

### Spotting the Bad Guys



#### STANDARD COURSE OF STUDY CORRELATIONS:

*Science, Grade 6, Goal 7:* The learner will conduct investigations and use technologies and information systems to build an understanding of population dynamics.

**7.01** Describe ways in which organisms interact with each other and with non-living parts of the environment:

- Coexistence/Cooperation/Competition.
- Symbiosis.
- Mutual dependence.

**7.05** Examine evidence that overpopulation by any species impacts the environment.

**7.06** Investigate processes which, operating over long periods of time, have resulted in the diversity of plant and animal life present today:

- Natural selection.
- Adaptation.

**INTRODUCTION TO LESSON:** Students will explore the school grounds to identify invasive non-native plant species and then research the species they find. Working in groups, students will prepare posters and presentations to share with the class and then give presentations to another class. Students will later choose from two activities: creating a native plant garden on the school grounds or participating in an invasive plant removal project.

**BACKGROUND FOR TEACHER:** Since European settlement of America, thousands of plant species have been imported from countries all over the world. Many of these non-native plants have taken root in North Carolina, sometimes favorably and sometimes not. Some non-native species have reproduced so successfully that they have displaced native plants. These are called “invasive” because they can harm and sometimes eliminate native plant communities, often diminishing native wildlife species that depend on intact native ecosystems. Invasive plants are an increasing problem in North Carolina, largely due to lack of education on the part of the public. Though total eradication of some invasive non-native species is impossible, scientists attempt to control these invaders through comprehensive management plans. Educating the public, including gardeners and landscapers, is integral to controlling the spread of invasive species.

#### MATERIALS:

- ✦ Samples or photos of “good” non-native plants (e.g., crape myrtle, ginkgo tree) and “bad” non-native plants
- ✦ Digital camera
- ✦ Computers with Internet access
- ✦ Viewing Guides, one per student

#### PREPARATION

- ✦ Collect samples or take photos of plants, including invasive non-native species and “well-behaved” non-native species. If invasive plants are growing on or near your school grounds, gather some samples. Examples of non-native invasive plants include: mimosa, kudzu, multi-flora rose, *Elaeagnus* (autumn olive), English ivy, Japanese stiltgrass and Japanese honeysuckle. Beneficial or harmless plants include crape myrtle and ginkgo tree.
- ✦ If you choose to plant a native garden (see *Elaborate*), you will need to do advance planning, including securing permission. You will need a site with the desired degree of sun or shade and a nearby water supply; funding for gardening materials and plants; an initial labor force for planting; and volunteers to do maintenance. The funds available will determine how extensive the garden can be. The PTA may be a good source of funds and labor. Parents can also help find donated items. You might also ask local gardeners to share plants.

#### engage >

- Ask students to make a list of things they might take with them if they were moving to another country. Have them discuss their lists and explain why they made their decisions.
- Now ask them to list items from other countries that they use, buy or observe every day. Have them discuss the pros and cons of these imported products in our society. Afterward, steer the discussion toward nature and draw parallels with how non-native plants and animals can be beneficial or harmful.
- **Show the video** and have students follow along with the Viewing Guide. Afterward, ask students which of the non-native plants they recognize and where they have seen them growing. Have them answer Viewing Guide questions.

**explore** > Lead your students on a walk around the school grounds to look for and identify invasive plants. If your school has a nature trail, use this area. Take digital photos of any plants students think are invasive. Back in the classroom or computer lab, have students try to identify the species they observed. A comprehensive field guide on invasive non-native plants can be viewed at <http://www.invasive.org/eastern/srs/>. The North Carolina Native Plant Society also has a photo gallery of native plants at <http://www.ncwildflower.org/index.php/plants/>. Have students compile a list of the invasive plants they observed on the walk. If they found few species, help them supplement the list with species that are known to exist nearby.

**explain** > Share with students that sometimes people don't realize a species is invasive until after they have planted it. By the time invasive plants begin reproducing and spreading, they can be difficult and sometimes impossible to control. Some plant species have been deemed so harmful that it is illegal to propagate and sell them.

Divide the class into groups and assign each a plant from the list the students compiled. Have each group design a poster containing a picture of the plant and write a script in which the plant introduces itself, describing what it looks like, where it came from and how it behaves in the landscape.

A sample script:

*I'm a hydrilla, a weed that lives in the water. I form yucky, green mats and crowd out the native aquatic plants around me. I move from place to place when boats drag me across the water. Sometimes people dump their aquariums filled with hydrilla into a natural area. I live in states along the Gulf Coast and Atlantic Coast and in California and Washington.*

Your students might want a member of their group to dress up as the plant for the presentation. When all the posters and presentations are done, arrange for students to make presentations to another class.

**elaborate** > There are two major solutions to the spread of invasive non-native plants: managing the species (by eradication and control) and using native or non-invasive non-native plants in gardens and landscapes. Have students do one of the following activities:

- Help eradicate non-native plants on the schools grounds or at a nearby location (city/county/state park). Involve parents in the activity if possible.
- Design and plant a native garden on the school grounds.\* You might first arrange for the students to visit a local nursery and see native North Carolina plants. Or you could have a horticulturist, botanist or researcher speak to the class about plants that would be appropriate for their garden. To find sources of native plants, visit <http://ncbg.unc.edu/pages/48/> and <http://www.ncwildflower.org/natives/sources.htm>.

\* *The North Carolina Museum of Natural Sciences ([www.naturalsciences.org](http://www.naturalsciences.org)) offers professional development opportunities for teachers on how to design, plant and use these gardens.*

**evaluate** > For additional assessment beyond the group activities, have each student select a plant species he or she likes, either from the school grounds, his or her own yard or a nursery. Students should identify the species, draw a picture of it, research its origins, and find out if it is native (and if not, whether it is invasive). The results can be written or shared in a classroom discussion.



#### BEYOND THE CLASSROOM

- Visit a state park to learn about invasive species. Most state parks can offer a topic-specific program. The N.C. State Parks system (<http://www.ncparks.gov/>) offers free Environmental Education Learning Experiences (EELs) for educators and students that may be used before, after, during and/or instead of field trips (download from <http://www.ncparks.gov/Education/eele.php>). Park staff will provide guided on-site activities with school groups (call ahead to make a reservation). The Parks system has a stewardship program focusing specifically on invasive species. Check out [www.ncparks.gov/About/natural\\_resources\\_stewardship.php](http://www.ncparks.gov/About/natural_resources_stewardship.php) for more information.
- A nearby public garden may be able to provide a topic-specific program upon request. For a list of public gardens throughout North Carolina, visit <http://www.ces.ncsu.edu/depts/hort/consumer/pgpages.html>.

#### Additional Resources:

**Going Native: Urban Landscaping for Wildlife with Native Plants** • <http://www.ncsu.edu/goingnative/create/index.html>

**Nonnative Invasive Plants of Southern Forests: A Field Guide for Identification and Control** • <http://www.invasive.org/eastern/srs/>

**North Carolina Botanical Garden** • <http://ncbg.unc.edu>

**North Carolina Native Plant Society** • <http://www.ncwildflower.org/invasives/invasives.htm>

**Aliens in the Backyard: Plant and Animal Imports into America.** Leland, John. 2005. Columbia, S.C.: University of South Carolina Press.

**The Illustrated Book of Wildflowers and Shrubs.** Grimm, William. 1993. Harrisburg, Pa: Stackpole Books.

**The Natural Gardens of North Carolina.** Wells, B.W. 2002. Chapel Hill: University of North Carolina Press.

**Weeds.** Martin, Alexander C. 1987. New York: Golden Press.

