

Notes from the ...Field

Sixty-year Anniversary of Field Work and Research at Area 8 of the Lubbock Lake Landmark

Lila Jones, Research Aide and Senior Crew Chief



Figure 1. F. Earl Green excavation crew Area 8 in 1959.



Figure 2. Lubbock Lake Landmark research crew excavating a Protohistoric hearth at Area 8 in 1974.

The 2019 field season at Area 8 marked the 60th year since its first archaeological excavation. Although several excavations had been conducted at the Lubbock Lake Landmark following its discovery in the mid-1930s, the very first excavation at Area 8 was in the summer of 1959, led by geo-archaeologist F. Earl Green (Figure 1).

During that first effort, several features were recorded, including Apache hearths and campsites (from the mid-1600s) that would be explored further in 1960 and 1961 along with archaeologist Jane Holden Kelley. The current research program at the Lubbock Lake Landmark began in 1972, and continued work in Area 8 during the 1974 and 1977 field seasons (Figure 2). Area 8 also is the location of the Singer Store, the first commercial establishment in the area. Founded in 1883, the store served as a post office and sold supplies for early ranchers and military travelers until it burned down shortly after in 1886. After the incident, the store was moved to another location nearby and eventually relocated to the downtown area.

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Figure 3. Singer Store marker placement by the Plains Museum Society in 1932.



Figure 4. Lubbock Lake Landmark research crew excavating the Singer Store at Area 8 in 1998.



Figure 5. Lubbock Lake Landmark research crew at Area 8 in 2019.

Historic records indicated the original location of the Store and a historic marker was placed at the site by the Plains Museum Society in 1932 (Figure 3).

In 1998, excavations were undertaken in the area surrounding the marker and evidence of the store was recovered (Figure 4). Eighteen years after the Singer Store research was conducted, the Lubbock Lake Landmark research crew resumed work in Area 8 during the summers of 2016 through 2019. The focus returned to the Apache features from the Protohistoric period encountered by Green and Kelley in the 1960s and then by the Lubbock Lake Landmark crew in the 1970s. The Lubbock Lake Landmark has over 100 archaeological areas and research efforts have been made in each one over the years.

Meticulous field work, detailed paperwork, and carefully preserved collections at the Museum of Texas Tech University, allow for current researchers to continue where previous research has left off. Information recovered from older excavations can be linked to the new for a broader perspective and more robust results.

The past 60 years at Area 8 have provided a wealth of information regarding the beginnings of the community of Lubbock and the people that were in the region before then. Due to its proximity to the public trails of the Lubbock Lake landmark, coupled with ongoing graduate and volunteer programs, Area 8 has served as a classroom to many generations of students and members of the community (Figure 5). Current research indicates more is still to be learned and excavations at Area 8 are scheduled to continue into the future.

Volcanic Ash on the Southern High Plains

Stance Hurst, Field Manager, Lubbock Lake Landmark



Figure 1. Crew member collects samples from ash beds for $^{39}/^{40}\text{Ar}$ dating at the Oregon State Geochronology lab.

Over the past three field seasons at the Post research area, the survey team has recorded the skeletal remains of several extinct Ice Age animals within the Spring Creek beds. The Spring Creek beds are lake sediments left from an extinct lake that had formed during the Pleistocene. During this time, under more moist weather conditions, several paleolake basins formed along the eastern escarpment edge of the Southern High Plains. The exact age of the Spring Creek beds and their relation to other regional extinct paleolakes has puzzled researchers for several decades.

The Blanco basin, located in Crosbyton County, Texas is the largest known paleolake of the region.

This basin has been the center of early Pleistocene

animal research for over a century, and also is the only one dated. A volcanic ash layer is located within lake deposits of the Blanco basin, and another upper ash layer occurs above the lake sediments within the later wind-blown sediments of the Blackwater Draw Formation. Throughout the Pleistocene (~2.6 mya-11,000 ka), sporadic eruptions from volcanoes in the Jemez Mountains region of north-central New Mexico and Yellowstone National Park in Wyoming blanketed the Great Plains. Where these ash lenses were preserved from erosion, they provided a reliable chronological marker for determining the age of sedimentation.

In the early 1970s, researchers dated two samples of the Blackwater Draw Formation ash layer, above the Blanco lake bed, and the estimated ages of these samples were 1.4 and 1.77 million years ago. This ash layer was identified as the Guaje ash that has its source in the Jemez Mountains in New Mexico. The lower ash layer within the Blanco paleo-lake sediments was dated to 2.8 million years ago. If these ages are correct, then the Blanco paleolake sediments date between ~2.8 - 1.4 million years ago.

At the Post research area, the Landmark team has discovered a thick deposit of volcanic ash located on an upland ridge. The research team currently is tracing the lateral extent of the ash layer and mapping the Spring Creek lake basin using a drone. During the 2019 field season, Landmark crew member collected samples from ash beds for $^{39}/^{40}\text{Ar}$ dating at the Oregon State Geochronology lab (Figure 1). This Argon dating method now is regarded as the most reliable for determining the age of volcanic ash layers. Results of this work will help to narrow down the age of the Spring Creek beds and their relationship to other Southern High Plains paleolakes.

The Landmark team also is collecting ash samples from the Blanco basin to double check the ages of the 1970s results. Geologists at the time used fission-track dating, and some researchers have questioned these age determinations. Results of re-dating the Blanco ash layers and ascertaining the age of the ash found in the Spring Creek beds will help to refine the known ages of extinct Southern High Plains paleolakes and the extensive extinct animal remains within them.

Pied-Billed Grebes Enjoy New Marsh and Pond Habitats at Lubbock Lake

John A. Moretti, Research Aide

The water level in the old reservoir at Lubbock Lake Landmark has been rising steadily since 2015. This influx has chased the field crew out of the Area 6 excavation and has submerged nearly all of the late Pleistocene-early Holocene (~11,000-10,000 years ago) deposits at Lubbock Lake. The water is well over 10 feet deep in the eastern side of the old reservoir. The lake now filling the bottom of the reservoir cut certainly has negative consequences for the Paleoindian excavations but has been a boon for plants and animals that prefer the expanding marsh and pond habitats. Cat-tails are abundant along the fringes of the water and aquatic vegetation grows within the Water's depths. Animals have been quick to take advantage of the new habitats. Pond turtles bask in the sun, black-crowned night herons and great blue herons prowl the waters edge, and red-winged blackbirds dart among the cat-tails. A variety of migratory ducks, including cinnamon teals, northern pintails, and buffleheads, among others, stop-over at the re-emerging lake. But, not all of the birds on the water are ducks (Figure 1).



Figure 1. Two juvenile pied-billed grebes (*Podilymbus podiceps*) born and raised in the Lubbock Lake Landmark reservoir. Photograph by Callan Clark (San Angelo), summer field crew volunteer.

Among the ducks are pied-billed grebes. These small, plain birds have short bodies, long-necks, and are mostly brown with a light grey bill that has a vertical black bar during breeding season (Spring-Summer). Because grebes float and swim on the surface of the water, they often are mistaken for a type of duck. Grebes, however, are distinct from and unrelated to ducks. The pied-billed grebe, scientific name *Podilymbus podiceps*, is a member of the order Podicipediformes, completely separate from other water birds. In fact, grebes appear to have no close living relatives at all.

Grebes are diving specialists and their entire body is designed for efficient deep water diving and underwater hunting. These physical adaptations distinguish grebes from all other types of birds. The eyes of grebes are close-set and forward facing, an advantage when pursuing fleeing aquatic prey. All grebes are foot-propelled divers, as opposed to wing-propelled divers such as penguins and auks. The legs and feet of grebes exhibit a variety of specializations that make them efficient in this endeavor. The legs of grebes are set extremely far back on their body. This arrangement is excellent for diving, but makes walking on land terribly difficult and clumsy, as their feet simply cannot be positioned below their center of gravity. Ineffective at walking or running, grebes are unable to take off from land.

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Pied-Billed Grebes continued from page 5.

The form of their feet also is at odds with terrestrial life. Grebes have lobate webbed feet. The term “lobate webbing” describes the broad, leathery, paddle-like skin structures around each toe. Each lobed toe is cupped toward the rear, to help push through water, and the webbing can be spread or contracted. The webbing is spread out to create a paddle on the down-stroke, but then is contracted to decrease resistance on the upstroke. Even the bones of the lower leg are narrow and sharp, again decreasing resistance. The total package allows these foot-propelled divers to slice through the water swiftly and chase down aquatic prey.

Pied-billed grebes are opportunistic hunters. Their broad, rounded beaks are the least specialized in terms of form among the grebes, allowing a diverse diet. Pied-billed grebes eat primarily aquatic insects, crustaceans, and fish (especially eels, catfish, and perches). Crayfish appear to be a favorite food and easily are crushed in the versatile, stout beak of the pied-billed grebe. Their potential diet is diverse, with pied-billed grebes known to eat leeches, mollusks, frogs, salamanders, snakes, and even other birds.

Pied-billed grebes have a particularly broad geographic range, extending from Canada to southern Chile. These small grebes have been visiting Lubbock Lake since at least 10,000 years ago, based on skeletal remains found at the site. As lake habitats have returned to Lubbock Lake, so have the grebes.



Figure 2. Note the distinctive black and white facial markings of the juvenile pied-billed grebes. Adults generally have plain brown faces. Photograph by Callan Clark (San Angelo), summer field crew volunteer.

A pair of pied-billed grebes were observed in the old reservoir cut throughout 2019. They must have been nesting during the early summer. In July 2019, two juvenile pied-billed grebes were spotted on the water. By the time Lubbock Lake staff noticed the juveniles, the two were already old enough to swim and explore on their own. Photographs depict these young birds, still with their distinctive juvenile facial markings, out and about on the water (Figure 2). While the rising water in the old reservoir cut has blocked access to the oldest archaeological deposits, it has provided new opportunities for regional wildlife. Pied-billed grebes prefer quiet, deep bodies of water, with aquatic vegetation, that remain at least partly ice-free in winter. Playa lakes offer grebe habitats on the Southern High Plains, but these ephemeral bodies can freeze over, lack vegetation, become too shallow, or dry up entirely. The re-emerging lake at the Landmark offers a far more reliable habitat for pied-billed grebes. The Lubbock Lake reservoir has provided ideal habitat for a pair of pied-billed grebes to build a floating nest and raise their young.

Mussel Shells on the Southern High Plains - Research at Macy Locality 371

Stance Hurst, Field Manager, Lubbock Lake Landmark

The Landmark research team discovered a new hunter-gatherer campsite located along the Southern High Plains surface at the edge of the eastern escarpment breaks at the Post research area near Post, Texas. Several hearths were noted eroding out of the high plains surface along with hearthstones, grinding stones for processing plant material, and flaked debitage and stone tools. This campsite was recorded as Macy Locality 371 (Figure 1). Over 40 objects were mapped and collected from pedestrian survey, and a feature containing the remains of mussel shells was excavated (Figure 2). All of the objects observed from survey were found eroding from the top 50 cm of the high plains surface soil. Most of stone tools were made from Ogallala Formation gravels that were carried up from the escarpment breaks to the site for reduction. The grinding stones were made from local sandstone outcrops and also were carried up to the site from below. Most of the hearthstones used in the campfires were caliche rock procured just a few feet below the site from caliche caprock exposures.

Excavation of the mussel shell feature exposed a total of five shells. Three of the shells were stacked inside each other (Figure 3). Although mussel shell is found at archaeological sites in this region, they are not very common in comparison with other parts of Texas.

Mussels are bivalve mollusks, two valves (shells) that surround the fleshy body. Fresh water mussels such as these live in a mixture of mud, sand, and gravel at the bottom of rivers and creeks. Mussels get food through filtering water for small plants, animals, and algae. They, therefore, require fresh running water. Mussels do not move much and use a muscle foot to burrow within river bottom sediment. During the larvae stage, mussels are parasites and attach to the gills and fins of freshwater fish to hitch a ride along waterways.



Figure 1. Macy Locality 371 located at the edge of the Southern High Plains near Post, Texas.



Figure 2. Landmark research team mapping and collecting objects at Macy Locality 371.

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Mussel Shells continued from page 7.



Figure 3. Three mussel shells enclosed into each other.

Mussels are a food source for past peoples, and their shells often are shaped for use as tools or commonly used to adorn necklaces as beads or shaped into pendants. The discovery of this mussel shell feature has led to several questions requiring future research. Identifying the type of mussel shell is first necessary to determine if it is a local species native to the South Fork or was traded from outside of the Post research region. If the shell was traded, then that would suggest the shell was meant for making decorative items or tools. If the mussel could have been procured locally, then this feature probably represents the leftovers from eating them. The mussel shells are extremely fragile and were

carefully wrapped in plaster in the field before removal to ensure they remain intact for final conservation at the Landmark's conservation lab. Removal of the mussel shells from the jacket is an important activity scheduled for work at the Landmark's lab over this winter.

Charcoal recovered from near the mussel shell feature has been radiocarbon dated to ~ 200 years old. That age suggests these mussels may have been consumed by either an Apache or Comanche hunter-gatherer group. Another important research question is determining the function of this campsite in hunter-gatherer landscape use strategies.

The Landmark research team has documented other nearby prehistoric sites at the edge of the high plains surface. At these sites, a lot of the resources, including water, has to be procured at the bottom of the escarpment breaks and carried up to the site. Possible incentives to camp at the edge of the high plains are the spectacular view of the valley below, and possibly for processing mesquite beans as evident from the discovery of grinding stones at the site. These are important research questions that will be investigate with further fieldwork and laboratory analysis.

Capturing Opinions: How Visitor Studies Are Done and Why They Are Useful

Jordan Lucier, Graduate Research Assistant

For those who have visited Lubbock Lake Landmark's Interpretive Center in the last year and walked through the galleries, you may have noticed the presence of a survey box or a researcher scribbling away in the corner. The research being conducted during the 2019 year is part of a visitor study meant to inform Lubbock Lake Landmark staff about how the gallery space is being used by the public. Visitor studies are important at heritage sites like this, because they serve as a check-in with the public to make sure the content of the exhibit is easily understood by, and enjoyable for, visitors. Looked at in a different way, the visitor study also serves as a self-evaluation for staff to ensure things are working efficiently. Information collected during these studies generates in-house knowledge and serves to create better visitor experiences. A large part of serving the Landmark's visitors is understanding their needs and opinions so that experiences they feel are worthwhile and can be delivered. Visitor studies are optimal ways to do that as they obtain direct feedback from the visitors themselves (Figure 1).

This particular visitor study focused on the current temporary exhibit, From Enormous to Tiny: Ice Age Animals of the Southern High Plains. The exhibit opened in November 2018 and shares information about the animals that inhabited the Southern High Plains at the end of the Pleistocene. The exhibit is especially exciting, as it includes 3D printed replicas of bones found during excavations in the region that visitors are encouraged to touch and hold. In addition, a social media application (app) developed for the Landmark includes even more information about the exhibit. The app is on iPads that are available for checkout at the information desk should a visitor wish to learn more.

Finally, a large mural is included in the space that helps visitors visualize what the area may have looked like at the end of the last Ice Age. Visitor interactions with these features and the text in the gallery space are the basis for the 2019 visitor study.



Figure 1. Research Assistant Jordan Lucier conducts nonparticipant observations.

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Capturing Opinions continued from page 9.

The visitor study was mixed-method, with some qualitative and some quantitative data collection. The study consisted of multiple formats of data collection, such as surveys and exhibit requesting visitor input. Surveys recorded opinions about the exhibit content and visitor satisfaction (Figure 2). The survey responses then were compared to nonparticipant observations, the recording of subjects' behaviors by an impartial researcher, to determine patterns in gallery usage. The observations recorded information about length of visit, the frequency of people stopping to examine text or objects, the frequency with which people read over text in the exhibit, and the way people walked through the gallery space. The observations also served as a way to gain real-time opinions from visitors as they made their way through the temporary exhibit by taking note of their conversations and behaviors.

After analyzing the information collected during the research process, education staff at the Lubbock Lake Landmark now have a better understanding of the content visitors prefer and are finding ways to implement this into their educational resources. This effort has included providing a gallery guide for the temporary exhibit and updating the field journal provided to classes during school visits as they tour through the gallery. The field journal includes key concepts in the *From Enormous to Tiny* exhibit. These new additions help to explain exhibit concepts that the study revealed to be difficult for visitors. Looking forward, the information recorded by this study will be utilized during the planning process of the next exhibit. Information about how visitors walked through the space and what portions of the room were most utilized will be considered as the new layout is developed. Information about visitor usage of the iPads will be taken into account as plans to incorporate technology are finalized.

Overall, the process of the visitor study benefits heritage facilities like the Lubbock Lake Landmark and gives staff much to consider. Asking visitors about their thoughts and capturing their opinions is important for the improvement of heritage sites and, more broadly, educational institutions as a whole.

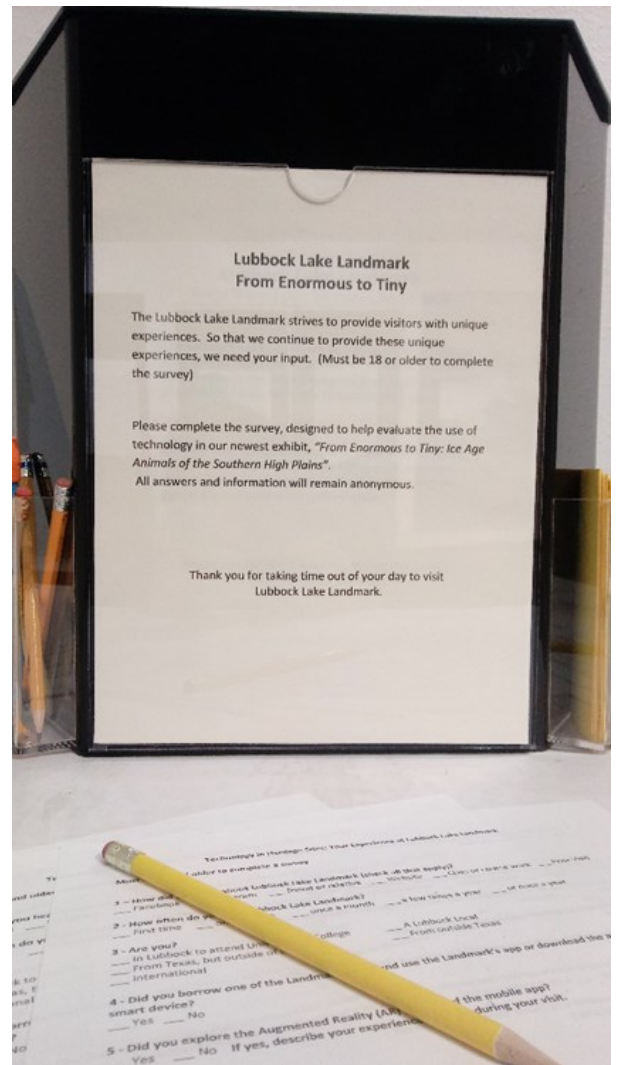


Figure 2. Survey left in the gallery for visitors to complete.

Precarious Excavation Produces a Wealth of Ice Age Animals

John Moretti, Research Aide and Senior Crew Chief



Figure 1. Fieldwork at Macy Locality 370 in 2019. The unstable column is visible as a tower of grey sediment (arrow).

Investigations by the Lubbock Lake Landmark (LLL) regional research program of the sediments, archaeology, and paleontology preserved within Spring Creek on the Macy Ranch in Garza County, Texas, have produced a detailed record of the past approximately 12,000 years. This record extends back into the Pleistocene, a time period commonly known as the Ice Age. Fieldwork in Spring Creek by LLL research teams have collected bones of extinct Ice Age horses, camels, lions, giant tortoises, and many other animals. These bones offer evidence of the animal community that existed on the Southern High Plains 11-12,000 years ago (i.e., late Pleistocene) and help to document how the regional fauna has changed over time.

Late in summer 2018, the field research team discovered skeletons of a Columbian mammoth and a wolf-like dog eroding out of an exposure of late Pleistocene sediments at Macy Locality 370 in Spring Creek. Accordingly, this portion of Macy Locality 370 was targeted for future investigations.

Returning to Locality 370 in summer 2019, the field crew found that a large portion of the late Pleistocene deposits had eroded and broken off into an isolated vertical column, separate from the larger unit of formerly contiguous sediments (Figure 1). To make things worse, the column rested on top of red Triassic bedrock that was actively collapsing. Mammoth ribs clearly protruded from the sides of the column. The bones of important small animals, such as snakes, mice, and birds (i.e., microfauna), likely were hidden within the sediment surrounding the mammoth. With the

entire package prone to collapse, excavation of the column was made the top priority during summer fieldwork.

Excavating the column was, however, not a simple matter. At 7-8 feet tall and nearly 4 feet wide, the isolated column likely weighed many hundreds of pounds. Large and heavy, the unstable column was too hazardous to have the field crew working around or on it. Instead, excavation had to be conducted from atop a 16 ft. ladder. The ladder was set-up upslope from the isolated column, outside of the potential crash-zone.

Excavation would be difficult to control from the ladder and would likely send sediment raining down below. To ensure none of the valuable Ice Age evidence was lost, a large tarp was laid out underneath and around the base of the column to catch falling sediment. All of the excavated sediment was to be collected and water-screened for microfauna bones and other materials. Finally, the exposed mammoth ribs and a radius (forelimb bone) of a wolf-like dog were collected from the walls of the column before excavation began.

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Precarious Excavation continued from page 11.

A team of four worked to excavate the column expeditiously before it collapsed. One person manned a surveying instrument to measure three-dimensional coordinates of the excavation and objects discovered. Another person was ready with a camera to document any discoveries. A third person brought tools up the ladder and heavy bags of sediment down the ladder. The fourth person was the excavator.

It was not long before the first discovery was made. Excavation removed the first several centimeters (a few inches) from the top of the column and uncovered a pelvis of a large species of extinct horse (*Equus*). The horse pelvis was virtually complete but had cracked and broken into dozens of pieces. Sitting on top of the pelvis was half of the shell of an extinct giant box turtle (*Terrapene carolina putnami*). Given the size and badly fragmented condition of the horse pelvis, it could not simply be picked up (Figure 2). The entire pelvis would need to be collected encased in a hard plaster jacket. Such plaster jackets are a routine way of collecting large, important, and fragile objects. Plaster jackets, however, are not normally constructed seven feet in the air and while perched atop a ladder.

First, the pelvis had to be isolated from the surrounding sediment and left to rest on a narrow pedestal of sediment. Every trowel stroke sent vibrations through the entire isolated column. The field crew was skeptical about their chances of successfully collecting the horse pelvis before the entire tower of dirt collapsed. After hours of careful work, the pelvis was isolated, a paper barrier was layered over the bone, and strips of burlap soaked in Plaster of Paris were gently applied (Figure 3). After drying, the pelvis and block of sediment now were encased in a hard plaster shell. Then, the hard part. The heavy plaster jacket had to be cut loose from the isolated column and carried down the ladder to the waiting arms of the field crew. A few whacks of the trowel broke the jacket loose from column. The plaster jacket, about the size of a small car tire, was scooped up and excavator and jacket scooted backwards down the ladder to the field crew. A successful and exciting first day!



Figure 2. The pelvis of a large extinct species of horse (*Equus*) exposed prior to plaster jacketing.



Figure 3. Application of a plaster jacket to the horse pelvis.

Nature Education at the Lubbock Lake Landmark

Lucchese Hamilton, Heritage Education Intern

We could never have loved the earth so well if we had had no childhood in it—if it were not the earth where the same flowers come up again every spring that we used to gather with our tiny fingers as we sat lisp[ing] to ourselves on the grass...

– George Eliot, *The Mill on the Floss*

As the 2019 Heritage Education intern at Lubbock Lake Landmark, I have enjoyed assisting in a wide variety of educational programs, from technology training for senior adults to outdoor activities for preschool-aged children. By far the most rewarding parts of my year, though, have been those spent engaged in nature education: connecting students to nature and teaching them important ecological concepts through outdoor, hands-on learning. Studies show (and readers' personal experiences will probably confirm) that children who regularly spend time in nature are both physically and emotionally healthier than those who do not. Whether biological or spiritual, something in us needs outdoor time; a childhood spent completely disconnected and separate from nature is unnatural and unhealthy. Studies, however, show that more and more Americans are spending their childhoods this way.

Ten years ago, a Kaiser Family Foundation study found that children spend 90% of their time indoors and over seven hours a day on a device; more recent numbers are even bleaker. For many children who live in urban areas, whose recesses are spent on mulch or concrete playgrounds, field trips and structured outdoor programs, like those offered at the Landmark, are some of the few times they have a chance to interact with nature directly.



Figure 1. Students practice excavation skills during *Archaeology in Action*.

The Landmark provides a wide variety of nature education for a range of ages. During *Growing up Wild*, we introduce preschool children to simple ecological concepts. They explore nature, participate in story time, and create a bug, bird, or other craft to take home. Children ages 5-10 can participate in *Spring Break Fest* or *Amazing Summer Adventures*. During Spring Break fest, students study important local pollinators, dissect flowers, act out the process of pollination using glitter, and keep daily counts of the bees, butterflies, and other pollinators they saw. All field trips are tailored to each classroom; these are conducted nearly continuously throughout the spring and fall. These learning experiences offer a diverse array of activities: everything from “mapping” the flora and fauna of the Landmark and learning about extinct and extant (still living in the region) Southern High Plains animals to throwing (untipped) darts with atlatls and touring the Quaternary Research Center.

By far, the most in-depth nature education, however, occurred during *Amazing Summer Adventures* (Figure 1). For six weeks during the summer, participants hiked, played, and learned about heritage, archaeology, and ecology on the Southern High Plains. Some students attend one or two weeks, but many students returned week after week throughout the summer. These students became intimately acquainted with the plants, animals, and landscape of the Landmark during a variety of indoor and outdoor activities following the theme of the week.

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Figure 2. Students learn about water needs during *Incredible Journey* week.



Figure 3. Students take a much needed hiking break during *Amazing Summer Adventures*.

This year, students spent a week learning about the *Biomes of the World* and comparing the ecosystems we see around us to those far away. They learned about native species and created wanted posters for common invasive species during *Lone Star Species*. For *Incredible Journey*, a week focused on water, students traced the path of a water droplet through the stages of the water cycle (Figure 2). While learning about the different people groups who have lived in the Southern High Plains, students “scavenger hunted” for edible native plants growing at the Landmark and participated in a mock archaeological excavation.

No matter the theme of the week, one activity was constant: our daily hike. Armed with nature journals, coloring pencils, and field guides, we set off on one of the Landmark’s walking trails. Some days, we walked quickly, trying to make it as far as possible in the limited time we had. But, other days, we made little distance at all, instead finding “sit spots” to spread out and observe quietly (Figure 3). Most days were somewhere in between: walking, watching, and stopping often to gaze at a hawk, smell a chocolate daisy, or identify the tracks around the damp edge of a mud puddle.

More than simply giving students a positive outdoor experience, Landmark activities tie students’ education to the physical world around them. The active, outdoor learning we provide is a much needed experience in children’s lives. Through *Amazing Summer Adventures*, *Growing up Wild*, *Spring Break Fest*, field trips, and other programs, Landmark Heritage education staff inspires a love of the outdoors that will continue long after students leave the Landmark.

The Beauty of the Lubbock Lake Landmark

Daria McKelvey, Texas Master Naturalist



Figure 1. Lace Cactus (*Echinocereus reichenbachii*)

My adventures at the Lubbock Lake Landmark began 4 years ago when I was a budding botanist and Texas Master Naturalist. I wanted to learn about the native plants of the area and how they thrive in our semi-arid region. I began walking the trails almost every week, with just a camera and a notebook. The Landmark became my classroom, and nature was my teacher.

The Lubbock area is a part of the Llano Estacado, one of the most misunderstood and understudied regions in the state. The typical stereotype is one of a flat, monotonous, and uninteresting landscape, when in fact, the region showcases a magnificently dynamic terrain with striking floral displays unique to this area. It is a beauty that can be experienced at the Lubbock Lake Landmark, one of the region's hidden gems and best kept secrets. On these 325 acres of native prairie, you can find an incredible 190+ species of native wildflowers, cacti (Figure 1), grasses and shrubs! Every spring these plants come alive and grace the landscape with brilliant displays of color and texture. At the end of May and in early June, the American Basketflowers (*Centaurea americana*) (Figure 2) put on a spectacular floral show and cover the draw in a 2-3 foot high sea of pink flowers. Adonis Blazingstar (*Mentzelia multiflora*) can only be seen blooming during a Night Hike as the flowers only open after sunset. Throughout the year, you can enjoy the smell of the Chocolate Daisy (*Berlandiera lyrata*), which has the aroma of chocolate (Figure 3)!



Figure 2. American Basketflowers (*Centaurea Americana*)

Surprisingly, the Landmark is also home to 9 species of Prairie Clovers (*Genus Dalea*); And that's just the tip of the iceberg of what you can see here!

Visiting the Landmark is always exciting because you never know what you're going to see. There's always something new to experience. Even when you think you've seen it all, nature will surprise you! As you walk along the trails, I hope that you will come to appreciate this unique and beautiful landscape as much as I have.



Figure 3. Chocolate Daisy (*Berlandiera lyrata*)

2019 Investigations of Protohistoric-age Hunter-Gatherers at Macy Locality 126

Stance Hurst, Field Manager, Lubbock Lake Landmark



Figure 1 Volunteers excavating at Macy Locality 126 during the 2019 field season.



Figure 2. Apache micaceous sherd found during excavation at Macy Locality 126 during the 2019 field season.

The focus of the first six weeks of the 2019 field season was excavation at Macy Locality 126 — a Protohistoric-age (1450-1650) site. Volunteers from Texas, Oklahoma, and California joined the Landmark research team. Notable among the volunteers was a returning member after 47 years who first worked with Dr. Eileen Johnson during her second season of excavation at the Lubbock Lake Landmark in 1973 (Figure 1).

Macy Locality 126 was located on a terrace overlooking the South Fork of the Double Mountain Fork of the Brazos River within the Post research area. Previous surveys and excavation at Macy Locality 126 took place between 2008-2012 and 2018. The focus of this work was on the southern section of the locality that was more heavily eroded.

This locality was a regularly used campsite location. Multiple hearths were found and excavated in the previous field seasons. Two hearths superimposed on top of each other were found, indicating the same hearth was used numerous times in different years. Stone tools recovered surrounding the hearth features indicated they were being used for processing animal remains. Also, stone tool manufacturing debris suggested the manufacture of new stone tools and maintenance of transported stone tools occurred at the site.

Hunter-gatherers at this locality were regular traders with Puebloan agricultural peoples of the Southwest and possibly the Caddoan people of East Texas. Southwest trade items included obsidian flaked stone, Apache Micaceous and El Paso Brownware ceramic sherds, and a turquoise bead. The turquoise bead was a disk shape typical for aboriginal beads originating in the Southwest. The Apache micaceous sherds originated from the Taos/northeastern New Mexico area. El Paso Brownware had its center

of production in the El Paso area. Obsidian often was gathered from gravel deposits along New Mexico's Rio Grande River. Ceramic sherds with fingernail impressions suggested these hunter-gatherers also may have been trading with Caddoan people of East Texas. Further work, however, would be needed to confirm the source of these pottery sherds.

Excavation of a new area at Macy Locality 126, located north of the previous work, was the focus of the 2019 field season. In 2018, a survey revealed a new hearth feature and associated stone tool material that had eroded out of the terrace edge. Results of this further excavation showed that the occupations at Macy Locality 126 were much more extensive than previously thought.

Excavation of the new eroding hearth and surrounding areas has revealed numerous stone tools and associated manufacturing debris. Several large Apache micaceous ceramic sherds (Figure 2) have been found. The excavation of these new additional units indicates that the occupations at Macy Locality 126 extend much farther to the north of the site. The objects within the northern portion of the locality are more buried than at the southern part of the site. This observation is because it indicates much more is to be discovered at Macy Locality 126 than previously realized. The Landmark team currently is planning for additional excavations at Macy Locality 126 for next summer.

A Vegetable Garden at Lubbock Lake Landmark

Kippra D. Hopper, Operations Assistant

A renewed interest in gardening is occurring now that people are spending more time at home and seeing some empty shelves at the grocery store. The Lubbock Lake Landmark started a new large garden for the summer field season early this spring before the COVID-19 emergency. The Lubbock Lake Landmark garden will have plenty of vegetables and fruit trees – a peach and an apple—this summer.

Visitors can see the garden behind the brush arbor near the Quaternary Research Center, surrounded with a 3-foot fence, constructed to keep out the rabbits, raccoons, and other animals that might take an interest in the plants. In keeping with the Landmark’s ethic of reusing and recycling, Operations Assistant Kippra Hopper donated the wood from her old fence at home and Historic Maintenance Supervisor Scott Trevey reworked it into a new fence to protect the garden (Figure 1).

Friends of the Landmark, the South Plains Chapter of Texas Master Naturalists (TMN) will help with the maintenance and weeding of the garden as a volunteer project. The South Plains Chapter of Texas Master Naturalists, presided over by Hopper, has 29 new trainees. They regularly meet at the Landmark and help with activities that include Night Hike and Archaeology Day.

One of the new TMN trainees, Sue Peaslee, works at Holland Gardens and told the owners of the nursery, Ann and Wayne Holland, about the new garden project. Holland Gardens surprised the Landmark staff with a donation of large bags of seeds, including okra, corn, peas, cucumber, zucchini, beans, cilantro, and watermelon (Figure 2 and Figure 3).

The Landmark would like to thank Sue Peaslee for her consideration of the Landmark’s needs and the Holland Family for their generous donation of seeds.



Figure 1. The fenced garden will provide fresh vegetables for the summer crews.



Figure 2. Holland Gardens provided a wide variety of summer vegetable seeds.



Figure 3. Landmark staff anticipates hearty vegetables throughout the summer.

In Memory of Bill Skillman and Curly Bunting

This issue of *Notes from the Field* is dedicated to the memory of two Landmark volunteers, Bill Skillman and Curly Bunting.



Bill Skillman



Curly Bunting

Dedicated to sharing their knowledge of the region's cultural heritage, Bill and Curly served the Landmark as docent/volunteers a combined 35 years. We will miss them but the love they shared will remain in our hearts.

Word Search

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MUSSEL	LOCALITY	APACHE	MAMMOTH
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