



National Park Service
U.S. Department of the Interior

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Petrified Forest News Release

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Petrified Forest National Park is the site of field science every summer but this year, there were some exceptional findings.

Paleontology – contact Mr. Bill Parker 928-524-6228 x 262

Mr. Bill Parker, park paleontologist, started the season with a great deal of optimistic anticipation for two reasons—he was about to reopen a bone quarry that yielded unique findings the last time it was excavated and he had 26,000 acres of new land to explore for paleontological sites. Petrified Forest National Park purchased the Hatch Ranch in September of 2011 (having received Congressional authorization to do so in 2004) in part because the land forms, which are extensions of those in the park, predicted that additional paleontological sites would be found.

The quarry project, funded by the National Park Service (NPS), was to reopen the site at which the world's most complete record of *Revueltosaurus callendari* was discovered in 2004. Previously known only by its teeth and thought to be an early dinosaur, the initial find revealed eight specimens, collected between 2004 and 2006, one nearly a complete skeleton, and is now thought to be more closely related to the crocodile evolutionary line. The animal was relatively small for its time—similar in size to today's Komodo Dragon. Two questions remained from the earlier work at this site—what do the missing parts of the skeleton look like, and why are there so many of these animals in one place?

This summer's work produced 3 more *Revueltosaurus* skeletons, including some of the skeleton parts that had not been recovered previously. Removal of rock from around the bones they have been encasing for over 200 million years is still ongoing in the lab. In addition to the excavation of bones, soil analysis is being conducted to try and determine if the area of these finds could be

identified as a burrowing area. The concentration of bones also implies that the death of the animals may have been caused by a catastrophic event.

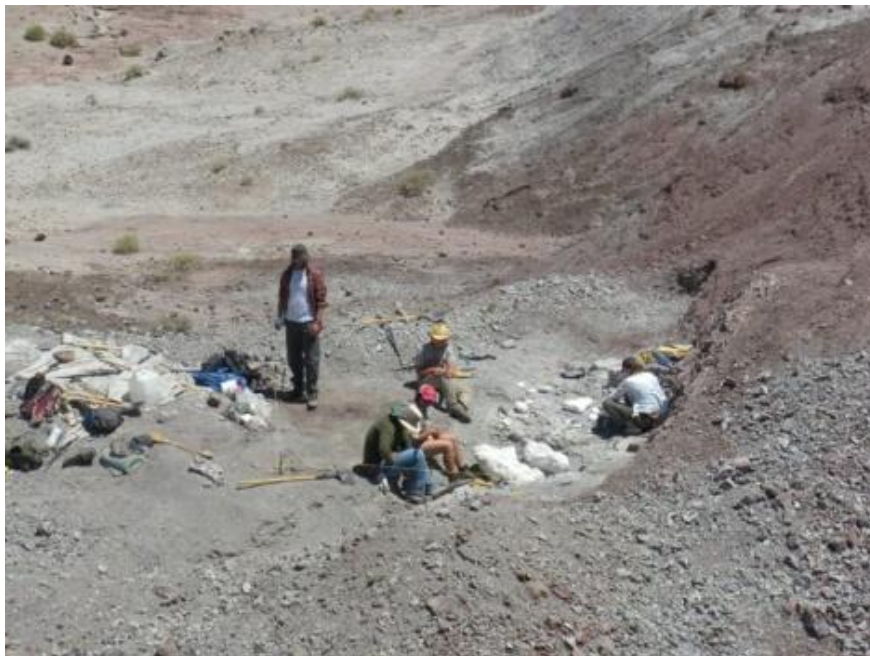
Mr. Parker also was able to get out onto the park's newly acquired lands and discover two new fossil "localities" (sites where bone is found eroding out of the surface), which were previously unknown. Prior to acquisition, the paleontology community knew of at least a dozen localities on these lands that had been successfully excavated, with the permission of the owners.

In addition to the efforts of the park staff, others in the scientific community also continued to do park-approved and coordinated research. The Smithsonian Institution returned for a third year to excavate in an area and a geologic layer that had not been explored previously. Their specific purpose is to study the paleo-ecology of the first mammals of 200 million years ago, as some of the earliest mammals should have been in this area then. No results have been published yet, although we understand their work has yielded interesting results so far.

Yale University returned for the third summer and is also exploring an area and a geologic layer that had been previously unexplored. Their results include the discovery of several nearly complete skeletons—the first complete fish skeleton found in the park, and the most complete aetosaur (armored, slow-moving, vegetarian, 15-20' long) yet found in the park, as well as others upon which their work continues.

Baylor University has been working in the park for the last 4 years analyzing soil layers to determine climate information like annual rainfall and temperatures for all the definable layers exposed in the park. Those layers are known to have been deposited between 200 and 220 million years ago and Baylor's work, nearing completion, provides very specific dates and climate information for the entire park.

Mr. Parker has funding for a second season of excavation at the quarry next year, so we can expect further information about *Revueptosaurus* to be gathered. Efforts to identify and explore promising sites on the new lands will also continue. Our research partners may be prepared, in the next year, to publish some of their findings, as well, in addition to continuing their field work.



Revueltosaurus quarry, summer 2012, Petrified Forest National Park



Revueltosaurus quarry, summer 2012, Petrified Forest National Park

Archeology – contact Mr. Bill Reitze 928-524-6228 x 268

Park archeologist Mr. Bill Reitze had 26,000 acres of newly acquired lands to begin to explore for its archeology. Petrified Forest National Park purchased the Hatch Ranch in September of 2011 (having received Congressional authorization to do so in 2004) in part because the land forms predicted that additional archeological sites would be found. Escarpments north and south of the Puerco River and small mesa tops between held the promise of occupation sites. The lower lands would have been used for agriculture. The archeological record already known at Petrified Forest starts 10,000 years ago and is essentially unbroken into historic and modern time. Paleo and Archaic people were there until about 500BC, Basketmaker and early Pueblo cultures until

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about 900AD, and Ancestral Puebloan cultures until about 1450AD. Modern Tribes and people of European descent then enter the picture.

According to Mr. Reitze, “Every time I went out there I found another multi-room pueblo site. It was incredibly rich in archeology.” Specifically, he found the following sites:

- A multi-room pueblo that is the same age and similar construction type as the famous Pueblo Bonito at Chaco Canyon. It is known that Petrified Forest is on the southwest edge of Chacoan influence – this may be another site to have that connection. A separate pueblo site adjacent to the park’s new lands is known to be a “Chacoan outlier”.
- Four or five small multi-room pueblo sites along the southern escarpment of the Puerco.
- A pithouse site from the late “Basketmaker” period with interesting ceramics.
- A second “Basketmaker” site
- A pueblo that had been the obvious site of treasure hunting which, while perfectly legal when these lands were private, causes the context of the site to be lost.
- In the lowlands, the remains of field houses (for tending crops), more multi-room pueblos, and at least one “Basketmaker” site were also found.

In addition, Mr. Reitze found probably about 50 rock art sites – petroglyphs along the escarpments, on isolated boulders, on the edges of small mesas, and rock outcrops. Each site had multiple “glyphs” or pecked images.

Mr. Reitze had help this summer – seasonal archeologist Ms. Amy Schott, back for her second year, conducted dozens of condition assessments. Ms. Schott is a University of Arizona student and, in addition to her work for the park, is researching the stability of the sand dune formations (often used by various prehistoric cultures) in the park over thousands of years.

Intern Mr. Joshua Van Buskirk also helped the program this year. In addition to his work, Mr. Van Buskirk is conducting research on hundreds of hammer stones found in the park, at sites of all ages.

In 2006, Petrified Forest acquired a private parcel (again authorized by Congress in 2004) upon which are the ruins of an 1880’s stagecoach station, on the north bank of the Lithodendron Wash. Serving the Star Stage Line, the station is thought to have been used from the 1870’s until about 1885. The stage route follows the same approximate path in this area as the Beale Wagon Road, Route 66, the Atchison, Topeka and Santa Fe Railway, and Interstate 40. A crew of NPS preservation masons stabilized the mortar in the original rock walls of the station this summer.

All the new discoveries this year were simply preliminary—no professional site recording was done. And there will certainly be more sites found in future years. Mr. Reitze successfully competed for NPS funds to begin professionally recording sites on the new park lands next year. In addition, Petrified Forest has begun working with interested friends to create a Friends of Petrified Forest organization. It is expected that the park, together with Friends, colleagues, and volunteers, will have plenty of work to do in archeology for many years to come.



A Basketmaker period pithouse site in Petrified Forest National Park

Ecology—contact Ms. Patricia Thompson (Chief of Resource Management) 928-524-6228 x 267

Mr. Andy Bridges continued an annual study that's been conducted for 21 consecutive years of reptiles and amphibians, finding the Long-nosed Leopard Lizard for the first time ever in the park in the summer of 2012. Mr. Bridges has been conducting these surveys the past two summers as the park's seasonal biologist.

The study incorporates three different monitoring methods – a) a driving survey along the park road each evening during which each reptile or amphibian encountered is identified, b) a series of 6 trapping sites in reptile and amphibian habitat, and c) visual encounter surveys during which the biologist walks a certain pattern over a selected site and records what is found.

The New Mexico Whiptail Lizard was first identified in the park a few years ago as a result of the summer study. It's identification at Petrified Forest was the only verified sighting ever in Arizona. Since its initial identification, subsequent surveys have found that the lizard is establishing a colony here. It is an exotic species, meaning it was likely brought in and did not arrive on its own. It remains to be seen if it will be considered invasive, meaning able to survive in its new environment and disrupt the native components of that environment.

This summer, the Long-nosed Leopard Lizard was identified during an incidental encounter at a trapping site. The new find is now the largest lizard of those found at the park at about 5½" long. Petrified Forest is located at the edge of the lizard's known range. We don't know why the lizard has decided to move into the park although we know, unlike the common lizards we see around us every day, it doesn't adapt well to human development.



A Long-nosed Leopard Lizard at Petrified Forest National Park

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