

TEXAS PARKS AND WILDLIFE



FIFTH GRADE OUTDOOR LABORATORY AT  
LOCKHART STATE PARK

SPRING  
STUDENT JOURNAL



Texas  
Master  
Naturalist



LOCKHART  
I.S.D.



# Lockhart State Park



TEXAS PARKS AND WILDLIFE

#TXStateParks

TXStateParks

texasstateparks.org/jpp

Park Reservations: (512) 389-8900  
texasstateparks.org

## FEATURES AT LOCKHART STATE PARK

**SWIMMING POOL:** Opens Memorial Day Weekend for the summer pool season. Closed Tuesdays.

**GOLF COURSE:** Nine hole, 3,000 yards, par 35. Golf carts can be rented at the park headquarters.

**RECREATION HALL:** Day use and overnight facility with rest rooms, patio, picnic area and kitchen with stove/refrigerator.

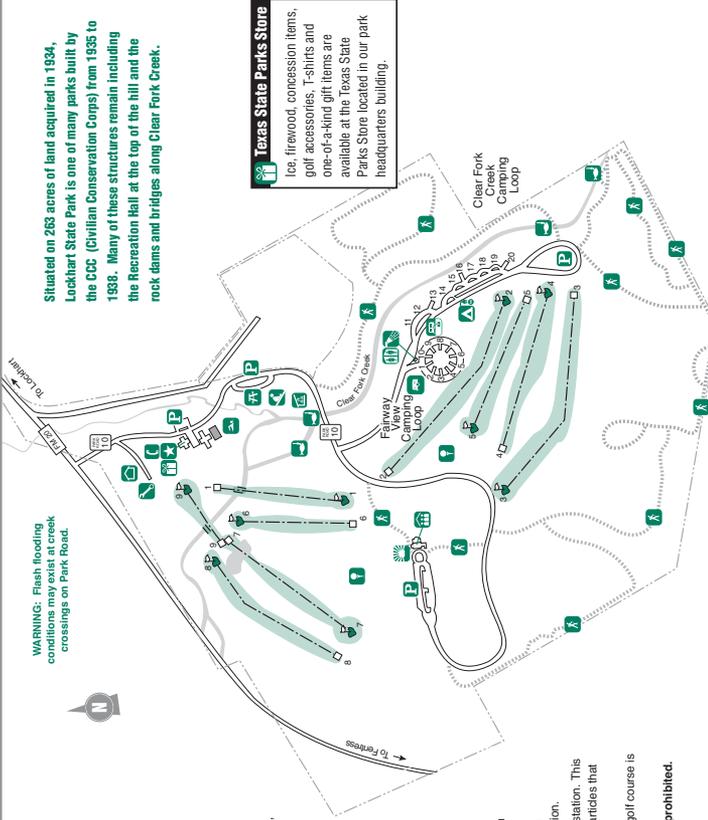
**FISHING:** Fishing is allowed along Clear Fork Creek except on the areas of the golf course.

**INTERPRETIVE PROGRAMS:** Conducted year round, for all age groups, on a variety of topics, including the CCC, natural resources, conservation education and regional flora and fauna. Contact the park for information.

## PLEASE NOTE

- Campsite CHECK OUT time is 2 p.m. Renewal requests should be made by 9 a.m. and are subject to site availability.
- A maximum of eight people are permitted per campsite. Overcrowding damages vegetation, increases soil compaction and often leads to noise problems.
- Quiet hours are from 10 p.m. to 6 a.m. Guests without camping permits are allowed to remain in the park until 10 p.m.
- Pets should be leashed and not left unattended. This keeps them and other visitors safe while protecting wildlife.
- A valid permit is required on all vehicles in the park. Please keep vehicles on the road to reduce erosion and loss of fragile vegetation.
- Black water and gray water can only be discharged at the dump station. This water carries bacteria that can spread serious illness and food particles that attract undesirable animals, including fire ants.
- Hike or walk on designated trails and roadways. Walking on the golf course is not permitted for safety reasons.
- **Public consumption or display of any alcoholic beverage is prohibited.**

WARNING: Flash flooding conditions may exist at creek crossings on Park Road.



**Texas State Parks Store**  
Ice, firewood, concession items, golf accessories, T-shirts and one-of-a-kind gift items are available at the Texas State Parks Store located in our park headquarters building.

## LEGEND

- Headquarters
- Parks Store/Pro Shop
- Rest Room
- Showers
- Water/Electric
- Full Hook-ups
- Dump Station
- Residence
- Recreation Hall
- Hiking Trails
- Golf Course
- Pay Phone
- Picnic Area
- Picnic Shelter
- Swimming Pool/Bathroom
- Parking
- Playground
- Maintenance
- Scenic Overlook
- Fishing

2012 State Park Road  
Lockhart, TX 78644-9716  
(512) 389-3479

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# ***Welcome***

## ***to Lockhart State Park!***

### **Hello Students,**

This is your student journal for your science outdoor laboratory. Today you will participate in three lab activities. This journal contains information and questions about each lab. You, the student, are expected to answer the questions in your journal as instructed and turn them in to your teacher at the end of the day.

Your teacher will use these journals to evaluate your understanding of the lab exercises. Also, these “hands-on” lab activities are designed to help you understand your classroom lessons. It is great fun to be outdoors, and you are expected to learn the information covered in each lab activity.

Another purpose of these outdoor labs is to introduce you to your state park. For many of you, this is the first time you have been to Lockhart State Park. These labs will help you explore the natural resources in the park, gain an appreciation for wildlife and their habitat, and learn the importance of conservation.

The people who are instructing the labs are volunteers and Texas Parks and Wildlife employees. They are here because they care about you and your education. Their goal is to help you understand your natural environment. Please give your full attention to your lab instructors, follow their directions, participate in the activities, learn the concepts being taught, be courteous to each other, and **HAVE FUN!!!**

# ACTIVITY 1

## Clear Fork Creek Water Quality Monitoring

What is *pollution*? Pollution is the introduction of harmful substances or products into the environment. When pollution enters a stream, wetland, bay or lake it can make the water unhealthy and impaired. Pollution sources are divided into two groups: point source and non-point source.

*Point source pollution* is a single, identifiable source of pollution, like a sewage pipe emptying into a river. *Nonpoint source pollution* is caused by rainfall or snowmelt moving over and through the ground. As the rainfall and snowmelt move, they pick up and carry away natural and human-made pollutants, depositing them into streams, wetlands, bays, lakes, and underground sources of drinking water. An example of nonpoint source pollution is when fertilizer on a lawn washes into a stream after it rains.

The area of land that drains into streams, wetlands, bays and lakes is called a *watershed*. Everyone lives in a watershed, and Lockhart State Park is located in the Plum Creek Watershed.

In this lab activity you conduct a test to determine if the water in Clear Fork Creek is healthy for aquatic life. The Dissolved Oxygen test tells us how much oxygen is available in the water. Aquatic life needs oxygen to survive. Healthy waters generally have a lot of dissolved oxygen.

Several factors influence the level of dissolved oxygen in the water. These include temperature, how much water and how fast it is flowing, the number of plants and algae in the stream, pollution, and the kind of the stream bottom. Gravel stream bottoms stir up the water more than muddy stream bottoms. When water runs over rocks it make the water ripple causing more oxygen to be dissolved into the stream.

# ACTIVITY 1, continued

Please complete the following:

I *hypothesize* that the percentage of dissolved oxygen in Clear Fork Creek is (circle one):

Excellent

Good

Fair

Poor

because \_\_\_\_\_

\_\_\_\_\_

## Data Collection Form

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Location: \_\_\_\_\_

Air Temperature: \_\_\_\_\_ °C

Weather Conditions: (for example – sunny, windy, humid, etc.)

\_\_\_\_\_

Water Appearance: (for example – clear, foamy, muddy, oily sheen, scum, etc.)

\_\_\_\_\_

Field Observations: (for example – trash, leaves, sticks, etc.)

\_\_\_\_\_

### Clear Fork Creek Water Quality Monitoring

Test Factor	Results	Ranking
Water Temperature	°C	
Dissolved Oxygen	ppm	
Dissolved Oxygen % saturation	%	

## ACTIVITY 1, continued

### Questions:

1. Was your hypothesis correct?    **Yes**        **No**
2. Based on the results of your test, what is the quality of the water in Clear Fork Creek and name one factor influencing the result of your test?

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3. Pollution influences the level of dissolved oxygen in a creek.

**True**        **False**

4. Circle the correct answer: The stream bottom of Clear Fork Creek is
  - a. gravelly and rocky
  - b. muddy
  - c. gravelly, rocky and muddy

5. Do you live in a watershed?    **Yes**        **No**

6. In what watershed (name) is Lockhart State Park located?

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7. Motor oil on roadways is an example of which group of pollutants (circle one):

**Nonpoint Source**

**Point Source**

8. A pipe dumping sewage in a lake is an example of which group of pollutants (circle one):

**Nonpoint Source**

**Point Source**

9. How do nonpoint source pollutants end up in our creeks, rivers, wetlands and bays?

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## ACTIVITY 2

### White-tailed Deer Census

One of the many activities that a wildlife biologist working for Texas Parks and Wildlife will conduct is a wildlife census. A census is the counting of the population of a particular species. In this lab activity you will conduct a simulated white-tailed deer census.

The purpose of conducting a census is to monitor the health of the white-tailed deer and manage their *habitat* and population size. During years of drought, it is expected that there is less food and water for the white-tailed deer. These are two of the four habitat requirements for all animals. The other two requirements are shelter and space. When any part of an animal's habitat is lacking, the animal's population is affected.

For example, when a town continues to grow in human population, the surrounding wooded areas become subdivisions for homes. This leaves less space and shelter for wildlife. Because there are more roads, wildlife can become injured and killed by automobiles.

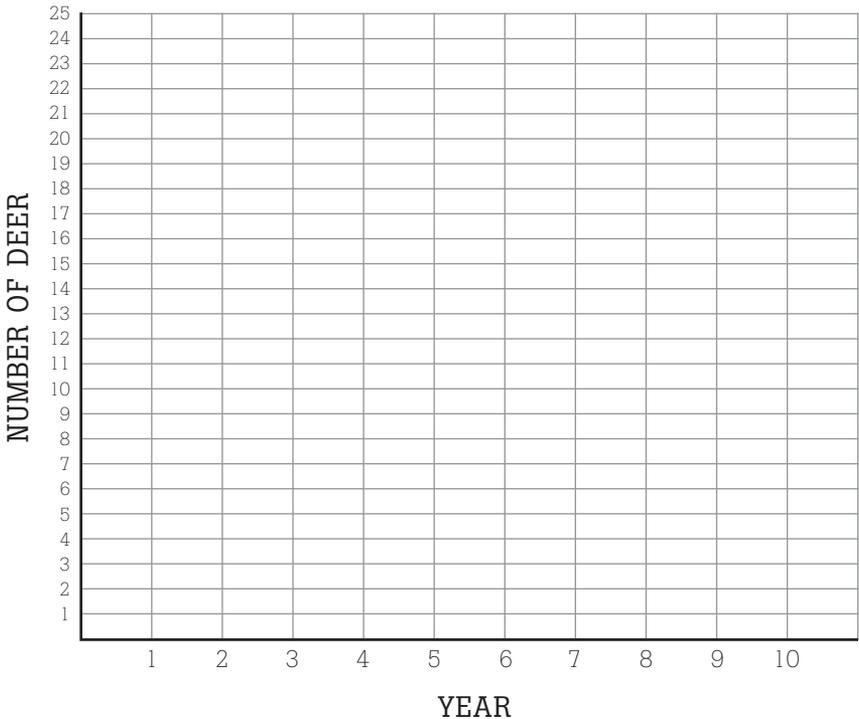
In this lab you will participate in an activity called Oh Deer! You will play several rounds and each round represents one year. The instructor will explain the activity. You will conduct a census of the white-tailed deer population for each round and record the *data* on the following page. Then you will *graph* and *analyze* the data and *interpret* its meaning. Also, you will discuss your *conclusions* about why the white-tailed deer population increased or decreased from year to year.

# ACTIVITY 2, continued

## White-tailed Deer Population

### DATA RECORD AND GRAPH

	<u># of Deer</u>		<u># of Deer</u>
Year / Round 1	_____	Year / Round 7	_____
Year / Round 2	_____	Year / Round 8	_____
Year / Round 3	_____	Year / Round 9	_____
Year / Round 4	_____	Year / Round 10	_____
Year / Round 5	_____		
Year / Round 6	_____		



## ACTIVITY 3

### Flora Galore Discussion and Questions

In the *life cycle* of a plant there are several stages of development. The beginning stage of the life cycle of a flowering plant is the *seed*. The seed is made up of an embryo and its food supply, and both are wrapped in a protective covering. The second stage is *germination*. With water, the right temperature and good soil, the seed germinates and begins to make a new plant. The third stage is *maturation*, the growth of stems, roots and leaves. When the plant matures it will produce flowers. After the plant flowers, the fourth stage is called *fertilization*. This occurs when male sex cells in the pollen join with female sex cells. Another name for this stage is pollination. Plants are fertilized by pollen being carried in the wind and by animals, like bees and butterflies. When fertilization is complete, a seed forms at the base of the flower. When the seed is fully developed it is *dispersed*, or scattered. Seed dispersal is the fifth stage in the flowering plant's life cycle. Their seeds are scattered by the wind, water or animals.

List the three parts of a seed.

---

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List the five stages of development in the life cycle of a flowering plant.

---

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How are seeds dispersed?

---

How are plants fertilized?

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## ACTIVITY 3, continued

### Flora Galore

All living things have a niche. A *niche* is the role an organism plays in its ecosystem. An ecosystem is an area where organisms interact with each other and with the nonliving things in their environment, like rocks, air, water, and sunlight. An ecosystem includes each organisms' habitat, where there is food, shelter, and water. There are a lot of factors that make up an organism's niche. The factors include what they eat, what eats them, their habitat, their behavior, and how they interact with other organisms in their ecosystem.

In a forest ecosystem, a white-tailed deer may graze on acorns from live oak trees, greenbriar, and silver bluestem and serve as a food source for mountain lions. That is the white-tailed deer's niche, or role, in its ecosystem. Humans have niches, too. For example, a Park Ranger is an organism and her niche, or job, is to provide outdoor educational activities for fifth graders in the Lockhart State Park ecosystem.

In this activity, we will examine plants living in and around a forest ecosystem. Each plant has their own niche in the forest ecosystem, and you will learn about each, including how these plants depend upon one another and on all forest organisms to create a healthy forest ecosystem.

#### Directions:

Write the letter of the correct definition in the blank in front of the term it defines.

#### Terms

- \_\_\_\_\_ Organism
- \_\_\_\_\_ Ecosystem
- \_\_\_\_\_ Niche
- \_\_\_\_\_ Habitat

#### Definitions

- A. role of an organism in an ecosystem
- B. place where an animal or plant lives
- C. an area where organisms interact with each other and with their non-living environment
- D. an individual living thing

What's your niche? One role that you have is being a fifth grade student. What other roles do you play in your life?

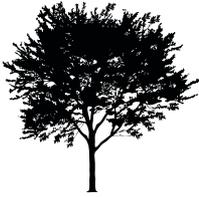
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## ACTIVITY 3, continued

### Flora Galore

During this lab activity we will identify flora along the hiking trail using Plant Identification booklets. We will identify plants from four plant families: trees, shrubs, vines, and grasses.



#### Trees

- Single, elongated trunk
- Usually no lower branches



#### Shrubs

- Produces multiple stems from base
- Usually less than 15 feet tall



#### Vines

- Plant whose stem requires support
- Climbs via tendrils, twining, or trailing (creeps along ground)



#### Grasses

- Plant with jointed stems and slender leaves
- Herbaceous (tops die in winter, new stems grow from roots in spring)

Within each family, we will look for characteristic differences to identify individual plants. These characteristics include leaf shape, arrangement of the leaves, and number of leaves on the stem. For example, within the vine family, the three leaves of Poison Ivy are very similar to the five leaves of non-toxic Virginia Creeper. What differences can you spot between these two plant species?



# ACTIVITY 3, continued

## Flora Galore Plant ID Data Sheet

After you identify each plant, sketch the plant or an identifying feature (leaf, flower, or bark) in your journal. Then, use information in the Plant Identification booklets and the knowledge given to you by your hike leader(s) to explain what each plant's niche is in the Lockhart State Park forest ecosystem.

**FLAG 1**

Common name:

\_\_\_\_\_

Niche: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sketch

**FLAG 2**

Common name:

\_\_\_\_\_

Niche: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sketch

**FLAG 3**

Common name:

\_\_\_\_\_

Niche: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sketch

## ACTIVITY 3, continued

### Flora Galore Plant ID Data Sheet

**FLAG 4**

Common name:

\_\_\_\_\_

Niche: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sketch

**FLAG 5**

Common name:

\_\_\_\_\_

Niche: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sketch

**FLAG 6**

Common name:

\_\_\_\_\_

Niche: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sketch

# **Lockhart State Park and the Civilian Conservation Corps**

Lockhart State Park officially opened July 4, 1941. A lot of hard work went into the building of the park prior to its opening to the public. The individuals responsible for building this park were members of the Lockhart community, local craftsmen, and enrollees of the Civilian Conservation Corps.

The Civilian Conservation Corps was a national program created by President Franklin D. Roosevelt on March 31, 1933. During the 1930s, the United States of America fell on hard times due to the “Great Depression.” Many people were without work and income. The CCC – Civilian Conservation Corps – created jobs for single young men between the ages of 18 and 25.

The CCC came to Lockhart in 1935 and built their camp across the road from what is now the entrance to Lockhart State Park. The CCC employed many young men from the local communities, providing them with food, clothing, shelter, education, skills, and wages. In return, these young men built dams along Clear Fork Creek, the recreation hall, the park manager’s house, water fountains, and primitive camping sites. All of these structures still remain today.

On your hike you will see an old water fountain, two primitive camping sites, and a latrine that were all built by the Civilian Conservation Corps. These structures are considered a cultural resource and are protected by Texas Parks and Wildlife. There is a rich history to Lockhart State Park, thanks to the Civilian Conservation Corps!

# Texas Tracks

Do you know them?



RACCOON



OPOSSUM



SQUIRREL



SKUNK



COYOTE



WHITE-TAILED DEER



# Partners in the Fifth Grade Outdoor Laboratory at Lockhart State Park



Lost Pines Chapter



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