

Invasive Species

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Agency: St. Anne Wetland Education Outreach Project

Grade Level(s): 6-8th grade

Science Topic: Invasive species

Summary: Students will identify an invasive species in the wetland, examine them, and discuss the characteristics that make it is so prolific.

Core Content: **SC-06-3.5.1, SC-08-3.5.1, SC-08-4.6.5**

Objectives: Students will learn about 1) species characteristics which make them better competitors for resources and 2) how/why invasive species get introduced. Students will compare areas that are affected by an invasive species to areas that are not as a means for understanding the impact of invasive species on ecosystem structure and function.

Materials: Handout, and possibly gardening gloves

In preparation for the field trip, cover background information on the difference between native, non-native and invasive species, and why they are here.

Procedures:

1. There are 5 educational stations within the wetland area. The class can either be broken down into 5 groups and have each group visit a different station for completion of the exercise or disperse at a single location in order to keep the class together.
2. Using the picture guide of invasive that could be found in St. Anne Wetlands, have each group identify one invasive species. Not all species within the guide are found at the wetland. (Let the St. Anne's Outreach Project know what you did find.)
3. After an invasive is located, have the students examine the area around the plant by writing notes in their field books. Students should observe what the canopy looks like, how much sunlight is entering the area, what the soil is like (how wet it is and the color), and what the plants are like growing around them (if they are tall, broad leaved, grasses, flowering, etc).
4. Have students determine the invasive distribution: Are they clumped, random, or uniform? How does the plant spread; seeds or rhizome?
5. Measure out a border around the invasive species (5ft by 5ft, or measure according to how wide the patch of invasives is), and have the students count and categorize the plants according to whether it is an invasive or native species. Then find an area that contains no invasives, measure out a border with the same parameters, and have students count

and describe what they look like in that area. Students don't need to identify the plants so much as count how many of each type of plant are in the area measured.

6. Have student fill out handout and do web exercise. All information needed for handout should be taken from their field notes and research can be done as a follow up.

Assessment Techniques: Effort made while in the wetland, understanding of invasive species, and check handout of accuracy and logical thought patterns.

Resources:

<http://www.nps.gov/plants/ALIEN/fact/spja1.htm>

http://en.wikipedia.org/wiki/Invasive_species

Here are websites that can explain what seed dispersal and distribution are;

<http://www.teachnet.ie/leahy/lcfp160803/Seed%20Dispersal.htm>

<http://en.wikipedia.org/wiki/Rhizome>

http://en.wikipedia.org/wiki/Species_distribution#Clumped_distribution

<http://www.newton.dep.anl.gov/natbltn/001-099/nb035.htm>

Intro to Seed Dispersal:

Nature Bulletin No. 35 October 6, 1945
Forest Preserve District of Cook County
Clayton F, Smith, President
Roberts Mann, Superintendent of Conservation

Seed Dispersal:

Plants have various ways of spreading their seeds.

Some have "fly-away" seeds. Included are the dandelion, thistle, tumbleweed, cattail, clematis, and many trees. The cottonwood, sycamore, aspen, linden, ailanthus, maple, box elder, birch and the pines are all trees having seeds with wings or with "down", that are carried by winds.

Certain aquatic plants have seeds that sink to bury themselves in the mud beneath the water. Others have seeds that float and are distributed by the winds and currents that carry them away.

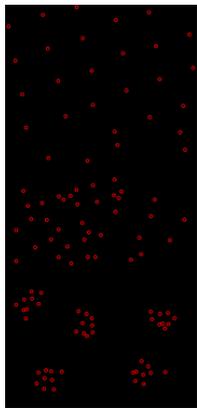
Many plants "shoot" their seeds, the seed pods popping open with sufficient force to throw the seeds many feet away. Notable in this group are knotgrass, lady slippers, violets, vetches, jewel weed, witch-hazel, and Heavea, the Para rubber tree, The witch-hazel may shoot its seeds 30 or 40 feet.

The seeds of edible fruits and berries are widely distributed by birds and animals that eat but do not digest them. The acorns of oak trees, and the nuts of the walnut, pecan and hickories, are planted by the squirrels that bury them for winter food.

And then there are many plants whose seed are contained in burs that cling to the hair or fur of animals and the clothes of humans. The plants of this nature, common in this Chicago region, are the burdock, the cocklebur, the Spanish needle, the tick trefoil, the bedstraw, stick-tight, beggar's lice, and the sandbar.

Some of these burs are known by various uncomplimentary local names. Anyone walking through the fields and woodlands these fall days will do well to wear smooth, hard-textured clothing to which these burs and seeds will not stick.

Distribution patterns:



Uniform- evenly spaced, maximizing distance between other plants, possible preventing other plants from growing in the area.

Random- randomly spaced, happens commonly with wind and water dispersal.

Clumped- spaced in groups, most common distribution in nature. Happens commonly with rhizomes, conveys that the seed doesn't move very far after dispersal.

Name:

Part 1: Field Observations

List the nvasive species you found:

How many invasives were found in the marked area (total plants counted)?

What was their distribution pattern like?

Were there any other plants found amongst the invasives? How many?

In the area without invasives, how many different plants were there?

Compare the two areas studied. What did you notice about the difference in the soil, sunlight availability, variety, and type of plants?

Which plants are going to be more prolific? Why?

How do you think the forest will look in 10 years if nothing is done about the invasive plants?

Part 2: Internet Research

Invasive species are brought over by people for food, decoration, or erosion control. Do a google search on the invasive you found. Answer the following questions.

Where was it originally found and what environment does it thrive in?

Why was it brought over to America?

Where did it first get planted?

How long did it take to get to St. Anne's wet land and how far did it travel from its first American location? You can use google maps for miles estimation. Use Dayton, KY and the name of a town and state close to where the plant was first located in America.

Does this affect your answers you gave in part one? If so How?

Why are invasive species damaging to the ecosystems?

Purple
Loosestrife



Honeysuckle

Garlic
Japanese Barberry

Japanese spiraea

Multiflora Rose



Honeysuckle



Stiltgrass



Honeysuckle

