



# NATURAL SCIENCE RESEARCH LABORATORY

TEXAS TECH  
Office of the Provost  
Outreach & Engagement

# Exciting the future generation about the Llano Estacado: Creating interactive museum exhibits

## Emmalee Balch

### Natural Resources Management, Natural Science Research Laboratory

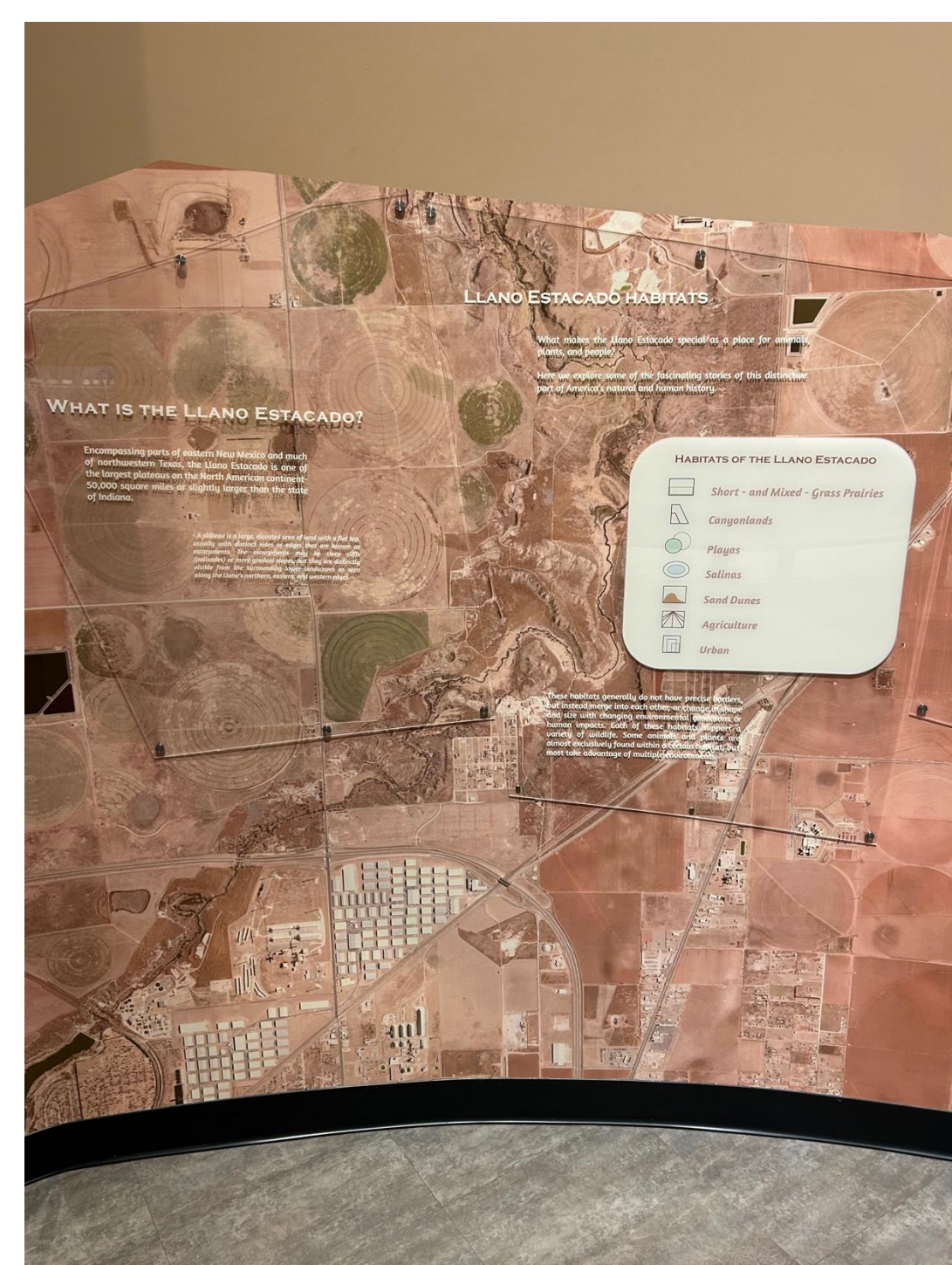
### Background

Traditional museum exhibits are not very engaging for K-12 students. These exhibits feature paintings or specimens accompanied by informative plaques that are often too wordy and can be underwhelming for students.

The Biodiversity of the Llano Estacado is a permanent exhibit at the Museum of Texas Tech University (MoTTU) that focuses on a regional ecosystem. It displays taxidermy specimens of vertebrates, primarily mammals and birds, as well as brief descriptions of the organisms and their habitat.

For educational materials to be valid in Texas, they need to be aligned with the Texas Essential Knowledge and Skills (TEKS) standards.

This project intends to generate a fun and engaging activity for students to interact with the exhibit and provide more resources to educators.



## Understanding Learning

## Creating the Worksheets

## Gathering Data

## Resources for Parents and Teachers

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ School: \_\_\_\_\_

### BIODIVERSITY OF THE LLANO ESTACADO HIGH SCHOOL

Directions: Walk around the exhibit to find the answers to the following.

- What are 3 things that *Grus canadensis* eat? Critical thinking bonus: Why do you think they overwinter in Texas?
- What type of mammal migrates between the northern US/Canada and Mexico? Critical thinking bonus: Why are there few of these mammals on the Llano Estacado year-round?
- What is the common name of *Urocyon cinereoargenteus*? Critical thinking bonus: Are they a true carnivore, herbivore, or omnivore? Are they selective or opportunistic feeders?
- What factors caused the elimination of the gray wolf, black bear, and black-footed ferret from Short- and Mixed- Grass Prairies? Critical thinking bonus: Are any of these species making a "comeback" in Texas? Why or why not?
- Name three mammals that live in the Canyonlands Habitat. Critical thinking bonus: What is the most significant canyon on the Llano Estacado and how big is it?
- What is neotony and what Playa Habitat animal is a good example?

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ School: \_\_\_\_\_

### BIODIVERSITY OF THE LLANO ESTACADO MIDDLE SCHOOL

Directions: Walk around the exhibit to find the answers to the following.

- What is the scientific name for the Eastern Gray Squirrel?
- What two habitats does the Greater Roadrunner live in?
- What major agricultural disaster happened because of native grasses being plowed under and overgrazed?
- What is the common name of *Colinus virginianus*?
- Name one of the largest plateaus (mesas) in North America.
- Name three animals that live in an urban habitat.

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ School: \_\_\_\_\_

### BIODIVERSITY OF THE LLANO ESTACADO GRADES 3-5

Directions: Walk around the exhibit to find the answers to the following.

- What type of grass prairie does the Pronghorn live in?
- What is the scientific name of the Striped Skunk?
- What part of Lubbock can you find Wild Turkeys?
- Name two carnivores that live in prairies.
- What color head does a male Mallard have?
- What species of mouse is carnivorous?

### What's next?

#### Gathering Data

There are two ways we plan to gather data to assess the worksheets' effectiveness at teaching about the Llano Estacado.

We will assess the children's knowledge gain through the completed worksheets that will be returned to the front desk at the MoTTU where they can receive a reward. We will grade the worksheets to gauge the child's level of learning.

We will provide the adults with a post survey containing questions about the experience of the visit, such as "What else did you expect or want to see?", or "How can we improve this experience?".

The worksheets and response forms will help us measure if the participants are leaving with more knowledge about the Llano Estacado than when they arrived.

### Understanding Learning

To help teach about the Llano Estacado, we first had to understand how students at different grade levels learn. Based on state education standards:

3<sup>rd</sup>-5<sup>th</sup> grade uses simple sentence structures and questions with 1-2-word answers. Questions can be answered by simply reading the name tags and plaques. Middle school uses similar structure with more challenging questions.

High school introduces the claim, evidence, and reasoning (CER) structure, challenging the students to explain their answer and provide reasoning to back the answer they give, requiring students to utilize previous background knowledge.

### Creating Worksheets

We used Canva.com to create three worksheets for a scavenger hunt activity through the Llano Estacado exhibit. Each aligns with a different age group and skill level as well as with TEKS standards. Answer keys are provided through our website.



### Resource for Parents and Teachers

We hope the exhibit becomes a resource for educators to teach 3<sup>rd</sup>-12<sup>th</sup> graders about the animals and habitats of the Llano Estacado. We also foresee teachers coming to the MoTTU to use this exhibit as a fun activity to end a lesson or unit.

These worksheets can be used as a supplemental activity while teaching about ecosystems; TEKS 112.7 12b and TEKS 112.7 12c.

### References

<https://TEKsguide.org>



<https://www.depts.ttu.edu/nsrl/>



### Acknowledgements

Lisa Bradley helped with creating and editing the worksheets. Jennifer Girón provided feedback and guidance for this poster.