
What's Possible? Analyzing Existing Vegetation for Answers

Activity Overview

Students identify plants on the school grounds and decide what significance, if any, these plants will have on the school's ecological restoration project.

Objectives

Students will:

- Identify plants using field guides
- Analyze the suitability of existing plants for the ecological restoration
- Apply the information learned to make restoration decisions

Subjects Covered

Science

Grades

3 through 12

Activity Time

1 to 4 hours depending upon depth of research

Season

Spring or Fall

Materials

Field guides, landscape restoration books, local resource materials, and a school site map

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)

Identify how technology is used in someone's job (G.4.1)

Discover changes in technology over time (G.4.2)

Determine how science discoveries change technology (G.4.3)

Identify uses of machines (G.4.4)

Background

Analyzing the existing vegetation on the school grounds helps to ascertain what type of ecosystems to restore and which methods of site preparation and management are needed. Your educational and site goals, soil, slope, etc., also are taken into account when planning an ecological restoration project. The following types of existing vegetation influence the direction of a restoration project. Learn what types of vegetation you have growing on your site to help form sound ecological decisions.

1. *Native plants.* Existing native species may form the basis for the type of community to restore. Large, open grown trees such as oaks may be ideal for a savanna; or areas planted in trees including maple, ash or linden could form a framework for a woodland planting. Sedges growing in a wet area indicate possibilities for a sedge meadow or wet prairie. Native fruiting shrubs may inspire the creation of a woodland edge planting for wildlife habitat.
2. *Exotic plants.* Most likely, many of the landscape plants in the schoolyard will be exotic plants from other places in the world. Some of these plants may adversely affect the restoration and cause management headaches. Identifying and perhaps eliminating those species will save time, expense, physical toil, and frustration. Honeysuckle, buckthorn, and oriental bittersweet are a few landscape plants that have spread out of control in natural areas. If these plants are on neighboring property you may or may not be able to control their presence, but you will be able to watch for it in your restoration and manage it through pulling or fire management. Your state's DNR resource person or county extension agent can provide information about invasive non-native species and management strategies. Some native species may also be undesirable in your restoration. For example, sumac, gray dogwood, and trembling aspen are invasive in a prairie restoration.
3. *Groundcover plants.* Herbaceous species growing as lawn, old field or in un-mowed areas may include weedy annuals such as ragweed or crabgrass, troublesome biennials such as Queen Anne's lace or wild parsnip, persistent, weedy perennials such as red clover or quack grass and/or desirable species native species such as New England aster and black-eyed Susan. Identifying the groundlayer species growing on the school site will help you determine suitable site preparation and management techniques. See Earth Partnership for Schools activities in sections "Prepare the Site" and "Manage the Site."

Activity Description

Identifying what is growing at your site will help you to know how to proceed with your restoration project. Based on the species present, you can determine potential communities to restore, site preparation techniques, and follow up management strategies. First, you will identify the species on the

What's Possible? Analyzing Existing Vegetation for Answers (cont.)

Explore how machines were invented & produced (G.4.5)

Identify skills needed for a career in science or technology (G.8.1)

Explain how discoveries influence careers (G.8.2)

Illustrate impact of science & technology (G.8.3)

Design an applied science model or machine (G.8.4)

Investigate local problem & propose scientific or technological solution (G.8.5)

school grounds, and then you will analyze how these existing plants will affect the restoration. Follow these directions:

1. Identify trees, shrubs, and ground cover species on your site using field guides.
2. Answer the following questions about the existing vegetation using field guides, landscape books, plant community species lists, and state and county publications.
 - Which plants are exotic or native?
 - Are there species that may become weedy pests on site or adjacent to the site?
 - Are there existing native species that may be incorporated into the restoration or may help to determine the type of ecosystem to restore?
 - What is the composition of the lawn or herbaceous ground cover? Which plants are annuals, biennials, perennials and of those which are potentially troublesome, neutral, or desirable?
3. Label existing plants on a vegetation overlay map or base map. Indicate on the vegetation overlay map which species are insignificant to the restoration, which species need to be managed or eliminated, and which species could be incorporated into the restoration.
4. Identify potential ecosystems to restore. Use books listed under additional resources, Earth Partnership for Schools Woodland Restoration for Wisconsin Schools Website and/or consult with local resource persons.

Extensions

- Research ethnobotany of the plants growing on our school grounds.
- For more information about exotic plants.
- See Earth Partnership for Schools activity, "Plant Immigrants." Conduct a Soil Seed Bank Study to learn what plant species are dormant in the soil as seeds.

Additional Resources

- Curtis, J.T. (1959). *The vegetation of Wisconsin*. Madison, WI: University of Wisconsin Press.
- Diekelmann, J. and Schuster R. (1982). *Natural landscaping: Designing with plant communities*. Hightstown, NJ: McGraw-Hill.
- Packard, S. and Mutel, C.F. (1997). *The tallgrass restoration handbook: For prairies, savannas and woodlands*. Washington D.C: Island Press.

Website

- Earth Partnership for Schools. (1998). Woodland restoration for Wisconsin schools. <http://uwarboretum.org/eps/woodland/welcome.htm>. (1/10/2007).