

The Newsletter of
Lubbock Lake National Historic Landmark
Special Edition 2011



Notes from the... Field

75th

Anniversary Extravaganza

SPECIAL EDITION

Inside this Issue.....

<i>Welcome !!</i>	2
<i>Evidence of Blow Marks</i>	3
<i>Traversing the Brazos</i>	4
<i>A Decade of Historic Maintenance</i>	5
<i>Landscapes, Floods</i>	6

Celebrating 75 years of Discovery!!

Join us for events each month. Pull-out Calendar inside!!

Life on the Plains... Family Days/Hands-On Activities (all ages)

Discover... Lectures/Presentations/Workshops (teens - adults)



**MUSEUM
OF TEXAS TECH
UNIVERSITY**

“Hi, Welcome to the Lubbock Lake Landmark!”

“Hi, welcome to the Lubbock Lake Landmark!” I really do not know how many times I have said that over the past three years and will continue to say it over the course of this next year. With it being my senior year at Texas Tech University, I began to look back on my experience here in Lubbock and I can say that most of my memories actually stem from this great Landmark. I remember my freshman year when I barely began here at the Landmark, being shy and not really knowing what to say to the visitors, as they came in. I often relied on Deborah Bigness for some help and when she was unavailable, I often turned to Julie Flores to bail me out. I remember my first Celebration Week where I had no idea what to expect or what to do. It was my first weekend to work at Lubbock Lake and as I was excited to work on the weekend, I had a blast learning more about the cultures that thrived here all those years ago. I learned how to use an atlatl, make a god’s eye, make celebration masks, construct pottery, listen to some story-telling, saw a flint knapping demonstration, and so much more.

Of course, over the years, I began to warm up to the staff of the Lubbock Lake Landmark to the point where I consider them to be almost like another family. They had given me more responsibility around the Interpretive Center. Susan Rowe would give me projects to work on and I enjoyed doing them. I made signs for Celebration week, made copies of the promotional materials; I even went as far as being one of the demonstrators.

This past summer, I was able to stay in Lubbock, instead of going home to Houston, to help out. It was this summer that I actually got more involved in the Museum. I met some more wonderful people while I was making copies or dropping things off at the Museum office. I laughed with Pat and Claudia and talked with Jamie and Julie who now share an office so it makes it easier for me to talk to them at once. I also came to chuckle with Dr. Johnson because she now knows that I will always be at First Friday. I met Denise who works in Exhibits and is a funny person and Audra who works in Education along with former Lubbock Lake Landmark employee Brittany Chunn.

It was during this time that I actually saw what goes on during the summer and how busy we are: Summer classes for ages 6-12 provided constant chatter from kids going in and out of the building. I also was given a bigger responsibility this summer. I was to help teach a class alongside Sarah Tuohy. We had two activities planned for this class; however, we needed more filler activities so we winged the rest of the hour and a half that we had left. I was able to be a part of many other exciting events such as Trails Day, the Hospice event, Archaeology in Action, and the newest event that was added to the Landmark... NIGHT HIKES!!! When Susan told me that we were going to be hosting these night hikes, I quickly asked her if she needed help because I always thought that being at the Landmark after dark would be cool to see.

I have come across many things throughout my years here at the Landmark. I remember people with boats and others in bathing suits coming into the Interpretive Center and asking where the Lake is. I remember the man that got really upset because he was bitten by mosquitoes and was worried about the spread of West Nile. However, he was the one who was smearing blood all over the front desk. I know, that if I remember anything from college it wouldn’t be the cramming for exams, the mounds of homework, or the stress of college itself but would be this... the moments that I have shared with the Landmark and the Museum and its employees. I know that when I return one day, when I am visiting for a Tech football game, that the Lubbock Lake Landmark and the Museum of Texas Tech University will be the very first stops that I make.



Robert giving an ATLATL demonstration.

Robert López, Student Assistant

Evidence of Man-made Blow Marks Found on an Ancient Bison Thoracic Vertebra



Crew members stabilize the vertebra with neutral tissue and burlap dipped in plaster.

Excavations continued at Area 6 of the Landmark in July of the 2010 field season. Area 6 consists of several features, four of which date to the Paleoindian period (ca. 11,500 to 8,500 years before present). These features are ancient bison kill and butchering areas found at the edge sands and marshes that consistently provided water for animals and people in this area. During the earliest Paleoindian period, the Clovis period (ca. 11,500 years BP), a meandering stream wound through the valley floor at the Landmark. Patches of trees and shrubs and cool-weather grasslands were in the valley. Through the remainder of the Paleoindian period, the water way changed as the climate began to slowly warm and dry. By the latest Paleoindian period, the Firstview period (ca. 8,600 years BP), water in the valley floor was at or below the ground surface in an extensive freshwater marsh and the grassland was transitioning to include drier-weather species.

Previous investigations have uncovered ancient bison remains with evidence of butchering, stone tools, bone expediency tools, and several species of animal remains apart from ancient bison. From 2007 – 2010, excavations have continued to focus on these levels, with an emphasis on following the changes in sediment layers to discern the edges of the marsh, sands, and the features.

In 2010, the excavation crew worked in the Firstview period. During this period, bison were

butchered in the valley floor at marsh edges, mostly with stone tools made of quartzite. Additionally, people used jack-rabbits, ducks, and pronghorn as food sources. During the current field season, several stone tools made from imported quartzite were uncovered. These tools likely were quickly modified for the task at hand (butchering), and then discarded when the intended use had been completed. The location of these artifacts has increased the known size of the feature by several meters. The material and technology used to make these stone tools follows what has been found in previous field seasons. This finding reinforces interpretations about the feature, and about how people interacted with their environment during this time period. Additionally, a thoracic vertebra from an ancient bison exhibited a blow mark, or a depressed circular impact scar caused by the use of a hammer stone during the butchering process.

Continued on page 7

Traversing the Brazos River Basin

This past summer, the regional research crew investigated three paleontological localities spanning one end of the Pleistocene to the other. The Pleistocene is a geological age that began 2.6 million years ago and ended with the extinction of the megafauna (such as mammoths, mastodons, horses, camels, saber-tooth cats) around 11,000 years ago, and includes the period known as the "Ice Age." These localities, located in Waller, Snyder, and Post (Texas), also span the length of the Brazos River system.

This summer began with excavations near Houston at a locality called Cypress Creek (a drainage that feeds into the Brazos River). Cypress Creek is a new investigation involving researchers from the Museum of Texas Tech University, Texas A&M University, Sam Houston State University, and the University of Texas. The locality was brought to the attention of researchers by a local collector and has produced a variety of animal remains including ground sloth, extinct bison, horse, camel, mammoth, mastodon, turtle, and a crocodylian. These animals indicated a Late Pleistocene age. Radiocarbon dates, obtained from segments of wood collected near the bones, refined this estimate to between 20,000 and 30,000 years ago, a time known as the pre-Late Glacial Maximum. Remains from this time were very rare in the fossil record. The most significant find to date was a tooth identified as belonging to the South American herbivore family Toxodontidae. This family of large-bodied, hoofed mammals became extinct at the end of the Pleistocene, has no living relatives, and has never been found before north of central Mexico. Exploration of the locality has only just begun and potentially years of research lie ahead.

The regional research crew then traveled north to Scurry County, to the Roland Springs Ranch and the upper reaches of the Clear Fork of the Brazos River. Excavation of the early Pleistocene fauna encased in the Roland Springs Locality 1 deposit resumed this year for the sixth consecutive season. This locality produced a diverse assemblage of animals of all



Field Crew on the floor of the ancient stream in Scurry County.

sizes, representing all vertebrate classes (fish, amphibians, reptiles, birds, mammals). Among the animals was an extinct coyote, *Canis lepophagus* considered to be ancestral to the modern coyote, as well as extinct horses like the small deer-like, three-toed *Nannippus peninsulatus*, and an extinct turkey *Meleagris*. The fauna was dominated by multiple species of turtles and tortoises.

This past summer, a pile of disarticulated tortoise shell segments was found in a small depression in the floor of the ancient stream bed that formed the Roland Springs deposit. These shell segments, believed to represent a single tortoise, provided clues to the direction and nature of the flow of this ancient stream. In this situation, these specimens were caught in the depression and had to be buried quickly in order to prevent their dispersal downstream.

Furthermore, the location of the shell

segments within the depression, on its eastern edge and against a small ridge, provided additional evidence that the stream flowed from west to east. Overall, the continuing excavation at Roland Springs provided a glimpse of the inner workings of an early Pleistocene stream and the faunal remains that it preserved for nearly two million years.

Continued on page 7

Lubbock Lake Landmark's Historic Maintenance: A Decade Under the Museum of Texas Tech University

After a day's work, I often meander through and around Yellow House Draw at the Landmark, simply enjoying the peace, serenity, and sunsets it provides. It allows me some time to reflect on what else needs to be done, and at times, what has been done and where we are going. Along my journeys, I may encounter a mule deer, see a small flock of mountain blue birds that migrate through the draw, hear the calls of pheasant and quail, or see a wildflower that hasn't been noticed until that point in time. It is the little things in nature that I like to see. When I relax and begin to wind down that is the time in which I realize that our work here at the Landmark has made a profound impact.

The Museum acquired the entire Landmark in September 2000. During the last 10 years, it has changed dramatically. In reference to the operations portion of the Landmark, most of the brush has been cleared; areas that were once bare are now inhabited by native plants.

We have a new half mile long wildflower trail, brush arbors, wildflower gardens, more diverse wildlife, and a cleaner preserve. It is being utilized to facilitate students, teachers, visitors, volunteers, and researchers. These are just to name a few of the things that have been accomplished under the Museum's tenure.

More specifically about historic maintenance, we have come a long way from which we began. We started projects here at the Landmark in the year 2000 with limited resources. A truck, push lawnmower, shovel, loppers, and a few more hand tools, and a lot of determination was what we had to make a start with the overall restoration efforts. Over time, we have acquired more tools and equipment that allow us better production and allows us more opportunity.

Today, we are anticipating the opportunities of getting to share with others what we have done, what we are doing, and how we are doing it. Our original goal of restoring the historic landscape without disturbing its natural and archaeological resources will always be ongoing, and today, we know it can be done and how to do it. Thank you to each and every one who believed that it was possible. What a difference 10 years can make and what another 10 can do.



The new skidsteer makes life easier for Historic Maintenance.

Scott Trevey, Historic Maintenance Supervisor

Lubbock Lake Landmark **TRIVIA**

Be the first person to correctly answer the **TRIVIA** questions to receive **25%** off your purchase at the Landmark Gift Shop.

What cultural period did the Landmark excavation crew unearth during 2010?

In what year did the Museum of Texas Tech University acquire the entire Landmark?

What bone was used to radiocarbon date an extinct bison found at the locality near Post, Texas?

Answers are found in this edition of *Notes from the Field*.

Email your answers to landmark.education@ttu.edu or call 806-742-1116, please include your name and telephone number.

(employees of the Lubbock Lake Landmark or the Museum of Texas Tech University are not eligible to win)

The Landmark Soon After Discovery ...



Image of the current excavation site, circa 1940's.



Dr. William "Curry" Holden, conducting one of the first tours of the Landmark.

Mammal to Mouse

E T Y E J C T A L L M U K Z D
 N X A L S H O A N W L C K I V
 O E H C R I M Y D T U U R K M
 B R T O H M O K O D I E K I O
 S E O X A T A T E T W Q K S U
 M H M M K R O L R O E E U U S
 I T M X L B D O L O O Q M U E
 L A A J R D J F T D T H P T S
 I P M V U U O E S R O H T J B
 D M W P A R B E T R E V Q I B
 O A C O L U M B I A N B S H F
 N P S U N F T T N Y P O A K H
 Q O O Z J O E J U Q N E C S M
 R A E B D E C A F T R O H S E
 T U R T L E Z R D C S B J S I

VERTEBRA
 ANTIQUUS
 COLUMBIAN
 HORSE
 MOUSE
 SABERTOOTH CAT
 SMILIDON

BISON
 COYOTE
 MAMMAL
 PAMPATHERE
 SHORT FACED BEAR
 TORTOISE

BONE
 DIREWOLF
 MAMMOTH
 PUDDLEDUCK
 SKULL
 TURTLE

Landscapes, Floods, and Archaeological Research



Flooding of the South Fork of the Double Mountain Fork of the Brazos River on the morning of July 4th, 2010.

Like detective work, decoding the prehistoric archaeological record is based on examining the interrelationship of artifacts to discern the activities of past peoples. The spatial distribution of artifacts provide clues for determining what types of activities were taking place such as hide processing, stone tool manufacture, cooking food or bison processing. Artifacts however, cannot simply be taken at face value. Natural depositional and erosional formational processes continuously modify the surface of the earth altering the relationship between artifacts on the landscape.

Two types of site, typically are found. Surface sites are defined by artifacts found on the modern surface and are not buried by sediments carried by wind, water, and slope wash. In contrast, artifacts in buried sites have been covered up by the deposition of sediment. At both kinds of sites, the types of sediment that the artifacts are resting upon or buried by are examined to determine the age of the site, past environments, and how natural formational processes may have moved artifacts, thereby, changing the relationship between artifacts.

People on the Southern High Plains have been leaving behind artifacts for over 12,000 years, and past formational processes have moved, buried, and buried and exposed artifacts also during that time period. What artifacts belong to which time period and particular activity are important for accurately decoding the activities of past peoples, and how these activities have changed throughout prehistory. Therefore, understanding how formational processes have modified the landscape and distribution of artifacts is imperative.

An unique opportunity to learn about how flooding effects the landscape and archaeological record was provided by a historically high amount of precipitation on July 4th, 2010. At the Post, research area near the headwaters of the South Fork of the Double Mountain Fork of the Brazos River, 5.40 inches of rain from moisture caused by Hurricane Alex was documented by a local TTU Mesonet weather station. On the morning of July 4th, the field crew woke up to the flooding river, and were forced to abandon field camp. Field work did not resume for 11 days due to the flood damage.

The changes to the landscape at the Post research area were dramatic after the flood. Large rock over three feet in size from the Triassic Formation was carried miles down river with the flood. New sand over four feet in many places covered the terrace edge and bends in the river. At several river road crossings, the river took out bridges, and at Stewart Lake, upstream from the research area, the dam burst causing additional flooding.



Depth of new sand deposit along the South Fork of the Double Mountain Fork of the Brazos River: pointing at the depth of the new deposit.

Man-made Blow Marks

Continued from page 3



The excavations of Area 6 continue in July.

This vertebra was stabilized with archival chemicals in the field to keep the bone from breaking further and to preserve the butchering mark. The mark was located at the base of the spine next to the body of the vertebra, where the muscle attaches to the bone. The excavation unit was dug around the bone to create a pedestal, that then was covered with layers of neutral tissue and burlap dipped in plaster to create a protective shell. After the plaster dried, the pedestal was undercut and transported to the Quaternary Research Center where it will simultaneously be excavated and conserved.

At the end of the month of excavation, the area was lined with sandbags to protect the walls of the unit, and covered with tarp and more sandbags to protect the whole area during the winter. A protective wall also was constructed to maintain the integrity of the profile on the east wall of excavation. This profile contains valuable pieces of the stratigraphic sequence at the Landmark, providing information on the local environment. The care taken to protect the area for the winter season will preserve the information waiting to be excavated next year.

Katherine Bell Eblers, Senior Crew Chief and Research Aide

Traversing the Brazos

Continued from page 3

The final fieldwork of the summer took place closer to home, in both space and time, near the South Fork of the Double Mountain Fork of the Brazos River on a private ranch near Post. The initial excavations at this locality last summer recovered the remains of Columbian mammoth, extinct bison, southern bog lemming, extinct giant tortoise, an extinct shrew, and an extinct subspecies of large box turtles. The locality had a complex stratigraphy with the primary bone bearing layer apparently representing a flowing water environment, such as a stream or intermittent drainage channel. Results of radiocarbon dating on the inner ear bone from an extinct bison providing a date of 11,500 years ago, placing the locality near the end of the Pleistocene, after humans migrated into the continent. This past summer's excavations again collected extinct bison and turtle remains but also recovered new taxa including large extinct horse, a small bird, a small artiodactyl (even-toed hoofed mammal), and a skunk. Remains of the extinct box turtle, *Terrapene carolina putnami*, were abundant this summer; not only were individual shell elements found but articulated elements and three partial or complete carapaces (the upper half of the shell) also were collected. The locality proved to be significant and continues to produce taxa such as the southern bog lemming, the giant tortoise, extinct shrew, and extinct box turtle that are not found commonly in other late Pleistocene localities in the region except as Lubbock Lake.

The fieldwork accomplished this summer at these three exciting paleontological localities eventually will provide a real contribution to the understanding of animals and their environment during the Pleistocene. Work now shifts to the laboratory where the research team will seek, through identification and comparative analysis, to understand all of the data collected during this long, hot, faunal summer.

John Moretti, Senior Crew Chief and Research Aide

Participate in the Discovery: Join the Summer Field Crew

Join an ongoing field research program of international volunteer crews working with professional staff to conduct excavations and process artifacts.

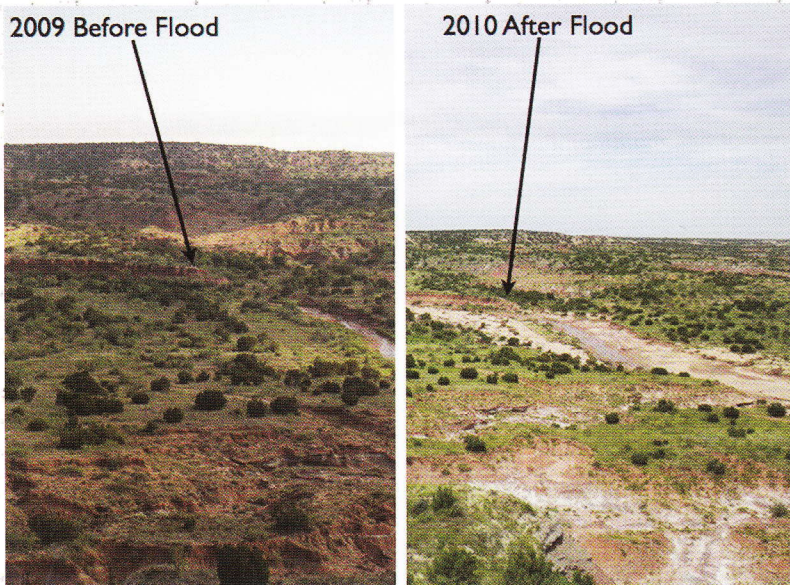
Volunteers must be at least 13 years old to participate.
Younger volunteers are assigned to the Research Laboratory.

Excavation (field work) opportunities are available at the Landmark site to volunteers 15 years of age and older.

Call 806-742-1116 or e-mail landmark.education@ttu.edu for more information.

Landscapes, Floods

Continued from page 6



Comparison of the change in the landscape after the July 4th flood at the Protohistoric site.

In resuming field work, a new objective for the rest of the field season involved documenting the impact of the flood to the landscape and on archaeology sites. At several sections along the river, GPS measurements were gathered to document the extent of the flood and also the deposition of new sand. The flood caused the cave in of walls at several cut banks revealing new locations for soil research. The erosion of cut banks also impacted several sites along the river's terrace removing portions of the sites. In particular, at a Protohistoric (A.D. 1450-1650) site excavated last field season, a foot or more of the terrace and site was removed as a consequence of the flood. In addition, the heavy rains uncovered new artifacts on the site's surface. During the month of August, the field crew resurveyed the site and excavation was renewed to recover additional information on the site's past inhabitants.

Investigating the extent of sand deposition and erosion along the river has revealed how fast erosion and deposition can occur in only a few short days. At several locations, old flood sand deposits buried by more recent river and wind deposition were recorded with little understanding of the time and process required to create these past formational features. The documentation of this recent flood event will help to discern how flooding may cause the erosion and deposition of large amounts of sand and rock in only a few short days, and how floods modify the landscape and uncover and deteriorate or bury and protect archaeological sites.

Dr. Stance Hurst, Lubbock Lake Landmark Regional Field Manager

Join us for these upcoming events!

Spring Break Fest March 15th – 17th ages 6 – 10

Join us for three days of outdoor investigations and activities during Spring Break Fest. Become an Eco-scientist and learn about solar energy. Go on a nature Scavenger Hunt and hear the Call of the Wild. Space is limited so pre-registration is required. Admission is **FREE**.

To register your child call **806-742-1116** or e-mail landmark.education@ttu.edu.

Landmark After Dark Night Hikes— begin in March and continue through October

Heritage: Lubbock Lake Landmark and You – April 4, 11, & 18 5:30 – 7:30 p.m.

Osher Lifelong Learning Institute and Lubbock Lake Landmark team up to offer this class. We will investigate aspects of the cultural and natural heritage of the Southern High Plains from ancient peoples to the present. Lectures, presentations, and hands-on activities facilitated by the Landmark staff will reinforce the importance of heritage preservation for future generations.

For more information about this course, please contact Osher Lifelong Learning Institute at 806-742-7202 ext. 251 or e-mail olli.uc@ttu.edu.

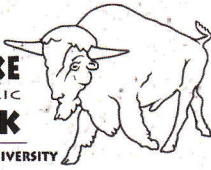
Summer Teacher Academy – June 6th – 10th

Whether formal, non-formal, home school, or scout leader, this academy is for you. In conjunction with the National Ranching Heritage Center, the Summer Teacher Academy will provide a well-rounded introduction to interdisciplinary lessons, activities, and other resources available from both facilities. In addition, educators will be trained in nationally and internationally recognized Environmental Education programs that emphasize environmental awareness, stewardship, responsibility, and action through interactive activities.

Dragonfly Excursions – schedule to be determined

Summer Youth Programs June and July ages 4 – 12

These programs and events are funded by the Helen Jones Foundation, Inc.



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



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Museum of Texas Tech
University

From Mammoth to Mouse: Animals of the Southern High Plains

Interact with the Landmark's new exhibit that celebrates the animals of the Southern High Plains.

Many different species of animals were present on the Southern High Plains at the end of the last Ice Age. These animals varied in size from large mammoths like the Columbian Mammoth (*Mammuthus Columbi*) and the Ancient Bison (*Bison Antiquus*) to tiny ones like the Plains Harvest Mouse (*Reithrodontomys Montanus*). Mammoth to Mouse is the story of animals, extinct to modern, on the Southern High Plains home.



This exhibit closes March 27, 2011.

Ancient Bison (*Bison Antiquus*)