

**LESSON 41**

# Pulling Together

**OBJECTIVES**

Students will be able to describe a variety of methods that can be used for weed control. Students will be able to describe the weed control approach developed by the Bradley sisters.

**METHOD**

Students engage in a weed pull to help native plants return to a weed-infested area. Students also illustrate or combine photographs from their weed pull session into a series of posters or a storybook that tell the story of the *Bradley Method*.

**MATERIALS**

- ✎ Gloves
- ✎ String and stakes or PVC piping (optional)
- ✎ Large sheets of paper and other materials for making posters or storybooks
- ✎ Field guide to native plants
- ✎ Photos or a guide book to local noxious weeds (see **Resources** section of this guide)

**BACKGROUND**

Invasive plants populate new locations when the conditions are favorable for their survival. Left unchecked, they may replace existing desirable plant species and fill open spaces, such as disturbed sites where the soil is exposed. However, humans can help stop the spread of invasive plants. There are a number of different methods for halting the spread of invasive species. These fall into the following categories: 1. Manual (pulling, digging, cutting); 2. Mechanical (mowing, plowing, fire); 3. Biological (grazing, insects, plant diseases); 4. Cultural (prevention, educating others) and 5. Chemical (herbicides). Using a combination of methods, which is known as Integrated Weed Management, is generally more effective for weed control than any single approach.

In this lesson, students will learn about one manual approach to weed control using the *Bradley Method*, which was developed by the Bradley sisters in Sydney, Australia. Using this method, the two Bradley sisters (both over fifty) cleared a 40-acre woodland reserve so successfully that the area needed only slight attention once or twice a year (mainly in vulnerable spots such as roadsides and creek banks) to be maintained weed-free. To do this they expended only a minimum amount of time: an average of 45 minutes per day between the two of them. This low-cost, low-impact approach enables restoration to occur with minimal labor or equipment.

**Grade level:** K-6

**Subject Areas:** Life science, language arts, visual arts, literature

**Duration:** 1 outdoor session and 1 indoor session

**Setting:** Outdoors (weedy area), Indoor (Classroom)

**Season:** Spring, Summer or Fall if visiting field site

**Conceptual Framework Topics:** Integrated weed management, weed control, monitoring, site recovery, and education

The *Bradley Method* can be used most successfully in natural areas where weed stands are close to or intermingled with native vegetation. This approach uses carefully planned hand weeding to tip the ecological balance in favor of the native vegetation, which is then allowed to regenerate and fill the area where the weeds have been removed. The weeding is always done outwards from the edge of the best stands of natives. The Bradley sisters recommend choosing an area you can visit easily and often, where the native vegetation meets a mixture of natives and weeds not worse than one weed to two native plants. If you choose the most heavily infested areas to clear first, the weeds will re-invade very quickly because you have provided them with ideal conditions: bare soil and full sunlight.

### PROCEDURE

Gather the necessary materials including those needed for the poster or storybook activity. Find an area close to school containing noxious weeds. Select a site that primarily contains weeds that can be controlled through pulling, such as spotted knapweed. (See the **Resources** section of this guide to locate information on weeds and control methods that are most effective for each species.) If you or others plan to continue restoring the site using the *Bradley Method*, ideally you would select a site that has at least twice as many native plants as weed plants. *Teachers: Be sure to obtain permission from the landowner or land manager prior to conducting this activity.*

#### Part One: In the Classroom

Explain to students that soon we will remove weeds from a small area, but first we are going to learn about two women from Australia who used the native plants in their park to help prevent further invasion. This is the story of the Bradley sisters' method of weed removal.

#### *The Bradley Sisters' Story*

*Every day the Bradley sisters would go for a walk with their dog in the park next to their home. One day they noticed that the beautiful trees and flowers that they saw since they were little girls were disappearing. Instead, they were replaced with thorny, ugly, invading weeds. The sisters decided, "These weeds have to be stopped or we will have no beautiful trees and flowers left in our park." Every day the Bradley sisters went on their walks, but this time they did something different. The sisters agreed to pull a little bit of the weeds each time they went for a walk in the park. They pulled them with their bare hands. Ouch! They only pulled the weed that grew close to beautiful native trees and flowers. They pulled them from the creeks and meadows. Slowly the beautiful native trees and flowers were able to grow and grow. Eventually they forced all the weeds away. The Bradley sisters were proud of their success. They had cleared 40 acres of weeds from the park with the help of the native plants.*

*They even kept a map of where they had pulled weeds and removed any weeds that tried to come into the area in order to make sure the weeds never gained ground in the area again.*

*Ask Students:* What method of removal did the Bradley sisters use? (Manual)

**Part Two: Outdoors**

1. Begin by going to the selected area. Explain to students that you are going to remove invasive weeds from this area. Have students draw or take photos of what the area they treated looked like before and after treatment.

*Ask students:* Why would it be a good idea to remove the weeds? What are they doing to the other plants? Ask students to help identify the weeds that will be removed and verify their identification using a field guide. Point out to students that the weeds have managed to take over in this area.

2. *Ask Students:* What would be a good way to get rid of these weeds? Organize the students’ answers by making a list on the paper pad. Introduce Removal Methods by categorizing their answers into the following categories:

<b>Removal Method Categories</b>	<b>Examples</b>
Manual	Pulling, Digging, Cutting
Mechanical	Mowing, Plowing, Fire
Biological	Grazing, Insects, Plant Diseases
Cultural	Prevention, Educating
Chemical	Herbicide

3. Tell the students that each of these methods may be a part of a successful plan to get rid of weeds if applied with proper planning to the right situation. Discuss with students the negative impacts of each method and ways of counteracting those negatives.

**Manual:** Pulling can take a long time and only covers a small area.

**Mechanical:** Mowing or plowing can spread seeds and destroy native plants. Fire can be dangerous to use and rarely effective at killing the live underground portions of plants.

**Biological:** Grazing animals (sheep, cattle) may eat native plants and disturb soil. Insects from the weed’s native habitat can become pests themselves or have other unintended effects on local plants and animals.

## Extensions

Have students share their posters or storybooks with other classes or in the community. Plan additional weed pull events for the selected site and engage other interested classes or groups and monitor the changes in the plant populations over time.

Have students create their own weed removal system. This can take the form of an invention or animal that could be drawn or constructed. Have students explain which removal methods are used in their invention.

**Cultural:** Changing our habits is not enough; we must also work to eliminate the weeds already in place.

**Chemical:** Some chemicals (particularly if not used properly) can harm the soil, plants, animals, and water in an ecosystem.

4. Explain to students that we are going to use the **Manual** method of removing weeds in this area, much like the Bradley sisters did in the story we heard back in the classroom. We are going to depend on everyone "pulling together" to remove these weeds. Demonstrate the correct way to pull the weeds for students, and that gloves must be worn to protect the skin from harmful substances potentially found in the weeds. Explain that if we don't pull the root of the plant it may be able to grow back quickly. *Teacher Note:* You may want to have students focus on one area by marking the area off with staked string or PVC pipe. This pulling activity can be made into a "Weed Olympics," with students competing to see who can make the biggest pile of weeds. Have students throw the weeds onto a tarp with a 'bull's eye' trash can set up in the middle.

5. After pulling the weeds have students help bag the weeds for proper disposal so that their seeds will not spread. Return to the classroom.

6. Ask students: Were we able to get all of the weeds in our area? (No. We cannot get all of the seeds in the ground or weeds from other areas.)

*Teacher Help:* Stress the importance of pulling weeds over time to slowly return the area to native plants. How can the native plants help us get rid of the weeds? (Pulling weeds can help the natives come back into the area and keep the weeds out, particularly if combined with replanting of natives.)

Why should we keep a map of where we have pulled? (We will be able to keep track of the weeds and tell others about our work to restore the native plants.)

7. Have students create a poster (or storybook) using the Bradley sisters' story from above and their own experience with the weed pull. Have students use photos or draw the important steps in the Bradley method.

**After removing weeds the group may be able to watch and maintain this area to keep it free from weeds, and/or invite other classes to join in this project.**