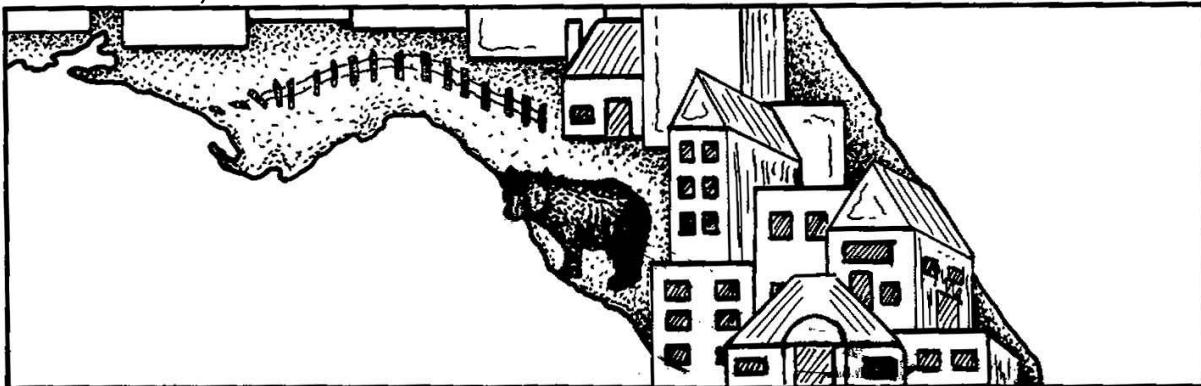


## Lesson Ten

### Oh Where, Oh Where is the Florida Black Bear?



#### Key question

Where are black bears found in Florida?

#### Conceptual frameworks topics

- VI.B.1 Human-caused limiting factors –  
Habitat loss
- VIII.A. Geographic distributions of Florida  
black bears
- VIII.B. Past and present Florida black  
bear population sizes
- IX.A. Number of bears needed to sustain  
healthy populations
- IX.C. Strategies for protecting Florida  
black bear habitat

#### Subjects

Social Studies, Language Arts, Science,  
Math

#### Time estimates

30-45 minutes per day for two days

#### Key vocabulary

Habitat fragmentation, habitat corridor,  
conservation area

#### Supplemental

- [Time 0:33-4:29 from the 15-minute video](#)
- <http://myfwc.com/conservation/special-initiatives/wildlife-2060/>

#### Objectives

As part of this activity, students will:

1. Locate and label areas of the state containing significant numbers of Florida black bears on a map.
2. Compare and contrast key characteristics of areas of black bear habitat in Florida.
3. Identify the seven major areas that support or could potentially support healthy populations of Florida black bears.
4. Describe the impact of habitat fragmentation on Florida black bear populations.
5. Explain how development and urbanization affect the distribution of Florida black bears.

#### Materials

##### Essential:

Per class:

- Display or make student copies of the [blank Florida Map](#)



## Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?

Per group of two or three students:

- One “Oh Where, Oh Where is Florida's Bear?” [Data Sheet](#)
- One “Oh Where, Oh Where is Florida's Bear?” [Map](#)
- One “Oh Where, Oh Where is Florida's Bear?” [Worksheet](#)
- One set of colored pencils

### Supplemental:

Per class:

- Current road map of Florida including major highways, city boundaries, and other developed areas

Per group of two to three students:

- Calculators

### Background

Black bears have lived in Florida for several thousand years. Before European settlement, an estimated 11,000 black bears lived in forested habitats throughout the state. During the mid-20<sup>th</sup> century, Florida lost more than seven million acres of forest and herbaceous wetlands to development. As one of the fastest developing states in the country, wildlife habitat in Florida is being converted to development every day. When a map showing the current distribution of the Florida black bear is examined, it is easy to see that Florida's black bear population is primarily located in areas where forestlands have not been converted by human development, such as agriculture and urbanization. Today, most of Florida's black bears reside in a total area covering approximately 45 percent of the species' original range. **While biologists are not able to know**

exactly how many black bears are in Florida, the population estimates used in this activity are based on the best available data. In 2016, the Florida black bear population was estimated at around 4,000 bears, and all data indicate the population is increasing annually. In addition to a reduction in the amount of habitat available for Florida black bears, another problem is that bear habitat is becoming more fragmented. The process of breaking larger areas of habitat into smaller pieces, often as a result of human activities such as road building and urbanization, is called **habitat fragmentation**. Habitat fragmentation poses a threat to the continued success of the Florida black bear for three reasons:

- Habitat fragmentation results in islands of habitat with black bear populations geographically isolated from each other. Since these isolated populations cannot easily interact with each other, bears living in an isolated habitat only breed with other individuals living in their same island of habitat. Over time, this isolated population may suffer from genetic defects due to inbreeding.
- Isolated populations of black bears are more vulnerable to local extinction due to a disturbance such as a widespread wildfire, the spread of disease, or starvation due to loss of major food sources resulting from prolonged droughts. When confined to “islands” or fragments of habitat,



## Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?

these isolated populations have difficulty getting to alternate sources of food, water, or other habitat requirements.

- Black bears living in fragmented habitats are often exposed to more risks, especially the risk of being killed on roads, as they attempt to move through a fragmented landscape in search of their basic needs.

Currently, five large tracts of land contain growing and robust black bear populations in Florida. Each of these tracts covers an area of over 500,000 acres. Although the sizes of these tracts seem impressive, it is important to note that, in many of these areas, at least half of this land is privately owned. These privately-owned lands are more vulnerable than public lands to development or conversion to more intense land uses in the future. The five large areas currently containing sizeable black bear populations are the Apalachicola Area in the Florida Panhandle, the Big Cypress Area in southwest Florida, Eglin Air Force Base Area in the western Florida Panhandle, the Ocala Area in north central Florida, and the Osceola Area in north Florida. Other important Florida black bear habitats (though they support fewer black bears) include the Big Bend Area and surrounding lands in west central Florida and a tract of land in Glades and Highlands Counties in south central Florida. To ensure the continued success of the Florida black bear, scientists

recommend protecting enough natural habitats to support at least 200 mature adult black bears in each population.

In 1986, the Florida Fish and Wildlife Conservation Commission began working on an inventory project designed to identify key tracts of remaining undeveloped lands that should be conserved in order to provide habitat for wildlife species in the state. The ultimate goal of this project was the development of a comprehensive statewide wildlife habitat system composed of core areas of prime wildlife habitat connected to each other via a series of narrower habitat corridors. **Habitat corridors** are areas of land or water that connect isolated areas of wildlife habitat with each other. For such a plan to succeed, many core areas of wildlife habitat need to be large enough to meet the needs of populations of large, wide-ranging species such as Florida black bears and Florida panthers. Tracts of land that have been prioritized for conservation are called **conservation areas**. Criteria for selecting the most ideal habitat conservation areas for Florida black bears include the following:

- They should be large enough to support a viable, genetically diverse reproducing population of Florida black bears.
- They should be within 10 kilometers (about six miles) of large tracts of publicly owned lands.
- They should have a low density of roads.



## **Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?**

- They should contain the appropriate amount and diversity of plant community types needed to meet the food, cover, breeding, and reproductive requirements of Florida black bears.

Five of the seven Florida black bear habitat areas in Florida (the Apalachicola Area, the Big Cypress Area, Eglin Air Force Base Area, Glades and Highlands Counties, and the Ocala Area) currently contain the majority of the potential bear habitat needed to support healthy bear populations in some form of conservation. Some examples of conservation lands are those owned and managed by the Federal or State government (e.g., U.S. Forest Service, U.S. Fish and Wildlife Service, Florida Department of Environmental Protection), but also include private lands whose owners have decided to place restrictions on their lands to keep them from being developed.

Of the state's total 37 million acres, a total of almost 10 million are now in some form of conservation. As habitat for Florida black bears is conserved, hundreds of other lesser-known rare, threatened, and endangered plant and animal species, like the round-tailed muskrat, crested caracara, short-tailed snake, carpenter frog, Seminole spring snail, ghost orchid, and sweet pitcher plant will also be conserved.

### **Advance preparation**

1. Prepare sufficient copies of the "Oh Where, Oh Where is Florida's Bear?" Data Sheet, Map, and Worksheet.
2. Prepare display or student copies of the blank Florida map.

### **Procedure and discussion questions**

#### **Day 1**

1. Introduce the lesson by projecting a display of the blank Florida Map or pass out copies of the blank map to students. Ask students to either come up to the display or use their own copies of the map to outline and shade in areas of the state in which they think black bears live. Have students share their perceptions regarding where Florida black bears live.
2. Next, ask students how long they think black bears have lived in Florida. Review pertinent background information and make sure students realize that for several thousand years, black bears roamed throughout the state's 37 million acres. Have students share their guesses about how much of the Florida black bear's original habitat is now developed. Explain that during this lesson students will be working in small groups to figure out exactly where Florida's remaining black bears live.



## Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?

3. Divide students into small groups of two to three and give each group one "Oh Where, Oh Where is Florida's Bear?" Data Sheet, one "Oh Where, Oh Where is Florida's Bear?" Map, and a set of colored pencils. Explain that each entry on the Data Sheet is an area of the state where black bears can still be found. **Emphasize the idea that scientists can't count each bear that may live in each area, so the bear populations listed are estimates, not a complete census.** Instruct students to review the "Description" section for each area and use these descriptions to locate each area on the "Oh Where, Oh Where is Florida's Bear?" Map. Tell students to use the appropriate colored pencil to shade each area on the map. They should then write the name of each area on the first blank next to each site and record the estimated bear population in the second blank next to each site.
4. After groups have finished locating, coloring, and labeling each bear habitat on their maps, ask students to refer to their maps to answer the following questions:
  - Are the remaining areas of black bear habitat in Florida close together or are they spread out?
  - Are most of the remaining areas of black bear habitat

in Florida close to large cities or away from large cities?

Reinforce the idea that Florida's black bear populations are spread out and are generally found in more rural, forested areas of the state away from large cities. Introduce and define the term **habitat fragmentation** and ask students how habitat fragmentation might be harmful to black bear populations. Review pertinent background information regarding the negative impact of habitat fragmentation on black bear populations.

5. Next, develop the idea that as more is developed for people, less land is available as natural habitat for Florida black bears. Make sure students grasp the concept that increased urbanization, especially along the east coast of Florida, in south Florida around Miami, and in central Florida around Orlando, has contributed to the decline and in some cases near elimination of the black bear from these areas of the state. Have groups set their completed maps aside for use during Day 2 of the lesson.

### Day 2

1. Return the completed maps to students and have them look at the relative sizes of bear habitats they colored on their maps. Ask students which areas they think are large enough to support a healthy population of black bears. Explain that biologists studying black bears have determined that a healthy population of black bears should contain at least 200



## **Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?**

individuals. Introduce and define the terms **habitat corridor** and **conservation area**. Review pertinent background information regarding the Florida Fish and Wildlife Conservation Commission's plan to develop a statewide wildlife habitat system. Then, ask students to use a pencil to draw potential habitat corridors that could connect each of the seven remaining areas of black bear habitat in the state on their maps. If available, let students refer to a current road map of Florida when deciding where to locate possible corridors.

2. To complete the lesson, distribute copies of the "Oh Where, Oh Where is Florida's Bear?" Worksheet to each group. Instruct groups to use the information on their data sheets to answer the questions on the worksheet. Circulate and assist groups as needed and distribute calculators if available.
  
3. When groups have completed their worksheets, conduct a whole-class discussion addressing the questions on the worksheet. Reinforce the idea that, five of the seven Florida black bear habitat areas in Florida (the Apalachicola Area, the Big Cypress Area, Eglin Air Force Base Area, Glades and Highlands Counties, and the Ocala Area) currently contain the majority of the potential bear

habitat needed to support healthy bear populations in some form of conservation. Make sure students realize that unless action is taken to protect more land where Florida black bears currently live, black bears could disappear in some parts of the state if the land they live in is developed. Conclude the lesson by developing the idea that, in general, the larger the area of habitat available, the larger the population of bears an area of habitat can support.

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

1. Heterogeneously group students so that each small group contains at least one good oral reader. Have the better readers read the descriptions of each habitat area aloud while other group members locate and color them in on the maps.
  
2. Have students orally answer the questions contained on the worksheet instead of completing them in writing.
  
3. Eliminate questions 6 through 10 on the worksheets.



## **Lesson Ten \_\_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?**

### **Assessment suggestions**

1. Collect completed maps and check to make sure students correctly located and labeled each area of major black bear habitats in the state.
2. Collect completed worksheets and check to make sure students were able to compare and contrast key characteristics of each area of black bear habitat.
3. Collect completed worksheets and check to make sure students correctly listed the seven black bear populations.
4. Ask students to describe, in their own words, how habitat fragmentation can be harmful to Florida black bear populations.
5. Ask students to explain, in their own words, how development and urbanization have affected the distribution of the Florida black bear.



## Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?

Oh Where, Oh Where Is Florida's Bear?

Blank Map



## **Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?**

### **Oh Where, Oh Where Is Florida's Bear?**

### **Data Sheet**

**Directions:** Read the descriptions of each black bear habitat area and use the color listed to color in each area on your group's map (areas are defined by lines and shading). For each area on the map, write the name of the area on the top blank line and write the estimated bear population in the box below the line.

#### **Apalachicola Area**

Color: Red

Description: This area is found in the Florida Panhandle near Apalachicola.

Plant Communities: This area contains sandhills, flatwoods, hardwood forests, and salt marshes.

Size: 1,200,000 acres

Estimated black bear population (in 2016): 1,060

#### **Big Cypress Area**

Color: Blue

Description: This area is found in southwest Florida near Naples.

Plant Communities: This area contains mangrove swamps, flatwoods, scrub cypress, sawgrass marshes, and hardwood forests.

Size: 1,200,000 acres

Estimated black bear population (in 2016): 1,040

#### **Big Bend Area**

Color: Purple

Description: This area is on the west coast of Florida near Brooksville.

Plant Communities: This area contains salt marsh, hardwood forests, oak scrub, and sandhills.

Size: 480,000 acres

Estimated black bear population (in 2016): 30

#### **Eglin Air Force Base Area**

Color: Brown

Description: This area is found in the Florida Panhandle just north of Fort Walton Beach.

Plant Communities: This area contains sandhills, hardwood forests, and freshwater swamps.

Size: 723,000 acres

Estimated black bear population (in 2016): 120



## **Lesson Ten — Oh Where, Oh Where is the Florida Black Bear?**

### **Glades and Highlands Counties**

Color: Yellow

Description: This area is found in south central Florida in near Lake Okeechobee.

Plant Communities: This area contains scrub, sandhills, hardwood forests, and freshwater marshes.

Size: 880,000 acres

Estimated black bear population (in 2016): 100

### **Ocala Area**

Color: Orange

Description: This area is found in north central Florida near Ocala

Plant Communities: This area contains scrub, sandhills, flatwoods, salt marshes, and hardwood forests.

Size: 1,300,000 acres

Estimated black bear population (in 2016): 1,200

### **Osceola Area**

Color: Green

Description: This area is found in northeast Florida near Jacksonville.

Plant Communities: This area contains flatwoods, freshwater swamps, and hardwood forests.

Size: 411,000 acres

Estimated black bear population (in 2016): 500



## Lesson Ten \_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?

# Map



**Use these words to label each area:**

## Apalachicola Area

# **Big Cypress Area**

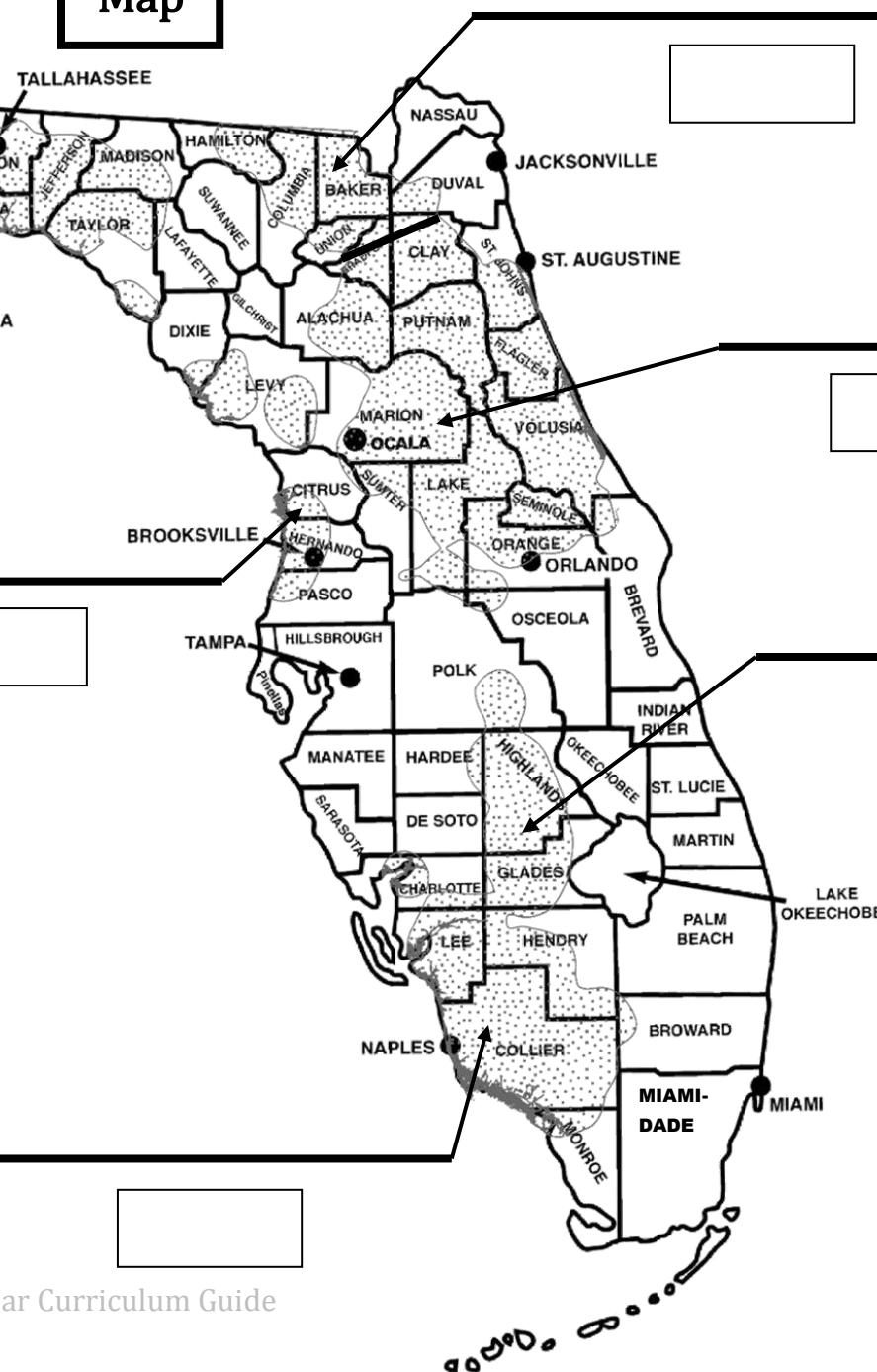
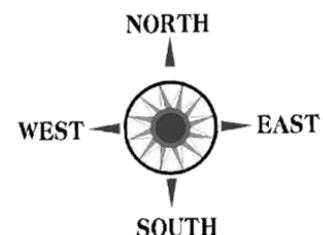
# **Big Bend Area**

## Eglin Air Force Base Area

## **Glades and Highlands Counties**

Ocala Area

Osceola Area



## **Lesson Ten \_\_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?**

### **Oh Where, Oh Where Is Florida's Bear?**

### **Worksheet**

Name\_\_\_\_\_

Name\_\_\_\_\_

Name\_\_\_\_\_

**Directions:** Use the information on your data sheet to complete this worksheet.

1. Order the seven bear habitat areas from **largest** to **smallest** area in the blanks below.

LARGEST \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SMALLEST \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Order the seven bear habitat areas from **largest** to **smallest** estimated bear population in the blanks below.

LARGEST \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SMALLEST \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## **Lesson Ten \_\_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?**

### **Oh Where, Oh Where Is Florida's Bear?**

### **Worksheet**

3. Which areas of bear habitat are at least 500,000 acres and support a sizeable Florida black bear population?

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4. What is the estimated **total** population of Florida black bears in the seven areas of major bear habitat?

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5. What is the relationship between the size of an area of habitat and the number of black bears living in the area of habitat?

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6. Which bear habitat areas contain scrub plant communities?

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7. Which bear habitat areas contain hardwood forests?

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8. Which plant communities do bears living in the Big Cypress Area only use?

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9. Which bear habitat is closest to your hometown?

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10. List any five Florida counties that do not have any black bears living in them.

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**Lesson Ten \_\_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?**

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Lesson Ten \_\_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?

Eglin Air Force Base Area

Map Answer Key

Osceola Area

120



Apalachicola Area

1,060



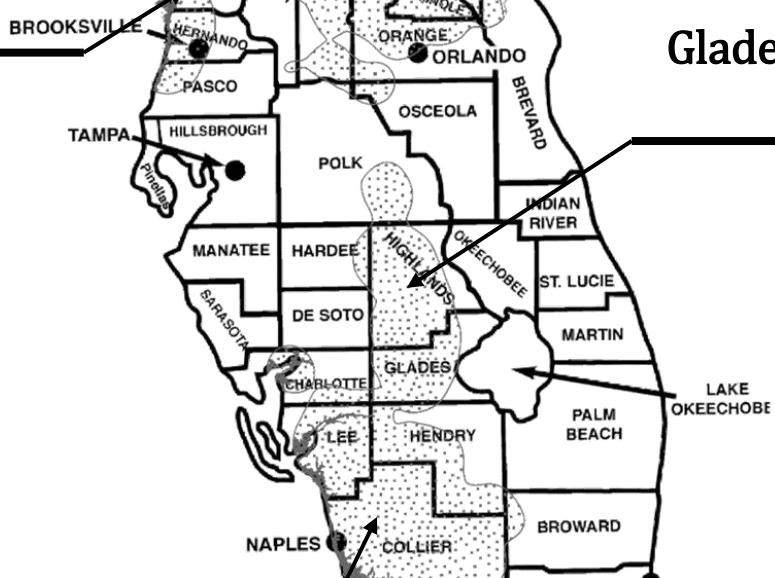
500

Ocala Area

1,200

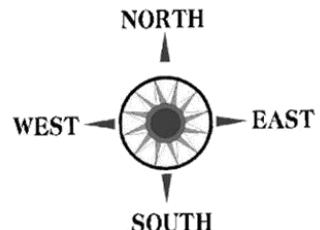
Big Bend Area

30



Use these words to label each area:

- Apalachicola Area
- Big Cypress Area
- Big Bend Area
- Eglin Air Force Base Area
- Glades and Highlands Counties
- Ocala Area
- Osceola Area



Big Cypress Area

1,040

## Lesson Ten \_\_\_\_\_ Oh Where, Oh Where is the Florida Black Bear?

### Oh Where, Oh Where Is Florida's Bear?

### Worksheet Answer Key

**Directions:** Use the information on your Data Sheet to complete this worksheet.

1. Order the seven bear habitat areas from **largest** to **smallest** area in the blanks below.

<b>Largest</b>	Ocala Area Apalachicola Area Big Cypress Area Glades and Highlands Counties Eglin Air Force Base Area Big Bend Area
<b>Smallest</b>	Osceola Area

2. Order the seven bear habitat areas from **largest** to **smallest** estimated bear population in the blanks below.

<b>Largest</b>	Ocala Area Apalachicola Area Big Cypress Area Osceola Area Eglin Air Force Base Area Glades and Highlands Counties
<b>Smallest</b>	Big Bend Area

3. Which areas of bear habitat are at least 500,000 acres and support a sizeable Florida black bear population? (**Apalachicola Area, Big Cypress Area, Eglin Air Force Base Area, Glades and Highlands Counties, Osceola Area, Ocala Area**)

4. What is the estimated **total** population of Florida black bears in the seven areas of major bear habitat? (**4,050**)

5. What is the relationship between the size of an area of habitat and the number of black bears living in the area of habitat? (**Generally, larger areas of habitat contain larger populations of bears.**)

6. Which bear habitat areas contain scrub plant communities? (**Big Cypress Area, Big Bend Area, Glades and Highlands Counties, and Ocala Area**)

7. Which bear habitat areas contain hardwood forests? (**All seven major bear habitat areas contain hardwood forests.**)

8. Which plant communities are only used by bears living in the Big Cypress Area? (**Mangrove swamps, scrub cypress, and sawgrass marshes**)

9. Which bear habitat is closest to your hometown? (**Answers will vary.**)

10. List any five Florida counties that do not have any black bears living in them. (**Answers will vary.**)

