

## *Two's Company, Three's a Crowd*

**Subject(s):** Science, Government

**Grade Level:** 7<sup>th</sup>-12<sup>th</sup>

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**Time Required:** Four 50 minute class periods.

**Lesson Objectives:** Students will:

(1) Research solutions to forest overcrowding. (2) Identify common plants of the ponderosa pine ecosystem. (3) Identify the economic impact of the current status of Idaho's ponderosa pine forests and the impact of various solutions. (4) Become aware of perspectives of the U.S. Forest Service, Idaho Dept. of Lands, private forest products industry, and environmental protection groups. (5) Identify, present and defend a possible solution with class consensus as the ultimate goal

**Materials Needed:**

Copies of background information and role descriptions, props (optional for role play), *Forest Wars* video available from Idaho Forest Products Commission

### **Background:**

Ponderosa pine forests evolved with frequent fires. In the ponderosa pine forests of southwest Idaho, intervals between fires ranged from seven to twenty-five years. These fires burned through the understory of the forest, clearing brush and killing some young trees. The resulting forests were park-like, with large, widely scattered ponderosa pines and a grassy understory. In the early 1900s, fire suppression efforts put an end to frequent low-intensity fires. This allowed more ponderosa pine seedlings to survive and grow. These pines created shade, under which shade-tolerant species such as grand fir and Douglas-fir thrived. Ponderosa pine seedlings were no longer able to grow, as they required more sunlight than was available to them. The firs grew and reproduced; their seedlings grew well in the shade. The resulting forest is thickly stocked with grand fir and Douglas-fir, with very little ponderosa pine regeneration.

With fire exclusion and resulting succession, ponderosa pine forests are becoming grand fir forests. As these forests age, they are highly susceptible to large stand-replacing wildfires. Many people desire a return to the more "natural" conditions of the past. There are many opinions about ways to achieve these conditions. Ponderosa State Park of McCall, Idaho has implemented a Natural Resource/Fire Management plan. Their plan entails commercial thinning of the forest, followed by use of prescribed fire. Their goal is to eventually get the park back to a state where it could withstand frequent low-intensity fires, as it did historically.

**Preparation:** Prepare handouts. Make signs for students to hold during the reading of the story:

1-"Ponderosa Pine," 1-"Forb," 2-"Grasses," 4-"Baby Ponderosa Pine," 1-"Human Being: Fire Suppression," 10-"Douglas-fir," 15 (or enough to involve the rest of the class)-"Grand Fir."

-Using masking tape on the floor, mark a square area that will contain the entire class of students standing very close together. The square should hold the entire class, but not be so large that they fit comfortably (they should feel very crowded).

-Prepare blue paper "rain." You may wish to use paper punch holes or rip blue paper into small pieces. (The ripped paper will be easier to clean up than the paper punch holes.)

## **Procedure**

### Day One:

Read the story to the class, involving students as directed throughout the story. At the end of the story, as students are standing (as “trees”) in the crowded forest, ask about the quality of life for the forest inhabitants over time. Remind students of the papers that represented water and nutrients. The same amount now needs to be shared by the entire group. How will each individual fare?

1. Use tree cookies to show stressed trees with closely packed rings compared with trees that had more favorable growing conditions and, thus, wider growth rings.
2. Divide the class into four groups, with each group representing one of the following: U.S. Forest Service, Idaho Department of Lands, Forest Products Industry, and Environmental Protection Group.
3. Each group should conduct background research needed to make a plan to solve the overcrowding problem from their group’s perspective.

### Day Two:

1. View the video *Forest Wars*.

### Days Three and Four

1. Groups meet to finalize their management plan.
2. Each group presents their management plan to the class. (Students are again placed in the same square as “trees,” and are acted on according to each group’s plan.
3. After each plan is implemented, discuss the consequences of each plan.
4. The class should determine, by consensus, which proposed management plan is the most desirable. Discuss how real-life decisions are made about issues like these, and how humans affect the decision-making process.

## Once upon a time, there stood a majestic Ponderosa Pine...

Once upon a time in the early 1900s, in a forest near you, there stood a majestic Ponderosa Pine.

This was a grand tree, very tall with the lowest branches 50 feet above the ground. It has been said that its bark was 4 to 6 inches thick, and the fragrance from the bark was of fine vanilla. On the ground under the pine were grasses and forbs.

The pine was happy and healthy. Rains came and the tree had all the nutrients that it needed.

Baby Ponderosa Pines began to grow.

Occasionally, about every seven to twenty-five years, a fire would sweep through the area, cleaning up the forest floor, burning down the grasses and forbs, but not killing their roots. Some baby Ponderosa Pines were killed.

The grasses and forbs grew back in abundance the following year.

Humans observed the fires burning up the baby Ponderosa Pines and intervened with fire prevention practices.

Fire suppression caused the baby Ponderosa Pines to flourish. The pines provided shade that encouraged Douglas-fir and Grand Fir trees to grow.

These trees made so much shade that the baby Ponderosa Pines were no longer able to grow.

The large pine looked out over the tops of the fir trees and considered the changes that had occurred over time in its home...

### Discussion

What are the best management practices for a healthy forest?  
Are fires harmful to the forest environments?

*Choose one student to represent this pine.  
Place the student in the center of the square*

*Choose students to represent two grasses, and one forb.*

*Toss blue paper bits in the air to hit the tree, grasses, forb and ground.*

*Place students with Baby Ponderosa Pine signs in the square.*

*Hold up a sign that says "FIRE" and have the grasses and forb wilt. Remove three baby Ponderosa Pines. (These students will be "Grand Firs" later in the story.)*

*The grasses and forb kneel upright again.*

*Use a spray bottle to release a gentle spray of water over the "forest."*

*Add students with these signs to the square until all students are packed into the square as trees.*

*Remove any remaining Ponderosa Pines (except the large center tree). These students will become Grand Fir trees.*