The Newsletter of
Lubbock Lake National Historic Landmark
Winter 2013

Notes from the ...Field

The Landmark is on Fire

By Matthew McEwen, Heritage Maintenance Technician

Heritage Maintenance Supervisor Scott Trevey directs fire fighters from Lubbock Fire Department

At the Landmark, prescribed burning is a part of restoration efforts in order to manipulate the vegetation to what it looked like before European settlement. Fire plays an integral part for achieving many of the management objectives. These objectives include suppressing mesquite, increasing biodiversity, and improving habitat for the Texas horned lizard. Prescribed burning is the controlled application of fire to the landscape under specified environmental conditions. Weather in the for of wind speed, direction, temperature, humidity, and frontal systems are important factors when planning and implementing a prescribed burn. The trails, perimeter roads, and archaeology-friendly mineral lines are used where possible to confine where the fire should burn.

The Landmark's recent reintroduction of fire includes prescribed burning of several hundred brush piles since 2006, a prescribed burn around the Llano Estacado Wildflower Trail in 2009, and another in the northern 80 acres in 2010. These burns have been applied during the dormant season. The dormant season typically provides for higher humidity and lower temperatures, allowing the fire behavior to be relatively predictable.

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Inside this Issue.....

Currently on exhibit in the galleries...

Sacred Places & Ancient Texts

The Rock Art of Cowhead Mesa

Raised-arm human with horns and possible arrow protruding from its head. Raised arms in Plains Biographic rock art often signify that the figure is falling.

The turtle appears to be a three-toed box turtle based on the clear depiction of three toes on one of the hind feet.

Native American groups painted on or carved into rock images that record and tell stories about the past. Rock art often is located in areas of special spiritual significance and Native Americans groups returned to these locations to document events.

Landmark is Burning ~continued from page 1

This July, however, a great opportunity arose to do a summer burn. The Landmark hosted the field exercises for approximately 50 firefighters from the Lubbock Fire Department through the Texas A&M Forest Service. The fire fighters were completing wildland fire training as part of the Texas Intrastate Fire Mutual Aid System (TIFMAS) program. The prescribed fires entailed three different parcels at the Landmark over 15 acres total over the two days.

Justin Musgraves, the Regional Fire Coordinator for Texas A&M Forest Service who leads the training exercise, said " This experience is invaluable - no amount of classroom training can simulate a live-fire atmosphere. Through this new partnership between the Lubbock Lake Landmark and TFS, we were able to deliver high-caliber, hands-on training while helping the Landmark manage their natural resources."

This unique opportunity to collaborate with the Texas A&M Forest Service is both an enhancement to the Landmark's current burn program and contributes to the regional educational outreach and research at the Landmark. As of now, the burn unit is back to green, the Texas horned lizard is healthy, and the Landmark's staff looks forward to sending up more smoke in the future.

Burned parcel along the nature trail.

Bison antiquus Skeletal Remains found in Firstview 2B Sediments

By Katherine Bell Ehlers, Research Aide and Senior Crew Chief

Excavations at the Lubbock Lake Landmark focused for the sixth consecutive season in Area 6, within the old reservoir cut. Because of this area's location within the axis of Yellowhouse Draw, food and water resources were available from ancient into modern times. Area 6 contained activity features that spanned from the Aboriginal Historic back to early Paleoindian times.

The eastern wall in Area 6 before cleaning.

The eastern wall in Area 6 after cleaning.

The 2012 field season had two major objectives: to clean up the large east wall in the northern section of Area 6, and to continue excavations within stratum 2 that dated between 8,600 and 10,800 years before present. The northern section of Area 6 was excavated throughout the 1970s and early 1980s. Excavation was put on hold in the early 1980s when the water table rose and the area went under water. When the water table dropped during the late 1990s, the erosion due to water, gravity, and wind was evident. During the 2012 field season, slumped sediment was dug away from the eastern wall to expose the sequence of sediments. As the crew has explored Area 6 and the rest of the Yellowhouse system further, the local stratigraphy (the depositional history of sediments) had been refined. It was important to clear this wall to re-document the stratigraphy based on the knowledge accrued since the first time it was documented. The crew, mostly student volunteers, worked for over a week carefully shoveling the slump to avoid disturbing any intact sediment that may have contained archaeological material. As the crew shoveled, bone and lithic artifacts that had eroded out of the wall were plotted and collected.

For the bone, it is possible to identify the original sediment it was in by the coloring of the bone. For example, bone from stratum 5 is a creamy yellow color, while bone from stratum 2 is a dark brown. Being able to discern the stratum provides more information about the bone and the possible original context.

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Bison antiquus ~ continued from page 4

By clearing the east wall at Area 6, the crew could draw the stratigraphic profile and identify sediments deposited within the Yellowhouse system for the past 11,000 years. Identifying the sediments gives a clearer picture of the ancient environment and landscape on the Southern High Plains.

At the base of the wall that had eroded back over the years, a small pile of ancient bison remains was uncovered in intact upper substratum 2B. This part of 2B dated to ~8,600 years before present, and was associated with a Firstview Paleoindian ancient bison kill/butchering feature. At the Lubbock Lake Landmark, these features usually had only a few bison present and are near the edge of ancient marshes. Compared to even earlier Paleoindian kill/butchering features at the Landmark, lithic tools were used more commonly and bones were fractured for expediency tools less often in the Firstview features. The crew excavated the units containing the ancient bison remains and removed three plaster jackets that safely encased the bone material. Some of the elements in the jackets included the sacrum, pelvis, and multiple ribs. The largest jacket removed was almost 3 feet wide and 1.5 feet deep. Because of the size and weight of the plaster jacket, it had to be removed with a skid-steer and transported to the Museum in the back of a pickup truck! Perhaps a Firstview point awaits discovery when the jacket is excavated in the Conservation Lab.

Plaster jacket in the process of being moved from the field to the Conservation Lab at the Museum.

The Landmark is a unique space, with reliable resources, especially water. It is still an oasis in the midst of the drought; rodents, snakes, cottontails, and even a couple of coyotes visited the field crew in the reservoir. Block excavation in the coming years will continue to explore the natural history and fascinating cultural activities that have occurred continually on the Southern High Plains.

A volunteer moves the resident snake to a different area .

Root or Fence Post?: Excavations at a Historic Cowboy Camp

By Dr. Stance Hurst, Lubbock Lake Landmark Regional Field Manager

This past summer, the Lubbock Lake Landmark regional research team continued the investigation of a late 19th century cowboy camp, designated as Macy Locality 16, located along the eastern escarpment of the Llano Estacado near Post. During the previous field season, a metal detector survey revealed metal objects, (e.g., cartridges, bullets, and wagon hardware) attesting to early ranching activities in the region. Artifacts manufactured out of metal, however, provided only a partial picture of the historic remains left at the site.

An objective for this field season was to test areas of the site that may contain artifacts made from other materials such as glass and ceramics used in the manufacture of bottles and flatware. Several excavation units were set up in areas of the site with the potential for more deeply buried deposits suggested by the discovery of buried metal artifacts found by the metal detector survey.

Excavation proceeded carefully using trowels and brushes and removing only less than 1 inch of sediment at a time in order to recover carefully and document new artifact finds. Several artifacts were found including glass, porcelain, cut nails, wire, a complete .45 bullet, a shirt button, fence staples, a can lid, and a spoon. Most of these artifacts were found in association with the remains of a deeply buried campfire at a depth of 17 inches below the modern ground surface.

The most surprising find was a complete buried fence post found near the campfire. While excavating, the bottom end of the wooden fence post was uncovered first. This find led to a debate among the research team of whether the wood was from a fence post or more simply an old tree root. The wood had experienced weathering and was straighter than the typical tree root. Carefully, the excavators continued uncovering the piece of wood. The wood was very fragile and required a delicate touch while excavating around it. The team then uncovered the top of the fence post with slick wire still wrapped around the post. That ended the fence post vs. tree root debate. The total length of the fence post was 35 inches. Due to its fragile nature, the wood simply could not be picked up out of the excavation area without damaging it. The fence post was left lying in a pedestal (isolated section of the excavated surface) and a plaster jacket was prepared for removal of the fence post. To prevent movement of the fence post, a special frame also was constructed for transporting the fence post in its plaster jacket back to the Conservation Lab at the Lubbock Lake Landmark.

The discovery of historic artifacts with the remains of a campfire will provide important information about the camp life of cowboys during the early ranching period of the Llano Estacado. Uncovering historic artifacts so deeply buried was surprising, and indicates the dynamic nature of landscape erosion and new sediment deposition along the edges of the Llano Estacado.

The fence post on pedestal ready for jacketing.

Ancient Deposits reveal Extinct and Extant Animals of the Southern High Plains

By John Moretti, Research Aide and Senior Crew Chief

The field crew continued their exploration of the ancient deposits of Macy Locality 100, near Post, this summer. These exciting and productive explorations included the opening of a second excavation area and led to an increased understanding of the local late Pleistocene environment.

Excavations in Area 1 of Macy 100 have, in previous years, produced remains of extinct late Pleistocene megafauna such as mammoth, ancient bison, horse, giant peccary, and camel. Remains of living (extant) animals have been recovered such as deer, coyote, prairie dog, and a variety of birds. Most telling is the recovery of extant animals that no longer exist in this region (extralimital) like muskrats, bog lemmings, voles, and jumping mice.

Dense pile of bison bones resting on a dark organic-rich sediment.

This summer, excavations in Area 1 worked in sections of the deposit lying between an upper date of 10,700 years before present and a lower date of 11,500. A concentration of associated hind leg and foot bones of a large canid (dog family) was discovered in the upper layers of this section. These bones, much larger than those of a coyote, belonged to either the extant grey wolf (*Canis lupus*) or the extinct dire wolf (*Canis dirus*). Both wolves existed on the Llano Estacado in the late Pleistocene. Dire wolves generally were far more common than the less robust and smaller jawed grey wolves until the former went extinct at the end of the Pleistocene. The extinction of the dire wolf allowed the grey wolf to expand its range without competition.

In addition to the excitement generated by the discovery of a large carnivore, this concentration of associated bones from a single individual animal provided clues to the deposition process of the locality.

Excavation in Area 1 this summer continued to uncover a number of bones associated with the extinct western camel (*Camelops hesternus*) skull discovered last summer. Notably among these was a concentration of neck vertebrae. These vertebrae, when combined with two neck vertebrae found last year, form an almost complete neck, missing only the first cervical vertebra, to complement the skull. Most excitingly, this summer's excavation proved, with the uncovering of the tips of two limb bones, that even more of the skeleton remains to be exposed and recovered.

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The crew used brute force to lift the 500-600lb plaster jacket out of the excavation units.

Ancient Deposits continued from page 7

Reconnaissance near Macy 100 noted a deposit with bones of Pleistocene animals eroding out of it. The sediment of this deposit was similar in appearance to that of Macy 100 and designated as Macy 100 Area 2. Excavation units were set up over bison bones visible in the eroding slope. Soon, excavation had exposed a dense pile of bison vertebrae, a femur, humerus, scapula, and ribs resting on a dark, organic-rich sediment that appears to correlate with a similar layer in Area 1 dated to 10,700 years before present.

As excavation proceeded, it became clear that most of the bones in the pile were very fragile and could not be separated from one another. Thus, the pile would have to be recovered all together in a plaster jacket. Planning was quickly underway on how to prepare and transport a large plaster jacket from a steep slope, across a rugged landscape, in an all-terrain vehicle to an awaiting truck for delivery to the Museum of Texas Tech University. In the final days of the summer field season, the plaster jacket was formed, removed with great effort onto a cut bank, and into its transport. Ultimately, the jacket arrived at the Museum and was recognized as one of the largest ever collected by a Lubbock Lake Landmark field crew.

Discoveries 2012

The words below are found through Notes from the Field. Unscramble each of the clue words.

Take the letters that appear in the ⬠ and unscramble them for the final message.

TAISUUQN

YOBOCW

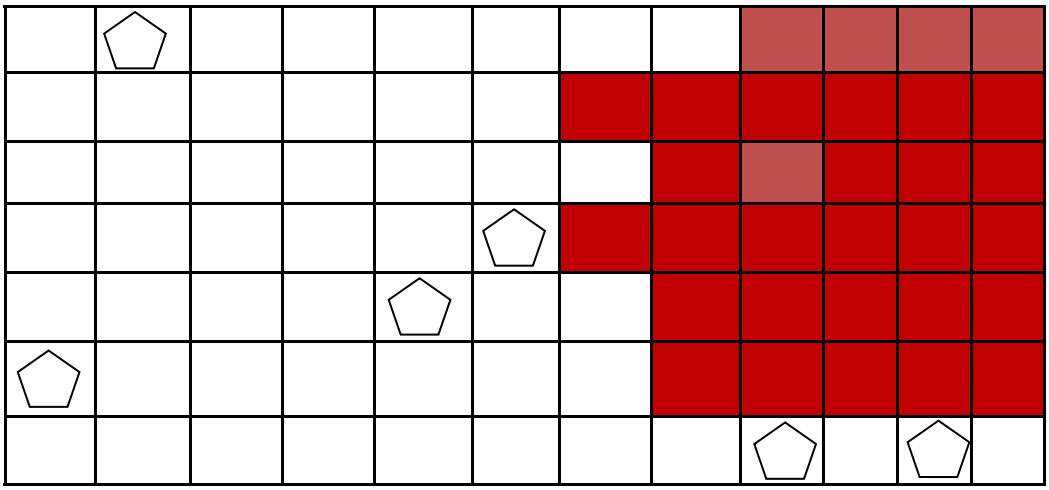
ITNECXT

REMSUM

SUGNATM

CIONMEE

NABODSEOCIRP



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Licking Horse Bones in Mustang Draw

By Dr. Stance Hurst, Lubbock Lake Landmark Regional Field Manager

This past May, the Lubbock Lake Landmark regional research team continued work at the Arena site near Stanton, Texas. The Arena site is located along the northern rim of Mustang Draw in Midland County. To date, over 50 hearth features have been documented and over 3,500 artifacts mapped and collected. Analysis of the artifacts indicates the rim was used intensively by past Native American groups for over 6,000 years.

An objective of this year's field work was to finish the survey and excavation of features eroding out of the side of one of the ranch road. Two of these features contained bison bone. The bison bone was extremely fragile and had to be removed in plaster jackets. Excavation of the bison bone features revealed that they were within portions of intact past occupational surfaces. These occupational surfaces represented the living surfaces of hunter-gatherer groups similar to a modern living room. In addition to the bison bones, charcoal, hearthstones, and lithic artifacts were recovered. These artifacts were the camping debris left behind by hunter-gatherer groups. Continued excavation of the occupational surfaces will further the understanding of hunter-gatherer camp life along Mustang Draw.

Another objective for this field season was to survey along the bottom of Mustang Draw below the rim. A ponded area in the draw would have provided an important water source for past peoples in the region. The survey was focused along a small northern terrace overlooking the ponding area that would have been a potential campsite location. The survey team mapped and collected over 40 artifacts during this survey. Artifacts recovered included stone tools and hearthstones as well as historic bullet cartridges and glass. In addition, several modern horse bones were collected that were eroding out in association with buried soils exposed along the terrace wall.

Mustang Draw, Midland County

The presence of buried modern horse bones in association with buried soils suggests the terrace may have been used as a campsite historically by either early ranchers or the Comanches. In order to document the buried soils, a profile was excavated along the bank of the terrace and organic sediment samples were collected to obtain a radiocarbon age for the site. While excavating the profile, several more horse bones were located, mapped, and temporarily placed along the side of the profile while the profile was being excavated. Whiskey, a curious horse that normally oversees the excavations, stopped by. While the research team was distracted, Whiskey proceeded to scoop up several of the horse bones and lick them. Unknown to Whiskey was the likely fact that he was licking the bones of his ancestors! Subsequently, this new site located below the rim of Mustang Draw was named Whiskey Flats in his honor.

Next field season, the research team plans to do more survey and excavation of the Whiskey Flats site to ascertain the age of the site and determine if either early ranchers or the Comanches were using this site as a camping locality during historic times.

Summer Fun at the Lubbock Lake Landmark

By Sarah Faulkner, Museum Science Graduate Student Assistant
Kandace Trujillo, Helen Devitt Jones Graduate Fellow in Museum Science

Native Americans used bison brains to tan hides, one of the interesting and wacky facts taught during the *Big Burly Bison* summer camp. Over the course of 6 weeks, we had the privilege of teaching kids ages 4-12 all about nature and the history of the Landmark. Along with the *Big, Burly Bison* camp, we also taught about mud, water, birds, bats, biomes, deserts, and cultures. We did not just lecture them though; they are not in college yet. They should still have some fun as it was summer, after all! Some of the fun activities they participated in were water relay races, throwing an atlatl, a bison survival game, lots of arts and crafts, and delicious snacks.

Students learned about archaeology by making pottery puzzles: terra cotta disks were decorated then broken to simulate ancient pottery reconstruction.

It was not just about memorizing facts to tell the kids. We learned just as much as they did this summer. The campers we were able to work with were some of the most insightful, intelligent, and fun kids we have ever met. Their stories and fun facts taught us about e verything from the movie *Madagascar* 3 to sea creatures to Native Americans. We taught an average of about 50 kids per week (we had many repeat campers that hopefully means that we were doing a good job!). We really enjoyed taking the kids outside on nature walks. We tried to build their appreciation and respect for nature by helping them identify the plants and wildlife at the Landmark.

Painting dragonfly wings.

This summer was truly enjoyable and a learning experience for both of us. We could not have done this without Susan Rowe, the Education Program Manager, the staff at the Landmark, and the wonderful volunteers. Now that summer camps are over, we miss the energy and enthusiasm of all of the kids. If any of the parents of the campers are reading this, we hope they had fun this summer and come back next year!

Summer Youth make Quilts for Project Linus

By Susan Rowe, Education Program Manager

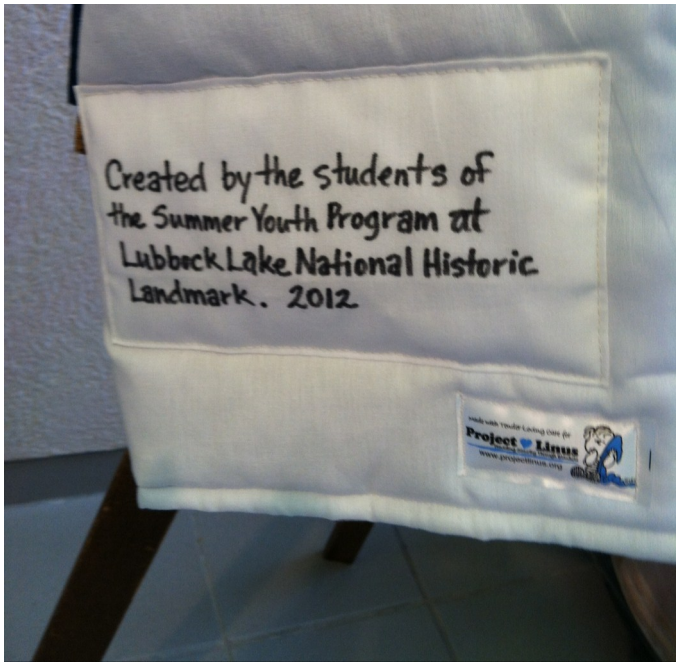
Students participating in Summer Youth programs were given the opportunity to help provide for children who are seriously ill, traumatized, or otherwise in need by designing two quilts for Lubbock Project Linus. Thanks to Rose Barnett and Rachel Denton, our grandmother – granddaughter local quilters and members of the Lubbock chapter.

Rachel, a 9 year old, is a regular quilt exhibitor at the South Plains Fair and received *Best in Show* honors in her age group in 2011. She also is a regular participant of Summer Youth Programs here at the Landmark. With help from her grandmother Rose, Rachel provided quilt squares and instruction on how to sew them together to her fellow Summer Youth students.

Everyone, boys and girls alike, were excited about creating quilts for children in the hospital. Thank you to Rose and Rachel for sharing their hobby with us. For more information about our local Project Linus chapter, go to www.lubbock-project-linus.org.

Squares pieced together by Summer Youth, sewn and quilted by Rose Barnett.

Hand prints provided by Summer Youth, sewn and quilted by Rose Barnett.



Pleistocene Proboscidean Tusk Segments Discovered

By John Moretti, Research Aide and Senior Crew Chief

Proboscidean tusk segments.

Mammoths, wooly and otherwise, are well known to much of the public. Mammoths have been stars of animated movies, their frozen, mummified remains have been featured in magazines, and they have been discussed as candidates for Jurassic Park-like cloning. Mammoths, however, are not unique in their ancient world. A variety of proboscideans (the taxonomic order including elephants and their trunk-bearing relatives) have existed throughout ancient times, some of which coexisted with mammoths.

Mammoths (*Mammuthus*) arrived in North America in the Pleistocene, sometime around 1.3 million years ago. Their arrival marks the beginning of a period known as the Irvingtonian Land Mammal Age (middle Pleistocene). On the Southern Plains, the remains of the Columbian mammoth (*Mammuthus columbi*) are common in late Pleistocene sediments.

Mammoths were ancient members of the extant (living) elephant family, Elephantidae. Other, now extinct, proboscidean families also existed and had much longer records in North America, namely the Gomphotheriidae (gomphotheres) and Mammutidae (mastodons). The members of these families exhibited a great diversity of sizes and forms and were abundant throughout North and South America for many millions of years, far longer than mammoths.

Gomphotheres and mastodons originated in Africa and members of these families immigrated to North America just as mammoths would much later. Both families arrived in North America in the Miocene as early as 17.5 million years ago. Both families generally resembled mammoths and elephants but were shorter, broader, and stockier with longer skulls and less curved tusks. Many gomphotheres and some individual mastodons even had lower tusks. Gomphotheres exhibited a wide variety of unusual tusk and body forms. Some gomphotheres such as *Ambelodon*, known as shovel-tuskers, had wide, flat, buck-tooth like lower tusks believed to be used to scrape bark from trees for consumption. Others had large, long, straight lower tusks, giving them an imposing four-tusked appearance.

Both gomphotheres and mastodons generally were browsing animals. Mammoths and modern elephants are, like cattle and horses, generally grazing animals, eating mostly grass as opposed to mostly leaves and herbs. These dietary differences were demonstrated by differences in the shape and function of their teeth. Gomphotheres and mastodons arrived in North America at a time when the environment had just begun to move slowly from a largely wooded landscape to a more open plains or savanna environment. As this transition continued, these immigrant proboscideans successfully adapted and developed into native North American species. As North America became drier and less wooded, the diversity of these forms declined and they ultimately went extinct in the late Pleistocene, along with the mammoths.

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Tusk Segment continued from page 12

This summer at the early Pleistocene Roland Springs Ranch Locality 1 (RSR-1), the first definitive evidence of an extinct proboscidean in the faunal assemblage has been discovered. The fauna of RSR-1 consists of a wide variety of animals, representing all vertebrate classes. It includes extinct turkeys, giant extinct tortoises, extinct zebra-like horses, small three-toed horses, ancestral coyote, moles, voles, fish, and frogs. The identification of these animals allows for the development of an understanding of the local environment in which they lived based on their known habitat preferences and dietary requirements. The RSR-1 deposit itself was formed by a small stream. Bordering this stream would have been trees and brushy vegetation surrounded by grassland/ savanna. The age of RSR-1 is provided by the assemblage of identified species and is believed to be earliest Pleistocene (2.0-2.5 mya), within the Blancan Land Mammal Age.

Plaster jackets incase the tusk segments.

This summer, segments of a proboscidean tusk were discovered unexpectedly while excavation attempted to recover a mammal humerus. The Blancan Land Mammal Age precedes the Irvingtonian Land Mammal Age and the arrival of mammoths. Therefore, the tusk segments most likely do not represent a mammoth but one of the multiple endemic species of gomphotheres or mastodon.

This discovery is significant to the assessment of the local environment of RSR-1 as both the mastodon (*Mammut americanum*) and the native varieties of gomphotheres (*Stegomastodon*, *Cuvieronius*, *Rhynchotherium*) primarily consumed the leaves of trees and brush instead of grass. This preference indicates that a wooded area was a significant component of the ancient ecosystem at RSR-1 to provide enough habitat for these large mammals. Few other animals known to prefer a wooded and brushy habitat have been recorded at RSR-1 and prior to the current discovery; the largest of these was a turkey. An animal the size of an elephant clearly requires a larger habitat than a turkey, indicating that the size of the wooded area was larger than previously estimated.

Two intact segments of a tusk were collected in plaster jackets this summer. These segments should be complete enough to identify if they represent a gomphothere or a mastodon, although a more specific identification will likely require teeth or additional skeletal material. The discovery of the tusk, nonetheless, will increase the understanding of the biodiversity and environment of the earliest Pleistocene at RSR-1. This discovery in addition to the three-toed horse jaw, carnivore limb bone, rabbit skull, and other finds, made for an exciting summer of paleontological research.

Community Volunteer Opportunities!

Contact us for more information on these and other opportunities!

Monitor the Horned-Lizard population!

Facilitate a workshop!

Work with area youth!

Assist Historic maintenance!

LUBBOCK LAKE
NATIONAL HISTORIC
LANDMARK
MUSEUM OF TEXAS TECH UNIVERSITY

Texas Tech University
Box 43191
Lubbock, Texas 79409

~ Remember to visit the Landmark Shop for unique gifts ~ and new this year – firewood!

The Shop has a colorful, appealing selection of gifts and stocking stuffers for children and adults including book about our history and environment, jewelry, and plush versions of our native animals.

We now offer locally harvested, well-seasoned, elm firewood, available by the bundle, the half-cord, or the cord.