PETRIFIED FOREST NATIONAL PARK ROADS & BRIDGES
Petrified Forest National Park
Holbrook vicinity
Apache County
Arizona

HAER No. AZ-58

HAER
AZ-58

PHOTOGRAPHS

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HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C St. NW
Washington, DC 20240

ADDENDUM TO:
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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

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LOCATION:	Petrified Forest National Park, located between Holbrook and Gallup in northeastern Arizona and spanning Apache and Navajo counties, is accessed using either Interstate 40 at the north end, or U.S. Highway 180 at the south. The park's headquarters is located at Milepost 311 on East Interstate 40. The headquarters is located 211 miles north of Phoenix, Arizona, and 60 miles west on Interstate 40 from Gallup, New Mexico. The southern entrance to the park, Rainbow Forest, is 19 miles south of Holbrook on Highway 180.
DATE OF CONSTRUCTION:	Various, see appendix
DESIGNER/BUILDER:	The current road system was designed and built through a cooperative agreement between the Bureau of Public Roads (BPR) and the Western Division of the Branch of Plans and Design of the National Park Service (NPS). Today, the Federal Highway Administration is responsible for road surveys and plans and supervises construction. The NPS oversees all landscape, interpretive, and architectural aspects of the work.
PRESENT USE:	Vehicular and pedestrian
SIGNIFICANCE:	The Petrified Forest National Park is so designated for its scientific and educational value, in addition to its natural scenic beauty. Intersecting, and at times overlaying, prehistoric and historic transportation corridors, the trunk-and-spur road system simultaneously provides access

to, while protecting, petrified wood resources that are some 200 million years in the making. Thoughtful engineering and landscape design features conform to classic National Park Service road standards, including harmony with the surrounding terrain, the obliteration of construction scars, long and sweeping views, gradual grades, and meandering curves. Bridges and culverts are carefully designed as well, characterized by symmetry, utility and unobtrusiveness.

The design and construction of the roads and bridges at Petrified Forest National Park reflect larger national trends, including the shift from rail tourism to auto travel and the increasing post-World War II reliance on roads for economic gain, including heritage tourism. The history of their construction reflects the application of New Deal work programs to improve the nation's transportation system, as well as the later infusion of federal funding as part of the "Mission 66" initiative. The roads and bridges exemplify the prodigious effort by planners to imbue the American driving experience with educational opportunities, scenic beauty, and recreational relaxation.

HISTORIAN: Jean Fulton, TimeSprings, Inc.

PROJECT INFORMATION: Documentation of the Petrified Forest National Park Roads and Bridges was undertaken in September 2000 by the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. HAER (Eric DeLony, Chief) is administered by the Historic American Buildings Survey/Historic American Engineering Record (E. Blaine Cliver, Chief), a division of the National Park

Service, U.S. Department of the Interior. The project was funded by the U.S. Department of Transportation's Federal Lands Highway Program (Art Hamilton, Administrator) through the NPS Park Roads and Parkways Program (Lou DeLorme, Manager) and cosponsored by the Petrified Forest National Park.

The documentation was completed under the direction of Todd A. Croteau, Project Leader, and Tim Davis, Program Historian. Jean Fulton prepared the historical report, which was edited by Justine Christianson (HAER Historian). Brian Grogan produced the large format photography.

Preface

This documentation of the Petrified Forest National Park (PEFO) road system contributes to an ongoing survey of the nation's park roads and parkways undertaken by the Historic American Engineering Record as part of its NPS Park Roads Program. Once completed, this survey will document the national park roads system as an important component of our cultural heritage, assessing construction methods, design strategies, landscape philosophies, and the evolution of road building practices within a larger social and historic context.

The resources at PEFO have been conserved for their scenic beauty and recreational opportunities, as well as for their scientific and educational value. Appropriately, the road system has been designed and continues to operate under dual initiatives: to provide public access to rare resources while simultaneously protecting them.

Before the area achieved monument status, several early custodians took it upon themselves to maintain an ephemeral road system at Petrified Forest. These local entrepreneurs offered tours and souvenirs to railroad passengers and later to auto travelers. They managed to keep the roads graded as best they could and forded intermittent *arroyos* as weather conditions permitted. Existing travel conditions, though, left much to be desired. As mounting complaints regarding chronic inaccessibility coincided with federal jurisdiction, officials with the Bureau of Public Roads (BPR), the agency tasked with overseeing the national road system, and the NPS collaborated on improvements. A 1926 interagency agreement allowed the NPS to rely on BPR expertise to survey, build and improve roads within national monuments and parks. The NPS in turn garnered responsibility for all landscapes and design features.

Foremost was a desire at the federal level to conserve tracts of land for the public good. The aim to provide access while protecting natural, scientific and cultural resources at the Petrified Forest ultimately led to an ingenious system of circular parking lots branching off of the main north-south trending roadway. By design, visitors are encouraged to walk, rather than drive, to areas where high concentrations of petrified wood lie scattered on the ground. The addition of 52,000 acres known collectively as the Painted Desert hastened the appropriation of funds to construct a bridge at the Rio Puerco and inspired the construction of a connecting road to the

nation's historic Route 66. On 7 November 1962, Petrified Forest National Monument became the nation's thirty-first national park.

This documentation demonstrates that the planning, design, funding and construction of the road and bridge/culvert system at Petrified Forest reflect several important national trends. Over time, perseverance, ingenuity and modern technology have coalesced to provide public access to, and protection for, this remarkably ancient ecosystem.

Introduction

The "Petrified Forest" in northern Arizona, a nickname given by imaginative local denizens to describe the stone stumps and scattered log sections that littered the landscape, was extolled by the nation's newspapers as early as the 1870s for its natural wonders. As Petrified Forest garnered worldwide fame and transportation corridors converged, wary residents watched with dismay as jewelers, gem collectors, amateur geologists, and souvenir hunters carted off ton after ton of petrified wood for private collections and commercial ventures. Concern reached a crescendo with the construction of an on-site stamp mill designed to crush the stone wood into commercial abrasives. In 1895, the Arizona territorial legislature petitioned the U.S. Congress to set aside the area as a protected reserve.

President Theodore Roosevelt heeded repeated requests for recognition and protection when he used the authority of the Antiquities Act to establish Petrified Forest as a national monument on 8 December 1906. In 1962, Congress re-designated this landscape as a national park, acknowledging the value of both its natural and cultural resources. The petrified logs, plant and animal fossils, wide variety of flourishing flora and fauna, and hundreds of prehistoric and historic sites continue to offer a welcome and often unexpected diversion for high-speed motorists whizzing along east-west trending interstates.

A meandering main park road (known as Long Logs Road), constructed in the early 1930s, runs perpendicular to and connects parallel interstate Highway 40 to the north with Highway 180 to the south. The original park road intersects and, in some areas, overlays, earlier historic and prehistoric routes. Short roadside pullouts offer parking, exhibits, interpretive markers, and access to points of interest. Each is designed to entice motorists, at carefully designated points, from their cars and into the unusual terrain.

Brief Summary of Legislative History

With the establishment of Petrified Forest as a national monument in 1906, Santa Fe Railroad and monument officials, as well as Bureau of Public Roads planners, collaborated to provide land exchanges and to design the first road system. Foremost was a desire to provide access, while simultaneously protecting, the most stimulating natural features and cultural sites.

The original monument designation reserved nearly 95 square miles. This area, after a careful geological survey by Dr. George P. Merrill, Head Curator of Geology, U.S. National Museum, was reduced to about 40 square miles by a second proclamation approved 31 July 1911.[1] After the National Park Service was formally established in 1916, a local cattleman named Al Stevenson was selected to serve as the monument's first custodian. Stevenson was compensated $1.00 per month to protect the petrified wood resources.[2]

Soon after the forest's designation as a national monument, individuals connected with nearby Holbrook and Winslow automobile associations and members of the newly formed Arizona Highway Patrol implored the Arizona Highway Commission to improve U.S. Highway 66. On 23 September 1932, some 53,300 acres known collectively as the Painted Desert were added to the monument. This enormous acquisition provided startling new scenery, while at the same time expediting the process of connecting a number of fledgling monument roads with the popular interstate highway system.

Early Visitors to Petrified Forest

The area now included within Petrified Forest has had a long history of human visitation and use. Paleo-Indian and Archaic peoples, Spanish explorers, railroad surveyors, herders and trappers, and countless others crisscrossed the area. Paiute Indians encountered by early military expeditions believed the scattered petrified logs to be the arrow shafts of their thunder god, *Shinuav*. Navajos inhabiting the region for hundreds of years tell stories of the logs being the bones of the monster *Yietso*, the "Great Giant" their ancestors killed upon arriving in the Southwest. A vivid rendering of the Hopi journey through this terrain in search of salt is depicted in Fred Kabotie's "Salt Trail" wall mural created at the Painted Desert Inn for interior designer Mary Elizabeth Jane Colter. Landforms including Chinde Mesa, and Pilot Rock, situated within the

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[1] Letter from C. Bruce, Assistant Commissioner, General Land Office, Washington, DC to the Secretary of the Interior, 25 November 1913. National Archives Record Group 79, Number 150: 32/10/7, Box 335 (hereafter cited as NARA, 32/10/7, Box 335).

[2] "Dedication Address Delivered by Edward B. Danson," *Holbrook Tribune-News*, (Holbrook, Arizona), nd, on file at the Petrified Forest National Park Supervisor's Office (hereafter cited as PEFO, Office). Please note that a complete legislative history is compiled in the PEFO Supervisor's Office Library (hereafter cited as PEFO, Library).

Painted Desert, continue to be revered by many Native Americans as sacred cultural landscapes.

Expeditions sponsored by the Spanish government that originated in Mexico City passed through the region as early as 1540 under Coronado's leadership and later in 1583 with explorer Espejo. Diary entries noted that the colorful scenery was reminiscent of *el desierto pintado*, or a 'painted' desert. Silbestre Esquibel, a nineteenth century explorer, carved his name in a cliff 21 miles east of Holbrook, some 70' above the streambed where Wildhorse wash meets the Carrizo. Monument Ranger Frank J. Winess located the inscription just north of Highway 66 in the Painted Desert region. Carved above the name was the date 1811.[3] At least one other Spaniard, Fr. Sylvestre Escalante, journeyed through the same area in 1776, visiting Hopi villages along the way.

In 1851, Captain Lorenzo Sitgreaves led an expedition along the Zuni and Colorado rivers. He and his men were among the first to put into writing their detailed descriptions of the "stone trees" they encountered along the way. In 1853, Congress mandated that the Corps of Topographical Engineers be responsible for surveying four potential transnational railroad routes. Lt. Amiel Weeks Whipple led the survey of the southernmost proposal, roughly following the thirty-fifth parallel through New Mexico, Arizona, and on to the Little Colorado River Valley. By December, Whipple and his contingent crossed the Rio Puerco. Survey reports recorded the intriguing "forest of petrified trees" surrounding their campsite.[4]

The Treaty of Guadalupe Hidalgo, signed in 1848 and ending the Mexican War, ceded the land that would become California and New Mexico to the United States. The treaty also shifted the border between the United States and Mexico south to the Rio Grande. Official explorations were initiated immediately. In 1856, Secretary of War Jefferson Davis imported camels from Cairo and Smyrna aboard the U.S. vessel SUPPLY. A second maritime camel clutch was escorted from Africa to Indianola, Texas in February of that same year. Lt. Edward F. Beale, U.S. Topographical

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[3] Petrified Forest National Park brochures and pamphlets; "Spanish Inspecton Dated 1811 is Found Carved in Side Cliff East of Holbrook 21 Miles; Is Near 66," *Holbrook Tribune-News*, nd.

[4] Whipple Journal entry, 3 December 1853. Sitgreaves and Whipple quoted in George M. Lubick's *Petrified Forest National Park: A Wilderness Bound in Time* (Tucson: The University of Arizona Press, 1996), 32.

Engineer, was ordered to use the camels in an expedition to create a road from Fort Defiance to the eastern frontier of California. Around 1 September 1857, the somewhat ungainly group crossed "The Great American Desert" by hugging the south rim of the Painted Desert, pursuing the path of least resistance to present-day Holbrook and beyond. Travelers followed in their trampled grass-and-scrub wake, etching their names in nearby sandstone cliffs as they passed through. Two decades later, this same trail became the main mail route from Santa Fe to Prescott, and was variously known as the "Overland Mail" or "Star Route." Wagon wheel ruts visible just south of the intersection of the main Petrified Forest National Park road and U.S. Route 40 reach depths of more than 12".

Following the Civil War, the Atlantic and Pacific Railroad Company (which evolved into the Atchison, Topeka, and Santa Fe) was chartered to lay track along the thirty-fifth parallel route. By 1883, the completed railroad sliced through the Arizona territory, following the course of the Rio Puerco, and replacing the overland mail service. The little towns of Winslow, Holbrook, Adamana, and several others dotted the landscape along the railroad right-of-way. During the 1870s and 1880s, ranching emerged as an important livelihood as Mormon emigrants settled in the Little Colorado River Valley. The scattered forests of petrified wood gained acclaim as new arrivals marveled at their presence.

Chalcedony Park

Increasingly, rail passengers were invited to travel from the Holbrook train stop by horse or by carriage to the petrified grove, known then as "Chalcedony Park." The area was eagerly hailed as a natural wonder:

> On the line of the Atlantic and Pacific Railroad, ninety-one miles east of Flagstaff, and in the vicinity of the town, lies one of the most remarkable results of nature's force to be found on the globe. It lies twenty miles distant and may be reached by carriage or saddle in three hours.[5]

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[5] "Arizona's Petrified Grove: A Ride for Seven Miles Through a Forest Turned to Stone," *Newark Evening News*, 25 November 1892, on file at PEFO, Office; Lubick, 36.

Curiosity was piqued even further when specimens of petrified wood were displayed for the general public at the New Orleans Exposition in 1885. Another exhibition was created in Paris in 1889, and a third at Chicago's Exposition in 1893. As visitation increased, fears concerning the fragility of this heretofore-remote region mounted.

By the turn of the century, concerns were raised about the lack of protection for an area so rich in natural beauty and scientific value. The "time will come," hoped one Eastern journalist in his article published in 1899, "when the Government will *police* Chalcedony Park and *protect* its treasures."[6]

Railroad Tourism

Beginning in 1900, from their ranch headquartered some 20 miles east of Holbrook, Adam Hana and his wife, Anna, offered the first organized tours of Chalcedony Park. Adam and Anna successfully negotiated with the Santa Fe railroad to allow a brief respite at their ranch. As a result, Santa Fe officials dubbed the tiny little stop "Adamana," by combining the couple's first names. Observers noted a decade later that an estimated 85 percent of those visiting the Petrified Forest accessed the monument through Adamana, taking in the 'First' and 'Second' forests. Those visiting from Holbrook tended to see only the 'Third,' or 'Rainbow' forest.[7] An ephemeral road system prevented most visitors from enjoying the monument in its entirety.

Before Al Stevenson's designation as the first official monument custodian, several local, self-appointed, caretakers doubled as private entrepreneurs. Most notable was William Nelson, who, while taking a sincere interest in the area itself, profited

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[6] "Arizona's Agate Bridge: One of the Many Remarkable Features of Chalcedony Park," *New Haven Morning Journal and Courier*, 1899?, received from Supt. Robt. Rose, Mesa Verde National Park, 13 November 1950, on file at PEFO, Office.

[7] "About 85% of the tourists visit the Petrified Forest from Adamana and take in only about the First and Second Forests. 15% visit the Rainbow Forest, or Third Forest, by way of Holbrook… 1,500 people visited the First and Second Forests between July 1, 1912 and October 1, 1913… approximately 200 people visited the Third Forest from Holbrook between these dates." Letter from Roy G. Mead, Mineral Examiner, General Land Office to the Commissioner, 29 May 1914. NARA, 32/10/7, Box 335.

from railroad-sponsored tours to the forest by selling Native American goods and curios to visitors. At times, his dual roles as site steward and seller of souvenirs inevitably clashed. All too typical was the following untenable situation recounted by Custodian Frank Pinkley, ever the keen observer of happenings in and around his Casa Grande Monument region. According to Pinkley, Mr. Nelson was less than forthcoming about road conditions when he spoke with the owners of a private auto tour business regarding an upcoming tour to the monument. Arrangements had already been made for a thirty-person Raymond-Whitcomb tour group to travel from Phoenix to the forest, spend the day, and then take the westbound train that evening. The day before the party was due, heavy rains rendered the roads to the forest impassable. Mr. Nelson was urged to wire the tour group and cancel the trip. Instead, Pinkley noted:

> if they came on to Adamana and spent the day, he would sell quite a lot of blankets and curios. As a result the party came on to Adamana, wasted the day in laying over there, and went away very much out of humor… The operator [concluded] by saying the Raymond-Whitcomb people had cut the Forest out of their tours.[8]

"Things," concluded Pinkley darkly, "are not going right at Adamana."

Despite frequent frustrations upon arriving at the Petrified Forest, travelers continued their side jaunts during transnational railroad journeys. By 1920, figures submitted to NPS officials defied all expectations. "Travel for the past year shows the remarkable increase of 1,000% over the estimated travel in 1919," marveled Acting Director Arno B. Cammerer in a letter to William Nelson.[9]

Officially recognized as the Petrified Forest Monument Custodian by this time, Nelson responded to Cammerer's skepticism by pointing out that the United States Railroad Administration in general, and the Atchison, Topeka, and Santa Fe Railroad in

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[8] Letter from Frank Pinkley, Custodian, Casa Grande Ruin to Mr. Mather, 6 October 1919. NARA, 32/10/7, Box 336, "PT 7 Sept 24, 1919 to Mar 17, 1921."

[9] Letter from Arno B. Cammerer, Acting Director, to Mr. William Nelson, Custodian, Petrified Forest National Monument, 6 October 1920. NARA, 32/10/7, Box 336, "PT 7 Sept 24, 1919 to Mar 17, 1921."

particular, had initiated an extensive advertising campaign featuring the monument just before the new numbers were compiled. "This advertising," explained Nelson, took effect "among the traveling class" the previous year. Furthermore, Nelson felt that the "traveling public" was "seemingly just beginning" to find that the Petrified Forest was

> something great and worth while, perfectly real, not exaggerated, and altogether out of the ordinary… The main reason for the remarkable increase in this travel is that the Petrified Forest lies between and not far from two highways that during the past year received a substantial share of the trans-continental auto travel.

Nelson concluded his remarks by noting that he felt the majority of auto tourists, "acting upon advice" turned off at Adamana, and crossed over to the south road via the Petrified Forest, rather than proceeding straight along the "Adamana-Holbrook road."[10]

Ironically, although Mr. Nelson and his wife actively sought to divert automobile traffic through the monument, they welcomed only railroad patrons to their hotel. Reasoning that the railroad hosted guests who were generally more refined, Nelson posted two typewritten notices at the doors of his hotel stating that he served "patrons of the Santa Fe railroad only."[11]

Nearby Casa Grande Monument Custodian Frank Pinkley, miffed that a cohort would rebuff visitors in any way, shared his thoughts on the matter in a pointed letter to NPS Director Mather. "I need hardly point out the impression a motor party will get," wrote Pinkley:

> when they are told that the custodian of the Forest, who operates the only hotel at Adamana, will not take care of them unless they are patrons of the Santa Fe railroad… I think it would be better for him, and decidedly better for

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[10] Letter from William Nelson, Custodian, to Acting Director Cammerer, 17 October 1920. NARA, 32/10/7, Box 336, "PT 7 Sept 24, 1919 to Mar 17, 1921."

[11] Letter from Frank Pinkley, Custodian, Casa Grande Ruin, to Mr. Mather, Director of the National Park Service, 6 October 1919. NARA, 32/10/7, Box 336, "PT 7 Sept 24, 1919 to Mar 17, 1921."

> us, if he opened his hotel to motor parties, and appeared glad to have them visit the Monument.[12]

Whether or not Nelson "appeared glad" to welcome car tourists, an increasingly auto-mobile American public continued to stream to Petrified Forest Monument.

Automobile Tourism

By the opening decade of the twentieth century, two branches of a transcontinental highway catered to an increasing number of Fords, Chevrolets, and Overlands motoring through northern Arizona. One highway, from Gallup, New Mexico, loosely followed the Santa Fe railroad through Adamana to Holbrook and beyond. The other branch emanated out of St. John, Arizona, southeast of the monument. The two branches converged at Holbrook, traveling westward through Flagstaff, Williams, Ash Fork, and continuing into California, where the road roughly followed the line of the Santa Fe railroad.

Either through word of mouth or commercial advertising, motorists increasingly detoured off the main highways in order to enjoy self-guided tours at the monument. By 1923, Holbrook businessmen involved with the Ford Agency, Bradley & Williams, the Navajo Garage, the Commercial Garage, and the Ferguson Transfer Co. were each taking visitors to the monument in motorcars, or taxis. [13]

Early Tourist Attractions

By 1930, maps and brochures directed visitors to three major areas or districts within the monument, named simply the First, Second, and Third Forests. First Forest, the smallest of the three, contained fragments of logs that were once bedded within the upper layers of clay and sandstone. Guidebooks noted that a "Natural Bridge" was located 1/2 mile to the east. The Second Forest was situated approximately 2 miles south and slightly to the east of the First Forest. The Third, or 'Rainbow' Forest occupied an area approximately 6 miles south and west of the

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[12] Letter from Frank Pinkley, Custodian, Casa Grande Ruin, to Mr. Mather, Director of the National Park Service, 6 October 1919. NARA, 32/10/7, Box 336 "PT 7 Sept 24, 1919 to Mar 17, 1921."

[13] Letter from Frank Pinkley to the Director, National Park Service, 26 February 1923. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921-1925."

first one. It surpassed the first two areas in the size, number of logs, and brilliancy of coloring.

A small museum housed some of the rarest and most remarkable specimens of wood. Despite the presence of the museum and other minimal facilities, visitors continued to be responsible for providing their own amenities.[14] Even the presence of potable water was unreliable. Tourists who intended to stay any length of time were cautioned to fill their canteens beforehand at the nearby localities of Holbrook, Hunt, or Adamana.

Harsh Travel Conditions

The source of consternation for most visitors, in addition to the scarcity of drinking water and the absence of dining establishments, was the dismal condition of the roads. Fraught with peril during inclement weather conditions, motorists and private entrepreneurs alike braved treacherous roads upon leaving the national highway system. Although teems of stalwart travelers embraced the challenges without complaint, others became increasingly disenchanted with the harsh travel conditions. "For several years," lamented Navajo County's Commissioner of Immigration in 1911, "the Petrified Forests of Arizona have been classed as one of the world's greatest wonders," yet:

> the thousands of travelers and tourists who visit these forests each year are prone to wonder why there has never been accommodations for either man, woman or beast provided… There is no place where one can obtain a mouthful to eat or drink… when driving out from this place one has to drive his team out and back making a distance of 40 miles or more without water.[15]

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[14] Visitors were repeatedly admonished that it was now unlawful to gather specimens of petrified wood of any size whatsoever within the monument boundaries. At that time, the penalty provided for any violation of this regulation amounted to a fine of not more than $500, or six months' imprisonment, or both. Source: Horace M. Albright, *Glimpses of Our National Monuments* (Washington, DC: US Government Printing Office), 1930. Available online at: http://www.cr.nps.gov/history/online books/glimpses2/index.htm.

[15] Letter from the Commissioner of Immigration, Navajo County, Arizona, to the Secretary of the Interior, 10 November 1911. NARA, 32/10/7, Box 335.

Before and after Petrified Forest's designation as a national monument, locals and visitors alike implored political officials to create a decent road system. At least one succinctly worded note stated that "the Government" should construct not only "a main highway" through the forest park, but also a series of "model drives therein."[16]

Custodian Nelson continued to be an aggressive, patient, and persistent manager during his tenure. Over the years, Nelson cultivated friendships with influential activists and wrote numerous frank assessments aimed at anyone who would pay attention. One of Nelson's earliest letters to the Director of the National Park Service described the roads in 1918 as being "barely passable." Nelson acknowledged that tourists traversing the National Trails Highway (later known as Route 66) were apt to encounter quicksand at the Rio Puerco and Dry Creek crossings, mentioning that he personally bore their ire as thwarted visitors complained "bitterly" about the "inaccessibility of the monument." Equipped to assist mired drivers when autos failed to negotiate the crossings, Nelson ruefully noted that "even horses" were not "infallible" during confrontations with quicksand beneath swift currents.[17] Most travelers expected to incur minor inconveniences in a region so remote. According to Nelson and other eyewitnesses, however, sightseers routinely faced outright danger.

Good Roads Movement

Whether regarded as a nuisance or a threat to bodily harm, bad roads occupied the American imagination as early as the 1890s. A National League of Good Roads appeared in 1892, and a Good Roads Convention rallied in Washington, DC the next year. By the Progressive era of the 1920s, a variety of coalitions vocalized their claims that poor roads were wasteful and unjust to rural Americans. Others recognized that poor travel conditions represented a missed opportunity for attracting tourists. At a Good Roads meeting convened at Adamana on 12

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[16] Letter from County Attorney Fred W. Mason to Hon. Henry F. Ashurst, U.S. Senate, 5 November 1913. NARA, 32/10/7, Box 335.

[17] Letter from William Nelson, Custodian, Petrified National Monument to the Director, National Park Service, 15 May 1918. NARA, 32/10/7, Box 336, "General Records, Central Files 1907-39, Petrified Forest National Monument, Pinnacles California National Monument, 5 August 1916 to 18 September 1919."

April 1921, monument custodians, members of the New Mexico Automobile Association, and individuals associated with the Gallup Chamber of Commerce marshaled forces to plan a strategy for improving regional roads. Foremost in the minds of attendees was a desire to forge collaborations between county, state, and federal representatives.[18]

On that same day, 12 April 1921, proponents for improved roads celebrated the passage of Congressional funding designed to construct roads and bridges within the Petrified Forest National Monument:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of $20,000, or so much thereof as may be necessary, is hereby appropriated, out of any money in the treasury not otherwise appropriated, for the purpose of constructing roads and bridges within the Petrified, Forest National Monument, Arizona, to be immediately available, and said sum shall be expended under the direction of the National Park Service.[19]

In the months preceding the appropriation, the completion of a state roads project that effectively by-passed the monument exasperated National Park Service officials and amplified the need for increased intra-agency communication.

Apparently, Petrified Forest officials had been left completely out of the planning loop. "It is a crying shame that we did not get our hands on this problem before this new road was constructed," wrote Frank Pinkley, ever the staunch Petrified Forest supporter. "The fool engineers who had it in charge were intent on getting long tangents for speeding automobiles," fumed Pinkley, "so they threw the road almost entirely out of our forest at this end of the Monument." Although state designers saved some 2,300' of grade on the line they chose, Pinkley

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[18] For a good summary of the inception and growth of a national roads movement, see John L. Butler, *First Highways of America* (Iola, WI: Krause Publications, 1994). Mention of 12 April 1921 Adamana meeting made in a letter from Custodian William Nelson to the Director of the National Park Service, 14 April 1921. NARA, 32/101/7, Box 336, "Pt 8 Apr 14, 1921 to May 25, 1923."

[19] 67th Congress, 1st session, Senate Bill 393, 12 April 1921.

feared that "hundreds of thousands of visitors" would stay on the new road across the monument, thereby missing "75% of the interesting things in the Forest." The bypassed access road was dutifully marked at each end by signs stating "Detour Road to See the Petrified Forest. St. Johns, 34 miles." According to Pinkley, however, the detour road was left to languish "without any care."[20]

By that autumn, plans were underway to entice motorists from Adamana, and from the new state highway, into the monument for long-term stays. Noting with satisfaction that his particular proposal could be built cheaply and with minimal maintenance, Custodian Nelson highlighted the fact that his plan connected all of the popular points of interest along a single motor route, "Furthermore, and this is the most important, it will place all three forests in a string, with no branch roads, so that a traveler can travel on [a] single road and see the entire forest without detouring." In his emphatic conclusion, Nelson left little room for amendments to his proposal. "In order to make the patrolling of the monument effective," he remarked, "it is most necessary that the road be so arranged."[21]

Despite Nelson's direct pleas for assistance in constructing a viable transportation route within the monument to connect the state highways to the north and south, it would take years of patience, resolve, and countless disgruntled letters to finally persuade those of influence to respond. In 1923, a local storeowner observed that cars stuck themselves in the sand when conditions were dry and mired themselves in the mud when the ground was wet. Cars also simply "broke up" going over rough ground. As a proprietor, he regretted that Petrified Forest had a "bad name." He allowed that its poor reputation was "known from coast to coast" and chided those in charge to initiate improvements.[22]

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[20] Letter from Frank Pinkley, Casa Grande Ruin Custodian, to Mr. Mather, 2 March 1921. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921-1925." Note: This correspondence contains a detailed discussion of various Jim Camp road alternatives.

[21] Letter from William Nelson, Custodian, to the National Park Service Director, 15 September 1921. NARA, 32/24/6, Box 606.

[22] Letter from R.R. Alton, Store Owner, to Mr. A.B. Cammerer, Acting NPS Director, 22 May 1923. NARA, 32/24/6, Box 606.

In 1924, the vice president of the Atchison, Topeka, and Santa Fe Railway System launched a personal appeal to Congressman Carl Hayden. His maundering note vaguely threatened the monument with abandonment by the railroad if inattention to interior roads continued:

> It is a serious question with us whether, if relief is not afforded soon, we will be justified in exploiting the Forest in our advertising, because tourists may think they are not treated fairly in being solicited to stop and see this great wonder only to find that the road they must travel over is impassable.[23]

Traveler after peeved traveler took pen in hand upon return, or tapped out typewritten diatribes, to share his or her mounting frustration with National Park Service officials in Washington. More than one writer used underlining for added emphasis:

> At Adamana I found a comfortable and attractive little hotel and plenty of guides and automobiles, but with one exception, the roads, where there were any, were atrocious and we had to ford a river which [was] exceedingly dangerous because of quicksands.[24]

Those who negotiated the roads successfully were exasperated by the scarcity of services. The final blow for many visitors was the presence of a troublesome pig herd frequenting the campgrounds. The hand-raised brood caused untold trouble for visitors, who could hardly keep the tame pigs "out from under foot."[25]

Mounting complaints on a variety of fronts eventually prompted NPS Chief Engineer Kittredge to take action. At Kittredge's request, Assistant Engineer Guy D. Edwards (San Francisco,

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[23] Letter from Edward Chambers, Vice President, Atchison, Topeka and Santa Fe Railway System to Hon. Carl Hayden, House of Representatives, Washington, DC, 16 January 1924. NARA, 32/24/6, Box 606.

[24] Letter from Pauline Commerford, to "Chief, National Parks Division," 28 October 1925. NARA, 32/24/6, Box 606.

[25] Letter from Frank Pinkley, Superintendent Southwestern Monuments, to Director Mather, National Park Service, 4 February 1925. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921-1925."

California) undertook a three-day site visit to Petrified Forest National Monument to assess existing conditions. Beginning in Adamana the first week of April 1929, Edwards journeyed southward along the monument's main route, stopping at each of the popular tourist attractions along the way.

Assistant NPS Engineer Edwards (April 1929)

From Adamana, Edwards took advantage of an existing road that ran south (along the west line of Section 8, Township 18 North, Range 24 East) to the Rio Puerco. This road was at the time little more than an "auto trail," an outgrowth of a route established by "herders' wagons."[26]

Edwards plotted a new road to intersect with an existing gravel road connecting Holbrook with St. Johns. Next, Edwards confirmed that the location of a Rio Puerco crossing proposed in a survey three years earlier showed signs of erosion at the north bank. Extending his road layout straight south along the section line from Adamana, Edwards identified a new location for a crossing that he felt would be more cost-efficient. At this time, Edwards envisioned the crossing as being either a bridge or a concrete "dip."[27]

Continuing southward along the main artery, Edwards concluded that the road traversed through the flat terrain in a logical fashion. He became concerned, though, when he realized that the main trunk ran directly "through the heart" of First Forest. He recommended that several adjustments be implemented to instead route the main road away from nearly every "important area of petrified forest."[28]

Throughout his excursion, Edwards sought to restrict direct access to the highest concentrations of petrified wood, emphasizing to his superiors in Washington, DC the need to create a physical distance between parked motorcars and irreplaceable chunks of ancient wood.

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[26] Letter from Chief Engineer F.A. Kittredge to Mr. Edwards, 15 March 1929. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest Inspections and Investigations."

[27] Guy D. Edwards, Assistant Engineer, "Report on Preliminary Investigations of Road System: Petrified Forest National Monument" (Washington, DC: Department of the Interior, National Park Service), 12 April 1929. NARA, 32/24/6, Box 604.

[28] Edwards, "Report," 2.

First Forest

Edwards observed that despite the ranger's best efforts, many valuable specimens of petrified wood were "thrown in cars and hauled away" due to the proximity of the main road to the first high-concentration scatter of wood. Accordingly, Edwards proposed the obliteration of all roads "through and near" First Forest. He further suggested that the construction of a branch road running west from the main road to an east entrance would end in a "natural" parking place from which tourists would have only a short walk to areas of high wood concentration. "One ranger," commented Edwards, could patrol this "bottle-neck" to ensure that "no one carried away any wood."[29]

At each tourist draw, Edwards assessed the existing road layout in terms of the potential for looting. In addition to recommending the abandonment of several roads leading into First Forest, Edwards suggested that fencing sections and/or ditches be constructed to further discourage would-be wood thieves.

Natural Bridge

Remarking with chagrin that visitors to the 75' long "Natural Bridge" were in the habit of chipping off and pocketing bridge chunks as souvenirs, Edwards recommended that a frame or fence be constructed in order "to stop this evil" by keeping visitors at bay.[30] Again, just as at First Forest, Edwards opted for the creation of a loop road and parking lot to eliminate the necessity of employing a ranger to monitor the log bridge attraction.

Second Forest

An existing "Y" leading from the main road into another high concentration of petrified wood known as "Second Forest" came under the scrutiny of Engineer Edwards next. At a minimum, he optioned to block one of the branches from further access. Predictably, Edwards preferred that a single abbreviated road ending in a parking lot replace the meandering branches accessing the interior of the site.

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[29] Edwards, "Report," 2.

[30] Edwards, "Report," 3.

Rainbow Forest and Third Forest

As he motored southward, Edwards rued the construction of a 22' wide swath that sliced "right through the best part of Rainbow Forest" and very close to the south side of the Third Forest.[31] Sponsored by the state, Edwards felt that this gravel road should have tracked overtop a nearby road no longer in use rather than penetrating two high-density areas. His solution was to build a one-mile right-of-way fence along the road so that "tourists could not get through."[32] He proposed the obliteration of a road through Third Forest, commenting that its removal would necessitate "only a short walk" from the main road. Finally, he advocated the construction of a 1,000' long fence to separate the Rainbow and Third Forests, and the museum, from an existing parking lot.

In his concluding remarks to Chief Engineer Kittredge, Edwards reiterated his contention that, aside from some minor improvements to the grade and alignment, the existing route linking the First Forest, Second Forest, Rainbow Forest, and Third Forest served its purpose adequately. Tellingly, Edwards noted that, along this main roadway, there was "no petrified wood to speak of."

Those areas containing high concentrations of wood occupied most of Edwards' attention, prompting the proposal of numerous road obliterations, the construction of loop spurs terminating in automobile parking lots, and the placement of more than 4 miles of security fencing. If Edwards was to have anything to do with it, future motorists to the monument were going to be encouraged to park their cars and walk.

Report Response

Less than one month after receiving the report, a handwritten note penciled to National Park Service official Demeray endorsed each of the ideas proposed by Edwards. Succinctly, the reviewer (presumably Kittredge) concluded that the report represented "an ideal road solution."[33] Kittredge summarized the highlights of

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[31] Edwards, "Report," 3.

[32] Edwards, "Report," 3.

[33] Edwards, "Report," 5.

Edwards' plan in a separate letter. He noted that at its core, the plan allowed only one through road, and advocated the complete blockading of all other roads. He also noted that the road in the northern part of the monument would be re-routed to pass between the First and Second forests without touching either one. Spur roads to these forests would make them accessible, and parking areas would be provided so that vehicles could not get into the "forests proper." These forest areas, noted Kittredge, would be accessible "only by foot."[34] M.R. Tillotson, Superintendent at the nearby Grand Canyon National Park, concurred that the relocation and reconstruction of the main road through the monument was of utmost concern. According to Tillotson, the existing road was "a disgrace." After reviewing the Edwards proposal, Tillotson concurred with Kittredge that the proposed route was "well chosen" and "logical."[35]

Connection with U.S. Highway 66

Once the road system proposed by Edwards was officially approved, attention soon turned to connecting his north-south trending route with U.S. Highway 66. Local, state, and federal planners had long recognized that Route 66 represented an untapped potential for enticing tourists. The popular interstate was situated just 8 miles north of the monument's boundary at the time.

Grover C. Udall, County Head Foreman; M.E. Green, President, Apache County Chamber of Commerce; Lloyd Henning, Past Master of the Arizona Grand Lodge of Masons and Past Governor of the Arizona Rotary District, and other prominent citizens and influential businessmen explored a variety of options with state and federal planners to connect the short stretch between the monument boundary and Highway 66.

On 10 August 1929, Mr. Charles J. Smith, former chief ranger in the Grand Canyon National Park, reported for duty as the new

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[34] Letter submitted by M.R. Tillotson, Superintendent, Grand Canyon National Park, 9 September 1929. NARA, Record Group 79, Entry 6, Box 597, "NPS 1921-1932."

[35] Report submitted by M.R. Tillotson, Superintendent, Grand Canyon National Park, 9 September 1929. NARA, Record Group 79, Entry 6, Box 597, "NPS 1921-1932."

custodian at Petrified Forest.[36] Custodian Smith favored a direct connection with Highway 66 as an incentive to shut down roadside concessionaires. Grousing that the half-dozen or so roadside stands already in operation gave "a very bad impression to the visitors," Smith stated that putting a connecting road under federal jurisdiction would make it impossible for "every irresponsible party in the country to set up shanties and peddle" petrified wood.[37]

In February 1930, Junior Architect Charles E. Peterson traveled the tentative central route proposed by Edwards on foot. Peterson acknowledged that the proposed road followed closely an overgrown route known locally as "Jim Camp Road."[38] In fundamental agreement with monument advocates and the Edwards report, Peterson concluded his site visit by frankly acknowledging that all "engineering and landscape considerations" were "secondary" to what he termed the "policing" problem.[39] Accordingly, the location of a proposed Highway 66 junction took into account several practical and aesthetic considerations, including resource protection and land ownership. Custodian Smith opted for a Section 16 location in order to afford "a proper beginning for the Painted Desert Rim Road."[40]

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[36] Report, M.R. Tillotson, 9 September 1929.

[37] Letter from Monument Custodian Chas. J. Smith to the NPS Director, 16 May 1930. NARA, 32/24/7, Box 604, "Administration and Personnel Reports." In other correspondence, Smith noted that a connection "would allow for a cross-monument highway from U.S. #66 on the north to U.S. #70 on the south, giving an entrance on two great highways, and would prevent the building of shanties by irresponsible parties on our boundaries for the peddling of petrified wood to the tourists." Letter from Chas. J. Smith, Custodian, to the Director, National Park Service, 15 September 1930. NARA, 32/24/6, Box 605, "Lands, Buildings, Roads and Trails; Boundaries Extension."

[38] Peterson wrote, "On the map accompanying Mr. Edwards' report, this route is indicated by a colored line following closely an old road known as the 'Jim Camp Road.' This road is much overgrown with grass and obliterated in many places. The present road lies three quarters of a mile to the west and has never been published on a map." Report submitted by Junior Architect Charles E. Peterson to Landscape Architect Vint, 12 February 1930. NARA, Box 598.

[39] Peterson, Report.

[40] Letter from Chas. J. Smith, Custodian, to the Director, National Park Service, 20 December 1932. NARA, 32/24/6, Box 605.

By 1931, the effort to connect with U.S. Highway 66 was assisted by the federal allocation of a tract of land between the former north boundary and the Rio Puerco "for the purpose of building a first class highway" between Highway 66 and the town of Adamana, including a bridge over the Rio Puerco. Under President Hoover, an appropriation of $300,000 became available for the road and bridge construction. The entire project had the cooperation of Senator Hayden as well as the other members of Congress from Arizona, who understood its completion "would be of great benefit" to the people of northern Arizona.[41]

Painted Desert Addition

Those advocating the acquisition of an enormous tract of land known as the Painted Desert north of Highway 66 complicated the connecting road issue by questioning who would ultimately be responsible fiscally for the stretch. The early 1930s thus witnessed a flurry of correspondence between Arizona state and local politicians, Park Service personnel, land commissioners, State Highways staff, and landowners regarding what entity should construct and maintain the road from Rio Puerco to Highway 66 if the proposed Painted Desert acquisition succeeded.

A telegram from the Winslow Chamber of Commerce, for example, stated unequivocally that the people of Northern Arizona vigorously opposed the expenditure of state funds for the connecting road because they felt the project was solely the responsibility of the "U.S. Park Service."[42] A "Convention 66" association convened in Kingman similarly passed a resolution opposing local funding for the project. With the connecting road issue placed in abeyance, attention was diverted to the precise nature of the proposed Painted Desert acquisition.

Pertinent aspects recognized by Custodian Smith and NPS Director Albright included ease of administration, protection, and future developments. Each felt that it was necessary to include that portion of Highway 66 deemed "essential to the proper administration and protection of the area." Each felt that the westernmost boundary of the Painted Desert acquisition should be

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[41] Letter from Chas. J. Smith, Monument Custodian, to Mr. Howard J. Smith, Arizona State Land Commissioner, 2 February 1931. NARA, 32/24/6, Box 605, "Lands; Private Holdings August 7, 1930 to April 28, 1931."

[42] Correspondence. NARA, 32/24/6, Box 605, "Lands, Buildings, Roads and Trails; Boundaries Extension."

extended to protect "the Rim" and to include Pilot Rock. Each man understood the importance of creating "a connecting strip" to attract Highway 66 tourists and concluded that enough of the Painted Desert should be included to "provide for future development."[43] Recommendations from several individuals also sought to include land owned by a Mr. Lore, the Black Forest, a mesa known as Rabbit Butte or Lime Mountain, and the Chindi Mesa, for their scenic value.

Private land ownership within the proposed Painted Desert acquisition provided a constant source of vexation for federal planners, because the Interior Department was not authorized to expend funds to improve a road that crossed private holdings every other mile.

The existing main road, actually more of a trail than a highway, meandered its way through a checkerboard pattern of federal and private landholdings that dated back to the original railroad land grants. Polite yet repeated requests for easements were most often flatly denied. Sharing his ongoing frustration with the NPS Director, Custodian Smith wrote:

> I have asked Mr. Redding several times for an easement across [his] 80 acres, but he puts me off each time. He wants unreasonable concessions in the way of the width of this strip so that he can put up some sort of a 'tin can' hot dog stand by the roadside. I do not recommend dealing with him further and am making recommendations to the Chief Landscape Architect and the Bureau of Public Roads to keep this road within the southeast corner.[44]

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[43] Letter from Chas. J. Smith, Monument Custodian to "The Director," National Park Service, 8 August 1932. NARA, 32/24/6, Box 605, "Lands, Buildings, Roads and Trails; Boundaries Extension."

[44] Letter from Chas. J. Smith, Superintendent to Director, National Park Service, 13 February 1933. NARA, 32/24/6, Box 606, "Rights of Way." NPS official Cammerer reiterated the situation for Senator Hayden: "It seems that Mr. Redding is holding out for a promise of a concession for some kind of 'hot dog' stand along the right of way. Of course, Mr. Smith knows this office cannot give him any such promise." Letter from Arno B. Cammerer, Acting Director, to Hon. Carl Hayden, United States Senate, stamped 21 February 1933. NARA, 32/24/6, Box 606, "Rights of Way."

The issue was eventually resolved by the passage of a 14 May 1930 land exchange act passed by Congress authorizing the federal government to obtain title to privately-owned land through exchanges for parcels of public land of equal value in Apache County, Arizona.

Perseverance finally paid off as private landowners, including the Santa Fe railroad, relinquished their holdings within the monument. On 23 September 1932, some 53,300 acres known collectively as the Painted Desert were added to the monument.[45] An unexpected and much needed infusion of federal funding followed soon thereafter.

Civil Works Projects

On 9 November 1933, Superintendent Charles Smith received a telegraph from Chief Engineer F.A. Kittredge that would have dramatic and positive repercussions throughout the next several years. Four years earlier, the collapse of the New York stock market had plunged the country and the world into a financial tailspin. As the Great Depression worsened, few Americans remained unscathed. Buoyed by his campaign promises of a "New Deal," American voters ensured that President Franklin Delano Roosevelt took the oath of office on 4 March 1933.

True to his pledges, Roosevelt proposed, and Congress passed, fifteen 'Emergency Acts' in the next three months following his inauguration. A bewildering array of agencies were subsequently organized, including the Civilian Conservation Corps (CCC), which was established under "Emergency Conservation Work" (ECW), the Tennessee Valley Authority (TVA), the Soil Conservation Service, the National Resources Committee, the Public Works Administration, and the Resettlement Administration. At Roosevelt's behest, these and other organizations devoted America's energies into the development of a public landscape with, in Roosevelt's words, "the definite objective of building human happiness."[46] Federal initiatives soon yielded opportunities at the local level.

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[45] For a good summary of the fluctuating status of the monument's boundaries, see George M. Lubick, *Petrified Forest National Park: A Wilderness Bound in Time* (Tucson: The University of Arizona Press, 1996).

[46] Cabell Phillips, *The New York Times Chronicle of American Life From the Crash to the Blitz: 1929 - 1939* (NY: Fordham University Press, 2000); Phoebe Cutler, *The Public Landscape of the New Deal* (New Haven and London: Yale University Press, 1971).

In an effort to furnish hand labor to as many needy men as possible, Kittredge's telegraph requested that Superintendent Smith prepare an outline and cost estimate of work that could be accomplished at the Petrified Forest under the newly-formed Civil Works Program. Responding immediately, Smith's initial compilation of projects served, with few amendments, as a template for several years of hard-won progress within the park.[47] Smith tapped into nearby unemployment offices to put those out of a job back to work building roads, developing campgrounds, restoring archaeological ruins, and clearing ditches. Seven projects designed to span intermittent streambeds were also slated for construction at this time.

According to NPS Assistant Engineer Clarence Bell, unemployed "railroad engineers, brakemen, train dispatchers, bookkeepers, cow hands, farmers, painters, stone masons, carpenters, and just common loafers" were enlisted and engaged in numerous worthwhile activities on behalf of Petrified Forest National Park. No matter his background, each man joined the force to work at manual labor. Clarence Bell later observed that the quality of work accomplished was "very good," considering that the men could not be picked for their "ability," but were rather selected on the basis of "need."[48]

At the close of the first phase of Public Works, Forest Superintendent Smith stated with satisfaction that a great number of men had come to him personally, thanking him for the opportunity to work, and conveying that the jobs had "kept them and their families from actual want." Speaking on behalf of his monument and the adjacent region, Smith continued, "I feel that this Civil Works Program just ended is one of the finest things ever undertaken or accomplished… The improvements made here under this program will furnish pleasure, enjoyment, and comfort to the people of every state, and visitors from all over the world for many years to come."[49]

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[47] Clarence Bell, Assistant Engineer, "Final Construction Report on Work Completed Under the Civil Works Administration, Civil Works Project, No. F 68 U.S. No. 7" prepared for F.A. Kittredge, Chief Engineer, Bureau of Public Roads, May 1934. On file, PEFO, Office.

[48] Bell, "Final Construction Report."

[49] Superintendent Chas. J. Smith quoted in Bell, "Final Construction Report."

A second phase of Public Works beginning 4 July 1934 resulted in the construction of buildings for administrative and public use, road and trail construction to provide access to points of interest, flood control to safeguard the paved highway that crossed the monument, and a variety of miscellaneous maintenance activities. Company 831 (formerly SP-3-A) relocated to the Petrified Forest National Monument on 3 July 1934. Commanded at that time by Capt. Russell Worthington, he was relieved by Captain Geisser on July 20. The camp was established on the south bank of the Rio Puerco, 16 miles from park headquarters, due to the availability of water there. The reconstruction of an existing lodge building at the Painted Desert, and the new construction of a large group of utility and residential buildings at the same site, provided the main focus for this second phase.[50]

During their off hours, Civilian Conservation Corps enrollees kept idleness at bay by attending vocational and academic classes and engaging in team competitions. Custodian Smith noted with satisfaction that this camp was, in his view, free of any sort of "radical agitation" that he thought disrupted similar encampments.[51]

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[50] Harold W. Cole [?], "C.C.C. Camp NM-1-A," report, 28 July 1937. NARA, Record Group 35, Entry 115, Number 530: 65/23/5, Box 11-Arizona, "Records of the CCC, Division of Investigations, Camp Inspection Reports, 1933-1942. Holbrook Folder." See also: "Report on Emergency Conservation Work by Camp NM-1-A, Company 831 CCC During the Third Enrollment Period July 3, 1934 to September 30, 1934," prepared for Chas. J. Smith, Superintendent, et al. On file, PEFO, Office.

[51] "Classes have been regularly held in automobile mechanics, mechanical drawing, mathematics, natural science, economics and cooking… Mrs. Chas. J. Smith, and Mrs. C.M. Bell with the assistance of ladies from Holbrook have conducted a cooking school… Service clubs of Holbrook have sent out businessmen who have given weekly lectures on business methods and other topics… The enrollees under the educational advisor, Mr. E.V. Campbell, have been greatly interested in sports. They have played a series of eleven base ball games with local teams, Indian teams, and other C.C.C. camps… A basket ball court has been set up on the floor of a discarded tent… and foot ball practice is quite regular. [Sports] occupy much of the idle time of the men which idle time often leads to brooding and radicalism in camps of this nature. However, I may say that this camp has been free from radical agitation of any kind." Quoted in "Report on Emergency Conservation Work by Camp NM-1-A, Company 831 CCC During the Third Enrollment Period July 3, 1934 to September 30, 1934," prepared for Chas. J. Smith, Superintendent, et.al. On file, PEFO, Office.

Engineering projects undertaken during the Fifth Enrollment Period fell under the direct supervision of Assistant Engineer Bell, working alongside Project Superintendent William Roer, Park Superintendent Chas. J. Smith, ECW Engineer Foreman J.D. Cowan, and surveyor Don C. McNeil. By September 1935, numerous water and sewage projects, erosion-control efforts, and a variety of other infrastructure activities were successfully completed. Erosion control at the Rio Puerco was emphasized, including efforts at bank sloping, landscaping, constructing diversion ditches, and placing rip-rap. A spur road to the Prehistoric Pictographs site was constructed. Gravel and flagstone walks and guardrails were installed. Roadside boulder curbing, routine road and bridge maintenance, and seeding and sod projects to disguise temporary roads were also accomplished at this time.[52]

The prodigious hand labor conducted at taxpayers' expense for the purpose of public enjoyment made travel to Petrified Forest easier and finally made lengthier stays feasible. Enticing descriptions of Black Forest, Blue Forest, the Haystacks, First Forest, Agate Bridge, Second Forest, the Flattops, Rainbow Forest, the museum, campgrounds, and Third Forest were featured in brochures available to the public free of charge.

Some visitors arrived looking for work, while others stopped en route to locations further west. Displaced workers, academia, the curious, vacationers, and international travelers alike detoured off high-speed interstates, carefully wending their way over newly-surfaced park roads to camp sites, updated facilities, and improved attractions.

Despite the ongoing economic depression, and smack in the middle of an expansive scrub desert, a fledgling tourism industry within the monument boundaries took flight. Fred Harvey and his partner Hunter Clarkson were two of the first to cater to railroad passengers by providing sedan tours through the park

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[52] "Report on Emergency Conservation Work by Camp NM-1-A, Company 831 CCC During the Fifth Enrollment Period April 1 to September 30, 1935," prepared for the Director, National Park Service. On file, PEFO, Office. Note: "Approximately 1,500 boulders weighing from 500 to 3,000 pounds have been loaded on trucks by hand in outlying sections of the Monument and hauled to the parking areas [First, Second, and Third Forests, the Agate Bridge, and Rio Puerco] where they were also set by hand." From the "Report on Emergency Conservation Work by Camp NM-1-A, Company 831 CCC During the Fourth Enrollment Period October 1, 1934 to March 31, 1935," prepared for Chas. J. Smith, Superintendent, et al. On file, PEFO, Office.

and the surrounding "Indian Country." By the early 1930s, increasing visitation spawned several new private enterprises.

Private Enterprise

The successful public works programs undertaken during Roosevelt's "New Deal" period encouraged the continuation of early tourist-based businesses and assisted with the creation of other ventures providing hotel accommodations and visitor services. Mr. H.F. ("Dick") Grigsby was one of the first to open a concessionaire sanctioned by the monument. As early as the fall of 1928, construction was completed on a stone building where he sold groceries, supplies, gasoline, specimens of polished petrified wood, Navajo rugs, and "Indian curios" among many other things. According to M.R. Tillotson, Mr. Grigsby was "an old time cattleman of the locality, with all the old time cattleman's hospitality and good nature." He was not (according to Tillotson), however, "much of a business man."[53]

The famous "Harveycoaches" or "Harveycars" began operating at the monument on 1 June 1930. The English-born Frederick Henry Harvey took it as his life-long mission to provide good food and transportation at a fair price.[54] Hospitality to travelers, no matter how rough the conditions, became his hallmark. As Fred Harvey's right-hand man, Mr. Hunter Clarkson and his "Hunter-Clarkson" tours were responsible for bringing nearly 4,000 individuals to the monument in the first four months that their services were offered.[55]

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[53] M.R. Tillotson, Superintendent, Grand Canyon National Park, report, 9 September 1929. NARA, Box 597, "NPS 1921 - 1932."

[54] William Patrick Armstrong, *Fred Harvey: Creator of Western Hospitality* (Phoenix: Canyonlands Publications, 2000), Introduction.

[55] Letter from Frank Pinkley, Superintendent Southwestern Monuments to Director Mather, National Park Service, 4 February 1925. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921 - 1925." See also: Monthly Report submitted by Frank Pinkley, Superintendent Southwestern Monuments, 1 October 1930. On file, PEFO, Office. A 5-Year Transportation Permit signed between Hunter Clarkson, President, Hunter Clarkson Tours, Incorporated, and Horace M. Albright, Director, National Park Service (stamped) was signed at Petrified Forest National Monument, Holbrook, Arizona on 20 October 1931. $10.00 (annual) permit. On file, PEFO, Office, Vault, "Historical Files: Privileges and Permits Hunter Clarkson, Inc. Transportation File #901."

Records kept during the single month of October 1930 reveal that 668 visitors were delivered by Harvey car services from the Santa Fe Railroad stops. Approximately 6,370 additional visitors arrived in 2,289 private automobiles.[56] Since the "Harveycar inception," remarked Custodian Smith enthusiastically, "a very high class of travel has visited us in that manner, to the number of 9,764 people, many of whom were personages of international importance."[57] On "1 March 1931," wrote Custodian Pinkley in his monthly report to the NPS Director, "the monument was visited by one of the most distinguished persons who ever came to view its wonders, perhaps the greatest thinker in the world, Dr. Albert Einstein, with Frau Einstein and party." Pinkley continued:

> He was greatly interested in all that he saw here and they proved to be a charming couple. Dr. Einstein fired a multitude of questions at us evidencing the greatest interest in the 'whys' and 'hows,' posing gracefully for the official photographer as well as a considerable number of amateurs, being finally taken away almost by force by the Santa Fe officials who were charged with the duty of getting him back to his train on time.[58]

With better roads to boast of, and enjoying increasing worldwide recognition, Petrified Forest advocates readily embraced the prospect of newcomers. Clearly, the market was ripe for the provision of privately sold goods and services.

Hotel Accommodations

"What we need at Adamana," proclaimed Frank Pinkley, "is not more hotels but a better one." He elaborated his thoughts on the subject in a note to NPS Director Mather:

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[56] Monthly Report submitted by M.O. Evenstad, Acting Superintendent Southwestern Monuments, 13 November 1930. On file, PEFO, Library.

[57] Monthly Report prepared by Smith and submitted by Frank Pinkley, Superintendent Southwestern Monuments, 10 July 1931. On file, PEFO, Library.

[58] Monthly Report prepared by Frank Pinkley, Superintendent Southwestern Monuments, 10 March 1931. On file, PEFO, Library.

> I am not complaining at the service in the present one… I found the beds and rooms clean, enough food of a plain variety well cooked and a certain friendliness and 'homey' feeling toward visitors… This is not to say that the hotel compares with the Fred Harvey system, because it does not, but we must remember that the Fred Harvey service has never established a hotel at Adamana, presumably because they thought it would not pay them to do so.[59]

Several years earlier, a local rancher named Donohue had purchased Mr. Nelson's hotel and transportation line. Pinkley claimed that Donohue, although a popular "old timer" and a "very likeable man," lacked the experience to run a successful hotel business.[60]

Pinkley therefore enthusiastically endorsed an innovative proposal put forth by a friend of his to erect a "house museum" for both day visitors, and for guests staying longer. Dr. Taylor's idea was to bring together a collection of the geological, historical, and prehistoric things "with which the country abounds," and put them in a proper building where they could be enjoyed. "This would not be strictly a museum," explained Pinkley:

> It would be just the right kind of a house, big enough to be a rest house and a stopping place with these things scattered around through it, not in rows or shelves where they force themselves upon you, but here and there where you run across them or hunt them up, all labeled and described so that the visitor could simply absorb knowledge as he walked around… The idea would be to try to hold [visitors] longer in the country than is done under the present system.[61]

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[59] Letter from Frank Pinkley, Superintendent Southwestern Monuments to Director Mather, National Park Service, 4 February 1925. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921-1925."

[60] Letter from Frank Pinkley to the Director, National Park Service, dated 16 September 1922. NARA, 32/2/46, Box 604, "National Monuments Petrified Forest: Inspection 1921 - 1925."

[61] Letter from Frank Pinkley to the Director, National Park Service, 26 February 1923. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921-1925."

All plans for improvements within the monument were put on hold after 7 December 1941 and the attack on Pearl Harbor. Many Americans assumed that the mainland would be invaded next, so 16 million men and women were suddenly occupied with defending the nation.[62] Overnight, a nation that had shown no taste for war completely revamped itself for mobilization overseas.

World War II

U.S. participation in World War II drastically affected the Petrified Forest staff and resources, as it did most parks nationwide. More than a dozen full-time employees at the park were summoned for overseas military service. Bennett T. Gale, Park Naturalist, returned to duty as a lieutenant. Park Ranger Lee Glassbrook enrolled in the U.S. Army. Senior Mechanic Troy Stickland served as petty officer with the Seabees. Road maintenance worker R.H. Reutter saw combat in the Pacific Theater. H. Olson, also with road maintenance, engaged in war-related civilian work in San Francisco. Park Ranger Roy Workman retired to Mesa, Arizona after his defense stint. Superintendent Branch's daughter, Pat, enlisted in the Waves in 1944. Senior mechanic Jess Caldwell's daughter also joined the Waves that same year. Other monument employees entering the armed forces included: Seasonal Ranger Scotty Benson, lieutenant; Ranger Naturalist Neil C. Bauer, captain; Ranger Naturalist Hubert Coleman, major; Seasonal Ranger Alfred Duncan, pharmacist's mate; Seasonal Ranger L. J. Cadwell, staff sergeant; Clerk Millard Singerman, army; Ranger Naturalist Lloyd M. Smith, army; Seasonal Ranger John A. McCloskey, army; Clerk Reginald Brown, navy; Clerk Ira G. Goodman, army; Clerk Robert Tucker, War Department.[63] Those who remained faced slashed budgets and were eventually laid off. The result was a slowdown

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[62] Dr. Alan Axelrod and Charles Phillips, *What Everyone Should Know About the 20th Century* (Holbrook, MA: Adams Media Corporation, 1995), 144.

[63] Letter from P.P. Patraw, Acting Regional Director, to Mr. Jas. I. Clarkson, President, Indian-Detour Transportation, Co., Santa Fe, NM, 6 April 1948. Notifying Clarkson that Permit No. I-20p-1074 issued 1 January 1945 to 31 December 1949 was cancelled effective 31 December 1947 "in view of the present demands for this service." On file, PEFO, Office, Vault, "Historical Files: Privileges and Permits Hunter Clarkson, Inc. Transportation File #901"; "Petrified Forest Names Employees in Armed Service," *Holbrook Tribune-News*, ? 1945. On file, PEFO, Office.

in park improvements and progress that was to last for more than a decade.

Post-World War II

On 14 August 1945, with a headline that roared, "Japanese Surrender!" a special edition of the *Holbrook Tribune-News* front page also featured an article on visitation to Petrified Forest. Travel during the month of July totaled 1,907 automobiles and 6,139 people, the largest recorded number for one month since October 1942. The figures reflected a 54 percent increase in the number of cars, and a 59 percent increase in the number of people for the same month the previous year. The following October 1945 again saw record-breaking travel on U.S. Highway 66 and to the Petrified Forest. Some 20,203 individuals in 7,246 cars visited the monument in October alone. [64]

As military personnel from overseas and ex-employees from closed defense plants returned to their homes, and gas rationing was lifted, automobile travel on Route 66 exceeded all previous records. Restaurants found it "next to impossible to secure sufficient supplies of food" to meet the new travel demands, while grocery stores, pharmacies, hotels, campgrounds, and trailer camps faced similar shortages of supplies and accommodations.[65] According to newspaper reports, posted "No Vacancy" signs meant that many weary travelers ended up sleeping in their cars.

Ten monthly Petrified Forest travel records were made during the year ending 30 September 1946, with totals amounting to 95,139 cars and 284,979 visitors. These figures represented a 346 percent increase over travel recorded the previous year. Campground use exceeded all expectations. Rainbow Forest Lodge and the Painted Desert Inn were fully occupied throughout the summer months. Interestingly, officials noted that monument

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[64] "Petrified Forest July Travel Sets 33-Month Record," *Holbrook Tribune News*, August 14, 1945; "[?] Sets New Record," *Holbrook Tribune News*, nd. All on file, PEFO, Office.

[65] "October Travel on U. S. 66 Tops Highest Record: Eastbound Travel Figures Show Similar Heavy Auto Traffic/See No Respite," *Holbrook Tribune News*, 2 November 1945. On file, PEFO, Office.

travel related to nationwide post-war relocations accounted for nearly one-third of the monument visitors.[66]

By 1948, steadily increasing visitation spawned additional private enterprises. The White Mountain Passenger Lines, Inc., for example, operating a taxi service in Holbrook and bus line services to St. Johns, McNary, Showlow, Springerville, and Globe, Arizona, was granted an NPS concessionaire permit to operate tours to the Petrified Forest into the early 1950s.[67]

Mission 66

By the mid-1950s, it was clear that the nation's entire park system was woefully understaffed and under-funded. In rapid succession, World War II, the post-war inflationary boom, rationing during the Korean conflict, and domestic spending cuts in deference to the Cold War military build-up had each imposed severe strains upon the National Park Service. It had become "exceedingly difficult, almost impossible" noted NPS Director Conrad Wirth, for the Park Service to refurbish deteriorating park roads, museum buildings, and other facilities.[68]

Conrad Wirth proposed a monumental ten-year effort, which he named "Mission 66," the culmination of which, in 1966, would coincide with the fiftieth anniversary of the National Park Service. Conceptually innovative, Wirth's proposal defied conventional logic by opting for a single request involving an enormous expenditure for a single goal, rather than asking for smaller sums in a piecemeal fashion. Approval by Congress of the Mission 66 prospectus resulted in a critical infusion of funding for National Park Service undertakings nationwide.

A grateful Petrified Forest staff received approval of the Mission 66 improvement program on 21 February 1957.[69] The construction of long-awaited trails and road spurs, an addition to the visitor's center at Rainbow Forest, a new visitor's

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[66] L. Floyd Keller, NPS Correspondent to regional newspapers, press release, 10 December 1946. On file, PEFO, Office.

[67] Memorandum from Superintendent Thomas E. Whitcraft, 17 May 1948. On file, PEFO, Office.

[68] Conrad Wirth, *Parks, Politics, and the People* (Norman: University of Oklahoma Press, 1980), 20.

[69] Typed memorandum dated 1957. On file, PEFO, Office.

center and headquarters at the north end of the park, museum exhibits and expanded office space, picnic areas, and improvement to the water and power systems, fencing, and employee housing all occurred as a direct result of the Mission 66 program. Also at this time, the Petrified Forest achieved National Park status.

Before Mission 66, Petrified Forest contained an assortment of buildings, including cabins, privately owned concessions, and other structures designed by Park Service architects, all clustered along the main park road. The selection of Richard Neutra and Robert Alexander (Los Angeles, California) for the new headquarters facility demonstrated a departure from traditional NPS designs. Renowned minimalists, Neutra and Alexander imposed an International Style upon the traditional adobe already in existence at the park.[70]

Mission 66 improvements during the mid 1950s contended with the monument's early Civilian Conservation Corps-constructed buildings, and a motley assortment of souvenir stores and eateries. Jacob's Trading Post, Olson Curio, and Charles "Indian" Miller's Lion Farm/Painted Desert Park galled park planners opposed to private concessionaires marring the natural scenery. Accordingly, the Mission 66 program was explicitly designed to minimize clutter, create new visitor facilities, and improve the existing road system.[71] Once completed, the new headquarters squatted alone, about three-quarters of a mile away from the mesas overlooking the Painted Desert. Its placement near Route 66 continues to successfully beckon high-speed motorists.

Another important implication of the Mission 66 initiatives was the sponsorship of legislation to rededicate the monument as a National Park. Secretary of the Interior Stewart Udall and Senator Carl Hayden worked together to jointly sponsor the proposal to Congress in 1958. The legislation was passed that same year, with the proviso that the monument could not become a

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[70] From Richard J. Neutra to Thomas J. Allen, "Rough Draft of Letter," 25 January 1963. On file at the Petrified Forest National Park archives (hereafter cited as PEFO, Archives. View Sara Allaback's "Mission 66 Visitor Centers: The History of a Building Type" on-line at: http://www.cr.nps.gov/history/online books/allaback/vc4n.htm#1.

[71] *Annual Report of the Department of the Interior*, 1957. On file, PEFO, Office.

park until the federal government acquired 8,174 acres of privately owned land located within the boundaries.

This daunting task was accomplished during Superintendent Fred C. Fagergren's tenure. On 7 November 1962, Secretary Udall signed the order making the monument the nation's thirty-first National Park.[72] The official changeover took place on the fifty-sixth anniversary of the establishment of the Petrified Forest as a National Monument.

NPS Director Conrad Wirth's retirement in 1963 after a distinguished career capped by his Mission 66 program prompted, at his request, a renewed commitment within the Park Service to the agency's original goals. Wirth and others cautioned against treating the public as "visitors to be tolerated."[73] He admonished his peers to respond to genuine complaints with compassion and appropriate action.

Vandalism

Treading the thin line between welcoming visitors and monitoring them has posed challenges since the inception of federal protection at Petrified Forest. Three years before the culmination of the Mission 66 initiatives, the park hosted 307,533 visitors, a 15 percent increase over 1962. Out of those, sixty-one individuals were cited for the theft of petrified wood.[74]

Throughout the park's history, the emphasis placed upon averting vandalism cannot be overstated. The simple trunk-and-spur road system was designed to optimize short-term visits, while discouraging the theft of precious petrified wood. The main trunk (NPS Route 10) connects U.S. Route 40 with U.S. Route 180. Short access roads branch from Route 10 to specific locations within the park. To simplify security even further, abandoned secondary roads have been obliterated or are no longer accessible to the public.

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[72] "Dedication Address Delivered by Edward B. Danson," *Holbrook Tribune-News*, nd. On file, PEFO, Office.

[73] "Park Service Faces Big Changes in Realignment," *The New York Times*, 17 October 1963. On file, PEFO, Office.

[74] "307,533 Visit Park," *Holbrook Tribune-News*, nd. On file, PEFO, Office.

Private concessionaires offer polished samples of petrified wood in gift shops located at each end of the park. These samples are identified as being collected on private property adjacent to the Petrified Forest. This system represents a distinct departure from the earliest days of site stewardship. Although subsequent managers quickly banished the practice, the first custodians allowed each tourist to remove up to 8 pounds of petrified wood per visit.[75]

As early as 1920, increased visitation due to transcontinental auto traffic vexed Custodian Smith to the point of distraction. "The carrying away of specimens and the damaging of larger pieces," wrote Smith, was "negligible" until the

> transcontinental auto traffic assumed such large proportions… In conclusion I wish to point out that after the completion of the highway, the Petrified Forest will, without such protection… in a short time become a chipped, chiseled, hammered and unsightly wreck of what is now one of Nature's noblest works.[76]

Some observers complained that the pursuit to thwart theft overshadowed other more pertinent concerns. Custodian Nelson's "single thought" wrote Frank Pinkley to the NPS Director, is to "prevent vandalism." This aim, Pinkley countered, should actually be considered merely a minor part of Nelson's business:

> The major part is to deliver service to the visitor. Only about ten per cent of the visitors need watching but about ninety per cent of them need information.[77]

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[75] Chester B. Campbell, custodian of the Forest stated he had followed the custom of his predecessor, R.A. Stephenson, of "limiting the amount of specimens taken by each person to eight pounds." Letter from Roy G. Mead, Mineral Examiner, General Land Office, to the Commissioner, 29 May 1914. NARA, 32/10/7, Box 335.

[76] Letter from Custodian William Smith, to Acting Director Cammerer, 6 November 1920. NARA, 32/101/7, Box 336, "PT 7 Sept 24, 1919 to Mar 17, 1921."

[77] Letter from Frank Pinkley, to the Director, National Park Service, 16 September 1922. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921 - 1925."

To the chagrin of Pinkley and others, Mr. Nelson and his wife unabashedly viewed each road traveler as a potential thief. Outspoken in her criticisms, and biased toward railroad passengers, Mrs. Nelson on more than one occasion referred to certain tourists as representing nothing but "automobile trash."[78]

Often, overly vigilant park staff adversely affected the tourist experience to the point that formal complaints were lodged. The "innocent visitor," lamented observer Pinkley, "catches the back-fire and does not get the treatment we would like to have him get."[79] Others viewed with consternation Nelson's daily penchant for perching atop a marl hill with "a gun" and "a spy glass."[80]

Pinkley fretted that Nelson was overly susceptible to the stress of confronting vandals:

> If we can relieve him of this worry I believe his temper would sweeten up and complaints along this line would cease, or at least, decrease… In the matter of vandalism, I believe he and Mr. Meyer

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[78] "When I told [Mrs. Nelson] that as long as the railroad people wanted to use Adamana as the point of departure and as long as the automobile traffic wanted to use the cross-over road through Adamana we were going to hold [a] north entrance open, I got the usual reply you get when you tell a freshly opened bottle of soda water not to fizz. I am free to confess that [arguing] with Mrs. Nelson is beyond me. She has some wild eyed idea that if the Government does not come forward at once and do just what she wants it to some very wealthy and influential private parties are going to step in and take it away from the Government and run it properly… She complains of the Park Service, of the 'automobile trash' which visits the monument, and of anything else her mind happens to dwell upon." Letter from Frank Pinkley, Superintendent Southwestern Monuments, to Director Mather, National Park Service, 4 February 1925. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921-1925."

[79] From Frank Pinkley, Superintendent Southwestern Monuments, to Director Mather, National Park Service, 4 February 1925. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921 - 1925."

[80] From Frank Pinkley, Superintendent Southwestern Monuments, to NPS Director Mather, 20 March 1926. NARA, Record Group 79, Entry 6. (Note: incomplete citation.)

> needlessly irritated a lot of visitors last summer by being unnecessarily rough with them.[81]

Thwarting would-be thieves while maintaining a welcoming demeanor increasingly occupied monument officials as post-World War II travel and Mission 66 incentives prompted more travelers to stop in for a visit. Polite but adamant requests to leave the wood alone continue to test more than one honest conscience. One visitor, who upon routine questioning appeared to have a speech impediment, was soon thereafter asked to remove several small pieces of petrified wood from his mouth by shrewd gate officials. An astute visitor turned in four "foreign female students, attired only in bikinis" for secreting stolen wood "on their persons." According to the newspaper article, rangers used the "utmost discretion" in permitting the girls to voluntarily remove and return the wood.[82] Searches of cars have located wood concealed in pillowcases, under car hoods, in tissue boxes, and hubcaps. One parent, expressing astonishment at the discovery of a 45-pound section of log in his trunk, told park rangers that his 4-year-old son must have put it there.[83]

Dual Landscapes Separated by the Rio Puerco: Connected by a Slender Ribbon of Road

NPS officials monitoring progress at the Petrified Forest rued the fact that tourists were at times unintentionally treated as intruders. Warning signs, management techniques, and even the road system itself have each been designed to (1) conform with official park standards and (2) minimize theft.

National park standards explicitly state that roads are to be "located and designed to fit the terrain as closely as possible." To this end, architects and engineers are asked to strive for "the utmost in imagination and ingenuity."[84] The

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[81] Letter from Frank Pinkley, Superintendent Southwestern Monuments, to Director Mather, National Park Service, 4 February 1925. NARA, 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921 - 1925."

[82] "Prickly Problem: Petrified Wood Thieves Shifty," *Holbrook Tribune-News* (?), nd. On file, PEFO, Office.

[83] "Prices of 'Souveniers' Can be High in Petrified Forest," *Holbrook Tribune-News* (?), 17 October 1963. On file, PEFO, Office.

[84] From the NPS Acting Director to all field offices, memorandum, 23 August 1957. On file, PEFO, Office.

park's official mandate to showcase (while simultaneously protect) nonrenewable fragments of petrified wood has affected the design of every road, bridge, culvert, facility, parking lot, and trail.

As previously noted, the Rio Puerco serves as a broad natural divide between two remarkably different landscapes within Petrified Forest National Park. Concentrations of petrified wood at Jasper Forest, Crystal Forest, and Rainbow Forest are located south of the intermittent river, along with the cultural and natural features nicknamed the Tepees, Blue Mesa, Agate Bridge, the Flattops, Puerco Indian ruin, and Newspaper Rock.

North of the Rio Puerco, sagebrush-dotted slopes sheer off abruptly at cliffs overlooking the colorful undulations of the Painted Desert. Throughout the length of the park, the main road generally follows natural contours, circumventing impassable sections through inhospitable terrain.

South of the Rio Puerco, motorists are encouraged to remain in their cars except at designated pullouts. The roads and bridges have no shoulders, and sidewalks are associated only with parking lots. Signs admonish visitors to leave the petrified wood where it lies and also request that pedestrians stay on designated trails. There are few restroom facilities and no picnic areas.

North of the Rio Puerco, beyond the main concentrations of petrified wood, motorists are enticed from their vehicles into the landscape. A picnic area is under construction. An interpreted nature trail links a parking area to the Painted Desert Inn. A trailhead near the Rim Road leads to a 47,000-acre wilderness area unmarred by roads or trails. Here, in contrast to the relatively regimented motorist experience in the southern portion of the park, motorists-turned-hikers are encouraged to ramble at will.

Conclusion

The uncluttered simplicity of the Petrified Forest road and spur system offers a welcome respite from the billboards, pollution, and high-speed traffic routinely assaulting drivers on most of our nation's byways. Along much of its length, the quiet main park road is elevated to a height 2′ to 3′ above the natural grade. This feature, in addition to narrow or non-existent road shoulders and no sidewalks, persuades motorists to stay on the

slender ribbon of road until diverted to parking lots. By design, motorist attention is focused on the surrounding landscape, occasionally interrupted by short loop road diversions to scenic stops.

Until the recent past, an ephemeral road system stranded countless visitors unaccustomed to violent cloudbursts that mired machines and beasts alike in unforgiving quicksand. Decades of written and verbal complaints ultimately resulted in funding allocations, allowing National Park Service and Bureau of Public Road officials to effectively respond. Road planners confronted intertwined (often competing) desires to provide access to natural, scientific, and cultural resources, while simultaneously protecting these same resources from looters. Accordingly, an ingenious system of spur roads, parking lots, and walkways was developed to provide accessibility while discouraging theft.

The road system at Petrified Forest has been streamlined over the years into an effective main corridor featuring short access spurs terminating in circular or semi-circular parking lots. South of the Rio Puerco, in the areas featuring the highest concentrations of petrified wood, motorists are encouraged to leave their cars only at designated parking lots and to walk short distances to scenic attractions. North of the Rio Puerco, in a landscape dominated by the magnificent Painted Desert, motorists are given numerous opportunities to wander at will. Connecting these two distinctly different visitor experiences is a main road that conforms to the existing contours and embraces the surrounding terrain.

The current road spans numerous beguiling gullies effortlessly. Each culvert is built to successfully ford intermittent *arroyos* or washes using simple materials, including wood, steel, and concrete. None of the structures, including the bridges, is deemed eligible for inclusion on the National Register of Historic Places. Each bridge and culvert is characterized by symmetry, utility, and unobtrusiveness. Few embellishments exist to distract the motorist from the ever-changing terrain. Ironically, it is the contemporary conveniences, including motorized vehicles, paved roads, and modern bridges, which allow visitors to fully enjoy this remarkable, 200-million-year-old landscape.

Appendix:

What follows is a brief summary of each of the prominent tourist attractions, and a detailed structural description of each of the road and bridge sections providing accessibility:[85]

Long Logs Trail

After visiting the Rainbow Forest Museum, visitors may choose to take advantage of a 1/3-mile self-guided loop through one of the park's largest concentrations of petrified wood. Several of the longest logs exceed 150' in length. In the midst of a pile of mineralized logs stands Agate House. Similar to several other prehistoric pueblos in adjacent areas, its residents built this structure using petrified wood some time between A.D. 1050 and 1300.[86]

Entrance Road over Cottonwood Wash

FHA Structure No. 8430-001P

Location:
1.65 miles northeast of Junction Highway 180 (MP 324.8) and Rainbow Forest (South) Entrance.
Date of Construction: 1971

This bridge (Milepost 26.81) consists of three spans for a total length of 89.4'. The approach span length (heading southwest) is 26.7'. The center span is 34.0'. The final span is 28.7'. The typical section is a cast-concrete deck that includes two driving lanes and curb, with very narrow (1.0') shoulders and a steel guardrail. The total deck width is 35'. The pavement

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[85] Sources for the section on roads and bridges include: U.S. Department of Transportation, Federal Highway Administration (FHA), Bridge Inspection and Management Program (Field Assessment), 17 April 1998; Steven Trimble, *Earth Journey: A Road Guide to Petrified Forest* (Flagstaff: Petrified Forest Museum Association, 1984); official pamphlets distributed at Petrified Forest National Park; several one-week site visits, and a field visit (June 2001) by the author and structural engineer Sonya L. Cooper, Ph.D., New Mexico State University (NMSU).

[86] This site was named "Agate House" on 27 March 1931 by Dr. H.P. Mera, Archeologist from the Laboratory of Anthropology, Santa Fe with his assistants, Mrs. Willis T. Goodwin, and Mr. A.A. Normand. Monthly Report prepared by Frank Pinkley, Superintendent Southwestern Monuments, 7 April 1931. On file, PEFO, Library.

width is 33′. The concrete deck is cast continuously over the three spans. Two center concrete piers and two end abutments support the three spans. The piers rest on concrete spread footing foundations. The abutments rest on spread footings over structural piles. The bridge crosses Cottonwood Wash at a 20-degree skew.

Route 10 over Jim Camp Wash
FHA Structure No. 8430-005P

Location:
2.55 miles north of Junction Highway 180 (Milepost 324.9) and (South) Entrance Road.
Date of Construction: 1934

See HAER No. AZ-59, "Jim Camp Wash Bridge," for complete report.

Puerco Ridge

Southeast of the Flat Tops lies Puerco Ridge, designated by Congress as a wilderness area. Pronghorn roam here, in badlands and desert grassland, among spiky-leaved yucca and blue grama grass.

Flat Tops

Route 10 over Dry Wash: Bridge North of Flat Tops
FHA Structure No. 8430-006P

Location:
1 mile north of Flat Tops. 22.17 miles south on Route 10, off of Interstate 40 (Exit #311).
Date of Construction: 1934; Date of Reconstruction: 1980

This bridge (Milepost 22.17) consists of a single tee beam concrete span 38′ in length. The total length of the structure equals 66′. The typical section consists of a cast-in-place concrete deck with two driving lanes. The deck width is 27.5′, with 3′ wide shoulders on either side. The bridge crosses the wash north of Flat Tops at a 0-degree skew. The guardrail is of continuous steel set at full height (2′-2″). Sandstone blocks support concrete beam abutments and roller bearing seats.

The following Civilian Conservation Corps graffiti is penciled beneath the road deck:

- Burning Weeds Jim Maxwell Co 805 CCC Nov. 9, 1936 Lafayette, Colorado
- Herbert Cwright [?] April 15, 1932
- Ray Hale Boulder C0805 Colorado Nov. 9, 1936
- Joe Satz [?] March 26, 1935 When I wear [*sic*] in the CCC Joe Satz

Route 10 over Dry Wash: Culvert North of Crystal Forest
FHA Structure No. 8430-007P

Location:
19.3 miles south on Route 10, off of Interstate 40 (Exit #311).
Date of Construction: 1934

This culvert (Milepost 19.3) consists of five spans (11′ each) for a total structure length of 55′. The typical section consists of a cast-in-place concrete deck. A narrow (2′) shoulder is constructed on either side of the width of the two-lane deck (25.7′). The culvert exhibits a full-height (2′-3″) continuous steel guardrail mounted to wood posts. The culvert spans the dry wash north of Crystal Forest at a 0-degree skew. This culvert is in need of repair. Poor erosion control at the upstream wing walls is undermining the structural stability of the supporting sandstone rocks. At the top deck, spalling edges due to deteriorated asphalt reveal exposed re-bar. Silt infill has substantially reduced the carrying capacity at this location.

Jasper Forest

The Jasper Forest Overlook perches above a valley strewn with petrified logs made mostly of red jasper. A slender rock spire stood below the bluff until it collapsed in 1940. Named for nesting birds of prey, Eagle's Nest Rock fell into a pile of rubble, witnessed only, perhaps, by passing pronghorns and skittering lizards.

At Milepost 19.0, an unmarked two-track leads to a rock feature. The 1/2-mile approach road to Jasper Forest is typical throughout the southern portion of the park. The posted speed limit drops to 15 mile per hour, with motorists sent into a counter-clockwise, one-lane loop with parking.

Agate Bridge

A 100′ log spans a wash at the edge of a mesa. Harder than the surrounding rock that encases each end, the log has resisted the same weathering that has hollowed out an arroyo beneath it. In 1917, a concrete support beam was placed beneath the bridge to conserve it as a scenic attraction.

Located at Milepost 18.0, this 1917 concrete work replaces earlier 1911 masonry pillars. The concrete has since popped off in sections of the steel plates. The steel plates are exposed. The fasteners are exposed at splice plates; the steel plates and concrete no longer operate in tandem to support log. Opposite the Agate Bridge, a road is maintained for "Authorized Use Only."

Route 10 over Dry Wash
FHA Structure No. 8430-008P

Location:
12.2 miles north of Highway 180; 16.41 miles south on Route 10, off of Interstate 40 (Exit #311).
Date of Construction: 1934

This culvert (Milepost 16.41) consists of nine spans for a total structure length of 99′. Each span is symmetrical, measuring 11′. The typical section consists of a cast-in-place concrete deck. The deck width is 25.7′. Each narrow shoulder measures 2′ wide. The culvert exhibits a full-height (2′-3″) continuous steel guardrail mounted to wood posts. The culvert spans East Fork Dry Wash at a 0-degree skew. The total horizontal clearance equals 24′. Extensive cracking and spalling at several locations along the concrete deck edge has resulted in exposed re-bar and accelerated deterioration due to weathering. The re-bar construction exhibits poor design in the sense that the hooks were not integrated into the upright slabs. An attempt has been made to reduce erosion at the abutment banks by filling wood frames with aggregate. The treated wood frames are exposed and failing at the joints.

Route 10 over East Fork Dry Wash at Blue Mesa
FHA Structure No. 8430-009P

Location:

300 yards south of Blue Mesa; 15.80 miles south on Route 10, off of Interstate 40 (Exit #311).
Date of Construction: 1934
Date of Reconstruction: 1984

This culvert (Milepost 15.84) consists of five spans for a total structure length of 55′. Each span is symmetrical, measuring 11′. The typical section consists of a cast-in-place concrete deck. The deck width is 25.5′. Each narrow shoulder measures 2′ wide. The culvert exhibits a full-height (2′-3″) continuous steel guardrail mounted to wood posts. The culvert spans East Fork Dry Wash at a 0-degree skew. The total horizontal clearance equals 24′. Originally, the reinforcing bars were not set deeply enough into the concrete. Extensive cracking and spalling at several locations along the concrete deck edge has resulted in exposed re-bar and accelerated deterioration due to weathering. Silt infill has substantially reduced the carrying capacity at this location.

Blue Mesa

Blue Mesa rises above the surrounding plain, shaped by water, wind, and time. A self-guided 1 mile trail loops through this stark landscape from the road at its rim.

A 35-mph access road to Blue Mesa stretches 3-1/2 miles. Posted speed is reduced to 25 mph at the one-lane counter-clockwise loop and parking lot. The Badlands, a moonscape of plantless hills and gullies, spreads out below. The Rio Puerco, occupying the flat desert valley and providing a natural corridor for the railroad and the interstate highway, dominates the scenic overlook. The curvy Blue Mesa exit road echoes the undulations of the nearby dendritic drainages.

Tepees

At times the Tepees area was a lake; at other times it contained low, rolling, hills; and at still others the landscape consisted of a broad floodplain and meandering streams. Plant fossils in the Tepee area yield a glimpse of forests along ancient streams. They include a bed of spectacular fern and cycad leaf impressions, upright horsetails 50′ high, and spores and pollen from more than 100 species. A meandering road (45 mph) gives way to straight-shot beeline segments at Milepost 12.

Newspaper Rock

Newspaper Rock features scores of pecked designs created 650 - 2,000 years ago.

Archaeological Surveys and the Puerco Pueblo

Most of the archaeological surveys conducted at Petrified Forest were initiated using New Deal funding under the direction of H.P. Mera of the Laboratory of Anthropology in Santa Fe, New Mexico and his associate C.B. Cosgrove. These early surveys, augmented over the decades, have located hundreds of prehistoric sites in and around Petrified Forest. As a result, the Petrified Forest region is regarded as an important cultural frontier, sandwiched as it is between the mountain people of the south (the Mogollon), the canyon and plateau people to the north (the Anasazi), and the Sinagua, Salado, and Hohokam groups to the west.

Although most of the archaeological sites are off-limits to the traveling public, several sites are interpreted for visitors. The largest of these, Puerco Pueblo, represents a late-phase dwelling occupied intermittently between AD 1250 and AD 1450. The Puerco Pueblo ranks as the park's largest prehistoric structure, featuring nearly eighty rooms.

The Road to Adamana

Adamana is currently inaccessible to the general public because the area is owned and operated by the Ferrellgas Company. Barbed wire fencing and "Danger-Stay Out" signs surround an underground storage tunnel and other activities. The old road from Adamana to the park is now designated as an "Authorized Use Only" road.

Route 10 over Rio Puerco
FHA Structure No. 8430-002P

Location:
17.85 miles north of Highway 180 junction; 10.78 miles south on Route 10, off of Interstate 40 (Exit #311).
Date of Construction: 1990

It bears repeating that reaching Petrified Forest in the early days from either Route 66 or the tiny railroad stop of Adamana required crossing the treacherous Rio Puerco. Many tourists visited the monument along this route, only to find the same road impassable at the end of the half-day or daylong visit. Written and verbal pleas to construct a reliable bridge at this location were finally answered decades after federal stewardship of Petrified Forest was established.

One of the earliest letters on record was a request from Al Stevenson to his acquaintance Andrew Carnegie in 1911:

> Owing to the lack of a bridge over the Rio Puerco (you no doubt remember we always had to ford it) visitors are often obliged to wait a week or two until the river subsides so that it may be safely crossed. Many are compelled to return home without visiting the Forest, which they have stopped especially to see… Would you not kindly write to the Secretary of the Interior, pointing out the necessity of such work… I would greatly appreciate your interest in this much needed help to the Forest, which is endorsed by leading railway officials, scientists, and travelers.[87]

Ten years later, the threat of a lawsuit from a man who lost his new automobile to the Rio Puerco during a cloudburst contributed to mounting concerns that something constructive be done.[88]

In 1923, a petition tendered by Apache County officials again emphasized the necessity of providing a viable solution to the impasse. Petitioners noted that ongoing improvements to the National Old Trails highway (later Route 66) would come to naught if attention was not paid to the "looming obstacle" presented by the Rio Puerco.[89]

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[87] Letter from Al Stevenson to Andrew Carnegie, 12 September 1911. NARA, Number 150: 32/10/7, Box 335.

[88] "He is still here and now intends to sue both the county and the Park Service for damages. While suit against the P.S. is ridiculous it is quite possible that he may find a lawyer to serve such papers." Letter from Custodian William Smith to the Director, National Park Service, 2 August 1921. NARA, Number 150: 32/10/7, Box 336, "Pt 8 Apr 14, 1921 to May 25, 1923."

[89] "The National Old Trails highway is being put in excellent shape, and to conform to the desires of the auto traffic the road is led along the rim of

A personal campaign undertaken that same year by Acting NPS Director Arno B. Cammerer demanded that Custodian Nelson provide assistance at his earliest convenience:

> We are going to do everything we can to get the bridge in at Adamana as soon as possible. What I need worst of all are some photographs, showing automobiles stuck in the mud, automobiles being hauled out of the river on a rampage; in fact anything that I can show the members of Congress when the appropriation items are under consideration… Do everything you can to get me these pictures during the next few months.[90]

Frank Pinkley threw in his support by stating that the bridge was unequivocally the "most important item" in the Southwestern Monuments road budget. Pinkley and others were emphatic in their assessment:

> We cannot draw traffic from both branches of the highway until this bridge is built. We cannot give regular service to the train visitor without it. No hotel service can be successful at Adamana until it is put in.[91]

Complicating the endeavor was the fact that the proposed bridge site was situated outside the monument boundary. Several years earlier, a bill proposed by Senator Henry Ashurst had elicited just such a concern from NPS Director Stephen P. Mather. "If an appropriation should be made under this bill," he confided to Ashurst, "the bridge across the Rio Puerco could not be

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the Painted Desert, thence through Adamana and to the North boundary line of this Monument, where our road begins. The looming obstacle is, as always, the Rio Puerco crossing; hence the petition." Letter from William Smith, Custodian, to the National Park Service Director, 9 January 1923. NARA, Number 150: 32/24/6. Box 606.

[90] Letter from Acting NPS Director Arno B. Cammerer to Custodian William Nelson, 31 May 1923. NARA, Number 150: 32/24/6. Box 606.

[91] Letter from Frank Pinkley, Superintendent, Southwestern Monuments, to the Director, National Park Service, 15 September 1924. NARA, Number 150: 32/24/6, Box 604, "National Monuments Petrified Forest: Inspection 1921 - 1925."

constructed as it is about four miles north of the Monument line."[92]

After minor editing by NPS officials, the revised bill requested special legislative authority from Congress. On 9 April 1924, tentative allocations for bridging the troublesome river were included in the third year of work. Authorities were asked to consider either a special act or a boundary revision to address the legality of expending federal funds on privately owned land.[93]

Finally, after years of hand wringing and political wrangling, bids were let on 2 June 1931 for the construction of a bridge at Rio Puerco.[94]

On 6 June 1932, one year almost to the day after work on the bridge was initiated, several prominent individuals convened in the town of St. Johns to address an important agenda. Grady Stubbs, President of the Holbrook Chamber of Commerce; Art Sanders, Field Land Examiner for the Santa Fe Pacific Railroad; Petrified Forest Custodian Smith; Judge Sidney Sapp; Don Udall, and several other interested individuals motored to the noon meeting of the Lions Club of St. Johns.

Representing the town's "only service organization," attendees responded in the affirmative when asked to attend the upcoming July dedication of the long-awaited Rio Puerco bridge. Next, attentive Lions Club members were asked to support the proposed addition of the enormous Painted Desert to the existing Petrified Forest. Enthusiastic members promised "100% cooperation" in both matters.[95]

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[92] Letter from Stephen T. Mather, Director, National Park Service, to U.S. Senator Henry Ashurst, Washington, DC, 19 April 1921. NARA, 32/24/6, Box 606.

[93] Letter from NPS Director Stephen T. Mather, to the Secretary of the Interior, 3 November 1925. NARA, 32/24/6, Box 606. Also: Letter from Engineer F.A. Kittredge to the NPS Director, 17 July 1929. NARA, 32/24/6, Box 604, "Administration and Personnel Reports."

[94] Monthly Report prepared by Custodian Smith. Submitted by Hilding F. Palmer, Acting Superintendent Southwestern Monuments on 9 June 1931. On file, PEFO, Library.

[95] Memorandum for the file dated 7 June 1932 prepared by Custodian Chas. J. Smith. NARA, 32/24/6, Box 605.

Replacement Bridge at Rio Puerco

The original bridge at the Rio Puerco has been replaced, and further alterations to the replacement bridge have been necessary. Water diversion projects at this dynamic intersection of nature and technology have realized varying degrees of success.

The current bridge (Milepost 10.78) consists of four spans for a total structure length of 512′. The typical section consists of a cast-in-place concrete deck supported by pre-stressed concrete girders. The bridge exhibits two driving lanes, narrow 2′ right and left shoulders, and a concrete curb-rail. The total deck width is 33.5′. The pavement width is 30′. The concrete deck is cast continuously over the four spans with transverse expansion joints located overtop each pier. Three center concrete piers and two concrete end abutments support the four spans. The center piers and Abutment #2 rest on concrete spread footings supported by 12-3/4″ O.D. steel pipe piles filled with concrete. Abutment #1 rests on a spread footing. This bridge is characterized by a full-height (2′-3″) continuous concrete guardrail. This bridge spans Puerco River at a 0-degree skew.

Route 10 over AT & SF Railroad
FHA Structure No. 8430-003P

Location:
18.25 miles north of Highway 180 junction; 10.38 miles south on Route 10, off of Interstate 40 (Exit #311).
Date of Construction: 1987

This bridge (Milepost 10.38) consists of three spans for a total structure length of 177′. The typical section consists of a pre-cast concrete deck supported by pre-stressed multi beam girders. The length of span #1 is 56′; the length of span #2 is 65′; the length of span #3 is 56′. The spans are supported using Type 502 pre-stressed girders (five each). The curb-to-curb width at the deck is 30′, while the deck width itself measures 33.5′. Each of the piers and abutments rests on spread footings. The bridge spans the railroad pass at a skew angle of 0-degrees. The total horizontal clearance equals 24′. This bridge exhibits a full-height (2′-3″) continuous concrete guardrail.

North of the Railroad Overpass

At Milepost 8, the terrain opens into vast grassland nearly devoid of rocks. At least one two-track road closed to the public is visible.

At Milepost 6, an overpass at Interstate 40 features an access road also closed to the public. Posted signage reads "No Motor Vehicles Service Road Only." Each of these maintenance roads located throughout the Park is included on a sketch map dated 1950.

Several scenic overlooks or "points" greet the motorist at the north end of the main Park road. At Milepost 5, an overlook named for Iowa Congressman Lacey reminds visitors that Petrified Forest, although initially preserved for its scenic vistas, has also become an invaluable resource for on-going scientific research.

Pintado Point and Painted Desert Inn

Entrepreneur Herbert David Lore built his two-story resort using petrified wood and other local stone in 1924. Celebrated internationally for its commanding perch overlooking the Painted Desert, Lore's "Stone Tree House" offered Native American crafts, meals and alcoholic refreshments, lodging, and two hour motor tours through the "Black Forest" below the inn.

In 1932, the Petrified Forest National Monument boundary was expanded to include some 53,300 acres of the Painted Desert. Four years later, the monument purchased the Stone Tree House and an additional four sections of land. With the assistance of Civilian Conservation Corps enlistees under the guidance of NPS architect Lyle E. Bennett, monument officials stabilized and remodeled the Painted Desert Inn. By 1936, funds were used to improve the 5-mile Painted Desert Rim Drive. The Inn was declared a National Historic Landmark in 1987.[96]

Pintado Point (Milepost 2), at the Inn, marks the beginning of a trailhead to the 43,000-acre Painted Desert Wilderness area.

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[96] Harold W. Cole, Project Superintendent, "C.C.C. Camp PNM-2-A," report, 29 October 1938. NARA, Record Group 35, Entry 115, Number 530: 65/23/5, Box 11-Arizona, "Records of the CCC, Division of Investigations, Camp Inspection Reports, 1933-42. Holbrook folder." Also: Brochures available at PEFO.

Painted Desert District/Rim Road

At the northernmost end of the meandering park corridor, the scenic drive known as the Rim Road hugs the edge of sheer bluffs overlooking the dramatic expanse of the Painted Desert.[97] Wide shoulders, no guardrail, and low curbing characterize this motor drive. Motorists are encouraged to park, leave their vehicles, enjoy scenic overlooks, and partake in leisurely hikes.

The motorist experience varies, depending upon whether one is north of the Rio Puerco, or south. Within the highest concentrations of petrified wood to the south, visitors are encouraged to emerge from their vehicles only at designated pullouts. From the Painted Desert Rim Road in the north, motorists are enticed to hike. A meandering road, hugging the changing terrain, manages to seamlessly connect two very divergent landscapes.

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[97] Apparently, a Mr. Langley was responsible for suggesting an extended rim road. Note: "Mr. Langley, Mr. Wallace B.P.R., Mr. Smith and I went over the proposed road extension. Mr. Langley's plan to place a rim road along the Painted Desert is a good one. The intersection with Highway #66 is well chosen… I have but one suggestion to offer… there is one good view to the east, of which we should take advantage… I feel it would be a mistake not to take full advantage of the one and only grand vista on the proposed route from 66 to the Santa Fe overpass." From a report dated 12 September 1932 prepared by H.A. Kreinkamp, Assistant Landscape Architect for Chief Landscape Architect Vint. NARA, Number 150: 32/24/6, Box 604, "Petrified Forest Administration and Personnel Report."

Table: Projects undertaken for Civil Works Project.

Project Number	Description of project
Project No. 1	Ditching and hand sloping along existing roadways to promote erosion control and increase ditch drainage capacities.
Project No. 2	General clean up and landscaping was conducted at the area surrounding the original park headquarters.
Project No. 3	Picnic shelters, camp tables, and rubbish cans were added to a campground located adjacent to the park headquarters. The main roadway and parking spurs were graded and surfaced with coarse sand obtained from nearby Cottonwood Wash.
Project No. 4	A temporary roadway to the prehistoric pictographs was graded to the trailhead. This road was intentionally graded to stay within the limits of a proposed improved road, construction later.
Project No. 5	A foot trail to the prehistoric pictographs was built, "with the object in mind of preserving the natural appearance of the cliff along which the trail winds."
Project No. 6	Completion of Third Forest trails and Panorama Knoll begun by a previous Public Works project was suspended due to expenditure of funds. An additional trail 2,050' in length linked the Agate House ruins. A clean grade of pea gravel, secured without material cost from the Arizona Highway Department, was used for top dressing. The pea gravel was of a color that blended well with the landscape and made a "very neat and serviceable job."
Project No. 7	[A proposed Second Forest foot trail plan that was eventually shelved.]
Project No. 8	The First Forest Trail Road was completed. Begun 16 January 1934, the rough grading was about 60 percent complete when the CWA force took over the work. Nineteen corrugated metal culverts with stone masonry headwalls, and one dip were also constructed at this time.
Project No. 9	The First Forest Trail Road received gravel surfacing.
Project No. 10	Roadwork continued at the Newspaper Rock Road.
Project No. 11	A temporary road was constructed at Blue Forest, and a foot trail was completed.
Project No. 12	[A riverbank protection effort at the Rio Puerco was delayed until a later date.]
Project No. 13	An agreement between the Arizona Land and Cattle Company and an adjacent Indian reservation resulted in the completion of a boundary drift fence. Crews at each location cut approximately 5,000 posts. Altogether 39 miles of temporary roads graded to facilitate the fence construction.
Project No. 14	Five men were employed to reconstruct the Agate House ruins, situated on a knoll in the Third Forest. A cultural resources survey located scores of other ruins.

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_____. Binders contain historic photos and standard construction details; inspections; organization handbooks, etc. One photo captioned "Indian Fence Construction Crew."

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Staff, Petrified Forest National Park. Pat Thompson, Tessy Shirakawa, and Scott Williams in particular.

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