LESSON 10

Know Your Neighbors

Grade level: K-8
Subject Areas: Biology, language arts, visual arts
Duration: Two 30-minute sessions on different days, plus travel time to field site for first session
Setting: Field site where native and non-native invasive plants can be found and classroom
Season: Spring, Summer, Fall
Conceptual Framework Topics: Species, classification, identification

OBJECTIVES

Students will learn how to collect and preserve plants, and understand why plants are collected. They will understand how to carefully collect so as not to harm desirable species that are uncommon. Students will learn about native and non-native plants in their area and will be able to identify at least 2 common native plants and 2 common local weeds.

METHOD

Students visit outdoor sites to examine different species of native plants and non-native, invasive species. They create their own mini weed I.D. booklet by collecting and pressing samples of weed species, writing their own descriptions of what the plant looks like and where it grows, and sketching (or alternatively, for younger students, coloring in) details of it. They put it all together in the classroom after their pressed samples are ready.

MATERIALS

- ✎ Plant presses (See **Making Plant Presses** procedure included in this lesson)
- ✎ Hand lenses (enough for each student or to share)
- ✎ Scissors and small spades (a few to share)
- ✎ **Plant I.D. Activity Sheet** (optional) may be especially helpful for younger students; provide enough for each student. You may want to copy this onto cardstock to make a more durable sheet.
- ✎ Coloring sheets for selected plants (make copies of the plant drawings provided with this guide or find wildflower and weed coloring pages in the U.S. Forest Service *Celebrating Wildflowers Coloring Page* at **http://www.fs.fed.us/wildflowers/kids/coloring/index.shtml**
- ✎ Notebook or clipboard for writing on (a stiff piece of cardboard with a binder clip can serve as a clipboard)

BACKGROUND

Scientists often use samples of real plants to help them and others identify and learn more about plants. Such samples are stored in herbariums (plant collections) or used in educational materials such as posters or displays. Identifying plant species and understanding something about the kind of environment a plant lives in is an essential first step in understanding the ecology of the plant community around you and the effects of invasive species.

Montana has a wide variety of native *flora*, or plant life, ranging from those in the moist, old forests in the northwestern part of the state to the dry prairie

grasslands in the east. (For more information on plants of Montana, visit **http://montana.plant-life.org/index.html**). Montana also has 34 plant species listed as noxious weeds. There are other species that show invasive tendencies, but have not yet colonized sites in Montana. Recognizing local, common native plants and invasive non-natives is a first step in understanding the ecology of the landscape and the challenges faced in managing invasive weeds.

PROCEDURE

1. Ahead of Time: Use ***Lesson 13: Weed By Any Other Name...*** in this guide or another lesson that teaches students what terms such as *weeds*, *native*, *noxious* and *invasive* mean. Scout ahead to find a field trip site where you can find some native plant species and some invasive weeds. This may be as convenient as your schoolyard or a nearby park or empty lot. Make sure it is a site where your students can each take a sample of a native plant (leaves, stem, and maybe flower) without doing significant harm to the plant population. A good rule of thumb is to collect one plant only when there are at least 20 other individuals of that species in the vicinity.

2. Visit the site with your students. See how many plants your students can identify by name and whether they are native, non-native and/or invasive weeds. If they need help, have them use a plant guide book or weed identification materials (see ***Resources*** section of this guide for ideas).

3. Explain that scientists often use samples of real plants to help them and others identify and learn more about plants. They must carefully collect and dry the plants for later use. Tell your students that is what they are going to do today, and that they will be making their own class identification book of native plants and invasive non-native plants (weeds) in your area. Before they start collecting, ask if they can think of some basic "rules" they should consider when collecting plants. *If they need assistance, help them to come up with these:*

- *Collect only native plants for which there are at least 20 of the same kind at the site for each one you collect.*
- *Do not collect plants if they might be rare or endangered, even if they are abundant at your site.*
- *Collect only as much as you need.*
- *Collect plants only where you have permission.*
- *In the case of "weeds," be careful not to allow any seeds or roots to fall outside of the collecting area.*

4. Have each student collect 1-2 native plants and 1-2 invasive weeds. The easiest way to do this, with minimal disturbance to the site, is to have them cut off the plant or part of the plant with scissors. Alternatively, they can dig up the roots as well. Depending on the plant, these may not fit into the press and if they are very "fleshy" they may be difficult to press. But they may want to dig up a few different types to see how the root systems may differ.

5. Have them place the plant between the sheets of paper in the press and arrange it so representative parts can best be seen. Make sure each student's name is on their press, if they each have one, or on a piece of paper placed next to the plant, if they are sharing presses. Make sure each specimen is separated from others by several pages of paper.

6. Now using either the **Plant I.D. Activity Sheet** or plain paper for the "field draft," have students make a written description of their plant, note the kind of habitat it is growing in (you may ask them to include things like surrounding vegetation, soil conditions such as dry or marshy, etc.), note any interesting facts they can find, and any information they can find about methods to control it (for invasive weeds), as well as its name (scientific and common), and date and location collected. You may also want to have them draw details of the flower or leaves, or color a copy of the plant from the plant drawings provided in this guide.

Drying in the presses may take 3-5 days.

Plants that are moist may need to have the paper changed each day. Before mounting, the plant must be completely dry (to prevent mold).

When the plant specimens are ready, they can be mounted on the Activity Sheet using glue or tape, or clear contact paper.

All the class sheets and specimen information can be put together into a binder to make an I.D. guide to common local native plants and weeds.

Extensions

Have students present what they have learned to other students, parents, or community members.

Students request that their I.D. book be placed on public display in a community area such as a local museum, visitors' center, ranger station, or at a local business.

Making Plant Presses

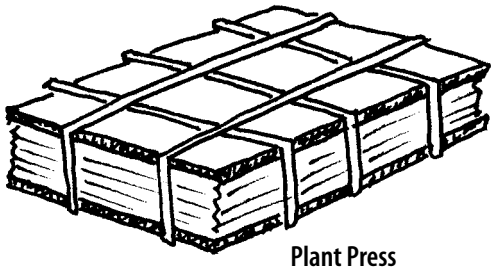
A plant press is a device that places fresh plant specimens between absorbent material, such as paper, and applies pressure to hasten the drying process. There are many variations of designs for plant presses, and many are available to buy. For classroom use, you can make simple presses out of paper, cardboard, and rubber bands or weights. For more durable and efficient presses, plywood or other board covers can be used.

Materials for each press

- 6" x 8" (or larger depending on size of plants to press) sheets of butcher or craft paper
- Sheets of newspaper cut into those same dimensions
- 2 sheets of sturdy corrugated cardboard cut into the same dimensions
- Thick rubber bands long enough to stretch around the width of the press—enough to place one band about every 2 inches
- Optional: 2 pieces of ¼" plywood or pegboard

Place layers in the following sequence:

(Optional board)
One piece of cardboard
4 sheets of newspaper
1 sheet of craft paper
Plant specimen
1 sheet of craft paper
4 sheets of newspaper
One piece of cardboard
(Optional board)



Plant Press

If you want to press more than one specimen per press, simply repeat the newspaper-to-newspaper sequence for not more than five specimens. Very fleshy (thick) or moist specimens should have a cardboard layer between them as well. Longer plants may be bent to fit into the press.

Place rubber bands around the press and/or place the press under a slightly larger, fairly heavy book. For moist specimens, such as fleshy plants or those collected in the spring or early summer, the paper surrounding them may need to be changed every day as it absorbs moisture. Plants may take 3-5 days to dry.

Name _____

Plant I.D. Activity Sheet

Plant Name: _____

Collected by: _____

Location Collected: _____ Date Collected: _____

Status (circle all that apply): Native Non-native Invasive Noxious

Tape or glue your
pressed specimen here

Description:

Habitat:

Interesting Information:

Control Methods (for "weeds"):

Detail drawing: