

**Testimony of**

**David D. Gillette, Ph.D.**

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**Testifying on behalf of**

**The Society of Vertebrate Paleontology, The Sonoran Institute, National Parks  
Conservation Association, Northern Arizona University's Department of  
Anthropology, City of Holbrook, Holbrook Chamber of Commerce, Petrified Forest  
Museum Association, City of Winslow, Navajo County**

**Regarding H.R. 1630  
the Petrified Forest National Park Expansion Act of 2003**

**Before the Subcommittee on National Parks, Recreation and Public Lands  
U.S. House of Representatives  
June 15, 2004**

Mr. Chairman and members of the committee, I am David Gillette, Colbert Curator of Paleontology at the Museum of Northern Arizona in Flagstaff, Arizona. I am testifying today on behalf of the Museum of Northern Arizona, The Society of Vertebrate Paleontology, The Sonoran Institute, National Parks Conservation Association, Northern Arizona University's Department of Anthropology, City of Holbrook, Holbrook Chamber of Commerce, Petrified Forest Museum Association, City of Winslow, and Navajo County. I am also submitting for the record letters and resolutions from a number of these parties, as well as others who support this legislation.

The Museum of Northern Arizona is a private, non-profit museum dedicated to research, collections, education, and outreach in cultural and natural sciences of the Colorado Plateau. Established seventy-five years ago, MNA has been deeply involved with archaeology and paleontology in the national parks throughout its existence.

NPCA is a non-profit citizens' organization, founded in 1919, dedicated to the protection and enhancement of the National Park System. NPCA has approximately 300,000 members, including 6,850 in the State of Arizona.

The Sonoran Institute is a non-profit organization that works collaboratively with local people and interests to conserve and restore important natural landscapes in western North America, engaging partners such as landowners, public land managers, local leaders, community residents, and nongovernmental organizations.

The Society of Vertebrate Paleontology is a non-profit organization of professional and avocational paleontologists, with an international membership of approximately 2000.

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The SVP has worked actively to promote responsible stewardship of paleontological resources on public lands.

Our 10 organizations appreciate the opportunity to state our strong support of H.R. 1630. We appreciate the critical leadership of Congressman Renzi in sponsoring this important legislation and thank the Chairman for scheduling this hearing. With enthusiastic support from all the major landowners, the State of Arizona, local governments, chambers of commerce, and scientists nationwide, we urge the subcommittee to act favorably and quickly on this bill.

More than 220 million years ago, the Earth was in transition. Pangaea, the World Continent, was the predominant landmass, the Atlantic Ocean did not exist, and the earliest known dinosaurs roamed the land.

We know these things because evidence from this interval of geologic time, called the Triassic Period, is frozen in time. In addition to evidence from around the globe, a treasure trove of information can be found at Petrified Forest National Park in northeastern Arizona. A vast forest of petrified logs, strewn across what is now a desert landscape, and fantastic life forms frozen in stone bespeak a time when a tropical swamp, filled with 200-pound ancestors of frogs and salamanders, and enormous crocodile-like beasts, existed where there is now arid, open land.

Petrified Forest National Park, originally proclaimed a national monument by President Theodore Roosevelt in 1906, was designated a national park in 1962 and receives about 600,000 visitors each year. The park originally was set aside to preserve the spectacular concentrations of rainbow-hued petrified wood, scenic landscapes of the Painted Desert, rare shortgrass prairie, and more than 500 archaeological and historical sites that reflect a 10,000-year continuum of human history. We now know that few places in the world contain such a rich fossil record of the Triassic Period. The Petrified Forest National Park could easily claim the title "Triassic Park" for its plant and animal fossils that represent the very roots of dinosaur history.

Recent scientific work has revealed that petrified wood is only one part of the globally significant record contained within the Chinle escarpment, the name given to the geological formation containing the "mineralized remains of the Mesozoic forest" that the park was established to protect. Only six miles of the 22-mile-long escarpment, which contains the world's most significant record of late Triassic Period fossils, is currently within the park. The area outside the park may contain more and better fossils that can more readily increase our understanding of flora and fauna and the changing climatic and tectonic conditions on Earth during that era. It also presents a unique opportunity to educate the public. According to the current director of the New Mexico Museum of Natural History and Science, Dr. Adrian Hunt, Petrified Forest National Park is the most important place in the world to study the early evolution of dinosaurs, an assessment with which I heartily agree.

H.R. 1630 would add approximately 128,000 acres, including lands that encompass virtually the entire escarpment. These lands contain a priceless natural heritage of fossils and artifacts that are being systematically pilfered. Grave robbers supply the black market with artifacts from areas so remote even the cows get lost. Treasure hunters seeking pots and burial items held sacred by Arizona's Native Americans have looted site after site. Fossils in the same area have come under similar pressure; dinosaur bones can bring thousands of dollars on the commercial market, but once they are removed, they are forever lost to science and the public domain. These activities led NPCA to place Petrified Forest National Park on its list of Ten Most Endangered Parks in 2000 and 2001. Since that time, the park has engaged in fruitful efforts to significantly reduce theft of petrified wood from within its boundaries, prompting NPCA to remove it from the endangered list in 2002. With the advent of high tech, low-cost mobile sensors and other non-intrusive measures aimed at educating and redirecting well-meaning park visitors, the Park has demonstrated that it is now in a much better position to protect this wealth of resources.

### State Lands

Slightly more than half of the lands within the proposed expansion areas currently are in private ownership, and 45 percent are in state or federal ownership. The State of Arizona and the Bureau of Land Management recognize the significance of the paleontological resources on their lands and have expressed an interest in seeing them preserved.<sup>1</sup> In her letter to Chairman Radanovich dated February 19, 2004, Governor Janet Napolitano wrote: "Seldom does an opportunity arise to more fully protect an incredible national treasure like Petrified Forest with such broad, unequivocal support at the local, state and national levels." In that same letter, the State suggested a language change to the bill that the organizations I am representing here today all support. In addition, on May 28, 2004, the State closed approximately 36,000 acres adjacent to the park to both surface and subsurface applications to better protect these lands until they are added to the park.

State lands within the park expansion proposal contain a wealth of paleontological and archaeological resources. For example, state lands within the Twin Buttes Ranch contain numerous unique and highly detailed petroglyph panels dating from 600 to 1,000 years before present. One such panel appears to be a map of the constellations visible in the night skies each April. This panel has been photographed for the book *Tapamveni: The Rock Art Galleries of Petrified Forest and Beyond* and has been referred to as a work of "remarkable geometric intellect."

The State lands also include a significant amount of the Chinle escarpment that is such an important addition to the park, by virtue of the world-class paleontological resources it contains. State lands along the Chinle escarpment east of the park also contain a rare

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<sup>1</sup> Letter from Arizona Governor, Janet Napolitano, to National Parks Subcomm. Chairman George Radanovich, dated February 19, 2004

Chacoan Culture Great House dating back some 1,000 years to between A.D. 900 and 1130. This pueblo ruin maintains the distinctive "core and veneer" masonry of the Chacoan Culture, whose ceremonial center was located in northwestern New Mexico, and the great house included in the park expansion proposal is thought by some scholars to define the southwestern edge of the Chacoan system. Understanding of this system has become one of the most significant questions in Southwest archaeology and the inclusion of this great house into the park will protect the site's context and likely will enhance scientific understanding of this remarkable culture. State lands are, to varying degrees, intermingled with the ranches of all four primary landowners.

### Private Lands

Most of the private lands adjacent to the park have been managed as part of large cattle ranches for the past 120 years. This use of the land has preserved the scenic views seen from the park. However, this land use pattern is starting to change. More intensive land uses, such as subdivisions and mineral exploration and mining – including mechanized petrified wood mining on private lands – threaten to both destroy the scenic quality of the park and destroy irreplaceable resources.

Four major landowners together own approximately half the total acreage of the expansion area, and all are highly supportive of the legislation and wish to see the cultural and scientific resources on their properties included in and protected by the National Park System. They have been patient since the Park's General Management Plan recommended expansion in 1992, but cannot be expected to wait indefinitely while other development offers come their way. In fact, history demonstrates that delay poses further risks for this land. The private lands identified in 1992 in the park's GMP were, at that time, held almost exclusively by 6 landowners. Since then, two of those landowners have subdivided and sold their holdings, and a portion of those lands is unfortunately not included in the current proposal.

Expansion lands formerly owned by the New Mexico and Arizona Land Co and now owned by Mr. Bob Worsley contain the Wallace Tank Ruin, an immense Pueblo IV period ruin dating from about A.D. 1200 to 1325. The pueblo contains an estimated 400-600 rooms. Looting has occurred at this site, including looting with the use of heavy equipment. Nonetheless, archaeologists believe that 90% of the architecture is intact. These Pueblo IV sites in the Western Pueblo region are quite rare and they are critical in understanding how the Western Pueblos (Hopi, Zuni, Acoma, and Laguna) came to be.

On the Twin Buttes Ranch, owned by Mr. Mike Fitzgerald, four Canyon Butte sites dating from about A.D. 1130 to 1325 (during the Pueblo III period) contain from 25 to 65 rooms each. These sites, originally recorded by Walter Hough of the Smithsonian Institution in 1901, represent the small hamlets that would later coalesce into large pueblos like Wallace Tank. More detailed analysis of these sites and their associated

artifacts will allow them to be more precisely dated and will provide important information on the regional interactions that led to settled village life.

On the Paulsell Ranch expansion lands owned by Mr. Marvin Hatch, a researcher from the University of Texas discovered a fully intact phytosaur while on a dig in 2002. Phytosaurs were large, aquatic reptiles that were prevalent in the Petrified Forest of Triassic times. Also contained on these lands are Triassic era clamshell beds; the thickest that many paleontologists have ever seen. The Paulsell Ranch contains extensive portions of the Upper Triassic Chinle Formation. According to the park's 1992 General Management Plan, the lateral exposures of the Chinle escarpment are most likely the best exposure of this geologic sequence in the world. Paleontologists are convinced that the escarpment's fossil resources are globally significant and that it has the potential to become the paleontological "gold standard" for late Triassic terrestrial life, since the fossil bearing rocks exposed here are even more continuous than those inside the park, which are now setting the standard. Other researchers have labeled the Hatch Ranch a "priceless outdoor lab for geologists, archaeologists, biologists, paleontologists and ecologists" and of "inestimable paleontological and geological importance."

### *Bringing Science to Life*

These stories should be developed in the interest of all Americans. This national inheritance, both within the modern boundaries of the park and in the expansion area, cuts to the core of our existence as citizens and leaders. With leadership and vision, our parks and monuments can move to center stage where we need help the most—in solid, hardnosed education. The mission cannot be conservation and protection alone, for preservation without education is like a library under lock and key.

Petrified Forest is filled with information that could unlock a bonanza of secrets about current challenges, such as biodiversity, ecosystem health, the importance of fire to the health of an ecosystem, and endangered species. Gut-wrenching stories of predator-prey interactions, floods that carried trees as large as giant redwoods into colossal log jams, and the humble beginnings of our modern world can be pried from the rocks at Petrified Forest National Park and the expansion areas. We cannot afford to lose these stories or the ability to share them. This is our natural laboratory.

Petrified Forest National Park, and the expansion area around its current perimeter, hold the keys to education in the raw, the full surround-sound, sunburn, and flashflood experience. Here we can teach teachers and students alike, elbow to elbow, with hands-on dinosaur excavations, application of Global Positioning System to mapping archaeological sites, high technology remote sensing, and the down-and-dirty work of hoisting thousand-pound blocks of rock encased in burlap and plaster that contain dinosaur skeletons. This is a training ground for the next generation of scientists and politicians, historians and business executives. Education is the only solution to understanding our modern world. This is the real experience, where we teach the

scientific method, where we become professional skeptics, where we can test our understanding with discoveries of new sites and new fossils.

Modern technology makes our natural laboratories accessible to everyone. Why accept replicas and models? Our mission must be to educate our public first. At the Petrified Forest, the time dimension is the critical, missing link. We can understand the logs, but can we place them in perspective? Can we see the forest? I recently had the remarkable good fortune to participate in a live broadcast from my paleontology laboratory in Flagstaff to classrooms across North America, from Florida to Alaska. Students called in and asked their own questions. Some were so excited they could scarcely talk into the telephone. They watched us on their television screens, and listened to our answers. We were ordinary people who were excavating an extraordinary dinosaur. Our laboratory became theirs. We were transported live to schools across the continent, and those students in turn were transported to our laboratory in Flagstaff.

Now, at one of our national parks, Petrified Forest, we have the unique opportunity to enlarge and amplify that experience and build our future from the raw materials of field-based scientific exploration.

### Conclusion

In conclusion, Mr. Chairman, I would simply say that tragically, every day, prehistoric and historic archaeological and scientific sites in the United States are lost forever – along with the precious information they contain. Congress has the ability, the opportunity, and the responsibility to prevent this loss of our heritage, which impoverishes both present and future generations. Promptly enacting H.R. 1630 into law will be a marvelous and tangible step forward to meet these duties. Future generations will thank you for your wisdom to act now.

Thank you for inviting me to appear before you today and for considering our views. I would be happy to answer any questions.