The Newsletter of Lubbock Lake Landmark
Spring 2004

Notes from the field...

Landmark regional research program Field Assistant James Beavis works with a City of Lubbock crew on subsurface survey work of the Yellowhouse System. *See story on page 4.*

in this issue:

Old and New

You will see some new developments on the Llano Estacado Wildflower Trail. Staff from Texas Tech's Department of Facilities, Planning, and Construction devised a plan to build a more suitable trail head entrance. This design will make the trail head ADA compliant along with the additional 1/2 mile portion of the trail. Grade work preparations began last fall by Landmark staff, and the final grade and concrete work was finished by a local construction contractor in March. Completing the project requires anchoring 4"x4"x8'L beams to concrete beams, spaced selectively, then screwing down Trex® decking joists to the 4"x4" lumber beams, and drilling Trex® decking into the concrete stair structure. A detailed limestone raised planter bed will be used to display native wildflowers inside the new trail head design.

Other outdoor improvements taking place around the Landmark are new flower beds, reworking old trails, brush management, and fence boundary improvements. In addition to a planter bed going up inside the new trail head, another currently is being constructed in back of of the Nash Interpretive Center Building. It too will be constructed of natural limestone and will display some native willow trees along with Southern High Plains wildflowers. The three and a half mile nature trail has been reworked (graded) for a fresher appearance and easier walking.

Blake Morris attaches decking material onto the concrete trailhead base for the wildflower trail.

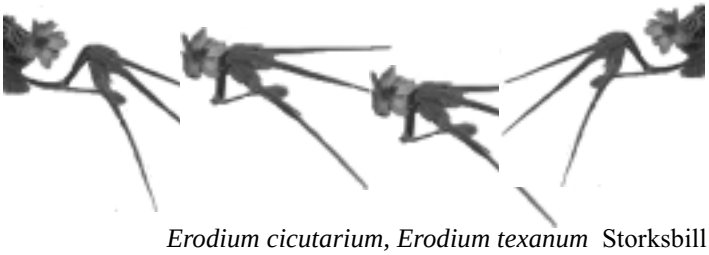
Shredding and shearing have been the ingredients to our natural preserve management strategy. Landmark staff have been shredding as much and as many areas of native grasses as possible to remove hazardous underbrush. This procedure will help stimulate new growth of our grassland preserve. Approximately 30 acres of mesquite was chemically treated 2 years ago, and now are being sheared off and raked up into piles.

This activity has made a sharp difference in the appearance of a few areas of the Landmark. The fence boundary located beside US-84 is being rebuilt as well to define a cleaner boundary line.

Over all, the Landmark is working to preserve and beautify what is already here and everything that is to come!

Scott Trevey
Historic Maintenance Supervisor

Species Spotlight: Two of a Kind?



Erodium cicutarium, Erodium texanum Storksbill

When one looks at the wildflower storksbill, it is very difficult to know the species at which you may be looking. Let us examine the differences between two types of storksbill: *Erodium cicutarium* and *Erodium Texanum*. Both species have similar common names. *Erodium cicutarium* goes by such common names as cranesbill, storksbill, pin clover, filaree, and alfilaria. *Erodium texanum* goes by such common names as storksbill and filaree. Storksbill is in the Geranium family, *Geraniaceae*. The seedpods in the geranium family look like the head or beak of a stork or crane. Geranium comes from the Greek word geranion, that means crane.

Erodium cicutarium lies prostrate, or flat, to the ground. The stems grow to a length of 20 inches and the leaves have a fern-like appearance. It blooms from February to May and has 2-5 mostly pink pedals. This species prefers well drained rocky or sandy soils. It is a not native plant, having been introduced from Europe.

Erodium texanum has horizontal stems that grow to a length of 16 inches. Its leaves are round-toothed and have 3 lobes. This species blooms from March until May and has clusters of 2-7 pedals that are purple or rose violet in color. It prefers clay and sandy loam soils of grassland areas. Also not a native plant, it was introduced here from Mediterranean countries.

Some interesting facts about these two species are that livestock like to graze on them and they both sow their seeds into the ground the same way. Once the stamen (the stork bill) splits open and has dried out, it has a cork screw shape. The cork screw-shaped stamen falls off of the plant and is "screwed" into the soil by natural effects of the wind. After over wintering, it will germinate into another plant for the following season.

Bison: still rambling along

The immediate ancestor of today's bison (*Bison bison*) was the ancient bison, *Bison antiquus*. The ancient bison was alive at the same time that humans first appeared in North America. The development of the ancient form into the modern species took place sometime around 7,000 years ago as the shortgrass ecosystem was spreading across the Southern Plains.

Like the modern bison, the ancient bison grazed on grass. Its range extended from the plains of North America; west to California; as far north as Alaska; and down to the Valley of Mexico. The ancient bison was essentially the same animal as the living bison. The main difference between the two species is that the ancient bison was larger and had longer horns. This size change appears to have been a response to environmental stress. You can see a life-size bronze statue of the ancient bison, in front of the Nash Interpretive Center. Skulls of ancient and modern bison are in the exhibit gallery. This comparison underlines the great difference in size between the two species.

How do we know what the ancient bison looked like?
Although it is extinct, we know what *Bison antiquus* looked like, and where it lived, from materials recovered at paleontological localities and archaeological sites around North America. At sites, ancient bison bones that are found in these areas are there because the bison were killed and then butchered by early hunters; their bones were left behind as trash. Lubbock Lake Landmark was an important hunting site because of the continual presence of water here. Hunters thus knew that bison, along with other animals, could be found in this area. *Bison bison*, also is found in kill sites at the Landmark.

Why is *Bison bison* smaller than *Bison antiquus*?

Modern bison are considerably smaller than their ancient ancestors, yet this change in body size occurred over a relatively short amount of time in evolutionary terms. For years, paleontologists thought that the ancient bison species evolved into the modern species due climatic changes or possibly from the pressures of human hunting. According to certain paleontologists, North American bison grew smaller and less robust due to human and perhaps environmental stresses. Current research has shown, however, that the body size of the modern bison was most likely directly related to the spread and dominance of the short grass ecosystem. Short grass is able to feed more bison per acre than tall grass, yet is less nutritious. At the same time that the ancient bison was decreasing in size (around 7,000 years ago), tall grass began to be replaced by short grass on the Southern High Plains; this ecosystem then began to spread north. With an abundant food source, bison did not need to journey far to find adequate food; this may explain why modern bison are less robust than their ancient ancestors. With the abundant but less nutritious short grasses, bison became a smaller species as smaller mammals require fewer calories. Thus, it appears that the ancient bison evolved into a smaller animal - today's modern bison - due to the gradual change in its grassland environment.

Expanded hours - come walk with us!

Looking for a good spot for an early morning or evening walk or run? The Landmark is extending its summer operating hours begninning May 1 to accommodate persons who would like to use the trails during off-peak hours. The preserve will open Tuesday through Saturday mornings at 7AM and close at 8 PM. Sunday hours will be 1-8 PM. The Landmark is closed on Mondays. These hours will remain in effect through August 31. As always, please register in the Interpretive Center before heading to the trails, and leave Fido at home - pets are not allowed on preserve property.

Continuing Regional Research

The Lubbock Lake Landmark regional research program has been involved in an intensive surface and subsurface survey undertaken throughout a 12-mile section of the Yellowhouse system, one of several ancient river valleys on the Llano Estacado. The investigation area starts at Lubbock Lake and goes downstream. Most, but not all, of the land is public, being owned by the City of Lubbock. Currently, the investigation is in the second year of the five-year intensive program.

An objective of the survey is to understand the late Quaternary history of the Yellowhouse system and its relationship to cultural development on the Llano Estacado. Field objectives include the assessment and delineation of late Quaternary valley fill, relocation and assessment of previously recorded archaeological sites, location and assessment of unrecorded sites, prospecting for buried archaeological and paleontological localities, geochronology, environmental sampling, paleotopographic mapping, and assessment of historic impacts to the area.

Within those objectives, a rim-to-rim intensive survey is being conducted. Well-stratified late Quaternary valley fill has been encountered throughout large sections of the investigated area, along with archaeologically sensitive areas and a number of identified sites. Research conducted throughout the investigation area provides an overview of the late Quaternary stratigraphy and archaeological potential of the Yellowhouse system. Additionally, the investigation is contributing temporal landscape and environmental datasets relating to the structure, morphology, and environmental setting of the ancient river valley system throughout the last 15,000 to 20,000 years.

This long-term investigation enables the research team to pursue one of the Landmark's research goals, that of understanding the dynamics of the interface of culture and climate. This research is a joint-venture between the Museum of Texas Tech University and the City of Lubbock. Future newsletters will focus on the sites, localities, and results to date of this major undertaking.

Dr. Eileen Johnson
Director

Regional research program assistants Shane Macfarlan, Pennsylvania; Alejandra Matarrese, Argentina; and Hilary Gafford, Lubbock, take sediment samples from trench areas for radiocarbon dating, sediment analysis, and potential phytolith recovery.

SciSpeak

What's it all mean?

Did you ever get the feeling scientists don't speak the same language as the rest of us? Well they do. Often those "big" words are easy to understand if you just break them into smaller ones. Here are a few words you'll find in this edition of *Notes from the Field:*

Quaternary:
relating to, or being the geological period covering the last 2 million years. (While our archaeological record reaches back 12,000 years, the Landmark's geologic record spans at least 2 million years.)

paleotopographic:
paleo = early topo = place graph = to write
graphic delineation in detail of natural and man-made features of an area, usually buried beneath the surface.

geochronology:
geo = earth chron = time ology = the study of
the chronology of the past as indicated by geologic data.

morphology:
morph = having form ology = the study of
the external structure of rocks or sediment in relation to the development of erosional forms or topographic features.

phytolith:
phyto = plant lith = stone
a minute particle formed of mineral matter by a living plant and fossilized in rock.

Environmental Awareness Family Days: Playas!

Saturday, May 1 10:00AM - 4:00 PM
Sunday, May 2 1:00 - 5:00 PM

Playas are a unique type of wetland common to the Southern High Plains region of the United States. More than 25,000 can be found on the Llano Estacado alone! They provide essential habitat for migrating birds and other wildlife, and have been used by people for many thousands of years. Come explore playas and their related ecosystems with lots of hands-on activities!

BirdWalk - Saturday at 8 AM
Archaeology Tours - Saturday 11AM & 2:30 PM
Sunday 2PM & 3:30 PM

National Trails Day

Trails & Health . . . A Natural Connection

Saturday, June 5

Celebrate and support trails on National Trails Day! Now in its 12th year, National Trails Day inspires hundreds of organizations, parks, retailers, and health providers to host events with information and activities honoring trails all across the U.S. Put on your hiking shoes, grab a hat, sunscreen, and your binoculars, and talk a walk with us! Our trails are a relaxing way to "get out of town" without leaving the city limits! Beautiful wildflowers, birds, and other wildlife are a great part of your Landmark walk or run. Remember, our trails are open six days a week for your use.

Teaching Environmental Science

Teaching Environmental Science (TES) is a Texas Tech University graduate education course in environmental science. This field-based course is designed to 1) enhance teacher awareness of air, water, and waste issues affecting the Lubbock community's environmental and economic health and 2) promote partnerships among teachers, government agencies, businesses, and community organizations. Each summer, the Landmark hosts this class taught by Dr. Julie Thomas, Assistant Professor in Texas Tech University's College of Education.

Texas Environmental Education Partnership

The Landmark will host a Texas Environmental Education Partnership (TEEP) workshop for teachers on August 2-3 to help promote use of North American Association of Environmental Education's guidelines throughout the state.These guidelines include principles of environmental education, K-12 EE learning benchmarks, and assessment of EE materials for use in classrooms and informal environments.

Archaeology Family Day

Saturday, July 10
10:00AM - 4:00 PM

This is your chance to get a look at what's behind the fence! Bring the kids and learn what it's like to be an archaeologist. There will be plenty of activities for children and adults, and special behind-the-scenes tours of our research labs. Wear your sneakers - there's no telling where our adventurous tour guides will take you!

a.m. adventures

Passport to World Biomes

June 9 - July 30
Wednesdays, Thursdays, Fridays
9:30 - 11:00 AM
Ages 8 - 11 years

Did you ever wonder what it would be like to live in a desert, a forest, or a grassland? Travel around the world with us this summer and learn about the unique plants, animals, and weather in these exotic places.

Summer Educators Academy

Historic and Contemporary Water Issues on the Great Plains

July 19-24

Water is essential to life, and water on the Great Plains is a limited resource. Drought is a regular occurrence, and combined with current use practices, serious concern has been expressed of losing much of our future water supply. This program examines historic and contemporary uses of water on the Southern High Plains in particular, its sources, and the dangers posed to these resources through misuse and mismanagement.

Additional information and registration for all programs: 806-742-1116

spring/summer programs . . .

If you build it . . .

In 2003, 21% of all visitors to the Lubbock Lake Landmark came a long distance to explore the landscape and cultural history of this ancient meander in Yellowhouse Draw. Nearly 2,000 of our visitors were from other places in Texas, almost 1,000 were from other parts of the United States, and over 100 were foreign tourists. Many journeyed to Lubbock specifically to visit the Landmark, others were visiting our community to attend conventions, meetings or visit family and friends. Whatever their reason for coming, all of our out-of-town visitors had one trait in common, they were heritage tourists.

Heritage tourism is the fastest growing segment of the tourism market. Tourism is our nation's third largest industry, and second largest employer. Texas, with its storied history, is the second most popular tourist destination in America. The Lubbock Lake Landmark is an active participant in many local and regional tourism efforts.

The fall 2003 issue of *Notes from the Field* introduced many readers to the new Texas Plains Trail Region, a project of the Texas Historical Commission to promote economic development through heritage tourism. Much has been accomplished since out last issue, and many more exciting developments are scheduled in the near future. Staff members from the Lubbock Lake Landmark have been active in every phase of the project's development including serving on the organizational committee, writing the grant proposal, and serving on the Board of Directors.

The Texas Plains Trail Region is the largest of the 10 heritage trail regions in the state. Volunteers from the 50,000 square mile area make up the Trail's Board of Directors. In the past few months, they have collaborated with the staff of the Texas Historical Commission to select a location for the region's office (congratulations, Borger!), undertake strategic planning for the project, establish a non-profit management organization, and hire a regional coordinator.

In the early months of summer, the new regional coordinator, accompanied by staff members from the Texas Historical Commission will be touring some of the many points of interest in the Panhandle and on the Southern High Plains in preparation for designing the full color brochure about our region that will be distributed state-wide. Historic houses and buildings, museums, community events, and breath-taking native landscapes are among the many attractions for them to see.

Primary funding for this regional effort is a three-year grant from the Texas Historical Commission to develop and market the Texas Plains Trail. It is an excellent opportunity not only to attract heritage tourists to our area, but also for residents to discover near-by treasures.

From the first meeting in Tulia in May 2001 until today, volunteers from the Panhandle and Southern High Plains have driven thousands of miles, assembled countless boxfuls of photographs and records, and collaborated with others from 52 counties to make the Texas Plains Trail Region a success. Exciting developments are on the horizon!

TEXAS PLAINS TRAIL
TEXAS HISTORICAL COMMISSION
TEXAS HERITAGE TRAILS PROGRAM

Deborah Bigness
Heritage Management Intern

Field research --- YOU can be a part of it!

Join an international volunteer crew working with professional staff and experienced crew chiefs to conduct survey, recording, and excavation at the Lubbock Lake Landmark. Excavation will concentrate on a Ceramic Period (AD 1200 - 1450) bison butchering area in the valley axis, at the edge of what was a marshy stream.

Adult and youth volunteers (ages 13 and older) come mainly from Lubbock and the surrounding area. The work season runs from June 1 through August 31. Time commitment and scheduling is flexible, but it is expected that a volunteer will be able to contribute at least ***60 hours*** during the course of the season.

What will you be doing?

*	excavating	*	washing excavated sediments
*	recording	*	processing artifacts

What about training?

An orientation session for all participantsis provided, plus on-the-job-training for specific tasks.

How do I apply?

Contact Sue Shore, Volunteer Coordinator, at 806-742-1116 or email at lubbock.lake@ttu.edu

Get Connected!

Lubbock Lake Landmark is dedicated to creating an environment that provide significant and creative experiences for all learners. Volunteers play a critical role in that experience. Their enthusiasm, expertise, and commitment to the Landmark and the community make visits enjoyable and memorable. In addition to our Docent Program and Field Research Program, the additional volunteer opportunites are listed below. All have flexible hours and on-the-job training provided.

INFORMATION DESK/GIFT SHOP

These volunteers provide assistance in the gift shop and at the information desk, answer questions about the Landmark and the Lubbock community.

RESEARCH LABORATORY

Assist laboratory staff with washing and sorting sediments, object processing, including cleaning artifacts, object identification, and computerization. Year-round opportunities in the Landmark's Quaternary Research Center and the Museum's Anthropology Division labs.

TRAILS AND GROUNDS MAINTENANCE

Brush to be cleared, flowers to be planted, grass to be mowed, trails to be monitored and maintained are a few of the outdoor tasks that wait for you if you wish to work with our Operations Staff.

If you would like to learn more about volunteering at Lubbock Lake Landmark, call us at 806-742-1116, or email *lubbock.lake@ttu.edu*.

The true strength of the Landmark is in its commitment to community participation - come and get involved!

volunteer!...

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

Non-Profit Organization
U.S. Postage
PAID
Lubbock, Texas
Permit #719

Notes from the field...

Visitor Information

Bob Nash Interpretive Center
• Exhibition Galleries
• Learning Center
• Landmark Gift Shop

Sculpture Garden
• Ancient Bison • Giant Pampathere
• Short-Faced Bear • Columbian Mammoth

Hiking Trails
• One-half mile Archaeology Trail
• Three-miles of Nature Trails

Location: 2401 Landmark Drive
(at North Loop 289 & Clovis Hwy)

Regular Hours:
9AM-5PM Tuesday-Saturday
1-5PM Sunday
Closed Monday

Summer Hours: May 1-August 31
7AM-8PM Tuesday-Saturday
1-8PM Sunday
Closed Monday

Program Information: (806) 742-1116
Tour Reservations (groups of 10 or more): (806) 742-2456

http://www.museum.ttu.edu/lll

Contributors to this issue of *Notes from the field . . .*
Deborah Bigness, Dr. Eileen Johnson, Cindy Sherman,Susan Shore, Scott Trevey