PERMIAN QUARTERLY

Permian Basin Memorandum of Agreement Quarterly Newsletter

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Close up view of mesquite bean pods. Mesquite was an important plant for pre-Columbian inhabitants of the Permian Basin. The majority of charred plant remains recovered to date from archeological sites within the Permian Basin Memorandum of Agreement area have been identified as mesquite. For more information about the use of mesquite, see comments under Task Order 10 inside.

The *Permian Quarterly* is a newsletter for participants in the Permian Basin Memorandum of Agreement (PBMOA) and for other interested persons. Its purpose is to provide information in a timely manner about the implementation of the Memorandum of Agreement (MOA) and to disseminate that information to a wide audience.

Introduction to the Permian Basin Memorandum of Agreement

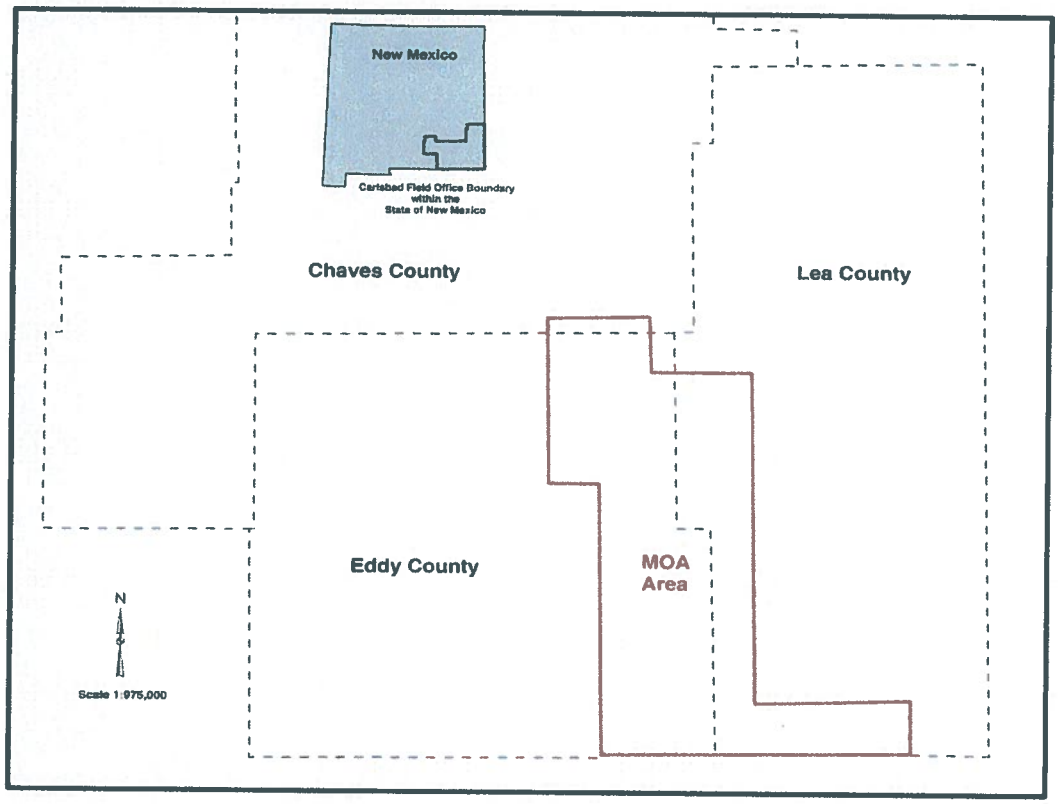

Figure 1. Map showing the Permian Basin MOA Area.

The PBMOA 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 for projects located on federal land or private property. The PBMOA area noted above is located partially in Chaves, Eddy, and Lea counties and generally coincides with a physiographic region in southeastern New Mexico called the Mescalero Plain, a region of sandy soils that has historically suffered severe erosion. Modern geomorphological studies of the Mescalero Plain have concluded that the soils of this region will continue to degrade and that the physical integrity of archeological sites located within them will also diminish through time. Artifacts are important but their context - the relationships of artifacts to each other and to associated man-made features such as fire hearths - will ultimately be destroyed by continuing erosion, dramatically impacting our ability to interpret the past. Preservation of archeological sites potentially impacted by oil and gas well drilling and associated infrastructure (such as pipelines), has traditionally been accomplished by moving the location of the proposed projects in order to avoid the sites. However, our current understanding of the dynamic nature of the Mescalero Plain soils means that

avoiding archeological sites does not equate with the long term preservation of them. Partly in recognition of this fact, the PBMOA allows proponents of oil and gas projects who avoid recorded archeological sites to contribute to a dedicated archeological research fund in lieu of funding project specific archeological surveys. This fund is then used to study the archeology of southeast New Mexico before the sites are destroyed.

Current PBMOA News

PBMOA Extension

The Memorandum of Agreement among the Bureau of Land Management New Mexico State Office (BLM), the New Mexico State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) concerning Improved Strategies for Managing Historic Properties within the Permian Basin, New Mexico (PBMOA) was signed on May 8, 2008. The MOA was to be in effect for a period of five years and 2013 marks the final year of its implementation. At the time of implementation, it was assumed that there would be some interest on the part of the oil and gas industry to use the MOA, but it was uncertain how many companies would sign up or how often they would use the MOA provisions which are strictly voluntary. Currently, 56 companies have signed up to use the MOA and 39 have contributed funds in lieu of archeological survey, for a total of 2,657 MOA projects. The success of the PBMOA has prompted a proposed extension of the MOA for an additional three years. Review of the extension by the original signatories; the seven tribes or pueblos who have a history of traditional land use in the MOA project area: the Apache Tribe of Oklahoma, the Comanche Tribe, the Hopi Tribe, the Kiowa Tribe, the Mescalero Apache Tribe, the Pueblo of Isleta and the Pueblo of Ysleta del Sur; and representatives of the oil and gas industry has been completed and the extension is expected to be approved.

PBMOA Advisory Workgroup Meeting

The PBMOA Workgroup is composed of the BLM State Archeologist, Signa Larralde; the BLM Data Recovery Review Team, represented by Dave Simons; the BLM Pecos District cultural resource staff; the New Mexico SHPO, represented by Jan Biella, New Mexico State Archeologist; the federal Advisory Council on Historic Preservation, represented by Nancy Brown; the New Mexico Archaeological Council, represented by Deni Seymour; Native American Tribes with historic ties to southeast New Mexico, represented by Holly Houghton, Mescalero Apache Tribe; the oil and gas industry, represented by Rand French, Concho Resources, Inc.; and independent and academic archeologists with research interests in southeast New Mexico, Paul Katz, Phil Shelley and Meade Kemerer. It was established to provide direction for archeological research conducted through the PBMOA. The next meeting of the Workgroup is scheduled for October 3, 2013 in conjunction with the Jornada-Mogollon Conference in El Paso, Texas.

Task Order Update

Task Orders created through the BLM contracting system provide the major thrust of the research effort undertaken by the PBMOA. Initially, the Workgroup recommended a series of "housekeeping" reports that would compile the scattered information accumulated primarily through excavations undertaken for oil and gas projects. Also of interest was the examination of some of the best-known sites in southeastern New Mexico, such as the Boot Hill and Burro Tanks sites, that were investigated by

amateur archeologists in the 1960s. Only briefly described, these amateur reports contributed in a large part to cultural histories of the region. An early focus of the PBMOA research was to reevaluate these key sites to determine what research potential they might still contain and to answer questions, whenever possible, about the earlier work. Also identified by the Workgroup was a need to survey high potential areas, such as bluffs along the Pecos River, that have yet to be examined.

To date eight task orders have been completed. One (Task Order 3) is an ethnographic and archeological inventory with the Mescalero Apache Tribe of potential Traditional Cultural Properties in the vicinity of the Permian Basin MOA; however, this report is not available for distribution. Two other reports are available by contacting the Carlsbad Field Office: Task Order 4 – Archeological Data Comparability for the Permian Basin Mitigation Program - (SWCA Environmental Consultants, 2010) is available as a paper copy and Task Order 8 – Thematic Survey of the Delaware River, Eddy County, New Mexico – (Lone Mountain Archeological Services, Inc., 2012) is available in pdf form.

Five other Task Orders (listed below) are available to archeologists and the general public at no charge through The Digital Archeological Record (www.tDAR.org).

Task Order 1 – Synthesis of Excavation Data for the Permian Basin Mitigation Program. SWCA Environmental Consultants, 2009 (tDAR Identification Number 378484).

Task Order 2 – A Class III Cultural Resource Survey of the Permian Basin MOA Area, Chaves and Eddy Counties, New Mexico. Lone Mountain Archeological Services, 2010 (tDAR Identification Number 378468).

Task Order 5 - The Laguna Plata Site Revisited: Current Testing and analysis of new and Existing Assemblages at LA 5148, Lea County, New Mexico. TRC Environmental, 2010 (tDAR Identification Number 378476).

Task Order 6 – The Boot Hill Site (LA 32229): An Oasis in the Desert, Eddy County, New Mexico. TRC Environmental, 2011 (tDAR Identification Number 378477).

Task Oder 7 - A Class III Transect Recording Unit Survey and Geophysical Prospection at the Burro Tanks Site (LA 32227), Chaves County, New Mexico. SWCA Environmental Consultants, 2011 (tDAR Identification Number 378478).

Task Orders currently underway include: Task Order 9 – Historic Context for Oil and Gas Development in Southeastern New Mexico and Task Order 11 – Understanding Local Lithic Resources: Lithic Sources Within and Adjacent to the MOA Area.

Task Order 10 – Landscape Testing Project: Analysis of Feature Samples will be awarded shortly. This contract is for the analysis of soil samples taken from 500 features, primarily hearths, distributed across the MOA area. Although the samples are small - each one approximately 8 oz or a measuring cup in size - it is anticipated that each will produce a radiocarbon date and information about plant utilization in the vicinity from which it was collected. The samples will be subject to a variety of analyses including macrobotanical flotation. This is a technique where soil samples are placed in agitated water, causing

any charred floral remains to float to the surface where they can be collected in fine mesh cloth. These samples are then examined for plant remains.

A portion of each sample will be also be analyzed for starch grains from plants and for phytoliths, small silica structures in plant cells that remain in the soil after the plants decay. These samples are treated with various chemical solutions to remove organic and mineral portions of the sample, separated by centrifuge, and then identified microscopically. Starch and phytolith remains identify plants that are physically present at the sampled location, as opposed to pollen analysis which can include pollen carried in to the sample site from relatively long distances by wind. However, the starch and phytolith remains may come from plants brought to the sample site by humans and may not necessarily reflect plants naturally growing there.

Dating will be accomplished using the Accelerator Mass Spectrometry (AMS) radiocarbon method which can be used on very small sample sizes. Ideally, annual plant remains, such as acorn caps or sunflower plant remains, will be found and used for dating which will provide a much tighter chronology. Woody plants, such as mesquite, typically used for fuel in hearths can be dated by radiocarbon methods, but mesquite is long-lived, some trees are known to be over 100 years old, and dead wood found in arid regions such as the Mescalero Plain can survive on the ground for many years before being collected and burned. Also related to dating problems is that charred wood remains may be from the interior or heartwood, portions of trunks or limbs which have stopped exchanging carbon with the atmosphere before the outer rings. The outer rings exhibit an age close to the cutting or death date of the tree while the inner rings will reflect the age of the tree.

Currently, information is available from 12 reports, dating back to 1983, describing plants identified from features located in the Mescalero Plain. In addition to plant identification, analysis such as that proposed for the 500 samples includes information about the use of plants by different Native American communities assembled from historical accounts and ethnographic sources. One example of the kind of information expected from this study is illustrated by the quotation below concerning the uses of mesquite documented primarily in the ethnographic literature. This quote is taken from a report entitled, "Pollen, Phytolith, Macrofloral Analyses and AMS Radiocarbon Dating of Samples from a Thermal Feature at Site LA 172823, Eddy County, New Mexico," by Linda Scott Cummings, Kathryn Puseman, and Chad Yost, PaleoResearch Institute, Golden Colorado.

> *Prosopis (mesquite) is a xerophytic shrub or small tree. The pods of both P. glandulosa (honey mesquite) and P. pubescens (screwpod mesquite) were utilized for food. The pods are sweet (P. glandulosa pods are noted to contain about 25% sugar), and they were eaten fresh, boiled, baked, or even fermented to make a mild alcoholic drink. The pods also were dried and ground into flour. Pods boiled in water yield molasses. The sweet pods are a good source of calcium, manganese, iron, and zinc. Mesquite seeds also can be eaten and contain 40% protein. Pottery paddles and cradleboards were made from mesquite wood. The gum was applied to sores and wounds or boiled in water to make an eyewash, candy, pottery paint, or hair dye. The bark was used for tanning and dying. Mesquite wood burns slowly, with an intense heat, and burns down to a long-lasting bed of coals (Burlage 1968:105; Kearney and Peebles 1960:402; Loughmiller and Loughmiller 1994:135; Peattie 1953:561-563; Sweet 1976:24). Although most ethnographic accounts of Prosopis bean and pod cooking indicate that they were boiled, there are several accounts of pit-cooking the beans and pods in the*

Southwest. The Quechan (Yuma) of southern California and Arizona pit cooked the pods, pounded them with a mortar and prepared the pods as food. They also dried and stored mesquite pods after pit cooking. The Pima of central and southern Arizona pit cooked the beans for several days, then they dried and ground the beans into a pinole (Moerman 1998).

The resulting inventory of dates and plant information gathered from the analysis of the 500 samples will provide a significant database suitable for fine-grained research purposes and future task orders will utilize this database to discover possible differences in plant use across the MOA area and to identify sites that may be candidates for more extensive excavation.

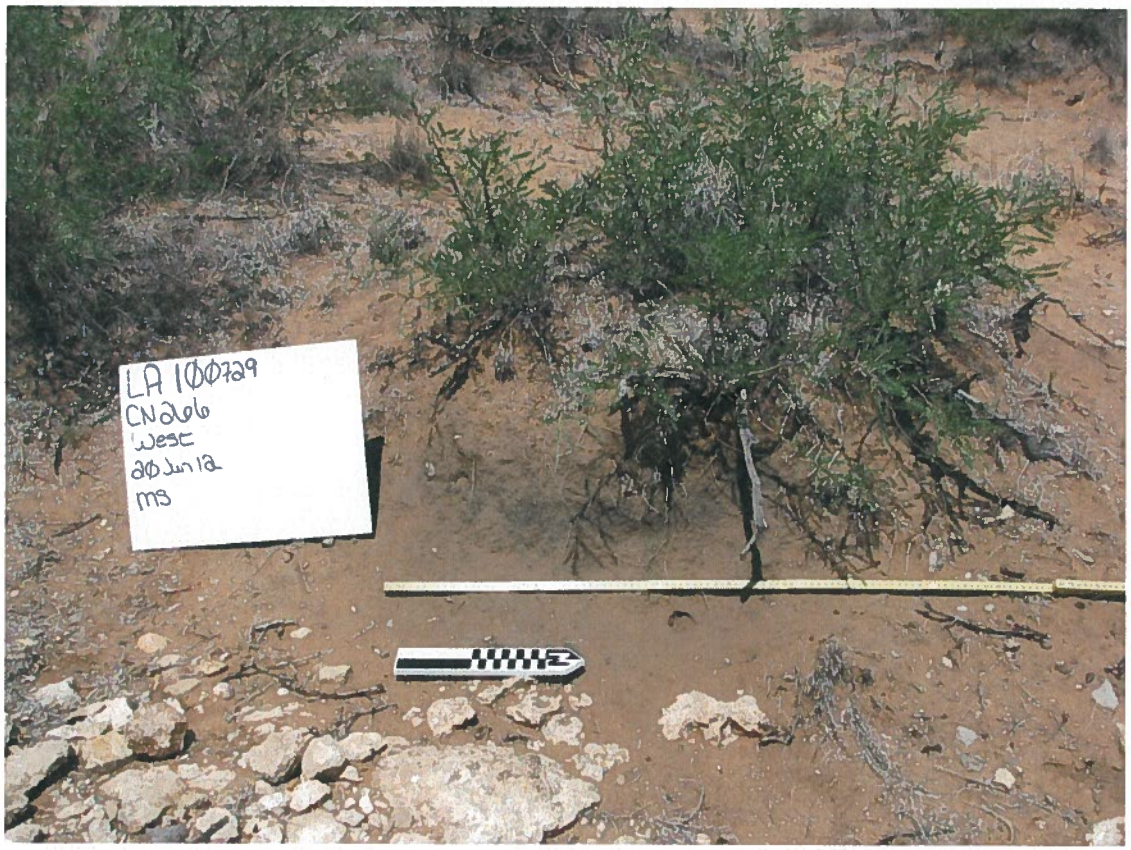

Figure 2. The dark soil of an eroding hearth located below the roots of the mesquite and above the ruler was sampled at this location. It is one of 500 samples to be analyzed in Task Order 10.

PBMOA Small Grants Program

In cooperation with the Historic Preservation Division of the New Mexico Department of Cultural Affairs, the PBMOA is funding a small grants program. Grants up to an amount of $15,000 each will be awarded for projects to be completed during the period from July 1, 2013 to May 15, 2014. This grant program is an expansion of an earlier grants effort that was limited to $1,500 for each applicant. The current

program has been advertised primarily through the New Mexico Archaeological Council website with a deadline for application submissions at the Historic Preservation Division of April 5, 2013. The intention of these grants is to fund projects that are restricted in scope and the number of researchers involved, but that contribute important information or that promote public appreciation of the archeology of southeastern New Mexico. Examples of projects previously awarded a grant include a description of the Berino paleosol; field collection and compositional analysis of an obsidian source south of Deming, New Mexico; and exhibit cases at the Western Heritage Museum in Hobbs, New Mexico. Future issues of the *Permian Quarterly* will include details of successful applications.

PBMOA Operational Issues

A common problem that can result in a delay in approving a project is a lack of documentation for some MOA contributions. Project proponents are reminded that a cover sheet (Form 8140-9), a map showing the project location, and a plat map should accompany MOA contributions. This office is busy with MOA and non-MOA NEPA (National Environmental Policy Act) reviews. CFO Archeology staff reviewed 1,472 NEPA projects in the last federal fiscal year and have so far this year looked at 914. Having information to enter projects accurately into the office Geographic Information System (GIS) is crucial to a smooth-running operation. Contact Erin Goslin at (575) 234-6231 or by e-mail egoslin@blm.gov if you have questions or need information about project documentation.

Contact Information

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