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# PERMIAN QUARTERLY

Permian Basin Programmatic Agreement Quarterly Newsletter

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Two paleontologists walk across an ancient playa in search of the bones of extinct animals that may be found eroding on the surface. The different soil colors evident in the photograph are clues to the playa's past geological history and, although now surrounded by a desert landscape, this locality was once an attractive source of water. Read more about paleontological finds in the Carlsbad Field Office inside this newsletter.

## Introduction to the Permian Basin Programmatic Agreement (PA)

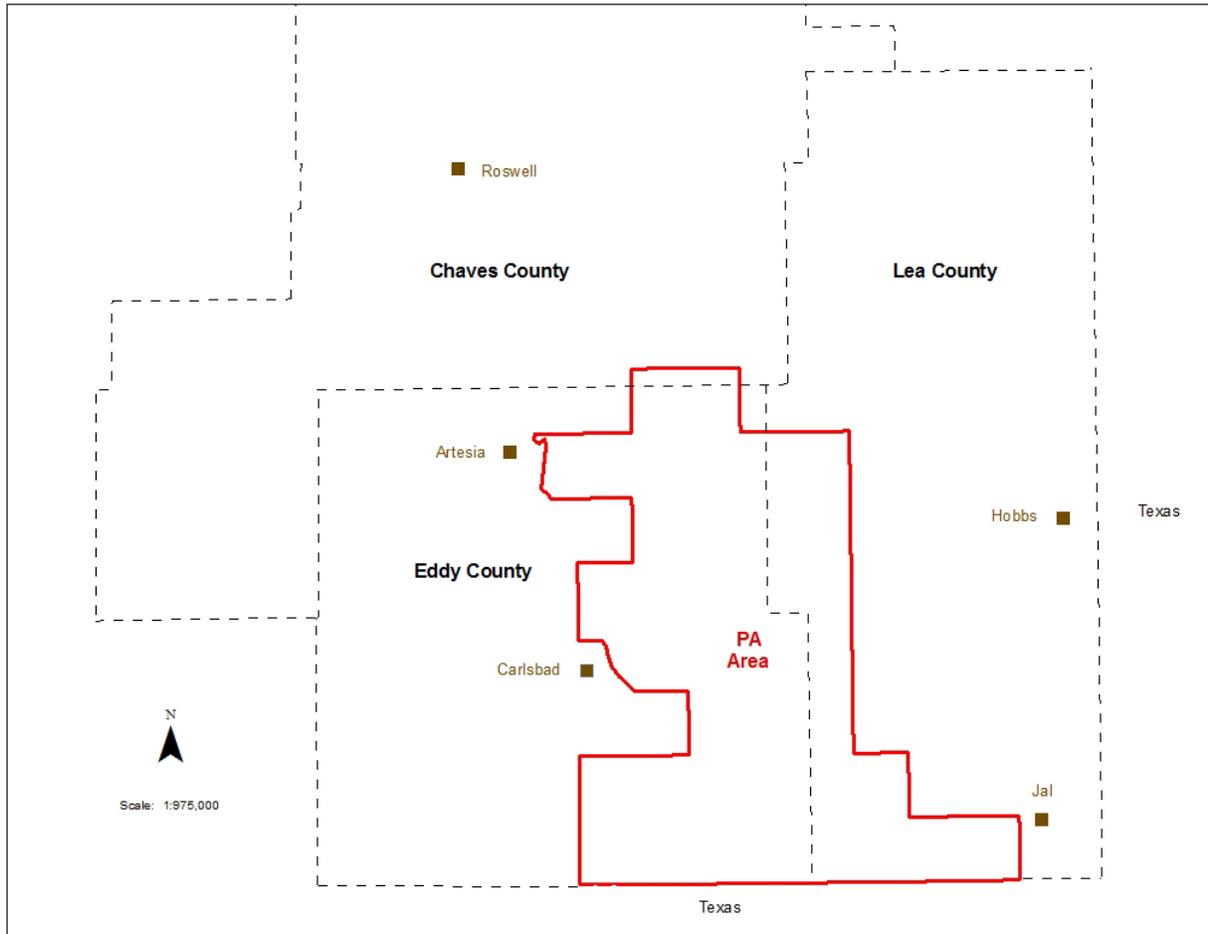


Figure 1. Map showing the Permian Basin PA Area.

The Permian Basin Programmatic Agreement (PA) is an alternate form of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, that is offered to the oil and gas industry, potash mining companies, and for other industrial projects located in southeastern New Mexico. The PA can be used for federal projects located on Bureau of Land Management (BLM) land or BLM sponsored projects located on private property. Originally begun as a Memorandum of Agreement (MOA), it was extended for a period of three years in April 2013 as a Programmatic Agreement (PA) and the PA was further extended for a period of 10 years beginning in May 2016. The PA area is located partially in Chaves, Eddy, and Lea counties. Proponents of projects within the PA area may contribute to a dedicated archeological research fund in lieu of contracting for project specific archeological surveys, provided their proposed projects avoid recorded archeological sites. This dedicated fund is used to study the archeology and history of southeastern New Mexico.

## **Current PA News**

### **Research Update**

#### **Permian Basin PA Workgroup Meets**

The annual meeting of the Permian Basin PA Workgroup was held in early April at the New Mexico Bureau of Land Management (BLM) State Office in Santa Fe. The Workgroup is composed of state and federal regulatory archeologists, academic archeologists with research interests in Southeastern New Mexico, a representative from the Indian tribes and pueblos with ancestral ties to the region, and a representative from industries operating within the PA area. The Workgroup provides guidance for research projects undertaken through the Permian Basin Programmatic Agreement and oversees the program operation as it is administered by the Carlsbad Field Office (CFO).

Topics discussed included those related to the operation of the program, upcoming research projects, and the future direction of the program. Program operation items include a new BPA contract. Contracts for research projects that are approved by the Workgroup are issued through the BLM contracting system and specifically through a Blanket Purchase Authority (BPA) contract. A new five-year BPA contract has been issued and it is expected to begin on August 1, 2019.

Another operational item is that approval of Amendment 2 to the PA has been completed. This amendment involved two technical changes. One change was to specifically exclude electric lines of 115kV or larger from approval through the PA. These lines typically have wide rights-of-way that cannot be easily altered to avoid archeological sites and site avoidance is a PA requirement. Amendment 2 also changed the formula for PA contributions from a project specific amount to an amount that is calculated by acre for projects that use square measurements, such as well pads. Linear projects, such as pipelines, are now calculated by a rate per foot of measurement. The changes make it easier to calculate PA contributions for both applicants and CFO staff.

Finally a web-based interactive CFO map for Permian Basin PA participants is proposed by the BLM State Office GIS Section. This map would show space within the field office that can be used for PA projects. This would simplify project planning for PA proponents and because the map would be tied to the CFO GIS it would be updated on a daily basis.

Proposed research projects for FY 2020 include a cooperative rock art survey with the Lincoln National Forest, the Guadalupe Mountains National Park, and Carlsbad Caverns National Park. This project would extend the rock art recording project currently underway on BLM land in the foothills to encompass all of the Guadalupe Mountains. The recording project would result in an outstanding inventory of sites that are recorded to a high standard using photographs, line drawings, and aerial photography. This inventory will be useful for future research, site management, and as a resource for Indian tribes with ancestral ties to the region.

The Workgroup also approved a combined archeological/paleontological survey of selected areas within the CFO that have proven deposits of Pleistocene animal bone (see following article in this newsletter). Paleontological resources are managed by the CFO and this survey will provide managers with needed

information. Some archeological sites also date to the latter part of the Pleistocene Epoch and there is a possibility that the survey areas contain one of these early sites.

The final project approved for the upcoming year is a proposal to record perishable artifacts that originated in caves and rockshelters in the Guadalupe Mountains and that are currently housed in museum collections. Examples of these types of artifacts are sandals, baskets, nets, ropes and strings, and wooden spear shafts or atlatls. All of these were items useful for daily life. They were undoubtedly also part of the artifact inventories at the many open sites found throughout the CFO boundaries, but those did not survive into the present day. The dry climate of the region, coupled with protection from the elements afforded by the caves or rockshelters preserved these objects until their excavation, during the decade of the 1930s. Many of these artifacts have not been examined for 70 years or more and it will be beneficial to record them using modern techniques. It is expected that new information will come from the analysis and that the photographs and descriptions will allow a modern audience to appreciate the ingenuity and skill of their makers.

The Workgroup also approved a project to curate all the Permian Basin PA research data into tDAR. The research carried out through the PA is reported to the professional community through written and illustrated reports. This has been the standard method for sharing information, but it is essentially a static source. The existence of the world-wide-web, interactive GIS maps, and the use of electronic spreadsheets and other electronic files has created the possibility of sharing and using raw data, as well as written reports. The challenge is in providing a stable portal to access this information through time and in finding compatible formats to curate the data, so that a person 40 years from now can find and use the data that is recorded today. Though the obstacles appear to be many, the goal is worth the effort by extending the value of the work that is being done on current PA projects.

Finally, the Workgroup discussed and approved a proposal to create a Strategic and Business Plan for the Permian Basin PA that will be in effect for the next 10 years. This plan would provide a series of benchmarks, some of them already established in the PA document itself, to guide the research effort and provide a yardstick to measure progress toward well-defined goals.

### **Other News from the Permian Basin**

#### **Paleontologists Visit the Carlsbad Field Office**

Gary Morgan, paleontologist with the New Mexico Museum of Natural History, and Phil Gensler, BLM Regional Paleontologist, visited the Carlsbad Field Office (CFO) in early April in order to see firsthand what paleontological resources may be available for future research. Paleontology is the study of plant and animal fossils. Mention of the word “paleontology” most often brings to mind images of the skeletons of giant dinosaurs, such as a Tyrannosaurus Rex. Although not of dinosaur size, fossil bones of large grazing animals, such as mammoth, horse, bison, and camel, that lived during the Pleistocene Epoch, are found in southeast New Mexico. The Pleistocene Epoch dates from approximately 2.5 million to approximately 12,000 years ago and in southeastern New Mexico it was a time of cooler temperatures, with more rain and snowfall during the year and a plant and tree composition that is today found in higher mountain elevations.

Some of the extinct animals coexisted with humans in the latter part of the Pleistocene and they are of interest to archeologists as clues to sites that have evidence for these early occupations. The first evidence for this was found in 1927 near Folsom, New Mexico, where bones of an extinct form of bison were found with a distinctive lanceolate spear point, later called the Folsom point. This find was followed by excavations in Burnet Cave in the Guadalupe Mountains of Eddy County in 1930, where a lanceolate point was found in association with several species of extinct animals. Archeologist E.B. Howard excavated Burnet Cave and upon its completion in 1932 shifted his research to the Blackwater Draw site near Clovis, New Mexico. There he continued to find man-made artifacts associated with extinct animal bones, including a distinctive lanceolate spear point, called the Clovis point, found with mammoth bones. This find placed humans at that locality at around 12,000 B.C. when mammoth were still part of the North American fauna. Archeologists have returned to the Blackwater Draw site through the years and currently a portion of that locality is managed by Eastern New Mexico University for research and as an exhibit, with an archeological excavation, that is open to the public.



Figure 2. A bone protrudes from a gray playa matrix in this photograph. A quarter for scale is nearby. Eroded bone fragments can also be seen surrounding the protruding bone.

The two paleontologists visited playas located on BLM managed land, some of them known to have animal bone eroding on the ground surface. Their survey can be classified as an initial reconnaissance meant to identify places that could be further investigated. Exposed bones were collected and their locations marked with GPS readings. The preliminary list of mammal finds include bones of mammoth, bison, two species of horse, camel, and peccary. Also found were a dog tooth, turtle, and snails. The dog and peccary are new species in the faunal lists for southeastern New Mexico.



Figure 3. Phil Gensler (left) and Gary Morgan (right) contemplate their approach to the excavation of a complex of vertebrae.



Figure 4. One of the vertebra exposed. This vertebra is from the hump on the back of an extinct form of bison.

Phil Gensler also found a fragment of a Folsom lanceolate spear point on the margin of one of the playas. This find excited CFO archeologists with the tantalizing possibility that a Paleoindian site may be discovered with additional exploration there.

This reconnaissance was successful in documenting the presence of Pleistocene animal fossils, including a dog and peccary, species that were previously unknown. Finding the Folsom point fragment adds an additional dimension to the research that is possible.

#### Carlsbad Field Office Staff Consult with the Hopi Tribe

Ty Allen, Assistant Field Manager, Elia Perez, staff archeologist, and Permian Basin Coordinator, Martin Stein, traveled to the Hopi Reservation to consult with staff of the Hopi Cultural Preservation Office and members of the Hopi Cultural Resources Advisory Task Team about the results of the rock art survey and recording project, as well as the operation of the Permian Basin Programmatic Agreement. Assisting them was Larry Loendorf, of Sacred Sites Research, Inc., one of the archeologists in charge of the recording project and one of the principal authors of the report of the work. Certain Hopi clans have ancestral ties to southeastern New Mexico and they were interested in the results of the rock art recording project.

The Hopi Cultural Resources Advisory Task Team is composed of representatives from all of the Hopi villages, and a number of prominent clans, priesthoods, and religious societies. These members are experts in Hopi culture and possess important information regarding cultural resources.



Figure 5. This sign points to the location of Kykotsmovi village.

The meeting took place at the Hopi Cultural Preservation Office in Kykotsmovi village. Larry Loendorf presented an illustrated talk about the rock art project which was well received by those in attendance. Discussion afterward included comments about sites in other parts of the Southwest and Plains that potentially may be related to the Hopi and the many paths that the Hopi people took before finding their current homes on the mesas of northeastern Arizona.

### CFO Lead Archeologist Retires

Bruce Boeke, Lead Archeologist in the Carlsbad Field Office, retired after 17 years at the CFO. This record of working at the CFO will undoubtedly stand for many years to come. The fast pace, and almost daily “crises,” that come with the operation of a busy oil and gas office are not compatible with a lot of people’s temperament. Bruce was known for his “by-the-book” approach to work and for an exceptionally well-organized desk.

### Newsletter Contact Information

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