LLELA

Geocache Adventure

An Eagle Scout Project By

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Troop 451 – Lewisville, Texas

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Introduction

This is a geocaching course that goes through four of the trails in LLELA. Instead of typical geocache containers, you will find small tags with letters around different points of interest in the nature preserve.

Geocaching is a worldwide game based around using a GPS receiver, putting in coordinates, and then going to the marked location, which is usually a point of geographical, historical, or scenic interest. Upon arriving at the coordinates, the geocacher searches the area for a hidden object or container. The geocache could be small (the size of a pencil eraser) or large (the size of an ammo can) or anything in between. In the case of our LLELA Geocache Adventure, you are searching for tags with letters on them. For most geocaches, you would record your name on a log sheet to prove you found it. You might also log your find on www.geocaching.com. However, in this case you will find the tag and then record the letter from that tag in its appropriate spot in the puzzle that follows. Once you find all the letters you can take the resulting phrase to the gatehouse to receive a patch. You may have to visit LLELA more than once to find all the letters.

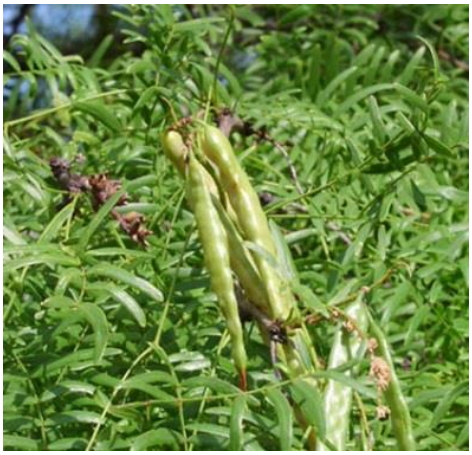
How to Use the GPSr (GPS receiver)

1. Hold down the "Light" button to turn the unit on.
2. Go to "Where To," and then "Coordinates."
3. Enter the coordinates of the place you are going.
4. Follow the line to the next place, but remember, you are not a bird! ***Stay on the trail - you will never have to go more than a few yards off-trail to find any of the hidden tags,*** so you won't always be going directly along the line that you see on the GPSr screen. Use common sense, and stay on the designated hiking trail as long as possible!
5. Once you get to an area, look for the cache. Typically you may have to look in about a 30-foot radius around the area where the GPSr takes you.
6. Once found, record the letter and put in the next set of coordinates.
7. When finished (this may take more than one day) go to the closing page.

A Geocaching Rule of Thumb:
C.I.T.O. = "Cache In, Trash Out." Any trash that you find while geocaching, you should pick up and throw away or RECYCLE properly. This is Geocaching etiquette!

Cottonwood Trail

1. N 33˚ 03.856 W 96˚ 58.666



Note the Honey Mesquite tree at this location. While the mesquite is usually regarded as a pest or weedy species, it did have an important role to play in human history. The tree's seed pods were a very important food for Native Americans in the desert Southwest. If you don't see any pods on the tree, search on the ground. The pods are rich in fiber, contain up to 39 percent protein, and taste sweet. They made up a very important food source for tribes such as the Comanche and Apache. Some Native Americans used the wood for bows, and settlers often used the wood for fence posts, tool handles, and furniture. The wood also makes excellent charcoal which adds a nice flavor to meats. The pods are also important food for deer, coyotes, rabbits, skunks, turkeys, quail, and other species of wildlife.

2. N 33˚ 03.734 W 96˚ 58.740

The log house in front of you was built of native Post Oak logs around 1869 by William Minor, who came to North Texas from Alabama in the mid 1850's. The house is a beautiful example of log house craftsmanship during the mid to late-1800's. Looking closely at the expertly cut half-dovetailed corners and the way the logs were prepared, one can't help but respect the skill involved in building a home with the simple tools available (examples are hanging on the back wall of the home). More information regarding the history of this structure is on a sign on the fence on the north side of the house.

The house is open for tours the third Saturday of most months. You can check LLELA.org for upcoming dates and times.

3. N 33˚ 03.651 W 96˚ 58.779

In the fall of 2010, LLELA installed five nesting platforms on our property with the help of Oncor. Like the one in front of you, they are all mounted on long telephone poles. The platforms are designed to attract either Ospreys or Bald Eagles, two species which have not previously nested in Denton County. Both of these raptors are present here in the winter, and we hope to expand our ability to provide habitat for them year-round.

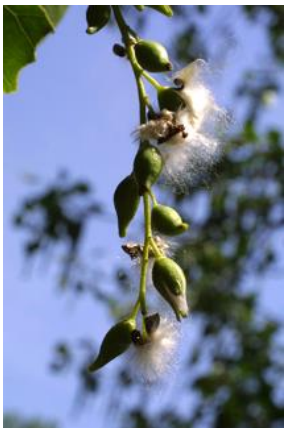
Photo: an Osprey at LLELA

Cicada Trail

4. N 33˚ 03.655 W 96˚ 58.462

The streambed below is what remains of the original Elm Fork channel before the Lewisville Dam was built. After emerging from Lewisville Dam, the Elm Fork now flows through a man-made channel for about a mile before re-entering its historic channel. There are river views onLLELA's Redbud Trail and Bittern Marsh Trail. It can be difficult to see through the trees, but in some spots along the channel you can still see the natural terraces created through stream/floodplain interaction when the river flooded. This formed a riparian (riverside) habitat for Eastern Cottonwood, Buttonbush, and other water-loving species. With the river gone, the ecology and species composition of this area is slowly changing.

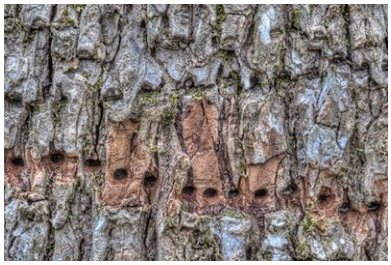
5. N 33˚ 03.716 W 96˚ 58.519



The large Eastern Cottonwood which towers over this part of the Cicada Trail may seem ancient, but actually the Cottonwood is one of our fastest-growing trees. A Cottonwood can reach a height of 60 feet in only 15 years,

and a Cottonwood is considered old at only 75 years. If it's windy and it's not a winter day, close your eyes and listen. The stiff, waxy leaves of the cottonwood make a distinctive rustling sound, almost like a waterfall. When the cottony seeds are ripe, they burst from green capsules and drift on the wind.

6. N 33˚ 03.776 W 96˚ 58.519



The Elm Fork of the Trinity River probably took its name from the Cedar Elm. Winged Elms, Cedar Elms, and American Elms can be found in our area, but Cedar Elms are the most common. Cedar Elms are medium-sized trees growing up to 60 feet tall. They thrive in a wide variety of soil types and habitats. Cedar Elms produce flat, winged seeds in the fall, an important food source for Wild Turkeys. Look for rows of holes pecked in the bark of many of our Cedar Elms. This tree species is a great favorite of Yellow-bellied Sapsuckers, who spend the winter in North Texas. Sapsuckers make a series of small holes through which sap oozes and is licked up by the birds. The sweet sap attracts butterflies and other insects, and birds who like to eat them.

Blackjack Trail

7. N 33˚ 03.669 W 96˚ 59.452

What appears to be a rotting pile of sticks or an unattractive dead tree to many people is actually a vital part of the ecosystem. Standing dead trees (snags) provide hollows and holes for cavity-nesting birds and a rich supply of termites and other insects to eat. Brush piles can provide shelter for reptiles, amphibians, small mammals and insects. Within the rotting wood and leaf litter is an unseen world of microbes, worms, and other tiny creatures. They feed on the fallen organic debris, carrying out the natural decomposition and composting process. The result is rich humus whose nutrients are once again available to growing plants.

8. N 33˚ 03.624 W 96˚ 59.498

Post oaks (notice a couple of examples here) are the dominant tree species in the Cross Timbers. This vegetative region once stretched from southeastern Kansas to central Texas in a forest belt that varied from 5-10 miles in width in our area. It rose out of the adjoining prairies, appearing as an immense wall of trees as settlers traveled from east to west. Why was this area mostly forested, rather than grassy? The answer is below your feet, in the Woodbine Sandstone that produced sandy/loamy soils in this area, different from the clay soils in the prairies. These soils support an open forest which mixes with prairie grasses and wildflowers in little open glades. The Texas Cross Timbers has become highly fragmented as cities in North Texas have expanded, and we are working to preserve the remnants found at LLELA.

Bittern Marsh Trail

9. N 33˚ 03.937 W 96˚ 57.796

The scientific name for the Bur Oak, *Quercus macrocarpa*, means “oak with big fruit.” It’s a good name, as this species produces nuts up to two inches long, with large, fringed caps. As you might imagine, such a large nut is a boon to wildlife. Wild turkeys, woodpeckers, deer, squirrels, raccoons, and many other creatures depend on these acorns, particularly in the winter when other foods become scarce. Among the largest trees in Texas, Bur Oaks can grow to great heights, up to 100 feet or more. In addition to being an important food source, a Bur Oak gives nesting cover and shelter to many species.

10. N 33˚ 03.870 W 96˚ 57.774

Humans aren't the only travelers on LLELA's trails. The trails provide an easy path through the forest for other mammals as well. Be sure to watch as you hike for tracks of coyotes, raccoons, and wild turkeys (below, in that order), as well as other forest travelers.

11. N 33˚ 03.721 W 96˚ 57.523

The wetland area you see from here is Bittern Marsh, an extremely important wildlife hotspot at LLELA. Like all wetlands, it provides a variety of wildlife and human benefits, including:

- **Flood Control**—Water flowing into a wetland spreads out and slows down as it flows through wetland plants. Healthy wetlands decrease flood damage to surrounding areas.
- **Silt Catching**—When flood waters are slowed by wetlands, they drop sediments among the plant stems. This protects downstream water bodies from silting up.
- **Erosion Control**—The roots of wetland plants bind the soil, and the plant stems slow the water velocity, reducing its impact.
- **Water Purification**—Wetlands improve water quality by trapping sediments and retaining excess nutrients as well as more toxic pollutants such as heavy metals.
- **Nature's Nurseries**—There is more life in one acre of healthy wetland than in an acre of almost any other kind of habitat. Wetlands are havens for wildlife, including about 35% of all plants and animals listed as threatened or endangered in the United States.

12. N 33˚ 03.782 W 96˚ 57.912

The areas of "orange goo" in this section of the Bittern Marsh Trail are not pollution. Instead, they are colonies of naturally-occurring bacteria. Slimes, oil-like films, and rock coatings are often made by bacteria that are reacting to the presence of iron and manganese in the water.

13. FINAL CACHE! N 33˚ 03.939 W 96˚ 58.492

The last stage is an actual Geocache – large Ammo Can, filled with trade items and a log book! Remember to Take One Leave One and sign the log. (…Yes, it is possible to just go to the last stage without finding the 12 on the trails, but try to have fun with this!)

Closing

Once all the letters at each location have been found and recorded, put them in this order.

(Please do not write in the binder provided to you – use a separate piece of paper or your smartphone.)

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3 12 10 11 4 9 1 6 7 8 2 5

Once you have finished and discovered the phrase, go to the gatehouse and pick up your Geocaching fun patch! (Note that there are trade items and a logbook at Stage 13, but the patches are only given out at the gatehouse.)

**** Note that if often takes more than one visit to LLELA to hike all the trails and find all the letters, especially if you have young children in your group. If you hiked a trail and had fun learning new things, please FEEL FREE to ask for a patch even if you DID NOT complete all 12 geocache locations. The main goal is to have FUN!*