



Regional Research Contributes to the Study of Hunters and Gatherers

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Locating food by hunting and gathering is a lifestyle that all of our ancestors practiced in the past. In fact, over 95% of our history occurred before the agriculture revolution. Researchers from all over world examine how hunters and gatherers organized themselves socially and how environmental change impacted these adaptations. This research in essence defines who we were as a people in the past and how we have changed to our modern selves.

The Lubbock Lake Landmark regional research program has explored the rich history of hunter and gatherer culture on the Southern High Plains for the past 35 years. At the center of this research are the continuing investigations at the Lubbock Lake Landmark. One of the significant contributions made at the Landmark is unraveling the mysteries surrounding the Paleoindian period. The Paleoindian period dates between 12,000 to 8,500 years ago, and is a time of transition between the waning of the Ice Age and the beginnings of our current warmer climate. This period is a time when large megafauna such as mammoths, horses, camels, and giant ground sloths go extinct, and bison multiply in numbers following in the footsteps of the short grass prairie expansion.

To learn more about this intriguing time in our past, Area 6 was reopened for excavation in July for the first time since 1983. Area 6 at the Landmark holds a significant stratified Paleoindian record. Alternating bands of organic deposits formed at the edges of a former series of ponds changing to a freshwater marsh document a climate that was moister than today, and these deposits also preserve the activities of different hunter and gatherer groups through time.

This summer's excavation revealed evidence of bison consumption from three different Paleoindian time periods. In a deposit dating 8,600 years ago, bison vertebrae were discovered with debris left over from stone tool resharpening. Several bison ribs and a foot bone were found with stone flakes that were detached from an Alibates chert knife in sediments dating to 10,000 years ago. Alibates chert is a high quality stone material that outcrops near Amarillo, Texas. The largest bison bone bed uncovered this summer, that included several connected complete vertebrae and ribs, was found in a level dating to 10,800 years ago and is associated with the



Area 5 at the San Jon site; notice the stratified deposits at the edge of the peninsula leading into Sand Canyon.

Experience Lubbock Lake Landmark!

- Celebration 2007
October 13-14
- Educator Workshops
September 20, 27
October 25, November 15
- Nature Trails
- Exhibit Gallery
- Sculpture Garden
- Gift Shop

Public Hours:
Tues—Saturday 9am—5 pm
Sunday 1—5 pm

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Celebration Week is Back! October 13 & 14



Former intern Cindy Sherman discusses vertical loom weaving with Landmark volunteer Ron Cox and his wife, Alice.

Celebration Week is an annual event that began with the dedication of the Nash Interpretive Center in 1990, and highlights the cultural history of the region through time.

New construction on the Interpretive Center caused the 2006 festivities to be postponed. However we're back in full swing and are planning a full complement of programs for Celebration 2007.

Join us as we discover just how interesting life can be without televisions, iPods, computers, and even cars! Jump in and get your hands dirty; you're guaranteed to have a great adventure!

Check the website for up-to-date information!

Saturday, October 13, 10 am—4 pm

Sunday, October 14, 1—5 pm

Featured presentation at 2pm each day

A Way in the West:

Women on the American Frontier
written and directed by Andy Wilkinson

Demonstrations

Traditional Native American Lifeways
Traditional Cooking (no metalware involved!)
Native American Textiles
Corn and its Importance in Mexican Culture
Pottery
Weaving (Saturday only)
Flintknapping (selected times only)

Try Your Hand at pottery, weaving, and much more!

Teacher Professional Development Programs

The Environmental Education Workshop Series provides a well-rounded introduction to EE principles and practices, and introduces West Texas educators to a series of nationally-recognized programs that emphasize environmental awareness, stewardship, responsibility, and action through interactive activities that incorporate all the major curriculum areas.

All programs are funded through a grant from the US Environmental Protection Agency.

September 20

Fundamentals of Environmental Education

September 27

Fundamentals of Environmental Education

October 25

Leopold Education Project

November 15

Project WILD

June 9-13, 2008

Environmental Education K-8

Environmental Education is the integration of many disciplines that create a context for learning.



Students learn about traditional Native lifeways with Ray Olachia.

Student Special Events—Book now!

**Celebration Week,
October 10-12 and 16-18, 2007
Grades 4 and older**

Programs on Native American arts and lifeways emphasize the importance of understanding and preserving our cultural heritage.

**Environmental Awareness Week—
Ecological Footprints, May 6-9, 2008
Grades 4-7**

Students participate in activities that help them learn about ways humans can relieve stress on our fragile ecosystems.

Call 806-742-1116 to register your class!

Journaling: Experience Nature in Living Color

The much welcomed rain during the spring and summer months brought a sight to behold on the Southern High Plains. Nature bloomed in an abundance of yellows, reds, and purples. The Landmark story continues to unfold and reveal more of itself to us, inviting guests to share in its bounty. We know that throughout the past 12,000 years, it has lured wildlife with cool and fresh running water and enticed Native peoples to its borders with promises of fresh meat, and provided shelter for those animals in permanent residence. Today, Landmark visitors are met by the vivid colors of wildflowers and a chance to see birds, rabbits, or butterflies among others that call this preserve home. Visitors can interact with the short-grass prairie in ways that encourage preservation of this sensitive ecosystem. Many come with cameras in tow searching for that photo opportunity while others rely on their memories to record the nature experience. An inexpensive and lasting way to record your memories is through nature journaling.

Just what is nature journaling? Nature journaling is a tool that allows one to view the world in new ways. A nature journal is a record of observations found while exploring and discovering natural surroundings. Journaling enables a person to claim one moment and freeze it in time. For example, while closing the trail gates one Sunday afternoon, I met a fox. There we stood suspended in time and filled with curiosity, as we looked at each other face to face. It was quite a thrill and heightened my awareness of nature that surrounds me. Nature journaling promises an element of surprise and can be a great family activity. There are no requirements for journaling other than a sense of adventure and desire to learn.

So, how do you start a nature journal? Journals are not limited to pencils and spiral notebooks. A nature journal can be a box that holds sketches of leaves or rubbings of tree bark. It can be photographs, videos, or even audio recordings, any tools that reflect thoughts and ideas about your relationship to the world around you.

The development of that relationship is why nature journaling is important. My desire to preserve and protect our natural world intensified as a result of meeting the fox. Journaling heightens awareness of local wildlife and nurtures a sense of responsibility to the environment. It provides access to a world away from the hectic schedules of daily life. Because of the well-maintained footpaths, the Landmark is an ideal place to begin nature journaling. Along the 4 miles of trails, an often-overlooked world is waiting to be explored and investigated. The much-anticipated Llano Estacado Wildflower Trail will be completed within the coming year. This ADA accessible trail, made from recycled material, will offer the journalist access to the native flowers of the Southern High Plains. The Landmark has revealed evidence of these plants throughout the years of archaeological research. Six rest areas overlooking the preserve from various points are great places to sit, record experiences, and hone your journaling skills.

There are several ways in which nature journal skills can be developed. These activities can be enjoyed by the whole family and enrich the experience. Begin by locating shapes. Search for leaves that resemble triangles or flower buds that resemble spheres. Look for evidence of animals, look for nests, eggshells, and even tracks. Search for colors, sizes, or textures. The options are endless. The objective is to connect with nature. I suggest an alphabet search, start by looking for the letters of your name in the patterns of nature and draw these letters in your journal. As you feel comfortable with this, make the activity more challenging by looking for the letters of the entire alphabet. These activities will enhance your experiences and allow you to freeze that one moment in time. I challenge you to discover nature here at the Landmark as it continues to reveal itself to us.

Susan Rowe
Museum Science graduate assistant

Explore Your World!

Join the fun and tell us what you think about a new program we are introducing this fall.

NaturePaks are a great way to learn more about our prairie ecosystem while walking the Landmark's trails. Designed for children and adults to work together, NaturePaks contain magnifiers, bug catchers, and journal activities that will make your visit more interesting and exciting.

Check out a NaturePak before you hit the trails, then tell us about your experience when you return. Your comments will help us build a great resource for families to Explore Your World!

Special thanks to Caleb Quintanilla, 5th grader at West Wind Elementary for his original sketches included in the NaturePak journals.



Hunters and Gatherers

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Alternating bands of organic deposits at Area 6 of the Landmark.



Folsom bone bed associated with one of the dark organic layer (representing the marshy edge of a pond) at Area 6 of the Landmark.

Paleoindian Folsom culture. Folsom were hunter and gatherer groups who moved considerable distances across the Plains in pursuit of bison and made exquisite stone tools, particularly the finely crafted fluted Folsom spear point.

In addition to the continuing research at the Lubbock Lake Landmark, several other localities on the Southern High Plains are being explored to provide a fuller picture of hunter and gatherer activities in the region. For the past 12 years, excavation and survey at the San Jon site in New Mexico also has revealed a well demarcated stratified sequence of deposits preserving artifacts from different time periods. Of particular interest during this field season was an Early Archaic occupation at Area 5.

The Archaic period dates between 8,500 to 2,000 years ago and is correlated with warmer and drier conditions compared to today's climate. The water table dropped low enough between 6,000 to 5,000 years ago that hunters and gatherers hand dug wells to reach the retreating water levels at the Clovis and Mustang Spring sites.

Excavation at Area 5 during the month of May has unearthed the remnants of a possible hearth in association with stone tools. Charcoal from the hearth has been dated to 7,100 years ago. This significant find is about 900 years later than the Early Archaic camp ca. 8,000 years ago excavated in Area 2 at San Jon. Early Archaic sites are a rarity on the Southern Plains. The debate centers on whether the few Early Archaic sites that are found represent a decline in human population on the Southern Plains, or if Early Archaic sites are not as well preserved as other time periods. Only through continued work on this time period will the answer be unlocked.

Fieldwork in August took place at a ranch near Post, Texas. The focus of this season's work was to investigate the occupation at Cowhead Mesa. Cowhead Mesa is a remnant of the Southern High Plains situated just off the edge of the eastern Southern High Plains escarpment. Prehistoric hunter and gatherer groups and Historic Plains tribes were attracted to the mesa evident by the Biographical Style Plains rock art panels that adorn the sandstone cliffs edges, and over 2,300 artifacts left on the mesa top. Art elements depicted on the panel included possible church missions on fire, human figures in combat, a possible shaman, a three-toed box turtle, and a longhorn cow. One of this summer's objectives was to record the rock art panels in detail to shed more light on the Biographical Style of rock art on the Southern Plains.

Due to their precarious position and constant erosion, an effort was made to preserve the information present in the rock art using the latest in mapping technology. With help from our colleagues in Architecture at Texas Tech University, a Leica 3D laser scanner was employed to map the rock wall face in three dimensions. High resolution digital photography aided this process in documenting small sections of the main rock art panel that then were mapped to the 3D data points. The result of this work was a highly detailed and accurate representation of the rock art without touching the panel. After rectifying the images, the rock art then will be traced on the computer for an accurate drawing.

On top of Cowhead Mesa, the latest in GPS technology was used to record the distribution of surface artifacts. Several lithic clusters were identified that represents the manufacture of stone tools. Two hearths were excavated to document the camping activities of these hunter and gatherer groups. Charcoal and organic fill from one of the hearths should provide radiocarbon dates to determine when people were using the top of the mesa.

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3D Leica scanner used for recording the rock art at Cowhead Mesa.

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Additional exploration at the ranch included the excavation of a very large thermal feature at PLK-34. This feature was a very well constructed large basin that was rimmed with large caliche hearthstones. The central interior of the feature also was choked with these large hearthstones. The basin contained very dark organic hearth fill and charcoal, samples of which are slated for radiocarbon dating. Such features apparently were constructed to process plants (at least that is the initial hypothesis).

This brief glimpse outlines some of the important contributions that the Lubbock Lake Landmark regional research program is making to the study of hunters and gatherers for the 2007 field season. Research is a year round process that not only includes continued field work, but also the analysis of objects recovered in the field and publication of findings. The quest to understand hunters and gatherers of the past continues.

Dr. Stance Hurst

Field Manager, Lubbock Lake Landmark Regional Research Program



Volunteer Elizabeth Crockford-Peters and field assistant Sophie Butler record the position of artifacts with high resolution GPS technology.



John Moretti excavates a hearth at the top of Cowhead Mesa; note the edge of the caprock (Southern High Plains) in the distance.



Field assistants Katherine Bell and John Moretti are map and excavate the hearth feature at PLK-Locality 34.

Mow Them Down Before They Tumble

Spring and summer rains have been a tremendous boost for grassland restoration efforts at the Landmark, helping grasses to grow and spread in areas where we have been trying to reduce perennial broomweed to a reasonable level. Above ground stolons or “runners” are establishing new colonies of buffalograss and vine mesquite grass. All we have to do is leave it alone and watch it grow.

Other areas of the Landmark present more complicated restoration problems. Approximately six acres of land heavily damaged from prior off-road use was replanted in March with native grasses and wildflowers. We are beginning to use seed hand-collected at the Landmark along with commercially produced seed. During previous growing seasons, this area was covered with annual exotic weeds, mainly tumbleweeds. In the winter, the tumbleweeds break off at the base and tumble away, leaving barren ground and a seed bank of weeds.

A month of fairly steady rainfall provided ideal conditions for seed germination, but it was the tumbleweed that once again made their way to the surface first. The tiny tumbleweed seedlings were so thick they looked like a golf course green. We were able to spray Roundup on the first flush of tumbleweeds before our grasses and wildflowers germinated. Once the desired plants began to germinate, another flush of tumbleweeds and kochia came along competing with our horsemint, coreopsis, and grasses. What to do now? We waited. Like everything else, tumbleweeds have a weakness. Their seed does not stay viable in the soil for more than a year or two. Our hope was that our desirable plants would flower and set seed before the tumbleweeds. It is always trial and error but this worked. Once the horsemint and green sprangletop set seed, we were able to mow down the area just as the tumbleweeds began to flower. Earlier in the season, we had mowed down tumbleweeds elsewhere only to watch them grow back. Cutting them down during flowering actually killed most of the undesirable weeds leaving grass seedlings that had been shaded out and competing for water. Now, with a normal September rainfall, the grass will have time to strengthen its root system for next year, and we have the beginnings of a wildflower seed bank.

Blake Morris

Historic Maintenance Technician

Native, Notable, and Noxious

As if our battle with tumbleweeds was not enough, perennial broomweed (*Gutierrezia sarothrae*) poses similar challenges. On rangeland, broomweed can take over heavily disturbed or overgrazed areas. Once established, it out competes other native forbs and grasses for sunlight, soil nutrients, and most notably water. Broomweed has shallow lateral roots and a deep tap root that enables the plant to intercept water easily from near the soil surface to just over 2 feet deep. It also utilizes its water poorly within its physiology.

The Landmark has broomweed throughout its 336 acres, but it is most noticeable on the northern half of the draw. Despite the plant’s historic medicinal qualities and use as a food source for quail, its profusion on the property requires ag-



Blake Morris uses a chemical spray to treat invasive broomweed.

gressive treatment in order to encourage the health of other plant species. Chemical treatment using an herbicide containing picloram, derived from picolinic acid, allows the invasive broomweed to be controlled while not disturbing organic material used to date objects recovered during research. As a result, native grasses and forbs are returning to treated areas. Currently, about 60 acres have been treated and another 60 acres will be covered in late fall.

We would like to thank Dr. Sosebee from Texas Tech’s Range and Wildlife Department for his time and research experience on the control of broomweed. We learned a lot!

Scott Trevey

Historic Maintenance Supervisor

The Importance of Mission

Enter “museum mission statement” into your favorite internet search engine, and you will find mission statements for hundreds of institutions from the Guggenheim to the National Baseball Hall of Fame and Museum. The mission of the Lubbock Landmark is to provide leadership through preservation, research, and education; and to reveal and preserve the cultural and natural heritages of both Texas and the nation. As a unit of the Museum of Texas Tech University, the Landmark’s mission reflects that of the Museum’s mission of being an education resource about the natural and cultural heritage of local and related regions. But, what are mission statements – and why are they important to museums?

The International Council of Museums (ICOM) says in their 2006 Code of Ethics that “The governing body [of a museum] should prepare, publicise and be guided by a statement of the mission, objectives, and policies of the museum ...” A mission statement is important because it defines how a museum sees itself, what it does, and how it serves the public. Yet it is more than just a philosophical statement. When museums are truly “guided by a statement of the mission,” it affects a surprising array of everyday decisions.

Because the Landmark strives to “reveal and preserve” the natural heritage of Texas and the nation, you will see that the appearance of the Landmark is very different from other local public institutions. The majority of the acreage at the Landmark is in a natural state, but even the groomed areas surrounding the buildings reflect our commitment to the native environment. You will not see petunias or hollyhocks in the flowerbeds near the Interpretive Center – those are native plants such as sand sage, hackberry trees, and numerous varieties of wildflowers!

We have an equally important commitment to the cultural heritage of Texas and the nation. This means that we strive to protect the archaeological resources in our care, including those still in the ground. As we tend the natural resources, we must be careful to choose methods such as prescribed burns and, when necessary, chemical applications that do not negatively impact buried objects and sediments as a way to balance our responsibilities as a cultural and natural history preserve.

On any visit to the Landmark, it is easy to see examples of the ways that our commitment to mission influences your experience as a visitor.

Celebration, our most popular public program (scheduled for October 13 and 14 this year), uses performances, demonstrations, and visitor involvement to present the cultural history of the region in an enjoyable and easily accessible manner. The sculptures located around the Nash Interpretive Center help visitors visualize an era of our natural history. Even the variety of interesting items in the Landmark’s gift shop reflects our commitment to our mission. The Landmark’s mission, then, provides a perspective and guidepost that truly shapes our day-to-day activities.



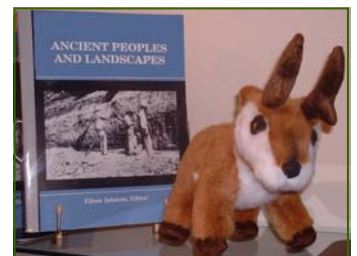
Bison antiquus



A recent prescribed burn at the Landmark.



Native grasses, Mexican hat, cactus, and Blackfoot daisy in the newly remodeled bed in front of the Interpretive Center.



Arne, the pronghorn antelope, is a new addition to the Landmark gift shop.

*Deborah Bigness
Manager of Site Operations*

Lubbock Lake Landmark

Museum of Texas Tech University
Box 43191
Lubbock, TX 79409-3191

Phone: 806-742-1116
Fax: 806-742-2048
E-mail: lubbock.lake@ttu.edu

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*Dedicated to the conservation and stewardship
of cultural and natural resources*



Lubbock Lake Landmark



Landmark Summer Sights

**Contributors to this
issue of *Notes from the
Field*:**

**Deborah Bigness
Dr. Stance Hurst
Blake Morris
Susan Rowe
Susan Shore
Scott Trevey**

**Photography:
Deborah Bigness
Dr. Stance Hurst
Susan Shore**

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Museum of Texas Tech
University**



Top left: Texas Master Naturalists design and plant flower beds in front of the Interpretive Center.

Bottom left: Landmark summer splendor.

Top right: Students experiment with water and sediments during summer camp sessions.

Bottom right: Archaeology Family Day provides interactive experiences for all ages .