LESSON 9: CHOOSE A VIEWPOINT AND STRUCTURE AN ARGUMENT

Duration: One 45-minute class period

Background information:

"Several factors make Great Smoky Mountains National Park especially vulnerable to invasions by exotic species. The Park's climate is relatively mild with abundant rainfall. Mountains, with their varying elevations and aspects, offer diverse habitats suitable for a wide variety of plants, both native and exotic. Climate and habitats in the Smokies also closely resemble those in parts of Eastern Europe and central Asia. Consequently, plants introduced from these areas usually thrive in the Great Smoky Mountains."

"In fact, botanists have identified over 380 species of exotic plants in the park. Some were brought in by early settlers; others were transported by wind, water, or animals from infested areas. Still others came in on fill dirt used in construction projects or were accidentally transported in by Park visitors."

"While the majority of the Park's exotic plants do not significantly alter the landscape or spread rapidly, 35 species are aggressive and do pose serious threats to the Park's natural ecosystems. Some are capable of growing and spreading rapidly and can completely dominate natural landscapes. Certain exotics also have the potential to cross-pollinate with similar native plants, thereby threatening the genetic integrity of the natives" (NPS, 2005).

"It is difficult to predict which exotic species will die, barely live, thrive, or invade an ecosystem. People who study bioinvasions use a rough rule of thumb—the "tens rule"—for looking at the large picture. About 10% of exotics introduced into a new place will succeed in establishing a breeding population. The others die or continue to live with no detectable ecological effects. Of that 10%, only 10% will go on to launch an invasion. To become an invasive, a plant has to escape predators and disease and live in a climate that will not kill it. In the new ecosystem an invasive species has to escape all of the things that kept its population growth in check in its nature ecosystem" (Bright, 1998).

Sources:

National Park Service, Great Smoky Mountains, online at <http://www.nps.gov/grsm/pphtml/subplants29.html>

Bright, Chris. 1998. Life Out of Bounds: Bioinvasion in a Borderless World. *New York: W.W. Norton & Company.*

Objectives:

Construct and support an argument related to exotic invasive species.

Prepare in advance:

Make a copy of Handout 1 (Threat or Not a Threat?) for each student.

Description:

Students read a brief description of an exotic plant and then construct an argument as to whether or not it will become and invasive plant in the Southern Appalachian Region.

Instructional sequence:

(5 minutes
Present background information about the vulnerability of the Great Smoky Mountains to invasive species and the "tens rule."

(5 minutes)
Review how to write a persuasive paragraph. (For example, state viewpoint [pro or con], give examples, state facts.)

(5 minutes)
Instruct students to read the description of Cogon grass in Handout 1 and determine their viewpoint on the issue.

Assignment: Students will write a one-paragraph structured argument stating whether or not the exotic plant will become invasive. They must defend their position using their knowledge of invasive species.

Handout 1: Threat or not a threat?

Does anyone know when (if) an exotic plant species will become an invasive exotic?

Cogon grass (*Imperata cylindrica)*

Cogon grass is a perennial grass that grows about two to four feet high. The leaves are about an inch wide, end in a sharp point, and have finely toothed edges that hold silica crystals. Cogon grass forms a dense mat of thatch and leaves, which makes it very difficult for other plants to sprout and grow. This mat also provides fuel for intense and frequent fires. Theses fires are hard on native species. A single plant of Cogon grass can produce several thousand very small seeds that may be carried great distances by the wind.

Cogon grass grows throughout the southeastern United States in many types of ecosystems. Cogon grass is hardy and tolerant of shade and drought. Cogon grass can be found growing in many places, like on sand dunes, along roadsides, forests, open fields, and up to the edge of standing water. Cogon grass moves quickly into newly disturbed areas such as ploughed or burned fields.

Cogon grass came to the United States from East and Southeast Asia by accident as a packing material for shipping crates. It arrived in the port of Mobile, Alabama. Nurseries also sold Cogon grass for its attractive foliage and hardiness. The U.S. Department of Agriculture promoted it as forage and erosion control.

Sources:
http://www.nps.gov/plants/alien/fact/imcy1.htm
http://samab.org/Focus/Invasive/warning.html