

## Lesson Eight

# Bear Neighbors



### Key question

What other animals live where Florida black bears live?

#### Conceptual frameworks topics

- V.A. Habitats used by Florida black bears
- VII.A. The Florida black bear as an umbrella and indicator species
- VII.B. Other organisms found in Florida black bear habitats

#### Subjects

Science, Language Arts

#### Time estimates

55-90 minutes over one to two days

#### Key vocabulary

Sand pine scrub, pine flatwoods, freshwater swamp, habitat loss, umbrella species, indicator species

### Objectives

As part of this activity, students will:

1. Distinguish between sand pine scrub, pine flatwoods, and freshwater swamp plant communities.
2. Identify at least six examples of animal species that share their habitats with Florida black bears.
3. Explain why the Florida black bear is an umbrella species and an indicator species.

### Materials

#### Essential:

Per group of three students:

- One set of [Plant Community Sheets](#) (one sand pine scrub, one pine flatwoods, and one freshwater swamp)
- One set of “Bear Neighbors” [Animal Cards](#) cut up and mixed together in an envelope
- One pair of scissors
- Glue or tape



## Lesson Eight \_\_\_\_\_ Bear Neighbors

### Supplemental:

Per Class:

- Color pictures of sand pine scrub, pine flatwoods, and freshwater swamp plant communities in Florida
- Crayons, colored pencils, or colored markers

Per group of three students:

- An additional set of “Bear Neighbors” Animal Cards for the optional classification/sorting activity

### Background

In addition to being the largest native land mammal in Florida, the Florida black bear is also one of the most widely-ranging native mammals in the state. Because Florida black bears eat so many different kinds of food that are available in different seasons of the year, they not only require a large area, they also require a diverse natural habitat. Florida black bears forage for food in several different types of forests, including pine flatwoods, hardwood swamps, cypress swamps, cabbage palm forests, sand pine scrub, sandhills, and mixed hardwood hammocks.

As defined in previous lessons, home range is the area traversed by an individual animal as part of its normal activities, such as food gathering, mating, and caring for young. For adult female Florida black bears, individual home ranges are usually between 9 and 34 square miles, while adult male Florida black bear home ranges can vary from 36 to 135 square miles. The home range of a

typical Florida black bear usually includes several different types of forested plant communities. The types of communities used may be different depending on the region of the state the bear inhabits. For example, a black bear in north Florida may utilize pine flatwoods, sand pine scrub, and hardwood hammocks, while a black bear in south Florida might utilize cabbage palm forests, cypress swamps, dry prairies, and even coastal mangrove forests. Florida black bears usually move from plant community to plant community during different seasons of the year as different types of food become available.

This lesson focuses on three plant communities commonly used by black bears in Florida: sand pine scrub, pine flatwoods, and freshwater swamps. **Sand pine scrub** communities are often considered to be the deserts of Florida. Climates in the sand pine scrub are usually hot and dry. Sand pine scrub plant communities are usually found in hilly areas of the state that contain a thick layer of well-drained sandy soil. These areas thrive when fires are allowed to occur every 10 to 100 years. Sand pine scrub plant communities are dominated by a sparse canopy of sand pine trees and smaller oaks such as scrub oak, sand live oak, and Chapman’s oak. The understory of a sand pine scrub contains many different types of shrubs, including Florida rosemary, saw palmetto, blueberry, and several different holly species.



## Lesson Eight \_\_\_\_\_ Bear Neighbors

**Pine flatwoods** are the most common plant community found in Florida. Pine flatwoods are usually found in low-lying, flat areas containing sandy soils. Many pine flatwoods remain flooded or contain ponds throughout the summer months and dry out during the remainder of the year. Fire also plays an important role in the maintenance of flatwoods. When fires occur every 3 to 7 years, the inhabitants of this community flourish. As the name implies, the most common trees found in flatwoods are pine trees such as longleaf pine, slash pine, and pond pine. Generally, the canopy of trees in flatwoods is relatively open and park-like, allowing a large amount of sunlight to reach the forest floor. As a result, the understory of a flatwoods usually contains short, dense concentrations of shrubs such as saw palmetto, gallberry, blackberry, blueberry, and wax myrtle.

**Freshwater swamps** are found in low-lying areas of forests and prairies and along lake edges and rivers. The soil in freshwater swamps is usually rich and fertile and contains a significant amount of silt. Freshwater swamps are flooded for at least part of the year. Most freshwater swamps in Florida are dominated by a canopy of cypress or bay trees. Some freshwater swamps in Florida contain standing water while others are characterized by flowing water. In order to maintain many freshwater swamps, periodic fires are needed to control the establishment of hardwood trees. The understory of freshwater swamps can contain a wide variety of small trees and

shrubs, like black gum, tupelo, and buttonbush, as well as many different types of vines, aquatic plants, and epiphytes (air plants). Florida black bears prefer hardwood swamps dominated by trees such as tupelo and cabbage palm.

As human population growth and development in Florida increases, the amount of natural, undisturbed sand pine scrub, pine flatwoods, and freshwater swamp habitat available for animal species such as the Florida black bear decreases. Today, one of the greatest overall threats to the Florida black bear is **habitat loss** (the permanent alteration or conversion of natural habitat for human use). In order to ensure the continued success of the Florida black bear in the wild, large areas of the bear's natural habitat must be conserved. Because stable, healthy Florida black bear populations require such large areas of natural habitat, conserving habitat for the Florida black bear also conserves habitat for many other species sharing the black bear's habitat, including many rare, threatened, and endangered species. Because so many different types of plant, mammal, bird, reptile, amphibian, and even fish and invertebrate species will be conserved if the Florida black bear's habitat is conserved, the Florida black bear is often referred to as an **umbrella species**.

In addition to its value as an umbrella species, the Florida black bear is also an important **indicator species**. Indicator species are species whose population size



## Lesson Eight \_\_\_\_\_ Bear Neighbors

and population health are used to gauge the overall health and quality of an ecosystem. If an area supports a healthy, adequately-sized population of an indicator species like the Florida black bear, the ecosystem in that area is considered to be healthy. When the population size or overall health of the population of an indicator species declines, it serves as a sign that the health of the overall ecosystem might also be declining.

### Advance preparation

1. Prepare sufficient copies of the three Plant Community Sheets and three sets of “Bear Neighbors” Animal Cards for each group. Cut out an entire set of 27 different Animal Cards and randomly mix them together in an envelope for each group. This will require students to actually read the hints on each card in order to determine which plant community each animal picture belongs in and will make the activity more challenging.
2. Locate an area with tables or work spaces. Each group of three students will need room to spread out its lesson materials. Groups will also need an open wall area to display their completed Plant Community Sheets.

### Procedure and discussion questions

1. Introduce the lesson by asking students if they think Florida black bears only live in one type of habitat or if they think Florida black bears live in many different types of habitats.
2. Next, ask students to brainstorm a list of other animals they think live in the same habitats as Florida black bears. Explain that during this lesson, students will be working in groups of three to learn more about the different types of habitats Florida black bears depend on and the other types of animals that depend on these same habitats.
3. Divide students into groups of three and give each group a set of Plant Community Sheets, a set of “Bear Neighbors” Animal Cards, a pair of scissors, and glue or tape. Explain that in each group, each student is responsible for completing a different Plant Community Sheet. If your class cannot easily be divided into groups of three, create some groups of four students and have one pair of students in each of these groups work together on one Plant Community Sheet.
4. Have students refer to the drawings on the three Plant Community Sheets and ask students to identify observable



## Lesson Eight \_\_\_\_\_ Bear Neighbors

differences between sand pine scrub, pine flatwoods, and freshwater marsh plant communities. Review pertinent background information and identify key distinguishing characteristics of each plant community, such as dominant tree species, relative amounts of sunlight, temperatures, and moisture levels. If pictures of the three plant communities are available, share them with students.

5. Instruct students to spread their Animal Cards out in the center of their group's work area. Have students take turns picking up an Animal Card and reading the "Hint" section of the card aloud to the rest of the group. The group should then decide in which animal community the animal belongs. The person in charge of that plant community should then cut the animal out along the dotted lines and glue the animal in the appropriate spot on the Plant Community Sheet.
6. Groups should continue drawing cards, reading hints, and pasting animals on the appropriate Plant Community Sheets until all empty boxes on the sheet have been filled in and all Animal Cards have been used. Circulate and assist the groups as needed.
7. Next, develop the idea that some species of animals, like the Florida scrub jay and red-cockaded woodpecker, spend most or all of their lives in a single type of plant community. In order to conserve these species, usually only one type of plant community must be conserved. Explain that other species of animals, such as the Florida black bear, depend on several different plant communities for their survival. To conserve these species, several different plant communities must be conserved. Ask students why they think the Florida black bear needs several different plant communities to survive. Reinforce the idea that, as omnivores, Florida black bears depend on many different kinds of plants and animals for food. As the seasons change, food sources become scarce in some plant communities and more abundant in others. Thus, Florida black bears need to have access to several different plant communities to thrive. For Florida black bears to survive, the different plant communities they depend on need to be linked together, rather than isolated from each other.
8. If time permits, develop the idea that the types of plant communities used by Florida black bears differ in different parts of the state. In addition, reinforce the



## Lesson Eight \_\_\_\_\_ Bear Neighbors

idea that the three plant communities studied in this lesson are just a few of the plant communities used by black bears in Florida.

9. Next, have each group of students tape its three completed Plant Community Sheets side by side on a wall with the Scrub sheet first, the Flatwoods sheet second, and the Freshwater Swamp sheet third. Have students stand a few feet away from their wall-mounted sets of sheets and describe what they see hidden in the pictures. Students should be able to see the outline of a Florida black bear when all three sheets are properly taped together ([Figure 1](#)). Use the idea that the Florida black bear outline is not complete unless all three plant communities are connected together to reinforce the concept that in order to survive, Florida black bears need to have access to several different plant communities.
10. Conclude the lesson with a discussion of the terms **umbrella species** and **indicator species**. Define the terms and ask students why they think the Florida black bear is considered an important umbrella species and an important indicator species. Finally, have students share examples of other mammals, birds, reptiles, and amphibians that would be

conserved if the Florida black bear's habitat is conserved.

11. As a supplemental sorting activity, you could distribute an additional set of "Bear Neighbors" Animal Cards to each group. Students could then cut out the cards and practice sorting the animals into groups based on their status (Common, Rare, Threatened, and Endangered) or major taxonomic group (Fish, Amphibian, Reptile, Bird, or Mammal).

### **Modifications for younger or ESE/ESOL students**

1. Heterogeneously group students so that each small group contains at least one student with strong reading skills. Have these students read the information on the "Bear Neighbors" Animal Cards aloud to the other group members.
2. Reduce the number of different "Bear Neighbors" Animal Cards given to groups.
3. Have ESOL students tell the rest of the class the names of some of the plants and animals included in the activity in their native language.



# Lesson Eight \_\_\_\_\_ Bear Neighbors

## Assessment suggestions

1. Have students choose one of the three plant communities studied in this lesson and write a short paragraph describing what they would see, feel, and/or hear if they spent 30 minutes in that plant community.
2. Ask students to list two scrub animals, two flatwoods animals, and two freshwater swamp animals that share their habitats with Florida black bears.
3. Have students write a paragraph in response to the following writing prompt: "The Florida black bear is like an umbrella because..."

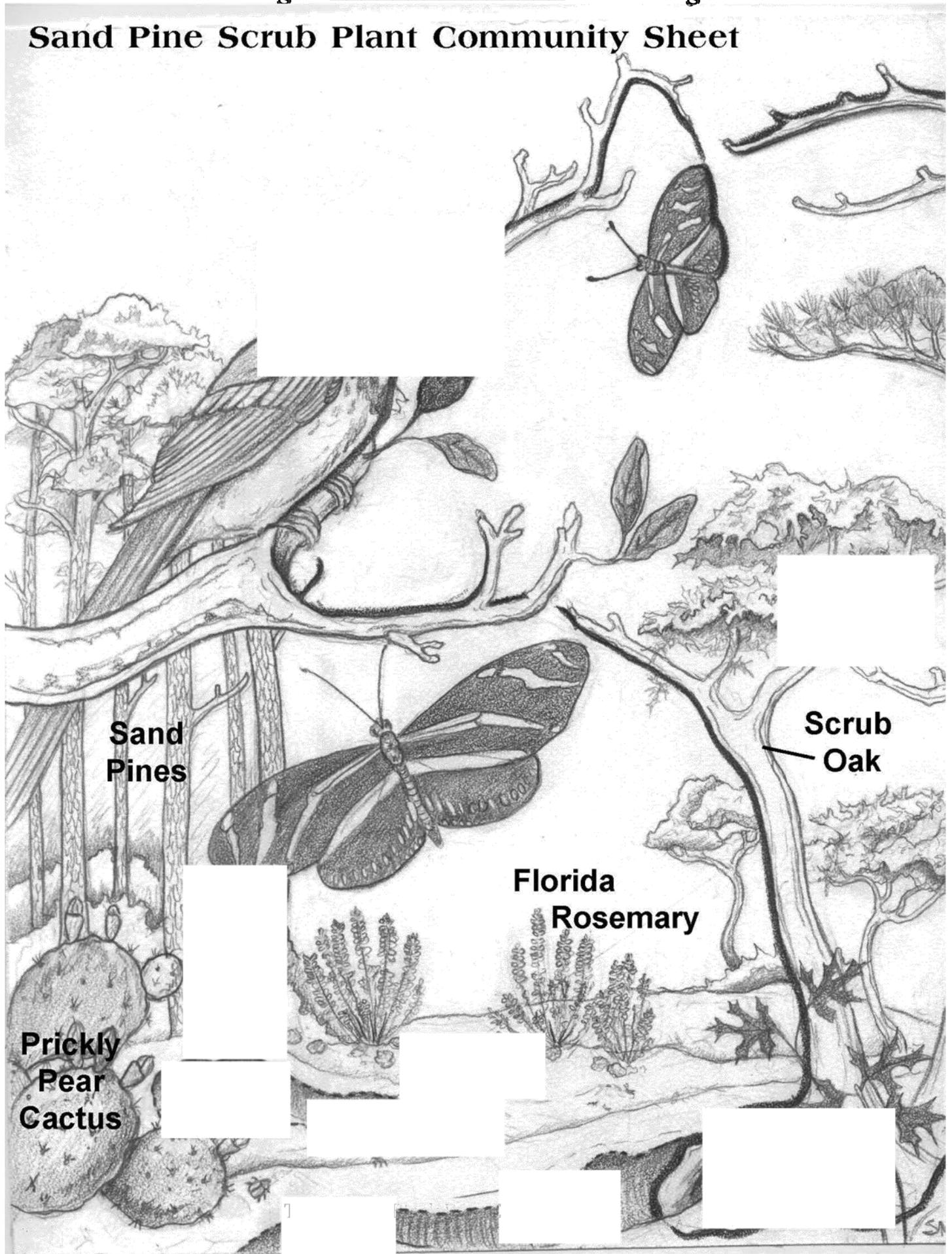
## Art extension

1. Distribute crayons, colored pencils, or colored markers and let students color their completed Plant Community Sheets and display them throughout the room.
2. Give each student crayons, colored pencils, or colored markers and a sheet of paper with a large umbrella drawn on it. Have students create their own drawings illustrating the other animal species that can be conserved under the Florida black bear's "umbrella."

**Figure 1. Sample Completed Plant**



# Sand Pine Scrub Plant Community Sheet



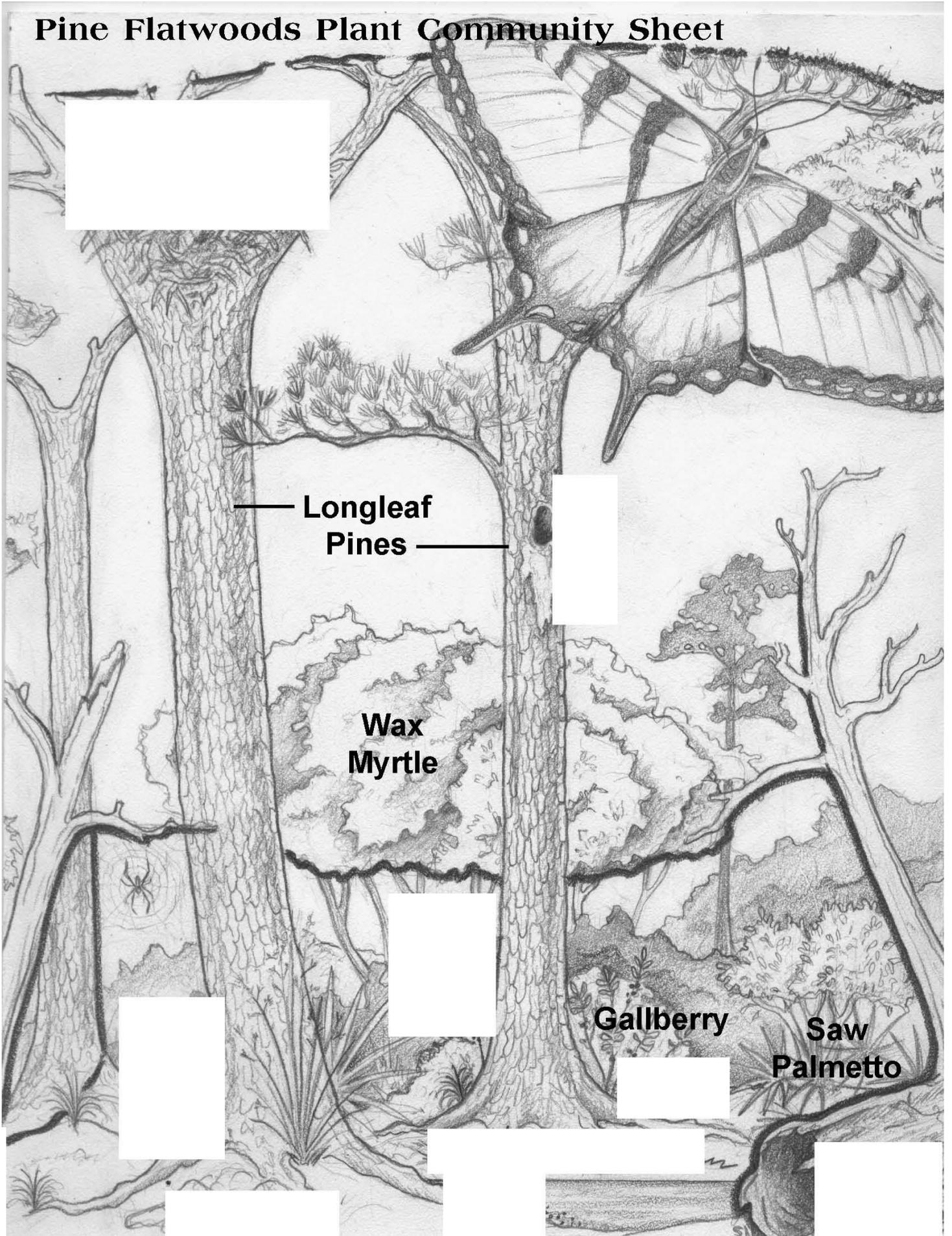
**Sand  
Pines**

**Scrub  
Oak**

**Florida  
Rosemary**

**Prickly  
Pear  
Cactus**

# Pine Flatwoods Plant Community Sheet



— Longleaf Pines —

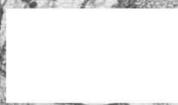


Wax Myrtle

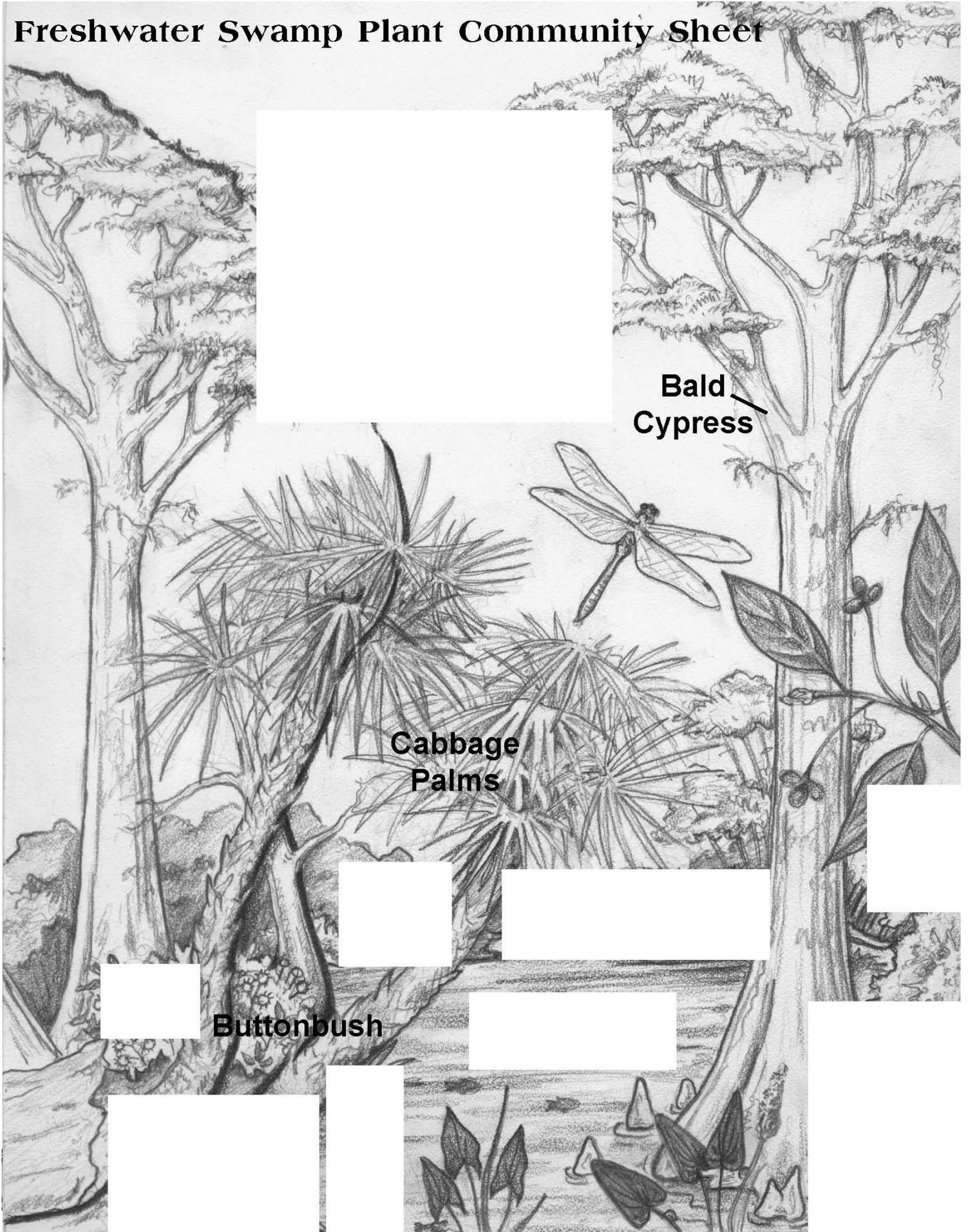


Gallberry

Saw Palmetto



# Freshwater Swamp Plant Community Sheet



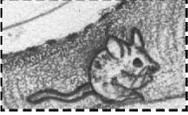
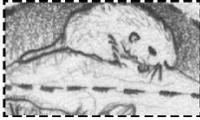
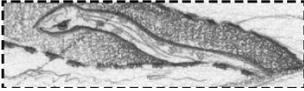
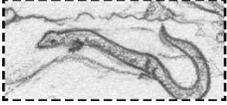
Bald  
Cypress

Cabbage  
Palms

Buttonbush

Bear Neighbors Animal Cards

SCRUB

<p><b>Florida Mouse</b></p>  <p><u>Hint:</u> I sometimes live in burrows dug by the gopher tortoise</p> <p><u>Status:</u> Common</p>	<p><b>Southeastern Pocket Gopher</b></p>  <p><u>Hint:</u> I live in underground burrows in the same plant community as the Florida scrub jay.</p> <p><u>Status:</u> Common</p>	<p><b>Flying Squirrel</b></p>  <p><u>Hint:</u> I sleep in nests in scrub oak and sand pine trees during the day and come out to feed at night.</p> <p><u>Status:</u> Common</p>
<p><b>Gopher Tortoise</b></p>  <p><u>Hint:</u> I dig burrows into the deep sandy soil to escape the hot dry desert-like climate.</p> <p><u>Status:</u> State - Threatened</p>	<p><b>Florida Pine Snake</b></p>  <p><u>Hint:</u> I slither into burrows to eat pocket gophers, my favorite food.</p> <p><u>Status:</u> State - Threatened</p>	<p><b>Sand Skink</b></p>  <p><u>Hint:</u> I actually swim through the sand underneath rosemary shrubs.</p> <p><u>Status:</u> Federally - Threatened</p>



Lesson Eight \_\_\_\_\_ Bear Neighbors

**Gopher Frog**



Hint: I use gopher tortoise burrows to stay cool and moist during the heat of the day.

Status: Common

**Florida Scrub Jay**



Hint: I like to hide in the branches of scrub oaks.

Status: Federally - Threatened

**Burrowing Owl**



Hint: I dig my burrow in sandy soil of open areas.

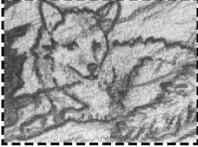
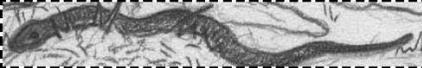
Status: State - Threatened



Lesson Eight \_\_\_\_\_ Bear Neighbors

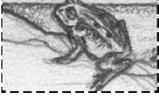
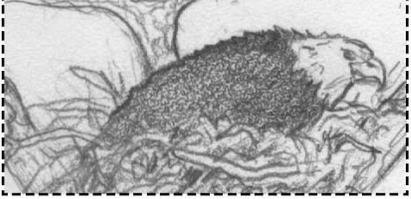
Bear Neighbors Animal Cards

FLATWOODS

<p style="text-align: center;"><b>Gray Fox</b></p>  <p><u>Hint:</u> I build my own den in hollow logs in longleaf pine forests.</p> <p><u>Status:</u> Common</p>	<p style="text-align: center;"><b>Sherman's Fox Squirrel</b></p>  <p><u>Hint:</u> I look for seeds, nuts and other food on the ground between longleaf pine trees.</p> <p><u>Status:</u> State - Species of Special Concern</p>	<p style="text-align: center;"><b>White-tailed Deer</b></p>  <p><u>Hint:</u> I like to eat shrubs like gallberry.</p> <p><u>Status:</u> Common</p>
<p style="text-align: center;"><b>Florida Box Turtle</b></p>  <p><u>Hint:</u> I dig into damp soil at the base of shrubs like saw palmetto and gallberry.</p> <p><u>Status:</u> Common</p>	<p style="text-align: center;"><b>Eastern Indigo Snake</b></p>  <p><u>Hint:</u> I slither through longleaf pine needles on the ground looking for lizards, mice, frogs and other snakes to eat.</p> <p><u>Status:</u> Federally - Threatened</p>	<p style="text-align: center;"><b>Flatwoods Salamander</b></p>  <p><u>Hint:</u> I hide under logs in flatwoods where it is moist and live in burrows underground.</p> <p><u>Status:</u> Federally - Endangered</p>



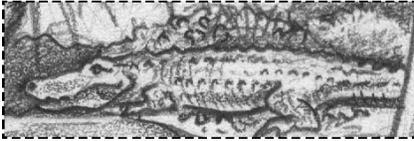
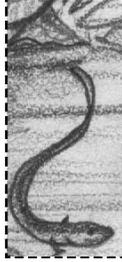
Lesson Eight \_\_\_\_\_ Bear Neighbors

<p><b>Oak Toad</b></p>  <p><u>Hint:</u> I lay my eggs in shallow ponds between longleaf pine trees after it rains.</p> <p><u>Status:</u> Common</p>	<p><b>Red-cockaded Woodpecker</b></p>  <p><u>Hint:</u> I nest in holes in living longleaf pine trees.</p> <p><u>Status:</u> Federally – Endangered</p>	<p><b>Southern Bald Eagle</b></p>  <p><u>Hint:</u> I build very large nests in the high branches of longleaf pine trees.</p> <p><u>Status:</u> Common</p>
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Bear Neighbors Animal Cards

SWAMP

<p><b>Florida Panther</b></p>  <p><u>Hint:</u> I like to hide in dense swamp areas.</p> <p><u>Status:</u> Federally - Endangered</p>	<p><b>River Otter</b></p>  <p><u>Hint:</u> I eat fish, frogs, crayfish and other water animals</p> <p><u>Status:</u> Common</p>	<p><b>Common Snapping Turtle</b></p>  <p><u>Hint:</u> I am the “vacuum cleaner” of swamps. I eat live and dead animals in the water.</p> <p><u>Status:</u> Common</p>
<p><b>American Alligator</b></p>  <p><u>Hint:</u> I build my nest and lay eggs near the edge of fresh water.</p> <p><u>Status:</u> Federally – Threatened (<i>due to similarity in appearance to Federally Threatened American Crocodile</i>)</p>	<p><b>Bird-voiced Tree Frog</b></p>  <p><u>Hint:</u> I hide in buttonbush plants near water and chirp like a bird in the spring.</p> <p><u>Status:</u> Common</p>	<p><b>Two-toed Amphiuma</b></p>  <p><u>Hint:</u> I hide in muddy shallow water and catch crayfish and other animals.</p> <p><u>Status:</u> Common</p>



Lesson Eight \_\_\_\_\_ Bear Neighbors

**White Ibis**



Hint: I look for food near the bottom of cypress trees.

Status: Common

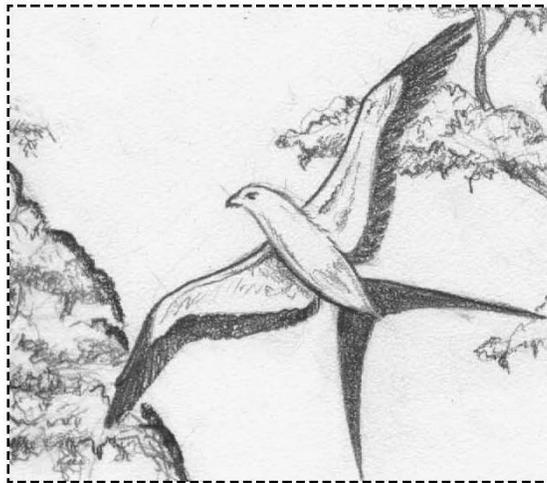
**Limpkin**



Hint: I wade in shallow water looking for snails, my favorite food.

Status: Common

**Swallow-tailed Kite**



Hint: I glide across the tops of cypress trees looking for animals to eat.

Status: Common

