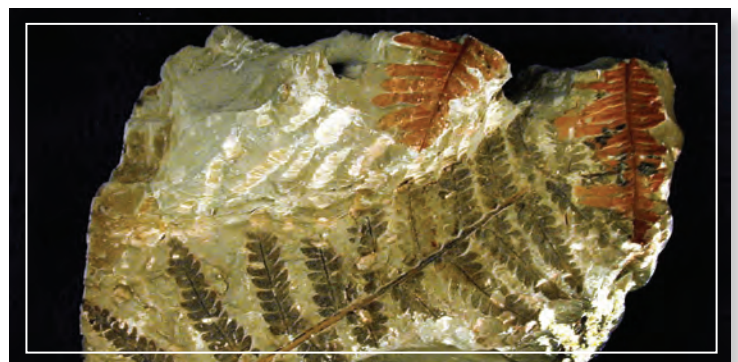




Fundamental Resource or Value	Research and Museum Collections
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • The area of Petrified Forest National Park has been a research environment for more than 100 years, leading to discovery of new paleontological species and their evolution, deeper understanding of prehistoric land use, and a record of ancient and modern climate change. Research provides opportunities for public outreach and education. • Petrified Forest National Park preserves the most comprehensive record of Late Triassic vertebrate evolution in North America. No other park possesses such an uninterrupted stratigraphic record, number of fossils, history of research and collection, and opportunity for radiometric dating of the period.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • The park currently has only one museum staff member, who is temporary. • The park paleontologist serves as the staff research coordinator. • Approximately 60% of museum standards are being met. • The majority of park resources, except for some of the paleontological resources, are held remotely at multiple institutions. • There are “rogue” collections made under research permits that the park has not seen, some of which go back decades. • Research at the park is very active with in-house staff and external organizations. • The physical environment is very good for collections (the climate is arid and there are minimal fuel sources for fires). Collections are securely held. • A large portion of the park’s collections are made up of archives, including many historic photos. • The library collection is in good condition through the efforts of the volunteer coordinator. • Collections on display are at a lower risk of fire than those in storage. Storage facilities lack fire suppression. • The park primarily uses cooperative agreements to conduct research. • Park archives are managed by the NPS Western Archeological and Conservation Center. <p>Trends</p> <ul style="list-style-type: none"> • The park has recently installed 11 new cabinets to store collections. • Museum collections standards are being met to a greater extent, and improvements to collection item deficiencies were made between 2010 and 2015. • Research conducted at the park is increasing and is achieving better results due to closer collaboration with researchers. • Research publications are increasing in number, specifically on the park’s fossil and archeological resources. • Park collections are the most stable they have been since the early 1990s.

Fundamental Resource or Value	Research and Museum Collections
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • The National Park Service supports the proper storage of paleontological collections, but it does not have staff with the specialized knowledge to do so at each of the more than 250 NPS park areas that house paleontological resources. There is not a regional management plan for museum collections and the collections are not directly addressed in the 2007 servicewide storage plan. • Resources held in “rogue” collections are under threat of being lost. These are uncatalogued collections made under a research permit and not held at the park or an approved repository. • Institutional knowledge of park collections may be lost due to changes in staff at external repositories (lost chain of custody). • Collections capacity will soon be reached. • Some storage facilities lack fire suppression systems placing collections at risk of catastrophic fire loss or damage. • Collections stored in buildings with windows are subject to the damaging effects of ultraviolet light. • Museum staff is nonpermanent and collections management is a collateral duty. • Collections of artifacts and resources stored in private or nonfederal facilities contain valuable information that may be inaccessible to researchers. • The use of nonprofessional museum staff for collections management may result in a loss of associated data (rendering the objects less valuable or accessible for research). • Some catalogued museum objects are in a discard pile, disposed of arbitrarily by staff not familiar with proper collections management processes. <p>Opportunities</p> <ul style="list-style-type: none"> • Locate and document all of the externally held park resources. • Conduct research on objects that are held in outside repositories. • Consolidate collections to a limited number of external institutions. • Better enforce the Paleontological Resources Protection Act of 2009 to maintain the chain of custody of park collections. • Expand the space for in-house collections. • The park is ideally located to become a regional repository for paleontological resources. • Bring an archivist onto the park staff. • Upgrade existing safes to be fire resistant.
<p>Existing Data and Plans Related to the FRV</p>	<ul style="list-style-type: none"> • Scope of collections statement 2011 (out of date). • Draft of museum housekeeping plan 2007. • Museum access policy 2002 (out of date). • Museum emergency operating plan 2014 (in review). • Cultural resources management structural fire plan (not completed). • Historic furnishings report 2006. • Collection condition survey (not found). • Collection storage plan (not found). • Collection management plan (funding request submitted in the Project Management Information System). • Integrated pest management plan (not found).

Fundamental Resource or Value	Research and Museum Collections
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Data on location of collections held in outside repositories (GIS need). • Updated collections record; identify backlog cataloguing needs. • Archives inventories, finding aids, and digitization. • Determine the legal ownership of collections and the identity of gift donors for the purpose of deaccessioning or returning materials determined to be outside the park's scope of collections. These efforts would be assisted by agreements between the park and outside repositories that provide long-term storage of park collections.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Environmental assessment for proposed on-site repository. • Update museum foundational documents.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • National Historic Preservation Act of 1966, as amended • Antiquities Act of 1906 • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • Historic Sites Act of 1935 • Management of Museum Properties Act of 1955 • Native American Graves Protection and Repatriation Act of 1990 • Paleontological Resources Protection Act of 2009 • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS <i>Management Policies 2006</i> (§1.6) "Cooperative Conservation Beyond Park Boundaries" • Director's Order 24: <i>NPS Museum Collections Management</i> • NPS <i>Museum Handbook</i>, parts I, II, and III



Fundamental Resource or Value	Wilderness and Scenic Values
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest National Park is the first national park to have lands designated as part of the national wilderness preservation system. The clear air and expansive, colorful landscapes create distinctive scenic vistas. The park offers opportunities to experience an unusual variety of resources in an untrammelled setting, as well as exceptional challenge and solitude for visitors.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • The park has more than 50,000 acres of designated wilderness. • The park is in a Class I airshed. • The greatest impact on the park’s soundscape occurs along the train corridor. • The mean sound impact across the park is predicted to be 4 decibels above the natural ambient sound level. • Public use of wilderness is very minimal, largely due to a lack of water. • There are no signs, trails, or other infrastructure in the wilderness area except for a small stretch of road near the north boundary. • The Painted Desert, Puerco River Valley, and petrified forests are primary scenic attractions in the park. • There are both archeological and paleontological sites within the wilderness. • Visitors have a very high probability of experiencing solitude and immersion in wilderness areas. • The measured anthropogenic light ratio in the park in 2006 was 0.19, indicating that the night sky is 19% brighter than it would be under natural condition – considered a good condition, where observers feel they are in a natural environment. • Vistas are sometimes obscured by pollution-caused haze, sand and dust from dry washes during high wind events, and smoke from wildfires. • Scenic vistas range from nearly pristine to slightly modified by the existence of development—primarily US Route 66 and I-40—that are visible from some viewpoints in the park. <p>Trends</p> <ul style="list-style-type: none"> • The amount of public use of wilderness areas has not changed over time. • Potash mining is likely to continue along the park’s boundary. • The park has increased access points to the north wilderness area. • Boundary expansion lands have improved protection of park viewsheds. • From 2003–2012, the overall visibility trend improved based on monitoring data. The trend in visibility improved on both the 20% clearest and 20% haziest days. • Average annual temperature has increased for the region at a statistically significant rate since 1950.
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Potash mining presents a threat of encroaching development with the potential for associated visual and environmental impacts. • Development in adjacent areas is increasing and impacting viewsheds. • Cattle trespass impacts the wilderness experience, park viewsheds, and physical park resources. • There is a minimal amount of refuse that enters wilderness areas from external sources. • Light and noise pollution from roadways, trains, and other development in the area threaten wilderness and scenic values. • Air pollution from two nearby coal-fired power plants and other local and regional development can make vistas hazy. At night, air pollution scatters artificial light, increasing the effect of light pollution on the night sky.

Fundamental Resource or Value	Wilderness and Scenic Values
<p>Threats and Opportunities</p>	<p>Threats (continued)</p> <ul style="list-style-type: none"> • Projected increases in mean annual temperature, droughts, and storm frequency/intensity due to climate change present associated impacts on wilderness and scenic values. <p>Opportunities</p> <ul style="list-style-type: none"> • Newly acquired lands offer new vista opportunities and contain potential wilderness additions. • Promote the unique badlands wilderness experience, including its unique challenges. • Increase awareness and day use of wilderness areas. • The park is authorized to purchase a 1.5-mile strip on the east side of the park (a portion of the NZ Milky Ranch) which could act as a buffer zone for the south wilderness area. • Continue working with federal, state, and local agencies, industry, and public interest groups, such as the Four Corners Air Quality Group and the Western Regional Air Partnership, to develop strategies to reduce air pollution in the park.
<p>Existing Data and Plans Related to the FRV</p>	<ul style="list-style-type: none"> • 1993 general management plan and 2004 general management plan revision. • Wilderness stewardship plan and environmental assessment, 2013. • Air Quality monitoring data including visibility, ozone, and deposition data.
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Map wilderness area resources. • Boundary survey. • Visual resource inventory. • Resource condition assessment.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Scenery conservation strategy. • Update to land protection plan. • Planning for adaptation to climate change as wilderness and scenic resources and values are impacted by a changing climate.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Wilderness Act of 1964 • Clean Air Act of 1977 • National Parks Air Tour Management Act of 2000 • National Parks Overflight Act of 1987 • “Audio disturbances” (36 CFR 2.12) • Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources” • Executive Order 13007, “Indian Sacred Sites” • Secretarial Order 3206, “American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act” <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • Director’s Order 47: <i>Soundscape Preservation and Noise Management</i> • Director’s Order 41: <i>Wilderness Stewardship</i> • NPS Reference Manual 41: <i>Wilderness Stewardship</i> • <i>Keeping It Wild in the National Park Service: A User Guide to Integrating Wilderness Character into Park Planning, Management, and Monitoring</i> • NPS Management Policies 2006 (§4.9) “Soundscape Management” • NPS Management Policies 2006 (§4.10) “Lightscape Management”

Fundamental Resource or Value	Public Enjoyment
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest National Park provides unparalleled opportunities for visitors to explore a unique, engaging landscape of badlands, grasslands, and escarpments. These opportunities range from accessible frontcountry to rugged trail-less backcountry. • Petrified Forest National Park is the first national park to have lands designated as part of the national wilderness preservation system. The clear air and expansive, colorful landscapes create distinctive scenic vistas. The park offers opportunities to experience an unusual variety of resources in an untrammelled setting, as well as exceptional challenge and solitude for visitors.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • The park has 6.5 miles of paved and unpaved recreational trails and accessible interpretive trails (includes the wilderness access trail, the Tawa trail, and the distance from park road to the old Long Logs trailhead). • There are more than 50 wayside exhibits at pullouts along the main park road or along the sides of trails throughout the park to improve visitor understanding of the park’s resources. • Visitors have numerous off-trail hiking opportunities, including wilderness hiking and “Off the Beaten Path” routes. • Numerous facilities, including the Rainbow Forest Museum and the Painted Desert Inn, provide exhibits and interpretive programs. • The park offers junior ranger, junior paleontologist, orienteering, and geocaching programs. • The park engages in education and outreach including events such as traveling trunks and Girl Scout activities, as well as special events like marathons, bike tours, Arizona archeology month, National Fossil Day, Route 66 Day, and numerous cultural demonstrations. • An orientation loop in the visitor center plaza introduces visitors to the park. • The Painted Desert Inn hosts rotating visitor exhibits. • Amenities such as a bookstore, gift shop, and food service are provided through a cooperating organization and concessioner for the benefit of visitors. • The park is dog friendly and horses are allowed in most areas. • The park is on the US tentative list for nomination as a World Heritage Site. <p>Trends</p> <ul style="list-style-type: none"> • Park visitation generally increased each year between 2012 and 2015 except in 2013 due to the government shutdown. • The park is more than halfway through a project to implement new interpretive wayside exhibits. • As of 2014 there is a new unigrid brochure for visitor orientation. • The park is currently undertaking a rebranding/remarketing effort, including a revision of interpretive themes. • All park publications have recently been updated. • The park has recently implemented programs and activities in alignment with systemwide efforts to provide expanded visitor opportunities. • Recent press coverage has increased public recognition of the park. • The park has improved its accessibility and physical infrastructure for visitors. • The park plans to begin offering Field Institute classes (half or full day tours with expert guides) through partners at the Petrified Forest Museum Association starting in 2015.

Fundamental Resource or Value	Public Enjoyment
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Increased entrance fees could lead to reduced visitation. • Development adjacent to the park—specifically potash mining—threatens park viewsheds and pollutants degrade visibility. • Aging infrastructure (roads, restrooms, water lines) negatively impacts the visitor experience and could pose safety risks. • The lack of internet connectivity for visitors discourages some people from coming to the park, especially younger generations. • Continued reductions in NPS staffing limit the park’s capacity to provide adequate interpretation and develop new visitor programs. • The park may struggle to stay relevant due to changing demographics – younger and more socio-culturally diverse visitors desire to experience parks differently than in the past. • Climate change effects including increase in average annual temperature, droughts, and days exceeding 95°F could change park visitation patterns. <p>Opportunities</p> <ul style="list-style-type: none"> • Further promote and interpret unique resources such as Route 66 and special events such as “Einstein Day.” • Increase the park’s visibility and visitation by promoting its proximity to the interstate and current low nationwide gas prices. • Promote the dog and horse friendly nature of the park to visitors. • Expand the range of service providers (e.g., Petrified Forest Museum Association and future concessioners as providers of interpretation through the field institute and potential future concession tours). • Provide new ways for visitors to experience the park’s expansion lands. • Increase the digital presence of the park and use modern technologies to attract more and different visitors and enhance the visitor experience. • Use the upcoming centennial to make changes to how the park is promoted to younger generations of visitors. • Improve the park’s online image – track and respond to ratings and reviews, edit Wikipedia entries and other information sources for accuracy and quality. • Open a new campground area to increase overnight visits to the park. • Earn nomination as a World Heritage Site and designation as an International Dark Sky Park. • Conduct accessibility audit and improve the accessibility of nonphysical infrastructure – (brochures, interpretation, other media, etc.). • Release a new and updated park film. • Promote inaturalist.org to visitors as an interpretive and citizen science tool. • Expand interpretative and educational tools to communicate the connections between public enjoyment, scenic views, air pollution, night sky, climate change, wilderness, human health, and protection of park resources.
<p>Existing Data and Plans Related to the FRV</p>	<ul style="list-style-type: none"> • 1993 general management plan, 2004 general management plan revision, 2010 general management plan amendment. • Foundation for planning and management, 2006. • Long-range interpretive plan, 2000. • Yearly visitor survey card data reports. • Interpretation and education operations review (of the park by the Intermountain Region), February 2013.

Fundamental Resource or Value	Public Enjoyment
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Visitor use study. • Internet connectivity study. • Visual resource inventory.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Visitor use planning for expansion lands. • Environmental assessment for campground. • Marketing plan. • Revisit the comprehensive interpretive plan; include approaches and information that would assist resource management efforts. • Lighting plan (to reduce night sky impacts).
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Clean Air Act of 1977 • National Parks Air Tour Management Act of 2000 • National Parks Overflight Act of 1987 • “Audio disturbances” (36 CFR 2.12) • “What is the maximum noise level for the operation of a vessel?” (36 CFR 3.15) • Wilderness Act of 1964 • Americans with Disabilities Act of 1990 • Architectural Barriers Act of 1968 • “Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines” (36 CFR 1191) • Rehabilitation Act of 1973 • NPS Concessions Management Improvement Act • Bald and Golden Eagle Protection Act <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • Director’s Order 47: <i>Soundscape Preservation and Noise Management</i> • Director’s Order 41: <i>Wilderness Stewardship</i> • Director’s Order 6: <i>Interpretation and Education</i> • Director’s Order 42: <i>Accessibility for Visitors with Disabilities in National Park Service Programs and Services</i> • <i>NPS Transportation Planning Guidebook</i>



Fundamental Resource or Value	Biological Resources
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest contains the largest example of protected native grassland in the southern Colorado Plateau region. This arid shortgrass prairie preserves habitats for a variety of flora and fauna and provides refuge for several animals of concern, such as pronghorn and Gunnison’s prairie dogs. • The area of Petrified Forest National Park has been a research environment for more than 100 years, leading to discovery of new paleontological species and their evolution, deeper understanding of prehistoric land use, and a record of ancient and modern climate change. Research provides opportunities for public outreach and education.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • A recent bioblitz has furnished the park with some specific data on species present. • There are several biological items in the parks collections, including the contents of a herbarium as well as skeletal and skin records. • There is a huge diversity of flora and fauna, including shared characteristics of three ecological regions (Great Basin, Sonoran, Great Plains). • There are no known specimens of federally listed threatened and endangered species or critical habitats within the park. • Some park biological collections are held at the Northern Arizona University natural history collections and at the Arizona State University lichen herbarium. • The park has a seasonal biotechnician on staff during the summer and is filling a permanent biologist position in 2015 for the first time. • The Puerco River corridor has potential upstream impacts from a uranium mine. • The park contains 95 small intermittent lakes/ponds comprising approximately 147.6 acres, as well as 3 seeps/springs. • 0.26 miles of the Puerco River within the park, from Dead Wash to Ninemile Wash, are impaired, preventing it from attaining aquatic and wildlife warm water use. • There is a long-term herpetology study ongoing at the park. • There are significant unknowns in terms of biological baseline conditions, including water quality. • Although not completed, wildlife sighting cards record approximately 40 years of data on animals seen in the park (e.g., when and where sighted) although there are gaps in the data record. • Social media is providing natural history observations from staff and visitors. • The exotic plants monitoring team actively works in the area, and will begin working in the park’s expansion lands. • I&M Program work has only been done in the pre-2004 park boundary. <p>Trends</p> <ul style="list-style-type: none"> • Park has shown vegetation recovery over last 100 years – seen through satellite imagery. • The spread of nonnative species may be increasing, although there are no concrete data to confirm and conditions appear to be stable. • Grasslands continue to recover and are closer to their natural extent. • There is some indication that current prairie dog populations have declined from previous numbers, although there are no concrete data to confirm this. • Average annual temperature has increased at a statistically significant rate since 1950, with the greatest increase in the spring and in the northern part of the park. • Average total precipitation has increased since 1950, although not at a statistically significant rate.

Fundamental Resource or Value	Biological Resources
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Invasive species pose a threat to park ecosystems and processes, and their threat could be magnified by climate change effects (e.g., tamarisk, yellow star thistle). • Future I&M Program baseline data collection is not funded for park expansion lands. • Climate change effects including increase in average annual temperature, droughts, storm frequency/intensity, and days exceeding 95°F projected for the region will have significant impacts on water resources (e.g., ponds, springs, Puerco River), species composition, and habitat that support a range of biological resources. • The park does not have enough professional biological staff technicians, wildlife biologists, or botanists to adequately monitor all biotic groups. • The park currently lacks a range management specialist despite having thousands of acres of rangeland and permitted grazing in the parklands previously managed as Bureau of Land Management sections. • Poor air quality and water quality pose potential threats to biological resources (e.g., potentially elevated ozone levels from a variety of sources including power plants, and unknown water quality in the Puerco River). Ozone is of moderate concern in the park and threatens ozone-sensitive species such as <i>Rhus trilobata</i> (skunkbush) and <i>Salix gooddingii</i> (Gooding's willow). • Nitrogen deposition is a significant concern. Ecosystems at Petrified Forest National Park are highly sensitive to the effects of nutrient-enrichment. Plants in arid ecosystems such as the park's shrublands and grasslands are particularly vulnerable to changes caused by nitrogen deposition. Invasive grasses tend to thrive in areas with elevated nitrogen deposition, displacing native vegetation adapted to low nitrogen conditions. Increases in nitrogen have been found to promote invasions of fast-growing nonnative annual grasses and forbs (e.g., Russian thistle) at the expense of native species. • Increased cover of nonnative grasses can increase fire risk, and nitrogen may also increase water use in plants like big sagebrush. • The railroad that runs adjacent to the Puerco River has the potential to spill and contaminate the river. • The freeway and railroad corridors potentially impact landscapes in terms of habitat fragmentation and animal/vehicle collisions by forming unnatural barriers. • Propane is stored immediately adjacent to the Puerco River, posing a spill threat. • Potash development in adjacent lands may threaten biological resources in numerous ways (e.g., pollution, impacts to natural soundscape, negative human/wildlife interactions). • There is a limited potential for trespass cattle to impact the integrity of grasslands, soils, and alter the runoff regime. • Noise and artificial light present potential threats to biological resources. <p>Opportunities</p> <ul style="list-style-type: none"> • A new permanent biologist position will be used to assemble all existing biological data. • A memorandum of understanding could be entered into with the Bureau of Land Management concerning biological inventorying. • Improved collaboration with the Natural Resources Conservation Service and with the Arizona Department of Game and Fish. • Capitalize on the huge potential to conduct biological research in the park. • Use iNaturalist.org and ebird to conduct "citizen science" and gain information on park wildlife from visitors. • There are opportunities to restore the Puerco River corridor. It has been determined to be eligible as a Wild and Scenic River.

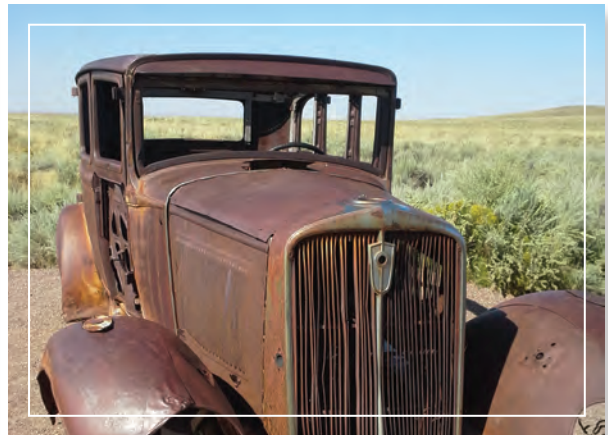
Fundamental Resource or Value	Biological Resources
Threats and Opportunities	<p>Opportunities (continued)</p> <ul style="list-style-type: none"> • With large expanses of grassland and prairie dog habitat, particularly in expansion areas, the park could become a reintroduction site for the endangered black-footed ferret, in partnership with Arizona Game and Fish and the US Fish and Wildlife Service. • Continue working with federal, state, and local agencies, industry, and public interest groups, such as the Four Corners Air Quality Group and the Western Regional Air Partnership, to develop strategies to reduce air pollution in the park.
Existing Data and Plans Related to the FRV	<ul style="list-style-type: none"> • 1993 general management plan and 2004 general management plan revision. • Updated bird list. • Existing inventories from I&M Program for park (pre-2004 boundary). • Preliminary large mammal studies (pronghorn). • Reptile survey and monitoring of small mammals. • Ongoing bee study. • 1990s study on the interactions between invertebrates and prairie dogs. • GIS data documenting wells and tanks. • Various bat studies, but none are recent. • Air quality (ozone and deposition) monitoring data.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Establish I&M Program baseline sets of data. • Create a digital biological resources database. • Special studies to examine air pollution dose-response relationships in sensitive park ecosystems. • Resource condition assessment.
Planning Needs	<ul style="list-style-type: none"> • Ferret reintroduction / prairie dog habitat improvement plan. • Planning for adaptation to climate change as biological resources are impacted by a changing climate. • Lighting plan (to reduce biological impacts resulting from facility lighting, etc.).
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Wilderness Act of 1964 • Endangered Species Act of 1973 • National Invasive Species Act of 1996 • Lacey Act of 1900, as amended • Migratory Bird Treaty Act of 1918 • Bald Eagle Protection Act of 1940 • Federal Noxious Weed Act of 1974 • Clean Water Act of 1972 • Clean Air Act of 1977 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Director's Order 18: <i>Wildland Fire Management</i> • NPS <i>Natural Resource Management Reference Manual 77</i> • NPS <i>Wildland Fire Management Reference Manual 18</i> • Director's Order 47: <i>Soundscape Preservation and Noise Management</i> • NPS <i>Management Policies 2006</i> (§4.9) "Soundscape Management" • NPS <i>Management Policies 2006</i> (§4.10) "Lightscape Management"

Analysis of Other Important Resources and Values

Other Important Resource or Value	Historic Resources
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest National Park contains a complex array of archeological resources that illustrate a continuum of more than 10,000 years of human land use. Regional patterns of settlement, trade, and migration create a diversity of nationally significant cultural sites and features that are still important to modern American Indians. • Modern transportation corridors, including US Route 66, that follow prehistoric routes influenced historic use of the area. A century of park service stewardship is reflected in the collection of nationally and regionally significant historic resources.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Trail and road resources include the Beale Camel Trail, the Whipple Expedition route, immigrant routes to California, the Santa Fe Railroad, Route 66, stage stops, and Interstate 40. The 35th Parallel Route roughly follows a prehistoric trade route. • The Painted Desert Community Complex (the main park headquarters area) was developed as part of the NPS Mission 66 building program of the mid-20th century. The district is considered among the best examples of modern architecture within the National Park System, and is essential to fulfilling park operations, safety, and high-quality visitor experiences. The National Trust for Historic Preservation recently designated the complex a National Treasure. • The Painted Desert Inn is a national historic landmark and is listed in the national register. The Rainbow Forest and Crystal Forest developed areas were determined eligible for the National Register of Historic Places as historic designed landscapes. The buildings at Rainbow Forest are also listed in the national register as contributing structures to the Rainbow Forest Historic District. • There are contributing historical structures throughout the park, as well as several unevaluated historic resources. • The historic structures at the Paulsell Ranch are in poor condition. • The park protects historic sites and features including building foundations and artifacts from Route 66, the Beale Road, National Old Trails Highway, and Arizona Territorial sites. • Interpretation of historic sites is done opportunistically. • Archival photographs make up a large portion of museum collections. • Many historic structures at Petrified Forest illustrate the New Deal programs that spanned 1932 to 1942 such as the Civilian Conservation Corps and the Works Progress Administration. • Petrified Forest has a history of eminent scientific and other researchers. Resources include remains of camps, historic collections, archives of journals and field notes, and photos. <p>Trends</p> <ul style="list-style-type: none"> • Historic resources are better understood than in the past. • The public is becoming more aware of historic resources in the park through education and outreach. • The park will obtain new historic structures located within the expanded park boundary. • Some historic structures are being restored to their original appearance or are being adaptively reused.

Other Important Resource or Value	Historic Resources
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • A number of structures, some of which may be historic, are included within the expansion lands and their condition and significance is unknown. • There is a limited window of opportunity to collect more oral histories, records, and other cultural items. • Maintenance of historic structures is complex and expensive. • Vandalism threatens historic, archeological, and natural resources/features. • Unstable or expanding soils may lead to settlement and/or damage to historic structures. • Increased storm frequency and/or severity projected for the region could increase erosion and weathering of historic resources. Projected increase in mean annual temperature could increase invasive vegetation and pests (rodents) that threaten the integrity of historic resources. • Because historical data collection is a collateral duty, documentation and assessment of historic resources may not always be gathered in a thorough or timely manner. <p>Opportunities</p> <ul style="list-style-type: none"> • Acquire more historic structures within the current park boundary on lands not yet acquired (e.g., Pinta train station). • Complete additional National Register of Historic Places nominations and evaluate the eligibility of adaptively reused structures. • Improve the interpretation of historic sites. • An administrative boundary adjustment could be considered to add the Adamana townsite and its historic buildings and sites to the expanded park. • Nominate Painted Desert Community Complex for national historic landmark status.
<p>Existing Data and Plans Related to the OIRV</p>	<ul style="list-style-type: none"> • Survey results for existing cultural landscape reports, cultural landscape inventories, and historic structures reports. • Ethnographic overview and assessment done in conjunction with El Morro National Monument. • Historic structure report for the Painted Desert Community Complex (vol I and II, 2006). • Cultural landscape report for the Painted Desert Community Complex (2005). • Cultural landscape report, Rainbow Forest Historic Designed Landscape (2010). • Design and conservation enhancement plan – visitor facilities and landscapes (2011). • Maintenance guide for the treatment of historic properties (2005). • Cultural landscapes inventory – Painted Desert Community Complex (2008). • Painted Desert Community Complex structural evaluation (2009). • Painted Desert Community Complex grading and storm sewer study plan (2009). • Painted Desert Community Complex Block D structural evaluation and recommendations (2010). • Large data (documents and photographs) archive extending back to the late 1800s.
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • National Register of Historic Places evaluations. • Update of the List of Classified Structures. • Cultural landscape inventories (for 35th Parallel Route, Route 66 segments, and potentially for recently acquired lands).
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Historic structures reports (for Rainbow Forest historic district, Puerco Pueblo, Agate Bridge, and Pump house buildings). • Cultural landscape reports (for Crystal Forest, Puerco Pueblo, 35th Parallel Route, and eligible Route 66 segments).

Other Important Resource or Value	Historic Resources
<p>Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the OIRV</p> <ul style="list-style-type: none"> • Antiquities Act of 1906 • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • American Indian Religious Freedom Act of 1978 • Native American Graves Protection and Repatriation Act of 1990 • Management of Museum Properties Act of 1955 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Protection of Historic Properties" (36 CFR 800) • Religious Freedom Restoration Act • Executive Order 13007, "Indian Sacred Sites" • Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments Department of the Interior Policy on Consultation with Indian Tribes" • Archaeological Resources Protection Act <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • Director's Order 28: <i>Cultural Resource Management</i> • Director's Order 24: <i>NPS Museum Collections Management</i>



Other Important Resource or Value	Nonhistoric Facilities
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Petrified Forest National Park provides unparalleled opportunities for visitors to explore a unique, engaging landscape of badlands, grasslands, and escarpments. These opportunities range from accessible frontcountry to rugged trail-less backcountry.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • The park has nonhistoric roads, trails, bridges, utilities, and other structures vital to the operation of the park. • Nonhistoric buildings within the new park boundary are generally in good condition. Utilities are not in good condition. • The park road is in fair condition. • Dirt road conditions vary from poor to good; in some places the roads are washed out. • Park housing in Holbrook is made up of nonhistoric buildings, (11 homes and some carports/storage sheds) where seasonal and permanent staff reside. <p>Trends</p> <ul style="list-style-type: none"> • Area land prices have generally remained constant, but can be expected to fluctuate in response to regional development and speculation. • The park is gradually replacing water lines.
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Climate change: increase in average annual temperature, droughts, storm frequency/intensity, and days exceeding 95°F projected for the region will have significant impacts on nonhistoric facilities and associated park operations, including potential increases in invasive vegetation and pests, erosion, sedimentation, and reduced water resources for park operations (e.g., potable water supplies). • Visitor access and activities determined to be appropriate on expansion lands will need to be accommodated with additional services, facilities, and infrastructure. • The park has a large deferred maintenance backlog for park structures, utilities, roads, and trails. • The park has no contract with its water supplier (Navajo Tribal Utility Authority) and is potentially vulnerable to droughts and/or higher demands placed on that water system. <p>Opportunities</p> <ul style="list-style-type: none"> • Upgrade several of the nonhistoric facilities. • Plan, design, and manage park facilities in a manner that reflects environmental stewardship values. • Use the Facility Management Software System (FMSS) to identify priorities and direction for the maintenance of facilities, and continue to seek funding to reduce the maintenance backlog. • Work with the state to assure long-term protection of lands within the expanded boundary. • Foster relationships with partners to assist with future operational needs. • Acquire federal highway funding to improve roadways. • Develop a plan to adaptively reuse the Suglia house. • Repair and adaptively reuse the white house at the Paulsell Ranch headquarters. • Construct a solar farm on park lands in Holbrook. • Continue improving park sustainability and environmental leadership by implementing the park's Climate Friendly Park Action Plan including an environmental management system (Director's Order 13A).

Other Important Resource or Value	Nonhistoric Facilities
<p>Existing Data and Plans Related to the OIRV</p>	<ul style="list-style-type: none"> • 1993 general management plan and 2004 general management plan revision. • Many of the park’s utilities, roads, bridges, fences, tanks, culverts, front country trails, and building outlines are mapped. • Utility reports, building reports, usage, and upgrades (FMSS data).
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Inventory of type, location, condition, and possible historical significance of existing infrastructure on expansion lands. • Boundary survey of expansion lands. • Updated condition assessments for park assets. • Outside reviews of five-year funding plan. • Geologic hazards information. • Internet connectivity study. • GIS mapping of infrastructure.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Infrastructure plan (would address which tanks, fences, mills, etc. to keep and how to maintain them). • State of the park study. • Plan for the use of land and facilities in Holbrook. • Plan for the management of facilities that will soon be historic. • Planning for adaptation to climate change as water resources for park operations are impacted by a changing climate. • Lighting plan (to reduce night sky impacts from facilities, etc.).
<p>Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the OIRV</p> <ul style="list-style-type: none"> • “Quarters and facilities; employees in the United States” (5 USC 5911) • Safe Drinking Water Act <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • None identified



Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but which still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for Petrified Forest National Park and the associated planning and data needs to address them:

- **Fossil Wood Theft.** The theft of petrified wood continues to be a threat to fundamental park resources. Although new knowledge of the current and historic extent of wood indicates the old “massive theft” narrative is not true, the park does still catch and fine people who attempt to remove petrified wood. With the advent of new technology, such as LiDAR mapping and photogrammetry, it should be possible to map petrified wood deposits over time and better detect and manage fossil wood theft.
- **Concessions Contracts.** Managing concessions is a challenge for both Xanterra and the park when there isn’t a long-term contract; the existing contract is extended on a year-to-year basis. A commercial services prospectus is underway.
- **Pressure on Museum Facilities.** With the incredible amount of paleontological and archeological research going on in the park, museum facilities are under constant pressure to accommodate new materials and keep existing resources safe. The capacity to store collections will soon be reached, and already some new items do not have an adequate place to be stored. Many of the park’s collections lack associated data and/or are held externally in facilities that do not meet standards. A museum management plan, updates to museum foundation documents, and a large scale effort to collect data on the location of collections, and information on materials held in external repositories, would begin to address this rapidly growing issue.
- **Management of Expansion Lands.** The Petrified Forest Expansion Act of 2004 more than doubled the size of Petrified Forest National Park. Approximately 54% of the authorized lands have been acquired or leased through 2014. There are many complex land ownership patterns such as small tracts, separated surface and subsurface mineral rights, railroad construction rights, access rights, leases and permits, and utility rights of way. Managing resources in these “expansion lands” poses several challenges; access to expansion lands, and the acquisition of inholdings, requires extensive collaboration with a patchwork of adjacent state and private landowners; trespass cattle impact sensitive ecosystems and there is no readily available source of funding for fencing; the park boundary frequently changes, and the new resources that the park is responsible for safeguarding are not well documented or studied. Up to date boundary surveys and data to establish baseline conditions, as well as a visitor use plan for expansion lands, will set the stage for appropriate management of new parklands.
- **Adjacent Development.** Significant developments along the boundary of the park, such as for potash exploration and casinos, threaten to impact park viewsheds, night sky resources, air, and water quality. A scenery conservation strategy would help identify the most important visual resources, how they may be impacted by these developments, and potential strategies for maintaining the viewshed.

- **Invasive Species.** Nonnative and invasive species—plants, animals, and pathogens—may threaten biological resources including native species and their habitats, as well as key ecological processes. Data collection would help establish baseline conditions to inform priority actions related to invasive species management, and an exotic species management plan would assist the park in preparing to deal with future invasives.
- **Partnership Strengthening.** The park has identified a need to increase capacity through partnerships, especially with the community of Holbrook, associated tribes, and resource management / advocacy organizations. A partnership plan would help increase volunteerism, promote the park, and develop relationships with local and regional organizations that have similar missions or with whom mutually beneficial arrangements could be made.
- **Boost Visitation and Expand Visitor Opportunities.** Increasing visitation and opportunities for visitor use is a key issue for the park. The park is not seen as a “destination” park for many visitors, but rather as a stop on the way to or from the more well-known parks of the area. Petrified Forest National Park has an opportunity to draw more visitors and engage them for longer periods of time. A secondary benefit of this increased visitation would be increased fee revenue for a wide variety of park projects. Research is an active and fundamental component of the park, so developing ways for visitors to connect with science and research would greatly increase visitor appreciation of less visible park resources such as paleontology and archeology. Adopting appropriate technologies and determining dynamic ways of sharing new information and cutting-edge research with staff and visitors would further enhance the visitor experience. An internet connectivity study would help park staff determine if they are making the park accessible to a generation of visitors that increasingly use mobile devices to interact with their surroundings. A visitor use study would assist the park in understanding who does and does not use the park and how. A completed marketing plan (which began years ago) would help the park develop a strategy for increasing its visibility and attracting greater numbers of visitors, and an update to the comprehensive interpretive plan would ensure that visitors are receiving the most current information.
- **Deferred Maintenance.** Petrified Forest National Park has a significant amount of failing infrastructure. This is complicated and made more expensive by the historic nature of much of the infrastructure, much of which has only recently become historic, and has thus been neglected in past repairs and planning efforts. While funding is often available to repair building foundations and utilities, funding is more difficult to leverage for many other needs. Updating the condition assessments for park assets, developing an infrastructure plan, collecting GIS data on infrastructure, and obtaining outside review of the five-year funding plan would help the park manage its growing deferred maintenance backlog.

Planning and Data Needs

To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Planning Needs – Where A Decision-making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
FRV	Museum management plan	H	The plan would include scope of collections, space analysis, housekeeping plan, and museum pest management plan.
FRV	Resource stewardship strategy	H	The strategy would assist the park in achieving desired natural and cultural resource conditions by establishing a coordinated process to summarize, evaluate, and communicate the condition of priority park resources. It would determine strategies and actions needed to achieve desired resource conditions.
FRV	Visitor use plan for expansion lands	H	This is a high-priority need, but there may be other steps to take before beginning this process.
FRV	Environmental assessment for a learning center	H	This is a high-priority need but may not be feasible in the near future.
OIRV	Stabilization plan	H	Includes Wallace Tank, Chaco Outlier, and Saddlehorse Pueblo.
FRV, OIRV	Lighting plan	H	To help reduce impacts on the night sky from facilities and other sources of artificial light. The park is already working on this.
FRV	Exotic species management plan	M	This will first require baseline assessments.
FRV	Inadvertent discovery plan	M	This plan would provide guidance for discoveries of paleontological specimens and archeological resources.
FRV	Ferret reintroduction plan	M	The plan would include prairie dog habitat improvement.
FRV	Marketing plan	L	
FRV	State of the park study	L	
FRV	Comprehensive interpretive plan	L	May just be an update. The plan would include updated maps and data reflecting current knowledge to assist resource management.
FRV	Rock art resources management plan	L	
OIRV	Historic structures reports for the Rainbow Forest District, Puerco Pueblo, Agate Bridge, and pumphouse buildings	L	
FRV, OIRV	Climate change adaptation planning	L	This planning would provide guidance for adapting management strategies to address anticipated climate change impacts particularly on wilderness and scenic resources, biological resources, and nonhistoric facilities.
FRV	Scenery conservation strategy	L	
Key Issue	Partnership plan	L	
FRV	Update of museum foundation documents	L	
OIRV	Infrastructure plan	L	The plan would address which tanks, fences, and mills to keep and how to maintain them.

Planning Needs – Where A Decision-making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
OIRV	Cultural landscape reports	L	This would include Crystal Forest, Puerco Pueblo, 35th Parallel, and Route 66 segments if found eligible.
FRV	Update to the land protection plan	L	
OIRV	Plan for use of land and facilities in Holbrook	L	
OIRV	Plan for the management of facilities that will soon be historic	L	

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV or OIRV?	Data and GIS Needs	Priority (H, M, L)	Notes
FRV	Establishment of baseline conditions	H	This includes the 12 standard I&M set of data, as well as paleontological and archeological data in the expansion lands.
FRV	Boundary survey of expansion lands	H	
FRV	LiDAR mapping and photogrammetry of petrified wood	H	
FRV	Creation of a biology database	H	This would include wildlife cards, prehistoric burn data, etc.
FRV	Resource condition assessments	H	These assessments would evaluate the current condition of the park’s important natural and cultural resources and would inform management decisions carried out in support of the resource stewardship strategy.
FRV	Internet connectivity study	M	
FRV	Data on location of collections	M	This would include mapping of locations where collections are stored nationally and globally and the associated risk levels, and determine the location of historic collections formerly taken from within the park expansion lands.
FRV	Update of paleontological databases	M	This would include locality and specimen data, adding GIS data.
FRV	Update of archeological databases	M	Need a site files database that is easy to update and can be quickly and easily updated into the Archeological Sites Management System (similar to Grand Canyon). Improve consistency in how sites are labeled and use the same standards for all labels – make it easier to search the Western Archeological and Conservation Center archives.
FRV	Special studies to examine air pollution dose-response relationships in sensitive park ecosystems	M	

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV or OIRV?	Data and GIS Needs	Priority (H, M, L)	Notes
OIRV	National Register of Historic Places evaluations	M	Evaluations are needed to assess the national register eligibility of selected historic properties.
FRV	Updated collections record	L	This would include identification of backlog cataloguing needs.
FRV	Digitally document park resources	L	This would primarily assist the documentation of park biological resources.
OIRV	GIS data on infrastructure	L	Data would include roads, utilities, buildings, waysides, etc. Important in terms of archeological sites.
FRV	Visitor use study	L	
OIRV	Update conditions assessment for park assets	L	
OIRV	Conduct an outside review of cyclic five year funding plans	L	This would include review of project management information system projects.
FRV	Archives inventories	L	This would include digitization of archives for research purposes.
FRV	Determine legal ownership of collections	L	This would be for deaccessioning purposes and would include establishing a committee to agree on which collections should be deaccessioned. Agreements would be developed between the park and outside repositories that provide long-term storage of park collections.
FRV	Map of wilderness area resources	L	Vegetation and soil maps exist, need to fill in the gaps in other resource inventories.
OIRV	Cultural landscape inventories	L	Inventories for Beale Camel Trail, 35th Parallel Route, Route 66 segments, and for resources on the expansion lands.
FRV	Geological/hydrological hazard information	L	This data would expand information regarding the potential risks and hazards to geological resources, human safety, facilities, etc. associated with flash floods, grazing, and other factors.
OIRV	Update of the List of Classified Structures	L	
OIRV	Complete mapping of nonhistoric facilities	L	
FRV	Erosion mapping (GIS need)	L	
OIRV	Inventory of type, location, condition, and possible historical significance of existing infrastructure on expansion lands	L	
FRV	Update geological resources map to include expansion lands	L	
FRV	Visual resource inventory	L	To provide baseline information in support of the scenery conservation strategy.

Part 3: Contributors

Petrified Forest National Park

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Greg Caffey, Program Specialist

Kevin Dowell, Facility Manager

Kyle Lehmkuhl, Acting Chief Ranger

Matt Smith, Museum Curator

Richard Ullmann, Chief of Interpretation

Sarah Herve, Supervisory Park Ranger Interpretation

Yolanda Lincoln, Information Technology

NPS Intermountain Region

Michele D’Arcy, Landscape Architect, Planning Division

Denver Service Center, Planning Division

Greg Jarvis, Project Manager

Alex Williams, Natural Resource Specialist

Steve Whissen, Cultural Resources Specialist

Deborah Roth, GIS Specialist

Kelly Hatton, Contract Editor

Danielle Stevens, Contract Editor

John Paul Jones, Visual Information Specialist

Partners

Margaret Kanoy, Xanterra – Location Manager

Appendixes

Appendix A: Enabling Legislation and Legislative Acts for Petrified Forest National Park

December 8, 1906.

B. THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Petrified Forest
National Monu-
ment, Ariz.
Preamble.
Ante, p. 225.

Whereas, it is provided by section two of the Act of Congress, approved June 8, -1906, entitled, "An Act for the preservation of American Antiquities," "That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic land marks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be National Monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the object to be protected;"

And, whereas, the mineralized remains of Mesozoic forests, commonly known as the "Petrified Forest," in the Territory of Arizona, situated upon the public lands owned and controlled by the United States, are of the greatest scientific interest and value and it appears that the public good would be promoted by reserving these deposits of fossilized wood as a National monument with as much land as may be necessary for the proper protection thereof;

National monu-
ment, Arizona.

Now, therefore, I, THEODORE ROOSEVELT, President of the United States of America, by virtue of the power in me vested by section two of the aforesaid Act of Congress, do hereby set aside as the Petrified Forest National Monument, subject to any valid and existing rights, the deposits of mineralized forest remains situated in Gila and Apache counties, Arizona, more particularly located and described as follows, to wit:

Description.

Sections 1 to 18 inclusive in township 16 north, range 23; sections 20 to 29 inclusive and sections 31 to 36 inclusive in township 17 north, range 23; sections 1 to 12 inclusive and section 18 in township 16 north, range 24; sections 2 to 11 inclusive and sections 14 to 36 inclusive in township 17 north, range 24; sections 5, 6, 7 and 8, in township 16 north, range 25; and sections 19, 20, 29, 30, 31 and 32 in township 17 north, range 25, all east of the Gila and Salt River Meridian as shown upon the map hereto attached and made a part of this proclamation.

Reserved from
settlement, etc.

Warning is hereby expressly given to all unauthorized persons not to appropriate, excavate, injure or destroy any of the mineralized forest remains hereby declared to be a National monument or to locate or settle upon any of the lands reserved and made a part of said monument by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington, this 8th day of December, in the year of our Lord one thousand nine hundred and six and the Independence of the United States the one hundred and thirty-first.

THEODORE ROOSEVELT

By the President:
ELIHC ROOPE
Secretary of State.

Public Law 85-358

AN ACT

To authorize the establishment of the Petrified Forest National Park in the State of Arizona, and for other purposes

March 28, 1958
(H. R. 8250)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to permit the establishment of the Petrified Forest National Monument, Arizona, and other lands as provided for herein, as the Petrified Forest National Park, such national park shall be established (a) after title to all of the lands described in section 2 of this Act shall have been vested in the United States, with the exception of such easements and rights-of-way for railroad, public utilities, and highway purposes as may be acceptable to the Secretary of the Interior, and (b) when notification of the effective date of such establishment of the park, as determined by the said Secretary, is published in the Federal Register. Disestablishment of the Petrified Forest National Monument shall be effected concurrently with the establishment of the park.

Petrified Forest
National Park,
Ariz.
Establishment.

Publication in
F. R.

The Petrified Forest National Park shall be preserved and administered in its natural condition by the Secretary of the Interior for the public benefit in accordance with the general laws governing areas of the National Park System and in accordance with the basic policies relating thereto as prescribed by the Act of August 25, 1916 (39 Stat. 535; 16 U. S. C., 1952 edition, secs. 1-3).

The exchange authority prescribed for the Petrified Forest National Monument in the Act of May 14, 1930 (46 Stat. 278; 16 U. S. C., 1952 edition, secs. 444, 444a), is hereby extended to all the lands within the Petrified Forest National Park as herein authorized.

For the purposes of this Act, the Secretary is authorized to acquire, in such manner as he shall consider to be in the public interest, any non-Federal land or interests in land within the area hereby authorized to be established as the Petrified Forest National Park. In acquiring any State-owned land or interests therein within the aforesaid area, such property may be procured by the United States without regard to any limitations heretofore prescribed by the Congress relating to the disposal of State-owned properties.

Upon establishment of the Petrified Forest National Park, as authorized by this Act, any remaining balance of funds that may be available for purposes of the Petrified Forest National Monument shall thereafter be available for expenditure for purposes of the Petrified Forest National Park.

SEC. 2. The Petrified Forest National Park, authorized to be established pursuant to section 1 of this Act, shall comprise the following described lands:

GILA AND SALT RIVER MERIDIAN

Township 20 north, range 23 east: Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36, all.

Township 20 north, range 24 east: All.

Township 20 north, range 25 east: Sections 4, 5, 6, 7, 8, 9, 16, 17, 18, all.

Township 19 north, range 23 east: Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, all.

Township 19 north, range 24 east: Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, all; section 11, northwest quarter and north half northeast quarter; sections 16, 17, 18, 21, 28, 33, all.

Township 18 north, range 24 east: Sections 4, 9, all; section 10, southwest quarter; sections 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35, 36, all.

Township 17 north, range 24 east: Sections 2, 11, 14, 23, 26, west halves; sections 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, all.

Township 17 north, range 23 east: Sections 34, 35, 36, all.

Township 16 north, range 24 east: Sections 3 and 10, west halves; sections 4, 5, 6, 7, 8, 9, all.

Township 16 north, range 23 east: Sections 1, 2, 11, 12, all; sections 3, 10, east halves.

Approved March 28, 1958.

DEPARTMENT OF THE INTERIOR

Office of the Secretary

**PETRIFIED FOREST NATIONAL PARK,
ARIZONA****Notice of Establishment**

Notice is hereby given, in accordance with the Act of March 28, 1958 (72 Stat. 69), authorizing establishment of the Petrified Forest National Park, that title to all the lands described in section 2 of the said Act, comprising the Petrified Forest National Monument and certain adjacent lands, with the exception of easements and rights-of-way that have been determined to be administratively acceptable, is now vested in the United States. The conditions of the said Act having been met, establishment of the Petrified Forest National Park shall be effective 30 days from the date this notice appears in the FEDERAL REGISTER.

The Petrified Forest National Monument is disestablished effective concurrently with the effective date of establishment of the park.

STEWART L. UDALL,
Secretary of the Interior.

NOVEMBER 2, 1962.

[F.R. Doc. 62-11207; Filed, Nov. 3, 1962;
8:47 a.m.]

Public Law 91-504

AN ACT

To designate certain lands as wilderness.

October 23, 1970
[S. 3014]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Wilderness
Areas.
Designation.

DESIGNATION OF WILDERNESS AREAS WITHIN NATIONAL WILDLIFE REFUGES

SECTION 1. In accordance with section 3(c) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132(c)), the following lands are hereby designated as wilderness:

Bering Sea.
Bogoslof.
Tuxedni.
Saint Lazaria.
Hazy Islands.
Forrester Island.

(a) certain lands in the (1) Bering Sea, Bogoslof, and Tuxedni National Wildlife Refuges, Alaska, which comprise about forty-one thousand one hundred and thirteen acres, three hundred and ninety acres, and six thousand four hundred and two acres, respectively, and which are depicted on maps entitled "Bering Sea Wilderness—Proposed", and "Bogoslof Wilderness—Proposed", and "Tuxedni Wilderness—Proposed", dated August 1967, and (2) the lands comprising the Saint Lazaria, Hazy Island, and Forrester Island National Wildlife Refuges, Alaska, which comprise about sixty-two acres, forty-two acres, and two thousand six hundred and thirty acres, respectively, and which are depicted on maps entitled "Southeastern Alaska Proposed Wilderness Areas", dated August 1967, which shall be known as the "Bering Sea Wilderness", "Bogoslof Wilderness", "Tuxedni Wilderness", "Saint Lazaria Wilderness", "Hazy Islands Wilderness", and "Forrester Island Wilderness", respectively;

Three Arch
Rocks.
Oregon Islands.
Washington
Islands.

(b) certain lands in the (1) Three Arch Rocks and Oregon Islands National Wildlife Refuges, Oregon, which comprise about seventeen acres and twenty-one acres, respectively, and which are depicted on maps entitled "Three Arch Rocks Wilderness—Proposed", and "Oregon Islands Wilderness—Proposed", dated July 1967, and (2) the lands comprising the Copalis, Flattery Rocks, and Quillayute Needles National Wildlife Refuges, Washington, which comprise about five acres, one hundred and twenty-five acres, and forty-nine acres, respectively, and which are depicted on a map entitled "Washington Islands Wilderness—Proposed", dated August 1967, as revised January 1969, which shall be known as "Three Arch Rocks Wilderness", "Oregon Islands Wilderness", and "Washington Islands Wilderness", respectively;

Salt Creek.

(c) certain lands in the Bitter Lake National Wildlife Refuge, New Mexico, which comprise about eight thousand five hundred

acres and which are depicted on a map entitled "Salt Creek Wilderness—Proposed", and dated August 1967, which shall be known as the "Salt Creek Wilderness";

(d) certain lands in (1) the Island Bay and Passage Key National Wildlife Refuges, Florida, which comprise about twenty acres each and which are depicted on maps entitled "Island Bay Wilderness—Proposed" and "Passage Key Wilderness—Proposed", dated August 1967, and (2) the Wichita Mountains National Wildlife Refuge, Oklahoma, which comprise about eight thousand nine hundred acres and which are depicted on a map entitled "Wichita Mountains Wilderness—Proposed", dated October 1967, which shall be known as "Island Bay Wilderness", "Passage Key Wilderness", and "Wichita Mountains Wilderness", respectively;

Island Bay.
Passage Key.
Wichita Mountains.

(e) certain lands in (1) the Seney, Huron Islands, and Michigan Islands National Wildlife Refuges, Michigan, which comprise about twenty-five thousand one hundred and fifty acres, one hundred and forty-seven acres, and twelve acres, respectively, and which are depicted on maps entitled "Seney Wilderness—Proposed", "Huron Islands Wilderness—Proposed", and "Michigan Islands Wilderness—Proposed", (2) the Gravel Island and Green Bay National Wilderness Refuges, Wisconsin, which comprise about twenty-seven acres and two acres, respectively, and which are depicted on a map entitled "Wisconsin Islands Wilderness—Proposed", and (3) the Moosehorn National Wildlife Refuge, Maine, which comprise about two thousand seven hundred and eighty-two acres and which are depicted on a map entitled "Edmunds Wilderness and Birch Islands Wilderness—Proposed", all said maps being dated August 1967, which shall be known as "Seney Wilderness", "Huron Islands Wilderness", "Michigan Islands Wilderness", "Wisconsin Islands Wilderness", and "Moosehorn Wilderness", respectively;

Seney.
Huron Islands.
Michigan Islands.
Wisconsin Islands.
Moosehorn.

(f) certain lands in the Pelican Island National Wildlife Refuge, Florida, which comprise about three acres and which are depicted on a map entitled "Pelican Island Wilderness—Proposed" and dated August 1970, which shall be known as the "Pelican Island Wilderness"; and

Pelican Island.

(g) certain lands in the Monomoy National Wildlife Refuge, Massachusetts, which comprise about two thousand six hundred acres but excepting and excluding therefrom two tracts of land containing approximately ninety and one hundred and seventy acres, respectively and which are depicted on a map entitled "Monomoy Wilderness—Proposed" and dated August 1970, which shall be known as the "Monomoy Wilderness".

Monomoy.

Public Law 108-430
108th Congress

An Act

Dec. 3, 2004
[H.R. 1630]

To revise the boundary of the Petrified Forest National Park in the State of Arizona, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Petrified Forest National Park Expansion Act of 2004.
16 USC 119 note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Petrified Forest National Park Expansion Act of 2004".

16 USC 119 note.

SEC. 2. DEFINITIONS.

In this Act:

(1) **MAP.**—The term "map" means the map entitled "Proposed Boundary Adjustments, Petrified Forest National Park", numbered 110/80,044, and dated July 2004.

(2) **PARK.**—The term "Park" means the Petrified Forest National Park in the State.

(3) **SECRETARY.**—The term "Secretary" means the Secretary of the Interior.

(4) **STATE.**—The term "State" means the State of Arizona.

16 USC 119 note.

SEC. 3. BOUNDARY REVISION.

(a) **IN GENERAL.**—The Secretary is authorized to revise the boundary of the Park to include approximately 125,000 acres as depicted on the map.

(b) **AVAILABILITY OF MAP.**—The map shall be on file and available for public inspection in the appropriate offices of the National Park Service.

16 USC 119 note.

SEC. 4. ACQUISITION OF ADDITIONAL LAND.

(a) **PRIVATE LAND.**—The Secretary may acquire from a willing seller, by donation, purchase with donated or appropriated funds, or exchange, any private land or interests in private land within the revised boundary of the Park. In acquiring private land and interests in private land within the revised boundary of the Park, the Secretary shall undertake to acquire such private land and interests in private land first by donation or exchange.

(b) **STATE LAND.**—

(1) **IN GENERAL.**—The Secretary may, with the consent of the State and in accordance with Federal and State law, acquire from the State any State land or interests in State land within the revised boundary of the Park.

Deadline.

(2) **PLAN.**—Not later than 3 years after the date of the enactment of this Act, the Secretary shall, in coordination with the State, develop a plan for acquisition for State land or interests in State land under paragraph (1).

PUBLIC LAW 108-430—DEC. 3, 2004

118 STAT. 2607

(3) **MANAGEMENT AGREEMENT.**—If the Secretary is unable to acquire the State land under paragraph (1) within the 3-year period required by paragraph (2), the Secretary may enter into an agreement that would allow the National Park Service to manage State land within the revised boundary of the Park.

SEC. 5. ADMINISTRATION.

16 USC 119 note.

(a) **IN GENERAL.**—Subject to applicable laws, all land and interests in land acquired under this Act shall be administered by the Secretary as part of the Park.

(b) **TRANSFER OF JURISDICTION.**—The Secretary shall transfer to the National Park Service administrative jurisdiction over any land under the jurisdiction of the Secretary that—

(1) is depicted on the map as being within the boundaries of the Park; and

(2) is not under the administrative jurisdiction of the National Park Service on the date of enactment of this Act.

(c) **EXCHANGE AFTER ENACTMENT.**—Upon completion of an exchange of land after the date of the enactment of this Act, the Secretary shall transfer administrative jurisdiction over the exchanged lands within the boundary of the Park as depicted on the map to the National Park Service.

(d) **GRAZING.**—

(1) **IN GENERAL.**—The Secretary shall permit the continuation of grazing on land transferred to the Secretary under this Act, subject to applicable laws, regulations, and Executive orders.

(2) **TERMINATION OF LEASES OR PERMITS.**—Nothing in this subsection prohibits the Secretary from accepting the voluntary termination of a grazing permit or grazing lease within the Park.

(e) **AMENDMENT TO GENERAL MANAGEMENT PLAN.**—Not later than 3 years after the date of the enactment of this Act, the Secretary shall amend the general management plan for the Park to address the use and management of any additional land acquired under this Act. Deadline.

118 STAT. 2608

PUBLIC LAW 108-430—DEC. 3, 2004

16 USC 119 note. **SEC. 6. AUTHORIZATION OF APPROPRIATIONS.**

There are authorized to be appropriated such sums as are necessary to carry out this Act.

Approved December 3, 2004.

Appendix B: Inventory of Administrative Commitments

Title/Agency/ Organization	Purpose/Description	Expiration Date	Responsible Party
Memorandums of Understanding			
Puerco Valley Fire Department	Cooperative agreement for structural firefighting response	2017	Puerco Valley Fire Department, NPS
Sun Valley Fire Department	Cooperative agreement for structural firefighting response	2018	Sun Valley Fire Department, NPS
Holbrook Fire Department	Cooperative agreement for structural firefighting response	2018	Holbrook Fire Department, NPS
Apache County Sheriff's Office	Agreement for mutual law enforcement response and cross-deputation	2020	Apache County Sheriff's Office, NPS
Navajo County Sheriff's Office	Agreement for mutual law enforcement response and cross-deputation	2019	Navajo County Sheriff's Office, NPS
Agreement with the Smithsonian Institution regarding museum collections	Allows transfer of property from one institution to another, unique among NPS partner repositories	Open	National Museum of Natural History, NPS
Western Archeological and Conservation Center	Allows storage of multiple NPS museum collections at WACC	Open	NPS
Interagency Agreements			
Paleo work/collections on BLM land in AZ	Cooperation with the Bureau of Land Management (BLM) to manage fossil localities in the Chinle Formation for preservation and research	Open	Park Paleontologist
Southwest Wildfire Coordinating Group	Coordination and recommendations for all interagency fire management activities in Arizona	Expired 2014	BLM, NPS, Bureau of Indian Affairs, US Fish and Wildlife Service , US Forest Service, Arizona State Forestry Division
Cadastral Surveying Services/ BLM	Provides the framework for the park to reimburse the BLM to resurvey and re-monument the 2004 expanded boundary; individual cost estimates and task orders are needed annually to obligate funds.	4/28/2020	NPS, BLM

Title/Agency/ Organization	Purpose/Description	Expiration Date	Responsible Party
Cooperative Agreements			
Petrified Forest Museum Association	To operate bookstores in the park visitor centers – Painted Desert and Rainbow Forest; amended in 2015 to include Field Institute classes.	Expires December 2015 – to be renewed	Petrified Forest Museum Association
Navajo County Sheriff's Office for dispatching services	Provide emergency radio dispatch for park protection staff	2019	Navajo County Sheriff's Office, NPS
General Agreements			
State grazing lease	Grazing Lease #1853 of 23,320 acres for non-grazing purposes	September 30, 2024	Arizona State Land Department
State access permit (in progress)	To permit limited public access to Trust lands leased by Petrified Forest	Needed	Arizona State Land Department
State survey permit	Allows archeological and paleontological survey on State of Arizona lands statewide	Expires December 2015 – to be renewed	Park Paleontologist
Museum loans	Number of active loans varies by year. There are 27 active loans in ICMS (2015) and many more only on paper from prior to 1998; they allow for collections management, conservation, exhibit preparation, exhibition, research, and storage of PEFO museum material and conversely the same tasks can be applied to museum material from outside partners at PEFO	various	Petrified Forest National Park (PEFO), various
Special Park Uses			
Citizens Telecommunications	Right-of-way for telephone lines at Rainbow Forest and Painted Desert area	Expired 2000	Citizens Telecommunications, NPS
Arizona Public Service Company	Rights-of-way for four electric power lines, two in Rainbow Forest area, two in Painted Desert area	Drafted, never finalized	APS, NPS
Arizona Department of Transportation	Right-of-way for US Interstate 40	Expired 1984, in process	ADOT, NPS

Title/Agency/ Organization	Purpose/Description	Expiration Date	Responsible Party
Special Park Uses (continued)			
CenturyLink Corporation	Right-of-way for transcontinental Fiber Line, parallels I-40	9/2017	CenturyLink, NPS
Mountain States Telephone	Right-of-way for telephone line along Old Hwy 66, unknown if still in use or present	Unknown	Mountain States Telephone, NPS
Navajo Tribal Utility Authority	Water pipeline serving Painted Desert area (serves PEFO exclusively, no written agreement on record), power line serving Paulsell Headquarters	Unknown	Navajo Tribal Utility Authority, NPS
Special use permits	Approximately 25–30 special use permits per year, including approximately 10–15 commercial filming permits. Other permits include weddings, private land access, memorialization (ash scattering), picnics, etc.	N/A	NPS
Fitzgerald Living Trust	Private grazing lease	2018	NPS
D&I Cattle Company	Private grazing lease	2018	NPS
Northland Pioneer College: Pedal the Petrified	Annual special use permit for fund raising bicycle tour through park	Annually	NPS
City of Holbrook: Petrified Forest Marathon	Annual special use permit for marathon through the park	Annually	NPS
Commercial Services			
Concession contract	Provides two retail stores, two food service outlets, and a vehicle fuel station with convenience store	Expired December 31, 1994. Extended annually since but will not be extended beyond 2015	Xanterra Parks and Resorts
New Concession contract	Will require two retail stores, one restaurant, and one ice cream fountain; will authorize gas station and convenience store, operation of a campground at Chinde Point, vehicle tours of Paulsell Ranch, and two electric vehicle charging stations	Expected December 31, 2025	Selected Concessioner

Appendix C: Traditionally Associated Tribes and Pueblos

Traditionally associated tribes and pueblos refer to those groups that have had a significant connection to a place that has endured for two generations or more. The following list was derived from the Intermountain Region's tribal contact database.

American Indian Tribes and Pueblos Traditionally Associated with Petrified Forest National Park
Colorado River Indian Tribes of the Colorado River Indian Reservation, Arizona and California
Havasupai Tribe of the Havasupai Reservation, Arizona
Hopi Tribe of Arizona
Hualapai Indian Tribe of the Hualapai Indian Reservation, Arizona
Jicarilla Apache Nation, New Mexico
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation, Arizona
Kewa Pueblo, New Mexico
Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada
Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada
Navajo Nation, Arizona, New Mexico & Utah
Ohkay Owingeh, New Mexico
Paiute Indian Tribe of Utah
Pascua Yaqui Tribe of Arizona
Pueblo of Acoma, New Mexico
Pueblo of Cochiti, New Mexico
Pueblo of Isleta, New Mexico
Pueblo of Jemez, New Mexico
Pueblo of Laguna, New Mexico
Pueblo of Nambe, New Mexico
Pueblo of Picuris, New Mexico
Pueblo of Pojoaque, New Mexico
Pueblo of San Felipe, New Mexico
Pueblo of San Ildefonso, New Mexico
Pueblo of Sandia, New Mexico
Pueblo of Santa Ana, New Mexico
Pueblo of Santa Clara, New Mexico
Pueblo of Taos, New Mexico
Pueblo of Tesuque, New Mexico
Pueblo of Zia, New Mexico
San Carlos Apache Tribe of the San Carlos Reservation, Arizona
San Juan Southern Paiute Tribe of Arizona
Tohono O'odham Nation of Arizona
Tonto Apache Tribe of Arizona
White Mountain Apache Tribe of the Fort Apache Reservation, Arizona
Yavapai-Apache Nation of the Camp Verde Indian Reservation, Arizona
Zuni Tribe of the Zuni Reservation, New Mexico

Appendix D: Basics for Wilderness Stewardship

Wilderness Background Information

The Petrified Forest National Park Wilderness was designated by Congress in 1970 (84 Stat. 1105, Section 2b) and includes two separate units—the north wilderness unit in the Painted Desert and the south wilderness unit along Puerco Ridge, east of Rainbow and Crystal Forests. The total combined acreage of the two wilderness units is 51,728 acres. The wilderness area exhibits outstanding geological resources with exposed, fossil-rich Chinle Formation layers dating to the Late Triassic. Archeological resources document more than 10,000 years of human presence in the area. Self-reliant visitors seeking a primitive, unconfined recreational experience encounter an expansive landscape of rugged natural beauty.

A wilderness stewardship plan / environmental assessment was completed for the park’s designated wilderness in February 2013. The wilderness stewardship plan provides park managers with guidance regarding the preservation, management, and use of park wilderness to ensure that it remains unimpaired for future use and enjoyment. The overarching goal of the plan is to guide the restoration, protection, and enhancement of the park’s wilderness character.

Wilderness Character Narrative

(Wilderness stewardship plan, 2013)

Untrammelled

The Petrified Forest National Park Wilderness Area has been affected primarily by the forces of nature and is an area where the wilderness is largely untrammelled by man. In this wilderness area, there are few unauthorized actions or federally authorized land management actions that have affected the untrammelled quality by manipulating the biophysical environment. More specifically, the National Park Service takes few actions that might affect plants, animals, pathogens, soil, water, or fire in this wilderness area.



However, there are some current and future threats to this wilderness quality. Unauthorized actions that affect this quality include the trespass of livestock and all-terrain vehicles (ATVs) into the wilderness area and damage or illegal collection of archeological or paleontological resources. Authorized actions that could affect this quality include maintenance of the boundary fence, application of nonnative and invasive species treatments (e.g., tamarisk and Russian thistle), ecosystem restoration, and disturbance due to paleontological and archeological activities.

Additionally, the purpose of Petrified Forest National Park is to preserve, protect, and provide opportunities to experience globally significant Late Triassic paleontological resources, nationally significant archeological sites, and scenic and natural resources, including the Painted Desert, and to foster scientific research and public understanding and appreciation of park resources. The collection and preservation of these resources, while impactful to the untrammelled nature of the wilderness area, are necessary to fulfill the purpose of the park.

Natural

In the Petrified Forest National Park Wilderness Area, the integrity of the ecosystem relies on natural processes for renewal and regeneration. The health of the regionally significant grasslands and presence of rare wildlife species evokes a sense of the primitive West. As such, the wilderness area serves as a bellwether for climate change and a baseline for the study of other similar ecosystems that have been affected by human development and use.

Evolving landforms prevail and reveal the passage of geologic time. Sculptured hoodoos, tumbled talus slopes, petrified wood, and paleontological resources are revealed as the landscape continues to change. Windswept landscapes, flash floods, and seasonal watering holes are driving forces within this system. The interaction of the underlying geology with natural processes results in a unique landscape that was and is unsuitable for development. As a result, this preserved and undisturbed wilderness area provides rare opportunities to witness natural processes acting on the landscape. Extraordinary sights, sounds, and smells abound in this natural environment.

Geologic and climatic systems provided the foundation for the ecosystems that developed within the wilderness area. Geologic processes influenced and shaped the ecological diversity that is now characteristic of the wilderness. Pristine shortgrass prairie, badlands, sand dunes, playa lakes, and riparian areas are among the distinct ecological zones that occur across the variable elevations in the region's semiarid climate.

The natural quality of wilderness character could be degraded due to encroaching development, climate change, introduction of nonnative species, habitat fragmentation, and possible effects of visitor use on the wilderness units. Activities that could affect the natural quality of the wilderness area include social trails (e.g., damage to cryptobiotic soils), rock cairns, livestock trespass, ATV trespass, littering, and vandalism. Natural sounds and night skies are currently threatened by mining and other external forces. This delicate ecosystem does not recover easily from impacts, and the loss of connectivity with surrounding landscapes is also a threat to keystone species living in or near the two wilderness units (e.g., prairie dogs and pronghorn).

Undeveloped

The pristine, undeveloped lands of Petrified Forest National Park were considered prime candidates for becoming one of the first designated wilderness areas in the national park system. Unlike areas that may require removal of developments in order to become eligible for wilderness designation, the two wilderness units of Petrified Forest National Park were free of any permanent improvements or modern human occupation. Furthermore, the lack of private inholdings made it not only easier to designate wilderness, but also helps to maintain wilderness values to this day. Its remoteness, the lack of water, extreme topography, and harsh conditions have limited land use and development of the area. The only evidence of past use (such as rusted-out vehicles and old road traces) speaks to the challenging conditions of the area and the inability of modern humans to establish a permanent foothold.

Since wilderness designation, the management strategy of park staff has been to refrain from adding any developments. Only a few modern signs of humans can be found—for example, geologic survey markers are unobtrusive and minor considering the vastness of the wilderness area. The boundary fence surrounding the wilderness area is another modern development; however, it is essential for wilderness preservation to prevent livestock and ATV users from entering the area.

Solitude or Primitive and Unconfined Recreation

The Petrified Forest National Park Wilderness Area evokes a special sense of place for visitors who explore this vast and open landscape. With low visitation and lack of infrastructure, the wilderness area provides opportunities for solitude and is the epitome of primitive and unconfined types of recreation. With no trails, no signs, no accessible water sources, and no campsites, visitors must come prepared, must be self-reliant, and are personally responsible for their choices and experiences. Nature reigns supreme as natural processes and elements influence visitation due to flooding, high winds, excessive heat, and lack of a potable water source. The park does not provide visitors with suggested travel plans or destinations, which leaves visitors with a sense of freedom to explore.

From grasslands to badlands, the natural ecosystems set the stage for solitude and unconfined recreation opportunities. With each ridge crested and every valley explored, the story of the wilderness unfolds. The meandering topography, undeveloped views, pristine soundscapes, and dark night skies provide visitors with the opportunity to experience solitude, freedom, and spirituality in a setting that is undisturbed by modern human influences. Challenges to the pristine, undeveloped nature of the wilderness area are primarily external and beyond the control of the National Park Service. Surrounding development and industry can contribute to the degradation of dark night skies, natural sounds, and viewsheds as experienced from within the wilderness area. For example, traffic on Interstate 40, cell towers, wind and solar energy development, mining, other similar developments, and the broader implication of climate change can have profound effects on solitude and the primitive quality of the wilderness area. The vastness of the landscape magnifies the impacts of these surrounding developments and is therefore more vulnerable to these threats.

Educating visitors about the wilderness area and encouraging use would provide more people with opportunities to have the wilderness experience. However, increased visitation to the wilderness area has the potential to impact resources and visitor experience, which could lead to increased evidence of and damage from human activities including crowding; signs of human waste; cairns; and disturbance to artifacts, petroglyphs, and petrified wood. Wind-blown trash, air tours, and the broader implication of climate change can also have profound effects on the experience of visitors. It is important to note conditions are not uniform throughout the north and south wilderness units, and some threats are higher in certain sections of the wilderness.



Other Features and Values

The park wilderness area contributes in a significant way to the broader mission of the park to preserve, protect, and provide opportunities to experience globally significant Late Triassic paleontological resources, nationally significant archeological sites, and to foster scientific research and public understanding and appreciation of park resources. Many specific features of exceptional paleontological and archeological value are preserved because of their location in the wilderness. Paleontological resources and cultural sites clearly fit within this fifth quality of wilderness character because they are tangible features that have scientific, educational, scenic, or historical value.

Paleontological resources (including petrified wood and other fossils) are keys to the past, allowing scientific research to unlock the history of 15 million years of ecosystem evolution. The park wilderness area includes a substantial portion of the fossil-bearing Chinle Formation, which formed between 225 and 205 million years ago during the Late Triassic period of Earth's history. In this unique environment, there is the increased potential for discovering fossilized remains of early dinosaurs, amphibians, insects, fish, and other plants and animals. Today, new fossils surface as the landscape continually evolves with wind, rain, and time.

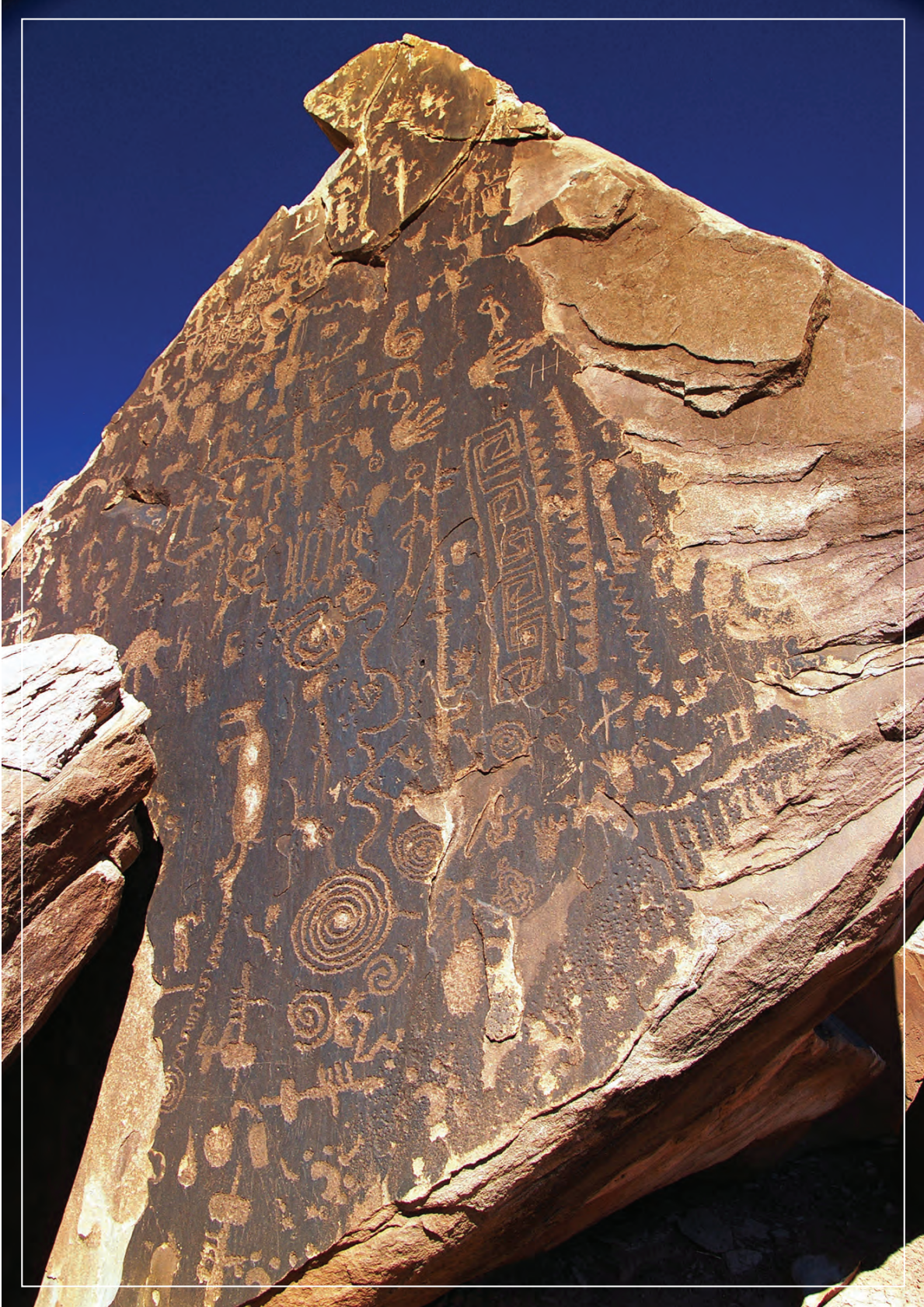
The wilderness area is also rich in human history. Archeological resources within Petrified Forest National Park Wilderness Area include artifacts, dwellings, petroglyphs, and other clues to peoples who inhabited this area for more than 10,000 years. The Hopi, Zuni, and Navajo tribes of today have centuries of historic connections with this place, and a variety of beliefs and practices may be represented by the petroglyphs found here.

Both archeological and paleontological resources provide clues about the wilderness and its living past. The collection and preservation of these resources, which could affect the untrammeled nature of the wilderness area, are necessary to fulfill the purpose of the park. Unauthorized actions that affect this quality include damage or illegal collection of archeological or paleontological resources.

Issues For Wilderness Planning

(Wilderness stewardship plan, 2013)

- **Visitor Use.** What strategies are appropriate for managing visitor use in the wilderness area to ensure that evidence of human activities (e.g., human waste, social trails, vandalism) does not diminish the wilderness experience for others?
- **Paleontological and Archeological Research.** What strategies are appropriate for conducting scientific research within the wilderness area to ensure wilderness resources and values are protected?
- **Boundary Fence.** What is the most appropriate way to maintain the boundary fence around the park wilderness area in a manner that is consistent with wilderness management requirements?
- **External Developments.** How can the National Park Service protect the quality of wilderness in the face of increasing developments surrounding the park (e.g., potash mining, wind and solar energy development, communication towers, etc.)?
- **Community Outreach.** How can the National Park Service engage its neighbors to encourage thoughtful development that will reduce impacts to wilderness character?



Intermountain Region Foundation Document Recommendation Petrified Forest National Park

November 2015

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Intermountain Regional Director.

Bradley Strem

11/20/15

RECOMMENDED

Brad Traver, Superintendent, Petrified Forest National Park

Date

Sue E. Masica

12/18/15

APPROVED

Sue E. Masica, Regional Director, Intermountain Region

Date



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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