

Pitcher Plant Bogs are Among the Most Unique Communities of the Longleaf Pine Ecosystem

(bolded words in text indicate key words and concepts)

Student Information:

Pitcher plants are carnivorous plants. **Carnivorous** means that the plants feed on insects they trap in their tube-shaped leaves. Once insects get in these tubes, they are trapped and can't get out. These plants are found in places where water is close to the surface and the soil has few nutrients. These plants also need lots of sunshine. Fire is helpful because it kills and removes other plants that might shade the pitcher plants out. Many other interesting plants and animals live in and around these areas.

Teacher Information:

Embedded within the longleaf pine ecosystem are countless varieties of **microhabitats**. Among the more unique of these **habitats** are pitcher plant bogs. Pitcher plants and their companion plants are **specialized** to exist in a narrow set of conditions. Soil moisture is critical and many "bog" communities are actually the result of a hard, impermeable clay layer beneath porous sand. Rainwater percolates through the sand but runs into an impermeable clay "lens" where it is either trapped (like a pool) or seeps out the side of a hill. These nutrient-poor, moist sites are ideal for the carnivorous pitcher plants. Bogs common to many "flatwood" longleaf areas are called "**wet prairies**" while other bogs found on hillsides are called "**seepage slopes**". The transition from forest to an open bog is not immediate. Forests usually grade into a wetland, bog habitat. This transition area is called an **ecotone** and hosts a rich variety of plant and animal species.

There are several types of **pitcher plants** in longleaf forests, as well as other carnivorous plants, e.g., hooded pitcher plant, trumpet pitcher plant, white-topped pitcher plant, and parrot pitcher plant. Pitcher plants have modified leaves shaped into hollow tubes (that look like a water pitcher), which attract insects. Downward pointing hairs and slippery walls make escape difficult and the hapless insects are dissolved and digested by enzymes in the bottom of the pitcher. The tiny sundew and dewthread can trap small insects on flat sticky leaves before slowly digesting them. Other bog plants include colic-root; goldcrest; meadow-beauty (also called deerflower); white-topped sedge; orange milkwort (also called bog "Cheetos" because of their resemblance to that treat); bog-buttons (also called "hatpins"); several species of orchids; and many other wildflowers. Both soil moisture conditions and full sun are critical to these plant and animal communities. Most of these bog plants have little **shade tolerance**. Pitcher plant bogs are **fire dependent** habitats. The frequent fires common to the longleaf ecosystem keep woody shrubs from encroaching on bogs. Without fire, moisture-loving shrubs invade; drying up bogs and shading out the herbaceous plants. Today, many of these unique bog systems are exceptionally rare; having been lost to either development, water drained out of them, or fire not being allowed to move through them.

The Spanish moss seen hanging from the trees is an example of **commensalism**-a one-way relationship. Spanish moss is considered an **epiphyte**-meaning it requires the host (pine tree in this case) for mechanical support rather than a source of nutrients or water. The pine tree is neither benefited nor harmed by the presence of the Spanish moss. The moss plays host to numerous varieties of invertebrates both hanging from the tree and when it falls from a limb onto the ground.

Key Words and Concepts: carnivorous plants, commensalism, ecotone, epiphyte, fire dependent, habitat, microhabitat, pitcher plant, seepage slope, shade tolerance, specialization, wet prairie.