

## Teacher Guide – FWC and Invasive Plant Management Vocabulary Activity



**INTRODUCTION:** Students research new vocabulary words, then engage with their classmates on an interactive and fun activity to share what they have learned. They then read a passage about the Florida Wildlife Commission (FWC) and learn about what they do to help control invasive plants.

**ESSENTIAL QUESTIONS:** Who or what is the FWC? What do they have to do with invasive plants?

**SUBJECTS:** Biology, ecology, invasive plant management

**GRADE LEVEL:** Upper elementary (UE) to middle school (MS)

**TIME ESTIMATES:** 45-60 minutes

**VOCABULARY:** (see definitions below) Invasive plant, economy, FWC, upland plant, aquatic plant

**LESSON SUMMARY:** Students will be divided into five groups and asked to research the meaning of key vocabulary words. The class then regroups and reads a passage about the FWC's Invasive Plant Management program and discusses the essential questions.

### LEARNING OBJECTIVES:

- Define "invasive plant"
- Explain what the FWC is and what they are responsible for (in the context of invasive plants)

### MATERIALS:

1. Reading passage on the FWC Invasive Plant Management Section (1 copy per student)
2. Five large pieces of paper and five different colored markers.
3. Research tools such as access to the internet, books on plant biology, or a dictionary.

### ADVANCE PREPARATION:

1. Prior the activity, students should watch the "Silent Invaders" video from Module 1:  
<http://plants.ifas.ufl.edu/education/curriculum/module-1-silent-invaders/>
2. Put in large writing the words *invasive plant*, *economy*, *FWC*, *upland plant*, *aquatic plant* onto large paper that can be passed around to different groups of students. (Note: words can be changed to suit the students' level of understanding)

### PROCEDURE:

1. Divide the group of students into 5 cooperative groups and place one sheet of the headed paper at each group's station. Each group should nominate one student as note taker. The other students will be the researchers.
2. To begin, each group is given a different color marker or pen.
3. Each groups has 5 minutes to research the word on their paper using knowledge they already



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- have, encyclopedias, dictionaries and computers.
4. They then have 1-2 minutes to write a definition of the word or a list of facts associated with it based on their research.
  5. After they have written their definition, have the students carousel around the room to the next station (make sure they bring their group's colored marker). Repeat this until each group has visited all 5 stations and written a definition for all 5 words.
  6. After all groups are finished, hang the papers around the room and allow the students to do a gallery walk to read what they have written.
    - As an alternative to the gallery-walk, students could participate in a numbered-heads assigned discussion. The instructor can assign all students a number from 1-5, with each number corresponding one of 5 vocab words (e.g., 1=hydrilla, 2=recreation, etc.). Students could then break up into groups of their assigned number to meet and discuss their vocab word together, and if time allows, teach their vocab word to the class. Allow 10 minutes for this activity.
  - 7.
  8. Re-group and read the provided reading passage. Have students mark the vocabulary words as they see them, and also any new words they are not sure about.
  9. Optional: Give students 10 minutes to research new words and have them draw something that will help them to remember the definition. (For example, eradication- draw a picture of a person pulling weeds, or even something like zombies being wiped out. It needs to be meaningful to the student.) Reread the article to the students and have them follow along. Discuss and ask: "Who or what is the FWC and how do they help with invasive aquatic plants?"
  10. (Optional) Students can be asked to provide an "exit slip" for each to hand in at dismissal. Students should be asked to write down on a piece of paper what they liked/disliked about the activity, and/or something they learned. (e.g., "Tell me the most important thing you learned in this lesson and what you would change to make the lesson better.")

**ASSESSMENT:** Ask students to provide a written summary of the text and include answers to the essential questions.

### VOCABULARY DEFINITIONS:

**Invasive** - plants that are non-native to a particular ecosystem and which cause or are likely to cause economic or environmental harm there. Invasive plants are usually very adaptable to new habitats, grow aggressively, and reproduce easily and quickly. Where non-native, invasives exist without the natural environmental controls such as seasonal weather, diseases, or predators that kept them under control in their native range(s).

**Economy** - the natural, social, monetary, or marketplace resources of a country or region, especially in terms of the production and consumption of goods and/or services.

**FWC** – Florida Fish and Wildlife Conservation Commission.

**Upland Plant** – A plant that grows in an area not usually inundated by water.



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# Module 3 ~ Why Manage? (UE/MS)

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**Aquatic Plant** – A plant that grows or spends much of its life cycle in the water. Aquatic plants can be either submersed (totally underwater), floating-leaved (floating on the surface), or emergent (partially or seasonally in/out of water).

#### BACKGROUND INFORMATION:

Invasive plants degrade and diminish Florida's conservation lands and waterways. Some invasive aquatic plants pose a significant threat to human welfare by impeding flood control and affecting recreational use of waterways and its associated surrounding economy. The Invasive Plant Management Section (IPMS) is the lead agency in Florida responsible for coordinating and funding two statewide programs controlling invasive aquatic and upland plants on public conservation lands and waterways throughout the state. The IPMS also ensures that beneficial native aquatic plants in Florida's ponds, lakes, and rivers are protected through its permitting programs, and by funding research to find more cost-effective management techniques.

Florida's aquatic plant management program is one of the oldest invasive species removal programs in the U.S., with its beginnings dating back to the late 1800s. South American floating water hyacinths were introduced into the St. Johns River near Palatka in the late 1880s and soon after made navigation on the river for steamboat traffic almost impossible. Later, a 1950s plant invader, hydrilla (a native of Southeast Asia), began to infest and degrade Florida's lakes and rivers through its dense production of plant canopies at the surface of waterbodies. Beginning in the 1960s, the Australian melaleuca tree and the South American Brazilian pepper tree began to rapidly spread into and on south Florida's conservation lands. These nonnative invasive plants, along with others, now impact approximately 1.5 million acres of Florida. With the addition of the upland program, the IPMS oversees the largest invasive plant management program of its kind in the United States.

Source: <http://myfwc.com/wildlifehabitats/invasive-plants/>

#### LIST OF STANDARDS:

The following is a list of suggested standards that pertain to this activity. This list is provided as a reference to incorporate and expand upon as needed.

#### Next Generation Sunshine State Standards

##### 2<sup>nd</sup> Grade

SC.2.L.17: Interdependence. (A. Plants and animals, including humans, interact with and depend on each other and their environment to satisfy their basic needs. B. Both human activities and natural events can have major impacts on the environment. C. Energy flows from the sun through producers to consumers.)



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**3<sup>rd</sup> Grade**

SC.3.L.17: Interdependence. (A. Plants and animals, including humans, interact with and depend on each other and their environment to satisfy their basic needs. B. Both human activities and natural events can have major impacts on the environment. C. Energy flows from the sun through producers to consumers.)

**4<sup>th</sup> Grade**

SC.L.17.4: Recognize ways plants and animals, including humans, can impact the environment.

**5<sup>th</sup> Grade**

SC.5.L.14.2 Compare and contrast the function of organs and other physical structures of plants.

SC.5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

**7<sup>th</sup> Grade**

SC.7.L.17.3: Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.

**Common Core State Standards**

**3<sup>rd</sup> Grade**

Common Core	FL Standards	Common Core Standard
CCSS.ELA-LITERACY.L.3.4	LAFS.3.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-LITERACY.RI.3.1	LAFS.3.RI.1.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

**4<sup>th</sup> Grade**

CCSS.ELA-LITERACY.RI.4.1	LAFS.4.RI.1.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
CCSS.ELA-LITERACY.RI.4.4	LAFS.4.RI.2.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a <i>grade 4 topic or subject area</i> .
CCSS.ELA-LITERACY.L.4.4	LAFS.4.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.

**5<sup>th</sup> Grade**

CCSS.ELA-LITERACY.RI.5.1	LAFS.5.RI.1.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
CCSS.ELA-LITERACY.RI.5.4	LAFS.5.RI.2.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a <i>grade 5 topic or subject area</i> .
CCSS.ELA-LITERACY.SL.5.1	LAFS.5.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i> , building on others' ideas and expressing their own clearly.



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**6<sup>th</sup> Grade**

CCSS.ELA-LITERACY.RI.6.1	LAFS.6.RI.1.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RI.6.4	LAFS.6.RI.2.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
CCSS.ELA-LITERACY.L.6.4	LAFS.6.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-LITERACY.RST.6-8.4	LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and the topics.

**7<sup>th</sup> Grade**

CCSS.ELA-Literacy.RI.7.1	LAFS.7.RI.1.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text
CCSS.ELA-Literacy.RI.7.4	LAFS.7.RI.2.4	Determine the meaning of words and phrases as they were used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
CCSS.ELA-Literacy.L.7.4	LAFS.7.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-Literacy.RST.6-8.4	LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

**8<sup>th</sup> Grade**

CCSS.ELA-Literacy.RI.8.1	LAFS.8.RI.1.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-Literacy.RI.8.4	LAFS.8.RI.2.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
CCSS.ELA-Literacy.SL.8.1	LAFS.8.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
CCSS.ELA-Literacy.L.8.4	LAFS.8.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-Literacy.L.8.6	LAFS.8.L.3.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary



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		knowledge when considering a word or phrase important to comprehension or expression.
CCSS.ELA-Literacy.RST.6-8.4	LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
CCSS.ELA-Literacy.WHST.6-8.9	LAFS.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.



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