

Petrified Forest Worksheet

Name _____

Date _____

Area of Petrified Forest: _____

Square feet in an acre: _____

Number of people who visit the Petrified Forest National Park:

Total number of people who have visited the Petrified Forest National Park:

Percent that contains PW	Area that contains PW	Total amount of PW pieces	Wood / visitor
.1			
1			
10			
25			

Calculations:

Petrified Forest Policy Brief Notes

Name _____

Executive Summary:

Statement of Issue/Problem:

Statement of Policy/Policy Options:

Your Observations: Include your calculations and your table.

Your recommendations:

Assignment:

Write a 1-2 page policy brief that addresses the question, “Is there enough petrified wood in the Petrified Forest National Park for visitors to take some of the wood when they visit?” The brief must be a minimum of 5 paragraphs and include; an executive summary, a statement of the issue and the problem, a statement of the current policy and policy options, the observations and calculations and a table that estimates how much petrified wood is in the Petrified Forest National Park, and your recommendations. Be thoughtful and creative as you look for why the current policy is in effect and ways to solve the policy problem.

Grading Rubric

CATEGORY	4	3	2	1
Executive Summary	Paragraph describes the problem. Explains why there is a need for re-evaluation. Recommends an action.	Paragraph has two of the three; describes the problem, explains why there is a need for re-evaluation, recommends an action.	Paragraph has one of the three; describes the problem, explains why there is a need for re-evaluation, recommends an action.	Paragraph has little or nothing to do with the Summary or is missing.
Issue/Problem	Paragraph describes the problem, gives some history of the problem, and identifies relevance of problem.	Paragraph has two of the three; describes the problem, gives some history of the problem, and identifies relevance of problem.	Paragraph has only one of the three; describes the problem, gives some history of the problem, and identifies relevance of problem.	Paragraph has little or nothing to do with the issue or the problem or is missing.
Statement of Policy/Options	Paragraph includes more than one option to solve the problem, and explains more than one reason the current option is not working	Paragraph includes only one of the following or only one of each; an option to solve the problem, and a reason the current option is not working	Paragraph includes only one of the following or only one of each; an option to solve the problem, and a reason the current option is not working	Paragraph has little or nothing to do with the statement of policy or options or is missing .
Observations/ Calculations/ Table	Observations are identified, Calculations are shown or explained, and the table is complete with 4 options.	Some observations are identified, and some calculations are shown or explained, and the table is complete with 4 options.	Some observations are identified, or some calculations are shown or explained, or the table is mostly complete with more than one option.	Observations/ Calculations/ Table are not present or only one is present but incomplete or is missing.
Recommendations	Specific measures of change are identified. Importance of action is identified. Creativity in solutions.	Some measures of change are identified. Some importance of action is identified. Some creativity in solutions.	Some measures of change are identified or some importance of action is identified.	Paragraph has little or nothing to do with the recommendation of change or is missing.

Picture of Petrified Forest Floor



Background information on Petrified Forest

- Watch the DVD, Timeless Impressions, a one-hour presentation about the Petrified Forest and the Painted Desert.
- Also go to National Park Service Website
<https://www.nps.gov/pefo/planyourvisit/index.htm>

Petrified Wood Congress set aside Petrified Forest National Park in order to preserve an incredible concentration of petrified wood. Over the years, attitudes about protection have ranged from permissible collection to today's "zero tolerance" policy. The findings from social science studies about wood theft vary widely, making any estimates or analysis of the problem uncertain and questionable. However, the loss of the resource from within the expanded boundary and the invasive techniques used to unearth the buried remains highlight the need for continued protection. Furthermore, many visitors seem unable to resist the lure of taking a souvenir of petrified wood.

The reading below is an excerpt from a report of the National Park Service. You can read it in its entirety to better understand how the Park is staying aware of things that are placing pressure on the use of the Park.

Petrified Forest National Park
Geologic Resources Inventory Report
Natural Resource Report NPS/NRPC/GRD/NRR—2010/218
http://www.nature.nps.gov/geology/inventory/publications/reports/pefo_gri_rpt_view.pdf

Petrified Wood

Aptly named and simply stated, Petrified Forest National Park was set aside to preserve one of the Earth's large stand most colorful concentrations of petrified wood (fig. 5). Recent research has shown the significance of the fossilized wood in its paleo-environmental context (revealing the evolutionary histories of Triassic plants and animals), validating one of the primary purposes of park management: the protection of the petrified wood. Over the years, attitudes about the protection of petrified wood have evolved: the earliest caretakers of the monument were allowed to sell the pieces of the colorful resource to supplement their \$1 per year "salaries" (National Park Service 1990)

Today, the park has a "zero tolerance" policy with regard to the illegal collection of petrified wood (Bill Parker, Petrified Forest National Park, e-mail, October 29, 2008). Nevertheless, since the petrified forests were first recognized and appreciated, it has been a known fact that petrified wood disappears at the hands of collectors—piece-by-piece or by the ton. As stated in Petrified Forest Natural and Cultural Resources Management Plan and Program (National Park Service 1986), "visitors annually remove approximately 12 tons of petrified wood from the park" (p. 3). This anecdotal 12-ton amount has been woven into the fabric of the park's resource identity, but its empirical validity has yet to be proven (Bill Parker, Petrified Forest National Park, e-mail, October 29, 2008). Through the years, investigators have undertaken studies to estimate the amount of petrified wood removed from the park. In 1990, investigators used 45 "baited plots" along visitor pathways and suggested that visitors stole 8,129 pounds

[4.065 tons] of petrified wood per day (Scher 1990). Furthermore, this study estimated that 1.01 pounds of petrified wood were stolen per person and 2.73 pounds of petrified wood were stolen per car. Also, for every 416 pounds of wood stolen, one pound was recovered (Scher 1990). The wood samples in the baited plots were near gem quality (and presumably harder to resist). Wood previously confiscated from vehicle inspection stations was used in the baited plots.

Another study observed visitor behavior at Long Logs and Crystal Forest, two popular petrified wood sites. During this 1993 study, investigators observed 125 people stealing petrified wood over 122 hours of observation (Roggenbuck et al. 1997). This rate averages about 1.02 thieves per hour (Roggenbuck et al. 1997). These widely varying findings lead to questionable estimates and make quantitative analysis of the issue difficult. However, the consensus is that too many people are unable to resist the pocketing of a park “souvenir” in the form of a small piece of petrified wood. The park’s history is replete with programs aimed at minimizing the pilfering of petrified wood by souvenir collectors (Monkevich et al. 1994; Roggenbuck et al. 1997).

Through the years, park managers have tried various methods to prevent the loss of this resource. For example, small souvenir-sized pieces of petrified wood were purchased from outside sources and given to visitors as an incentive to prevent them from “shoplifting” souvenir chips from the park. Studies have shown that both written materials and personal contacts are effective in gaining visitor compliance (Roggenbuck et al. 1997; Widner and Roggenbuck 2000; Attarian 2003). Therefore, an intensive signing program was instituted to inform visitors that no more of the resource was being made, so they should leave it for future generations to enjoy. Employees both in and out of uniform have been stationed at potential theft sites to try to prevent or reduce theft (National Park Service 1986). National Park Service Management Policies 2006 states, “The sale of original paleontological specimens is prohibited in parks” (National Park Service 2006b, p. 55). However, this policy is waived for Petrified Forest National Park because research suggests that banning wood sales in park gift shops could lead to an increase in wood theft (National Park Service 2006a). Park managers require that park concessionaire makes buyers aware that the wood being sold is not collected from within the park. Roggenbuck et al. (1997) found that 65.5% of visitors surveyed strongly agreed that being able to buy petrified wood in the park gift shops reduced the temptation to take a piece from park grounds. Roggenbuck et al. (1997) made a number of recommendations for reducing fossil theft within the park.

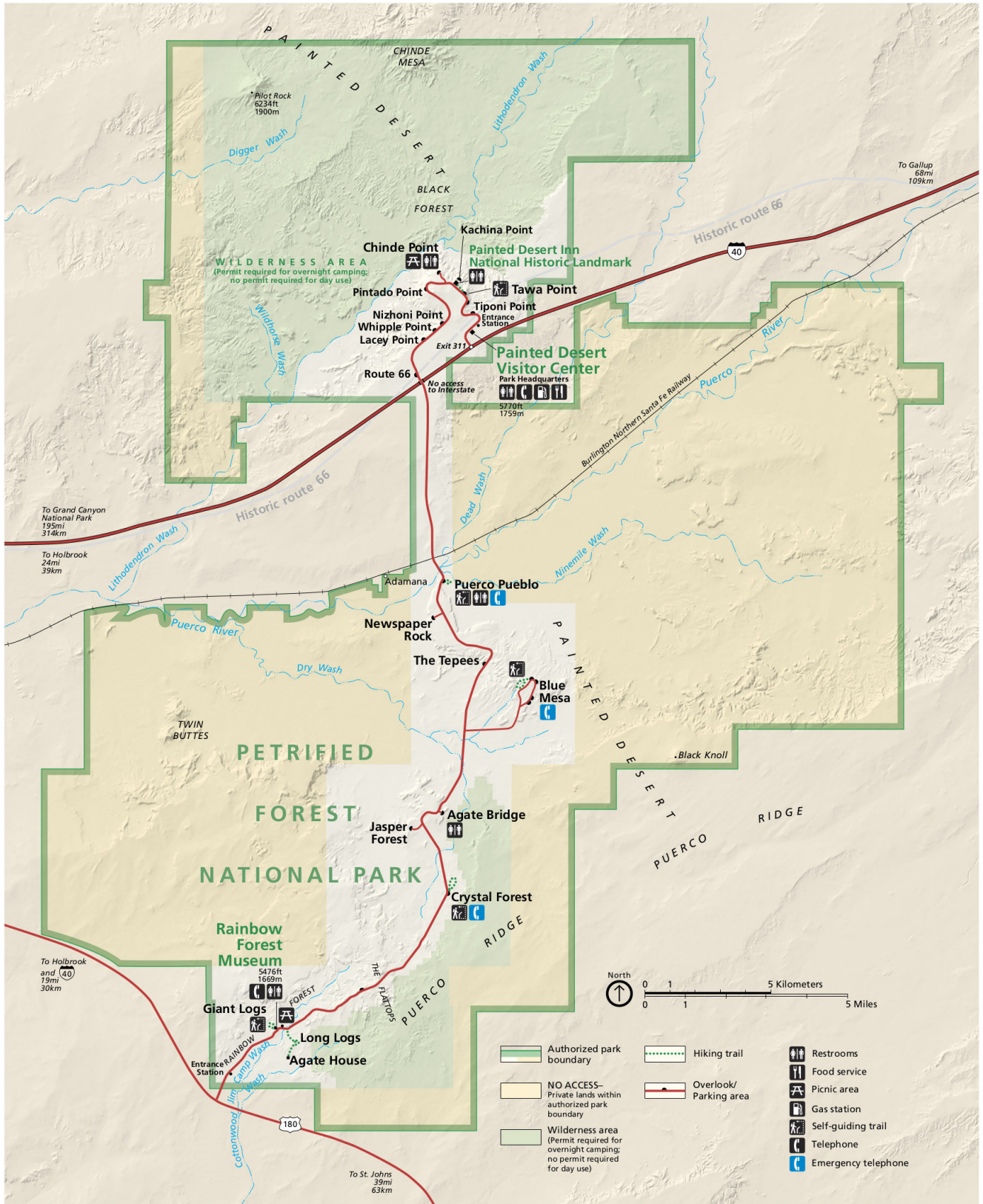
A variety of print, web-based, and on-the-ground interpretation techniques maximizes the potential to educate visitors regarding park regulations and the stewardship mission of the NPS. For example, the researchers found that the park brochure was the most used informational document for learning about the park’s rules and regulations (76% of the visitors surveyed). Web-based outreach could reach visitors prior to their travels to the park. The issue is also addressed in the form of a children’s story, The Tourist, the Park Ranger, and the Petrified Forest, at <https://www.nps.gov/media/video/view.htm%3Fid%3D24B3E9AE-155D-451F-67AEC8BFE917E47D> (6 min) This tale discusses the consequences of theft and promotes moral reasoning and change in behavior.

The NPS clearly states its concern about resource theft, including petrified wood: Resource Theft: Everything in a national park is referred to as resources, including the plants, animals,

geological formations, archaeological artifacts, and even the air. Resource theft is a continuing problem for the park.

Each year several tons of petrified wood are stolen. Many areas have been stripped clean of small, easily removed pieces. Visitors also pilfer other minerals and cultural artifacts (pottery shards, arrowheads) from park sites. Park staff work very hard to slow the theft of resources through strict enforcement of park regulations via fines or arrest. Staff also educates the visiting public about the significance of the environment and the irreplaceable information it contains. Park publications, displays and exhibits are designed to increase visitor awareness of these resources, leading to a stewardship ethic and desire to protect Petrified Forest National Park for these and future generations. Petrified Wood Collection within the Expanded Boundary

Most of the sizable logs have been removed from land acquired as part of the 2004 boundary expansion (National Park Service 2008a). Although collection of petrified wood is prohibited on federal and unleased state lands in Arizona, removal is legal on private lands within the expanded boundary of Petrified Forest National Park with the permission of the owners. Extraction of petrified wood and associated impacts could occur on nearly 32,000 ha (80,000 ac) of privately-owned lands within the expanded boundary (National Park Service 2008a). Because of the “disappearance” of petrified wood at the surface of the expanded parklands, future recovery will involve more intrusive techniques that literally move into the realm of mining. A common technique involves removal with a ripper hook, which typically extends 1.8 to 3 m (6 to 10 ft) into the ground. As a bulldozer crisscrosses an area, the attached hook snags objects such as buried petrified logs or root balls. An excavator or backhoe is utilized to dig out the specimens (National Park Service 2008a).



Map of Petrified Forest and Wilderness Area