Invasion of the Non-Natives

Activity Overview
Students will identify non-native plants in their restoration site.

Objectives
Students will:

- Observe and identify non-native and or invasive species
- Distinguish differences and similarities between plants visually and texturally, etc.

Subjects
Science, Language Arts, and Math

Grades
K through 12

Activity Time:
50 minutes

Season
Any (collect plants during growing season)

Materials
Plant species representations, worksheet, pencils, crayons/markers

State Standards
Science:

Discover how organisms meet their needs (F.4.1)

Investigate how organisms respond to internal/external cues (F.4.2)

Investigate structure & function of organisms (F.8.1)

Show organism's adaptations (F.8.2)

Understand evolution theory, natural selection, biological classification (F.12.5)

Understand species changes & diversity (F.12.6)

Investigate cooperation & competition (F.12.7)

Infer changes in ecosystems (F.12.8)

Background

Non-native plants, also called exotics, non-indigenous species or aliens, are found everywhere in the United States today. They may come from as far away as Asia or Europe, or as near as the next state. Non-native plants are often free from natural controls such as disease and insect predators from their place of origin. This allows many exotics to grow out of control and crowd out native species. They do this by taking away space, out competing for nutrients, water and sunlight and disrupting ecological processes. Some of these non-native plants (and animals) can overtake an entire ecosystem. Alien species are one of the leading threats to native plants, animals, ecosystems and waterways.

Not all non-native plants are troublesome; some are very useful, such as wheat. Wheat was first brought to North America by Europeans in the early 17th century; it now thrives all over the world. It has fed and employed billions of people over many centuries and has contributed to the world's agricultural diversity. Of the 4,000 exotic plants and 2,300 non-native animals only a few cause problems, like purple loosestrife and zebra mussels. It is these *non-native*, invasive species that are causing serious concern. (There are *native* invasive species that can also be very aggressive. They are usually adapted to disturbed sites and can easily dominate a natural area.)

Managing non-native or native species that are invading a restoration or planting is part of the restoration process. This activity is a first step that will help students identify species for removal, determine appropriate control methods and make informed management decisions. Early detection and control saves frustrating hours of battling weedy, invasive species.

Pre-activity preparation
Collect examples of non-native plants from the restoration site. Collect the entire plant (including the root if possible) to show leaf and flower characteristics. (texture, arrangement, shape, color, size, etc.) It would be helpful for students to have completed Earth Partnership for Schools Activity "Taxonomy and Field Guide Warm-up." 1-11

Activity Description

1. Divide students into groups and give each group a bag with specimens of one non-native plant.
2. Each *student* writes a description of the plant (i.e. appearance, leaf type, leave arrangement, etc.) and then draws a picture.
3. Each *group* then researches the common and scientific names, and specific characteristics that make this plant invasive (where commonly found, etc.)

Language Arts:

Orally communicate (C.4.1, 8.1, 12.1)

Listen & comprehend oral communications (C.4.2, 8.2, 12.2)

Participate in discussion (C.4.3, 8.3, 12.3)

Social Studies:

Identify & examine sources of information about history (B.4.1)

Use & evaluate primary sources of information (B.8.1)

Analyze primary & secondary sources about historical event (B.12.1)

Source

Tera Hollfelder from Arena Elementary, Arena, WI

4. Each group can briefly present their species to the class.
5. If time permits, find the plants growing in the restoration.

Extensions

- Students can research how and why these plants were brought to North America and/or interesting facts about each plant. See the EPS activity "Plant Immigrants" 10-10.

Additional Resources

- Czarapata, E. J. (2005). *Invasive plants of the Upper Midwest.* Madison, WI: The University of Wisconsin Press.
- Boyer, France, Dickinson, Richard (1999). *Weeds of the Northern U.S. and Canada,* A guide for identification. Edmonton; University of Alberta Press and Renton; Lone Pine Publishing.
- Doll, J. (2004). *The Dirty Dozen and Beyond*. Madison, WI: UW-Extension.
- _____ (1998). *Invasive plants, changing the landscape of America: Fact book*. Washington, D.C.: Federal Interagency Committee for the Management of Noxious and Exotic Weeds
- Powers, Randy R. (2000). *"Help! I planted wildflowers and ended up with a weed patch! "* Self-published. Prairie Future Seed Co., LLC, PO Box 644, Menomonee Falls, WI 53052-0644,
- *"Weeds of the North Central States."* (1981). University of Illinois at Urbana-Champaign, IL., (Available at County Extension Offices.)

Websites

- Bureau of Land Management Learning Landscapes Invasive Species website - http://www.blm.gov/education/LearningLandscapes/explorers/lifetime/invasive.html
- Department of Natural Resources websites
- The Nature Conservancy – Invasive Species Fact Sheets http://www.nature.org/wherewework/northamerica/states/connecticut/science/art6477.html

Assessments

- Mix up the drawings based on the observed characteristics and match them to one another.
- Identify three non-native species in your restoration.