



## Module 3 ~ Why Manage Invasive Plants? (UE)

# Seek and Destroy – Invasive Plant Lab Activity

### Essential Questions:

1. How can I identify plants?
2. Where can I find information about invasive plants?
3. How can I tell if a plant is invasive?
4. How do I properly dispose of invasive plants?

**Subject:** Botany, Life Science, Language Arts

**Grade Level:** 4-5 Grade

**Concepts:** See suggested state standards at the end of this document.  
Cooperation, identifying resources, invasive plants, plant identification, research, scientific text, working in groups

**Time Estimate:** One 45 minute session

**Learning Styles:** Visual, auditory, and kinesthetic

**Vocabulary:** See definitions on page 6

Botanical terminology -- invasive species, leaf arrangement, leaf shape, leaf tip, leaf, leaflet, margin, native plant, natural areas, node, non-native plant, petal, pistil, plant, plant, root, stamen, stem, stigma, stolon, style, tuber [Note: A more complete list of botanical terms and their definitions can be found in the *Botany Handbook of Florida*.]

**Lesson Summary:** This hands-on lab brings students full circle from initially learning about invasive plants (in *Silent Invaders* presentation) and role playing as an ecosystem inhabitant in *Lakeville*. This final step provides students an opportunity to do something tangible: identify and remove invasive species. This is accomplished in one 45-minute session of identifying marked invasive plants and removing the invasive plants. Students remove and properly dispose of invasive plant material using Best Management Practices. Contact your local CISMA group for potential volunteers <http://www.floridainvasives.org/cismas.html>

### Recommended Pre-Lab Activities for Students:

**Watch:** *Silent Invaders*, review vocabulary and answer Guiding Questions, available on our website: <http://plants.ifas.ufl.edu/education>

**Play:** *Lakeville – A Natural Resource Management Game*  
Contact: [caip-education@ufl.edu](mailto:caip-education@ufl.edu)

### Student learning objectives:

1. Students will name the main plant parts that botanists use to describe and identify plants.
2. Students will identify three to six invasive plants from the local area by observing the plant parts and matching their observations with botanical information and photographs.
3. Students will properly remove and dispose of invasive plants.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>  
A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants  
and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

## Module 3 ~ Why Manage Invasive Plants? (UE) Seek and Destroy – Invasive Plant Lab Activity



### Materials — Essential

Unless otherwise noted, all materials and resources are available from our website

<http://plants.ifas.ufl.edu/education> or upon request. Allow one month for delivery: [caip-education@ufl.edu](mailto:caip-education@ufl.edu)

- Plant ID Flashcards: “*Invasive and Non-native Plants You Should Know*” -- Available to download complete set or individual cards (One set per 3-4 students)
- 1 roll of Invasive plant flagging tape
- Magnifying glasses (1 for each student)
- Pencils (1 for each group)
- Plastic tub or box for carrying supplies (1 for each group)
- Garden gloves for holding plants
- 3 mm plastic bags
- Resource Materials to have on-hand
  - Illustrated Glossary of Plant Structures*
  - Botany Handbook for Florida*



### Advance Preparation (Teacher):

- Review background information on page 4.
- Review -- *Invasive and Non-Native Plants You Should Know* (flash cards)
- Review -- *Botany Handbook for Florida* (optional – for a refresher on botanical terminology, etc.)
- Cut invasive plant flagging tape into 3-foot sections with the words clearly visible on each section
- Survey school campus for plants and identify and/or decide which plants you will feature for this activity (recommended 3-6 different species). Prepare, print or gather flashcards to be used during the field activity. To confirm plant identification, send photos to (CAIP) UF-IFAS Center for Aquatic and Invasive Plants [caip-education@ufl.edu](mailto:caip-education@ufl.edu)
  - Mark each invasive species with orange Invasive Plant flagging tape.
  - Create an answer key by assigning each species a number (ie: #1 = air potato) and write the number with a black sharpie on the end of the flagging tape. Keep track of which number you assign the plants; it will also be used for the scavenger hunt and is your answer key.
  - Put a sign that says STATION #1 next to the plant or group of plants marked #1 on the orange tape. Each group will take turns going to the stations to discuss and figure out what each plant is. Note: you may want to have multiples of each species marked at each station with orange flagging tape. That way the students can work in small groups and not crowd around one plant.
- Assemble all materials for the lab into tubs or buckets for each team of 3-4 students.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>  
A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants  
and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

## Module 3 ~ Why Manage Invasive Plants? (UE)

# Seek and Destroy – Invasive Plant Lab Activity



### PROCEDURE WITH TIME ESTIMATES

#### DISCUSSION QUESTIONS (prior to field activities)

1. Why is it important to know what plants are in your ecosystem?
2. How can I identify the plants?
3. What resources can I use to identify the plants?)

#### Before heading outdoors (Teacher): (15 min)

- 1) Organize students into groups (of 3-4 individuals).
- 2) Discuss activity (using questions above).
- 3) Distribute pre-assembled sets of flashcards (of pre-determined plants) to each group.
- 4) Review the information on the flashcards so students know what to look for in the field. Explain that information on the back is written for scientists with technical plant terminology. Discuss briefly and read through a few samples. (*Note: Most students will identify the plant based on the photograph.*)
- 5) Teacher assigns roles for outdoor activity or let students choose:
  - 1 Recorder (records information on Invasive Plant Scavenger Hunt sheet, page 7)
  - 1 Reader (reads the information from the recognition cards)
  - 1-2 Plant Scouts (observe the plant and make sure that the features match the reader's description.
- 6) Distribute field materials, discuss outdoor procedure and assign sections of the school yard to groups.

#### Outdoor Procedure: (30 minutes)

- 1) Start tour with entire class; demonstrate with first plant; model each role/task for students.
- 2) Once a plant has been positively identified from the Recognition Card Deck Write the information on the Invasive Plant Scavenger Hunt Sheet (page 7)
- 3) When everyone agrees that the plant is on the invasive list remove the orange invasive plant flagging tape (save it for future use)
- 4) Students will then pull the invasive plant out of the ground making sure there are no tubers, runners or seeds left behind
- 5) Students then place all invasive plant parts in a 3 mm thick plastic bag, seal and dispose of in household garbage. For specific instructions read the Invasive Plant Disposal Guide handout available on our website <http://plants.ifas.ufl.edu/education/>



## Module 3 ~ Why Manage Invasive Plants? (UE)

# Seek and Destroy – Invasive Plant Lab Activity



### Background Information

- *Silent Invaders* Audio-Visual Presentation
- *Teaching Points* -- About non-native invasive plants, and native plants, especially in Florida
- Research invasive species in your area – See regional map: <http://plants.ifas.ufl.edu/education>
- Plant Management in Florida Waters <http://plants.ifas.ufl.edu/manage/>

### Assessment Suggestions

- 1) Revisit tagged plant locations verify plants were properly identified.
- 2) Students research one of the plants they helped identify (at school or home) using at least 3 different websites (documented with a URL) and include any additional information that they may have learned about their plant. For example, how it reproduces and identifying characteristics.
- 3) Students write a narrative (a news story) explaining how an invasive plant was able to “escape” and reproduce from a compost pile, after being put there from yard waste. The narrative should include information about how the plant reproduces and also identifying characteristics.
- 4) Students create a short PSA for their school’s morning announcements explaining why the orange invasive plant flagging tape was used and also Best Management Practices for disposal.

### Extensions

- 1) Make a poster using facts students learned and photographs of the invasive plants (taken by students or downloaded from websites).
- 2) Offer Invasive Plant Walking Tours to parents after school or at “Restoration Day” prior to plant removal.
- 3) Create an Invasive Plant Walking Tour Guidebook – Put following items in a 3-ring binder:
  - school campus map where plant locations are marked
  - downloaded flashcards of campus plants
  - *Illustrated Glossary of Plant Structures*
  - *Botany Handbook for Florida*
  - Weed Alerts for campus weeds: <http://plants.ifas.ufl.edu/manage/research-and-outreach/publications/fwc-weed-alerts>
- 4) Host a Natural Area Restoration Day: Students and families come together to remove and properly dispose of invasive plants, using invasive plant flash cards.
- 5) Involve students in a “Word Parts” Language Arts activity: See introduction page from *Botany Handbook for Florida*. Students look up each scientific name for the plant and identify the Latin root words.
- 6) While invasive plants are still marked with the numbered orange flagging tape have students walk other classes or their parents through the path of plants ask fellow students and/or parents to identify each plant, using the flash cards/ recognition cards as a reference and the Scavenger Hunt sheet.
- 7) Students generate satellite image map of the school from Google Earth and identify other Florida landmarks (Cape Canaveral, Everglades and Watersheds). A simple connection “exercise” would be to locate country, then state, then county, then the neighborhood school. <http://www.google.com/earth/index.html>



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>  
A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants  
and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section



## Module 3 ~ Why Manage Invasive Plants? (UE) Seek and Destroy – Invasive Plant Lab Activity

### Resources – References:

- Botany Handbook for Florida (by Suzanne McCullough and Kathleen C. Ruppert)
- Cooperative Invasive Species Management Areas (CISMAs) -- <http://www.floridainvasives.org/cismas.html>
- Florida Exotic Pest Plant County (FLEPPC) -- <http://www.fleppc.org/list/list.htm>  
Publishes a list of invasive plant species in Florida (updated every 2 years)
- Handling and Disposal of Non-Native Aquatic Species and Their Packaging* – Sea Grant / Washington
- Invasive Plant Disposal Guide* – University of Connecticut
- Master Gardeners <http://gardeningsolutions.ifas.ufl.edu/mastergardener/>
- Native Plant Society – <http://www.fnps.org/>
- Plant Management in Florida Waters -- <http://plants.ifas.ufl.edu/manage>
- U.S. Geological Survey (USGS) -- <http://ecosystems.usgs.gov/invasive/>
- UF/IFAS Cooperative Extension -- [www.extension.org/invasive\\_species](http://www.extension.org/invasive_species)
- UF/IFAS Extension publications -- <http://edis.ifas.ufl.edu>
- USDA Plants Database -- <http://www.invasivespeciesinfo.gov/plants/main.shtml>
- Weed Alerts -- <http://plants.ifas.ufl.edu/manage/research-and-outreach/publications/fwc-weed-alerts>



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>  
A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants  
and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section



## Module 3 ~ Why Manage Invasive Plants? (UE)

### Seek and Destroy – Invasive Plant Lab Activity

- 1) **leaf** – n. part of a plant; an outgrowth from the stem, usually flat in structure and green in color. The part of the plant where most of the transpiration and photosynthesis processes occur.
- 2) **leaflet** – n. individual blades found in a compound leaf.
- 3) **leaf shape** – any of the various shapes that the blades (leaves) of plants can assume.
- 4) **leaf tip** – the point on a leaf furthest from the stem.
- 5) **margin** – n. boundary line; the edge (ex. of a leaf).
- 6) **native plant** – a plant species that occurs naturally within a geographic region or area. In Florida, the phrase “native plant” refers to those species that were here prior to European contact (also referred to as an indigenous plant). It has not been introduced by humans, intentionally or unintentionally.
- 7) **natural areas** – lands that have not been developed for agriculture, business, or housing; they are preserved due to unique scenic, historic, geologic or ecological value.
- 8) **non-native plant** – a plant species that is present in a region outside its original, historic range due to intentional or unintentional introduction; not necessarily invasive. Also referred to as non-indigenous or exotic. The introduction of the plant to a new area is often the result of human activity.
- 9) **petal** – n. the colored parts of the corolla (most of the time), usually arranged in a circle; most visible part of the flower.
- 10) **pistil** – n. the female reproductive organ of a flower; may be comprised of a single carpel (consisting of stigma, style and ovary) or two or more carpels united.
- 11) **plant** – n. a major group of living beings that typically lack locomotive movement or obvious sensory organs, and are generally capable of making their own food. This group includes at least 300,000 species including aquatic macrophytes, some planktonic algae, ferns, flowers, grasses, herbs, trees, etc.
- 12) **root** – n. the part of a plant, usually below ground, that holds the plant in position, draws water and nutrients from the soil, stores food, and is typically non-green, without buds or leaves.
- 13) **stamen** – n. the male reproductive organ of a flower; situated within the petals and in most cases is composed of the filament and the anther, that produces pollen.
- 14) **stem** – n. the main axis of a plant, typically above the soil surface; generally supports the leaves. See illustration.
- 15) **stigma** – n. the upper tip or part of the pistil of a flower receiving the pollen. It is generally situated at the upper extremity of the style.
- 16) **stolon** – n. a slender modified stem growing along the ground, rooting at the nodes and developing a new plant; horizontally growing stem. Example: strawberry.
- 17) **style** – n. slender upper part of the pistil, supporting the stigma of a flower.
- 18) **terrestrial (plant)** – adj. a plant that is living or grown on land; not aquatic.
- 19) **tuber** – n. the short, thickened, fleshy, food-storing portion of an underground stem with many surface buds; shaped like a tiny potato.
- 20) **weed** – n. any plant that crowds out a cultivated and desired plant.



Module 3 ~ Why Manage Invasive Plants? (UE)  
**Seek and Destroy – Invasive Plant Lab Activity**



## Invasive Plant Scavenger Hunt

Names: \_\_\_\_\_

Station #1= Plant #1

The common name for this plant is \_\_\_\_\_.

The scientific name for this plant is \_\_\_\_\_.

Station#2=Plant#2

The common name for this plant is \_\_\_\_\_.

The scientific name for this plant is \_\_\_\_\_.

Station#3=Plant #3

The common name for this plant is \_\_\_\_\_.

The scientific name for this plant is \_\_\_\_\_.

Station#4=Plant #4

The common name for this plant is \_\_\_\_\_.

The scientific name for this plant is \_\_\_\_\_.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>  
A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants  
and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

# Module 3 ~ Why Manage Invasive Plants? (UE)

## Seek and Destroy – Invasive Plant Lab Activity



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.

### New Generation Sunshine State Standards

#### 4<sup>th</sup> Grade

**SC.4.E.6.6:** Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).  
**SC.4.L.17.4:** Recognize ways plants and animals, including humans, can impact the environment.

### Common Core State Standards

#### 4<sup>th</sup> Grade

Common Core Code	FL Common Core Code	Common Core Standard
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 grade 4 topic or subject area.
RI.4.6	LAFS.4.RI.2.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.
RI.4.7	LAFS.4.RI.3.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
RF.4.4	LAFS.4.RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
RF.4.4a	LAFS.4.RF.4.4a	Read grade-level text with purpose and understanding.
RF.4.4c	LAFS.4.RF.4.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
SL.4.1c	LAFS.4.SL.1.1c	Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
L.4.3a	LAFS.4.L.2.3a	Choose words and phrases to convey ideas precisely.
L.4.4a	LAFS.4.L.3.4a	Use context (e.g., definitions, examples, or restatements in text) as a clue to meaning of a word or phrase.

#### 5<sup>th</sup> Grade

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 grade 5 topic or subject area.
RI.5.7	LAFS.5.RI.3.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
RF.5.4	LAFS.5.RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
RF.5.4a	LAFS.5.RF.4.4a	Read grade-level text with purpose and understanding.
RF.5.4c	LAFS.5.RF.4.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
W.5.3d	LAFS.5.W.1.3d	Use concrete words and phrases and sensory details to convey experiences and events precisely.
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 grade 5 topics and texts, building on others' ideas and expressing their own clearly.
SL.5.1c	LAFS.5.SL.1.1c	Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
L.5.4a	LAFS.5.L.3.4a	Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>  
 A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants  
 and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section