



## Human Impact/Invasive Species

High School Environmental Science | AP Module 3 | Lake Lotus Park

### NGSSS Big Idea: Standard 17—Interdependence

- A. The distribution and abundance of organisms is determined by the interactions between organisms, and between organisms and the non-living environment.
- B. Energy and nutrients move within and between biotic and abiotic components of ecosystems via physical, chemical and biological processes.
- C. Human activities and natural events can have profound effects on populations, biodiversity and ecosystem processes.

### Benchmark Code & Description:

**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, non-native species.

**SC.912.L.17.20**—Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.



## LEARNING GOAL/OBJECTIVE

To learn how our human actions affect our environment.



## PREREQUISITES

### *Review:*

- Vocabulary Words
- Applicable Textbook Sections



## VOCABULARY

- Non-organic
- Organic
- Biodegradable
- Invasive exotic
- Biodiversity
- Inference



# HANDS-ON ACTIVITY

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## **Task(s):**

Students will observe, identify and discuss invasive species and negative human impact in the natural environment.

## **Provided Materials:**

- Trash Poster
- Invasive Species Cards
- Trash Bags and Gloves

**Career Options:** Wildlife Biologist, Veterinarian, Park Ranger, Research Scientist

## **Lesson Steps:**

1. Students will observe and learn the identity of several varieties of invasive plant and animal species that are present in the park and the overall environment. They will have the opportunity to observe and better understand the negative impact these “invaders” inflict.
2. Students will observe and collect several samples of non-organic waste (trash). The hike will give the students an opportunity to observe and discuss the impact that this waste has on our local ecosystem. Discussion will also center around the impact that weather has in relation to the pollution of our water.
3. Students will participate in a scavenger hunt discovering a number of ecology related items. This will help reinforce the lessons learned earlier in the module.
4. Park Rangers will lead a discussion regarding the importance of conservation and protection of our natural resources and will discuss careers related to this topic including education requirements, basic job duties and beginning salaries.



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## DATA RECORD

*In nature:*

*“We cannot return to what used to be, but we can restore, protect and better manage what we still have.”*

### Observation List

Boardwalk		River Trail	
See		See	
Smell		Smell	
Hear		Hear	
Taste		Taste	
Touch		Touch	

How many of your observations were natural? \_\_\_\_\_

How many were from human interaction? \_\_\_\_\_

Would you rate the human interaction observations as having a positive or negative effect? \_\_\_\_\_

## Invasive Non-native Plant Species

- **Native**—A species whose natural range includes Florida at the time of European contact (1500 AD).
- **Exotic**—A nonnative species introduced purposefully or accidentally.
- **Invasive**—A nonnative species that has escaped cultivation and is reproducing on its own outside.
- **Invasive Exotic Species**—A nonnative plant that spreads extensively into natural areas and dominates by displacing native plant and animal communities, disrupting natural processes.

Of the 4,373 plant species growing on their own without cultivation in Florida approximately 1,200 (30%) species are nonnative and 11% are invasive.



**Air Potato**  
*Dioscorea bulbifera*  
Origin: Tropical Asia



**Caesar Weed**  
*Urena lobata*  
Origin: India and Tropical Asia



**Wild Taro**  
*Colocasia esculenta*  
Origin: India



**Arrowhead Vine**  
*Syngonium podophyllum*  
Origin: Mexico, Central America



**Tuberous Sword Fern**  
*Nephrolepis cordifolium*  
Origin: Tropics



**White-Flowered Wandering Jew**  
*Tradescantia fluminensis*  
Origin: Tropical South America

## Control Methods

- **Mechanical**—Mowing, bulldozers and other heavy equipment.
- **Physical**—Cultural practices such as fire and flooding.
- **Manual**—Hand pulling and digging up.
- **Chemical**—Herbicide application.
- **Biological Control**—Introduction of reproducing populations of foreign insects or diseases.

**Air Potato Leaf Beetle**  
Released Approx.  
150 Beetles  
(July 24, 2013)

