

Teacher's Guide

Interactive Green Swamp Watershed Excursion

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

View excursions at: WaterMatters.org/Education/Teacher-Resources

Lesson Time: One block or class period (approximately 50 minutes)

Grades: 9–12

Objective: Using context clues and relevant facts in the excursion, students will build an understanding of the importance of wetlands, the characteristics of local wetlands and how human actions affect the environmental quality of valuable habitats.

Next Generation Sunshine State Standards:

- SC.912.L.17.1:** Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.
- SC.912.L.17.7:** Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.
- SC.912.L.17.8:** Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, nonnative species.
- SC.912.L.17.10:** Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.
- SC.912.L.17.12:** Discuss the political, social, and environmental consequences of sustainable use of land.
- SC.912.L.17.16:** Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.
- SC.912.L.17.18:** Describe how human population size and resource use relate to environmental quality.
- SC.912.L.17.20:** Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

Common Core State Standards:

- | | | |
|--------------|----------------------------|-------------------------|
| Grades 9–10 | LACC.910.WHST.1.1e | Text Types and Purposes |
| | LACC.910.RST.1.1 | Key Ideas and Details |
| | LACC.910.RST.1.2 | Key Ideas and Details |
| | LACC.910.RST.2.4 | Craft and Structure |
| Grades 11–12 | LACC.1112.WHST.1.1e | Text Types and Purposes |
| | LACC.1112.RST.1.2 | Key Ideas and Details |
| | LACC.1112.RST.2.4 | Craft and Structure |
| | LACC.1112.RST.2.6 | Craft and Structure |

Lesson Plan and Activities

Vocabulary:	ecosystem:	a community of plants and animals and their physical environment
	wetland:	an area that supports plants adapted to wet soil and often adapted to changes in water level
	swamp:	a wetland often covered with water and trees
	marsh:	a wetland usually characterized by grasses and similar plants
	recharge zone:	an area where water seeps into the ground and refills the aquifer
	invasive species:	nonnative plants and animals that spread on their own and outcompete native species, causing environmental harm
	prescribed burns:	controlled fires set by land managers to mimic natural processes

Engage: (15 minutes) Students will take the pretest provided prior to beginning the lesson. Review the vocabulary terms and ask aloud the following questions to activate prior knowledge:

- Describe what a wetland looks like? What do you think the water quality is like in a wetland?
- What are some invasive species you know of? How can they be controlled?
- What are some ways that environmentally important lands can be protected? How can endangered plants and animals be protected?

Explore/Explain: (20–25 minutes) Pass out the student worksheet and ask students to go to WaterMatters.org/Education/Teacher-Resources and click on the Green Swamp. Instruct students to read the Introduction page and explore each category at the top of the page while completing the student worksheet.

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Lesson Plan and Activities *continued from page 2*

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Extend: (10 minutes) Bring the class together after 20–25 minutes to discuss the “Reflecting” questions on the student worksheet. If time allows, consider using “Think-Pair-Share” and pair students with one another to share their answers. Then ask each pair to share one of their answers with the class.

Evaluate: (5 minutes) Students will take the posttest (same as pretest) after viewing the excursion and completing the worksheet and lesson.

- Additional links:**
- Visit WaterMatters.org/Education/Teacher-Resources to view all six virtual watershed excursions and the coordinating teacher’s guides. At this site, you can also view the Florida Watersheds video (11 minutes) and download the coordinating middle or high school teacher’s guides.
 - Take the Watershed Pledge with your class at WaterMatters.org/Education/Teacher-Resources.

Teacher Answer Key

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Pre-/posttest Answer Key

1. c.
2. c.
3. a.
4. b.
5. c.

Student Worksheet Answer Key

- (1) Green Swamp
- (2) sandhills
- (3) water supply
- (4) water resources
- (5) floodwaters
- (6) recharge
- (7) the Green Swamp is underdeveloped and has a lengthy surface water detention time
- (8) 6000 BC
- (9) cypress-frame/palmetto-thatch chickees
- (10) turpentine
- (11) Hurricane Donna
- (12) natural systems
- (13) 10 million acres of swamps and marshes were drained
- (14) Tampa and Orlando
- (15) fish and wildlife
- (16) Florida Forever Act
- (17) flood and fire
- (18) threatened or endangered
- (19) lands and waterways
- (20) water resources and lands
- (21) invasion of native plant communities by invasive plants
- (22) lightning
- (23) prescribed burns
- (24) Withlocoochee River
- (25) Peace River

Pre- and Posttest

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- 1) The Green Swamp has 870 square miles of all of the following types of land except:
 - a. Marshes
 - b. Flatwoods
 - c. Coastal swamps

- 2) Which of the following is a reason water levels remain high in the Green Swamp?
 - a. High elevation
 - b. Shallow depth to the aquifer
 - c. Both a. and b. are correct

- 3) Which of the following statements about the Green Swamp is true?
 - a. The Green Swamp can store a lot of surface water.
 - b. The Fish and Wildlife Conservation Commission is the lead agency responsible for the Green Swamp.
 - c. There was no human activity in the Green Swamp until 1900s.

- 4) The Green Swamp has good water quality because
 - a. There is plenty of sunlight and there are plenty of nutrients in the water
 - b. The land is underdeveloped and has lengthy water detention times
 - c. There are increased fish and wildlife populations

- 5) What strategy is used to manage land in the Green Swamp?
 - a. Prescribed fires
 - b. Preservation and restoration projects
 - c. Both a. and b. are correct

Student Worksheet

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Go to the Interactive Green Swamp Watershed Excursion at: WaterMatters.org/Education/Teacher-Resources

Directions: Read the excursion’s Introduction page and each of the categories along the bottom. Be sure to read each of the corresponding tabs for each of the categories across the top. Fill in the blanks on this worksheet and complete the tour.

Introduction

The (1)_____ is in 560,000 acres of Florida backcountry. It is a natural system composed of cypress swamps, hardwood forests, marshes, pine flatwoods and (2)_____. Four rivers begin in the Green Swamp and provide much of Florida’s (3)_____. The Southwest Florida Water Management District bought a portion of the land to keep the land and (4)_____ protected.

Significance

The Green Swamp is able to store surface water and slow the flow of (5)_____. A high elevation, shallow depth to the aquifer and high water table, provide (6)_____ to the area.

Why does the Green Swamp have a higher water quality than other watersheds?

(7)_____.

History

The Green Swamp has evidence found by archaeologists dating back to (8)_____.

Place your cursor on the timeline of the Green Swamp to scroll through the history. What did some Seminoles use for camps and homes in the 1800s?

(9)_____.

In the 1920s, (10)_____ was a major industry in Florida.

What led to the development of the Southwest Florida Water Management District (11)_____. The District is responsible for management of water supply and water quality, protection of (12)_____ and flood protection.

Student Worksheet

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What happened when Floridians saw wetlands as worthless (13)_____.

The demand for the Green Swamp's natural resources remains because what two cities continue to grow near the Green Swamp? (14)_____.

In 1990, the Florida Legislature passed the Florida Preservation Act, which preserves (15)_____ and _____ habitats. The (16)_____ was passed to focus on water resources development, restoration and recreation.

Natural Communities

(17)_____ and _____ help create a mosaic of natural communities such as wetlands, flatlands and uplands.

The natural communities support populations of an estimated 330 species of wildlife including 30 species that are (18)_____ or _____.

Preservation: To preserve the Green Swamp, the District and other agencies are restoring (19)_____ and _____ that have been negatively impacted by past uses.

Management

The management of the Green Swamp involves many agencies. The Southwest Florida Water Management District is the lead agency responsible for making available for public use the (20)_____ and _____ of the Green Swamp.

Invasive Species: What is one of the most dangerous threats to Florida's environment? (21)_____.

Prescribed Burns: Fire, a naturally occurring event in Florida habitats, is usually ignited by (22)_____. Fire recycles nutrients and encourages new plant growth. Controlled fires, called (23)_____, are used to maintain plant and animal diversity.

Student Worksheet

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Four Rivers Emerge

Which river emerging from the Green Swamp is the longest? (24) _____ . Which one has the largest drainage area, also referred to as the watershed? (25) _____ .