

Ecosystems

Introduction: What is an Ecosystem Made Of?

Everything we see can be put into two groups. If you look around, you will see both **biotic** and **abiotic** things. Biotic describes something that is living or was once living. Abiotic means everything else that is not living.

Who can name 5 biotic things? Who can name 5 abiotic things?

Who can give the name of an organism that lives in this ecosystem and nowhere else? (go through the following ecosystems):

Puddle

Handful of Soil

Ocean (salt water)

Planet Earth

Discussion:

In what ways could your class room be described as an ecosystem? Name both abiotic and biotic things in your classroom.

This is in their Journal:

Can you find two words in the bigger word, "ECOSYSTEM"? "Eco" means life forms and the environment in which they live. A "system" is a group of things that work together. An **ecosystem** is a group of things that work and live together in an environment. An example of an ecosystem is a rainforest, a pond, a city or even our Earth! They can be as small as a puddle or a handful of soil. Plants and animals live in ecosystems along with things that are too small to see. Everywhere you look, you can find an ecosystem.

The **composition** of an ecosystem describes everything that is part of an ecosystem. This includes both, living and non-living things, in other words, **biotic** things (living or once were alive) and **abiotic** things (non-living things).

When an ecosystem changes over a long period of time, it is called **succession**. The populations in an ecosystem change during succession. An ecosystem might change because of humans. When we develop land for houses, we cut down trees. We change the environment for all plants and animals. Some animals can adapt to the change; others cannot. Their population is then affected.

Think of an animal or plant that could become extinct (completely disappear) due to the succession of its ecosystem. After naming your plant or animal, explain your answer.

Texas Ecosystems and Ecological Regions

The following ecosystems are specific to Texas and what we are going to see at the Cameron Park Zoo.

- Texas is a large land area covering approximately 261,914 square miles.
- There is tremendous climate and geography diversity in the state.
- Texas has 10 climate regions, 14 soil regions and 11 distinct ecological regions.
- It is home to 5,500 **plant** species, 425 of which occur **ONLY** in Texas. Of the 1,245 vertebrate species (fish, reptiles, birds and mammals) in Texas, 126 are found **NOWHERE** else in the world.

When we get to the Cameron Zoo in Waco, we are going to study one particular ecosystem of Texas, The Brazos River System. **(Have students look at page 10 and draw the river on page 9)**

- The Brazos River is over 900 miles long and connects Lubbock to the Gulf of Mexico and thus is both a plains and a coastal river.
- The Brazos Watershed encompasses more than 40,000 square miles -- more area than any other Texas river.
- The Brazos River Ecological System is important because on its journey to the Gulf of Mexico, it is a tremendous source of water for power, irrigation and recreation.
- In addition, several major reservoirs tap drinking water from the Brazos.
- The Brazos River passes through 5 ecological areas of Texas on its trip from Lubbock to the Gulf.
- You will learn about these areas and their inhabitants in greater detail at the Cameron Zoo.

1. **Gulf Coast Region**

- Land area of about 15 million acres and borders the Gulf of Mexico from the Sabine River through Corpus Christi Bay to Port Isabel.
- There are woodlands of pecan and live oaks as well as open prairies with native grasses and salt marshes.
- The Laguna Madre is the only coastal, hyper saline lagoon system on the North American continent and one of only three in the world. (Laguna Madre is a unique shallow water bay ecosystem that is home to redfish, speckled trout, flounder and a variety of other game fish year round.) This is an extremely rich habitat and the breeding ground for most of the shrimp caught in the Gulf of Mexico.

2. **Piney Woods Region**

- Land area of about 15 million acres and is gently rolling, hilly, forested land.
- The majority of the national forests (four) and other forestland located in Texas are found in this region, as is Texas's only natural lake, Caddo Lake.
- The most diverse and richest wildlife habitats left in Texas are located in the piney woods.
- Swamps, bogs and man-made lakes extend through the region, which has the state's highest rainfall, with annual precipitation of 32-56 ".

3. **Blackland Prairie/Post Oak Savannah Region**

- The Blackland Prairie actually separates the two sections of the Post Oak Savannah region.
- The Blackland Prairie region has rich, fertile black soil and supports crop production and cattle ranching.
- The big bluestem and little bluestem grasses make these prairies unique. The grasslands of this area are threatened with extinction by urban sprawl and development.

4. **Prairie and Cross Timbers**

- Land area of about 42 million acres and is the southern end of the Great Plains of the central United States.
- Four Texas rivers run through here -- the Canadian, the Colorado, the Concho and the Red.
- Page 16 - The Cap Rock Escarpment -- a cliff that runs north-south separates parts of this area.
- The High Plains part of this region was called Llano Estacado or Stakes Plains, by the early Spaniards. This region was once home to large herds of buffalo, pronghorn antelope, gray wolves, grizzly bear and elk.

5. **Edwards Plateau**

- This plateau is approximately 1,500 to 3000 feet above sea level and covers a land area of about 19 million acres.
- Two major aquifers underlie the area: The Edwards and the Trinity. It is home to one of the world's most diverse collections of aquifer plants and animals. Some of them are found nowhere else on earth.
- The golden-cheeked warbler, the San Marcos salamander and the endangered fountain darter are just a few of the unusual animals. The rare plants of the region include the basin bellflowers and Texas snowbells.
- This region is rapidly developing its tourist industry because of its natural beauty and opportunities for wildlife viewing, hunting and water recreation.