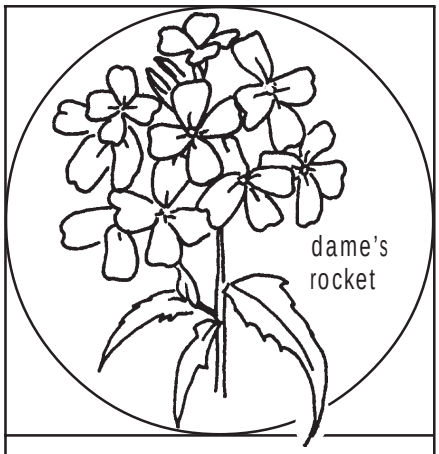
Checking Out the Options



Method

Students will list the different ways invasive plants are controlled and find out more about mechanical controls that they can do.

Getting Ready

1. Obtain Wisconsin Wildcards. See *Finding Out More!* on page 114.

Introducing the Activity

Once you know that you have an invasive plant and decide that you want to get rid of it, you must figure out the best way to accomplish your goal. Fortunately or unfortunately, there are many options available. It's often difficult to determine which one is best for your circumstances (i.e., species, degree of infestation, habitat, soil conditions, presence of native plants, resources, time of year, tools, and/or number and age of volunteers).

Use this lesson to introduce the options available to you and your students. Then, use **Invasive Plants of the Upper Midwest** along with help from area resource specialists to determine a control plan for your situation.

Doing the Activity

1. **Pass out *Alien Invaders Wildcards*.** Allow time for students to read the backs of the cards. If the cards are not available, assign each student an invasive plant and ask them to find out how the plant is managed.
2. **Brainstorm a list of control methods.** Look for control methods on the back of each card listed under "Management." Ask students if their cards list one or more control methods.
3. **Introduce the concept of Integrated Vegetation Management.** Use the information on page 11 of **Invasive Plants of the Upper Midwest** to introduce this topic. See pages 115 – 116 for advantages and disadvantages of each method.
4. **Check out manual or mechanical control methods.** Look back at the list of control methods that you listed in step 2. Circle the manual control methods that students can do.

Objectives

- List methods used to control invasive plants.
- Identify methods that they can safely use.
- Understand the rationale behind Integrated Vegetation Management.

Grades

5 – 12

Group Size

Individuals or small groups

Activity Time

One 50-minute period

Setting

Classroom

Materials

- Wisconsin Wildcards – Alien Invaders (18 plant cards)
- **Invasive Plants of the Upper Midwest**

Academic Standards

Grades 5 – 8

- English Language Arts: F.8.1

Grades 9 – 12

- English Language Arts: F.12.1
- Environmental Education: D.12.3
- Science: F.12.8, H.12.5, H.12.6

Depending on their age, students could control invasive plants by:

- Pulling by hand.
- Pulling with tools (e.g., using Weed Wrenches or Tug-a-Suckle ropes).
- Cutting (e.g., using saws or pruners).
- Beheading (e.g., using scissors or pruners).
- Severing roots (e.g., using a Parsnip Predator).
- Girdling.

5. **Fine tune control methods.** Mechanical controls alone will rarely kill an established population of an invasive plant. Most resource managers combine two or more methods to conquer. Not only that, they time their control efforts to when the plant is most vulnerable. For example, the best time of the year to control buckthorn is late fall when native plants are dormant and the buckthorn sap is flowing downward. At this time, cutting the shrub and painting the cut stump with herbicide can be very effective.

Assessing the Learning

Ask students to work individually or in small groups to research control methods for an invasive plant. Try to select plants that you know are problems in your area or your school forest. Students should use print and Internet resources. Instruct them to note if one or more control methods are recommended and if those methods are to be used together, consecutively, or in rotation. Remind them to consider the plant's life cycle when determining the most effective time to implement control methods. Ask students to present their information. Discuss whether all the sources agree on all aspects of control. Why would different sources recommend different practices? When using the Internet, be sure students record the source of information. Is the source reliable? Is the source local?

Finding Out More!

Wisconsin Wildcards. Wisconsin Department of Natural Resources. 2005. Invasive plant Wisconsin Wildcards are available at WDNR Service Centers or by calling Endangered Resources at (608) 266-7012. For a list of Wisconsin Wildcards available in classroom sets and an order form, visit this Web site. <www.dnr.wi.gov/education/pdf/wildcard.pdf>

Invasive Species: Plants. Wisconsin Department of Natural Resources. 2005. Online listing of invasive plants and control methods. Photo gallery. <www.dnr.gov.wi/invasives/plants.htm>

invasivespeciesinfo.gov. United States Department of Agriculture. 2005. The species profiles at this site include links to Web pages and pdf files sponsored by the federal government, state governments, and universities. <www.invasivespeciesinfo.gov>

How to Control Invasive Plants

Cultural Controls

Cultural controls involve changing the environment to eliminate the opportunity for non-native species to dominate an ecosystem or to give native species an advantage over non-natives. Cultural controls include:

- Educating people.
- Encouraging actions that minimize the spread of invasive species.
- Changing the environment so that it is not suitable for the invader.
- Manipulating water or soil chemistry to favor the growth of native species.
- Using fire to suppress invasive plants or encourage native plants.

Advantages

- Prevention is by far the most cost-effective way to control invasive plants.
- Everyone can participate in preventing the spread of invasive plants.

Disadvantages

- Changes in the environment (e.g., floods, drought, and fires) can create extreme conditions that kill both native and invasive plants.
- Cultural controls occasionally accelerate the invasion, rather than eliminate it.

Biological Controls

Biological controls involve the encouragement or introduction of control agents specifically tested to control an invasive species. Biological controls include:

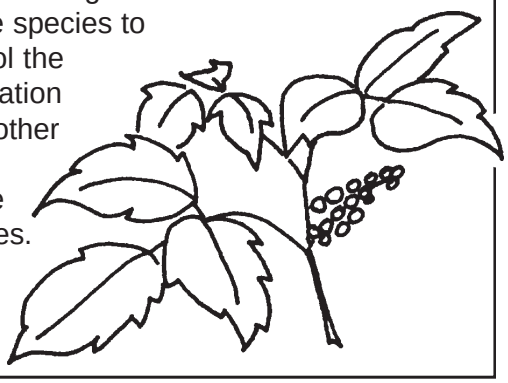
- Introducing animals (usually insects) that will feed on the plant.
- Introducing parasites to weaken a plant.
- Introducing disease organisms (i.e., bacteria, viruses, or fungi).
- Encouraging the populations of biocontrol agents already present in an area (e.g., encourage populations of native insects).
- Encouraging succession (the normal process in which dominant plant species change as an ecosystem matures), so that native vegetation has a better chance of outcompeting non-native vegetation.

Advantages

- Biological control is perceived as progressive and environmentally friendly.
- Once the protocol is in place, biocontrols are relatively cheap and easy to implement.
- No chemicals are introduced into the environment.
- Widespread control is possible.
- Control is essentially permanent.

Disadvantages

- Biological control is a slow process. It can be years before the density of the biocontrol agent reaches the point where it makes a significant change in the invasive plant population.
- Testing of biocontrol agents is expensive and can take many years.
- Biological control can slow the spread of an invasive, but generally cannot eradicate the infestation.
- Even though biocontrol agents go through extensive testing, there is a risk in introducing one non-native species to control the population of another non-native species.



Mechanical Controls

Manual or mechanical controls result in physical damage to invasive plants. Mechanical controls include:

- Pulling invasives by hand.
- Removing invasives with chain saws, pruners, or loppers.
- Mowing (both rotary and flailing).
- Discing or tilling with heavy equipment.

Advantages

- Removal can be very selective, affecting only the target species.
- Timed correctly, mechanical control can be very effective against some plants.
- People of all ages can be involved in management projects.
- Control can be very cost-effective if volunteers participate.
- Combined with chemical control, this method can be very effective. For example, cutting down invasive trees and treating the stumps with herbicide is more effective than either control method used alone.

Disadvantages

- Removing plants from large areas is labor-intensive. Without volunteers, the costs can be prohibitive.
- Native plants can be trampled during the removal process.
- Soil can be disturbed during the process, allowing opportunities for the establishment of the same or different invasive plants.
- Often control methods need to be repeated several times before plants are killed or eliminated.
- Mechanical control stimulates growth of some invasive plants.
- Equipment must be cleaned between sites to prevent moving invasive plant seeds and other plant parts into new areas.
- Mechanical control must be timed to the plant's life cycle. Sometimes the best time to control a plant is a narrow window.
- Pulling weeds may slow the *spread* of weeds, but it does not alter the conditions that first favored the invasion.
- Many of these methods are not specific to the invasive weed. For example, machinery typically cuts, chips, and grinds everything in its path, including native plants, insects, small mammals, birds, and reptiles and amphibians.

Chemical Controls

Chemical controls use herbicides to kill target plants. Chemical controls include:

- Using herbicidal sprays on leaves.
- Painting the stumps of cut trees and shrubs with herbicides.
- Injecting herbicides into trunks and stems.

Advantages

- Herbicides usually kill the target plants with one treatment.
- Herbicides are readily available.
- Herbicides can quickly be applied to target plants.
- Applying herbicides requires less labor than manual control methods.

Disadvantages

- Nearby desirable plants may be killed too.
- Herbicides and herbicide application can be expensive.
- Applicators must be certified and licensed to apply herbicides in some areas.
- Some herbicides could harm wildlife and/or contaminate water sources.
- Some herbicides can persist and accumulate in the environment.