Parent Outline: 6 & Up **May: Invasive Aliens**

Welcome/ Introduction: Staff/Volunteer Names
Today's Topic-Invasive Aliens
Question: How do some animals and plants cause problems by living here?

Ice Breaker/ Game: Students to look at posters and reports of invasive alien species, then take turns reading short excerpts that they find interesting or surprising.

Background/ Exploration: Ask students what they think an **introduced, exotic** or **alien** species is.
What does it mean when a species is **invasive**?
Many non-native species have been introduced to North America since European Colonization (50,000). Some of these species are used for livestock or crops, but others cause problems when they establish themselves in their new environment.
Discuss with students the types of problems invasive species can cause.

Invasive plants (over 1400 species) threaten North America's biological diversity and ecological stability. They cost the U.S. economy $142 billion annually. Each year, another 3 million acres are infested with these weeds.

Discuss why and how alien/exotic problem species were introduced.
Ask students what methods could be used to control a specific invader.

Activity: **Saga of the Gypsy Moth**-Divide the students into small groups to read background on the Gypsy Moth and advocate for various control methods. Discuss.

Discuss control methods in general. Share examples where biological control has worked and why it is preferable where possible.

OUTDOOR EXPLORATION: Walk through a natural area. Help students identify alien vs. native flora. Look for invasive plants. Try to detect detrimental effects on the environment.

Activity: **Woodland Invasive Plants Survey**-Explain how students may do their own surveys at other locations and turn the record form into the DNR.

Look for alien insects and other non-native wildlife.

Activity: Invasive plant eradication.

Closing: Invasive species are a problem. We need to learn about them and cooperate eradicating them and keeping them from spreading.

Send Off: Goodbye!

Take Home: Parent Outline, background
Evaluation, HS note
Summer camp flyers

Vocabulary

Alien, exotic, non-native, introduced, invasive, ecosystem, integrated pest management

For Further Study

http://www.mobot.org/invasives	Links to sites on invasive plants, advice on native garden species
http://www.nrem.iastate.edu/Invasive_Species/Invasives.html	IA Woodland Invasive Species Inventory
www.fws.gov	U.S. Fish & Wildlife Service
http://www.nfwf.org/programs/pti.htm	National Fish and Wildlife Foundation partnership initiatives
www.invasivespecies.gov	National Invasive Species Council
www.invasive.org	Invasives in North America (USDA & U of Georgia, etc.)
www.conservationbiology.org	Society for Conservation Biology
http://www.na.fs.fed.us/spgo/alb	Asian longhorned beetle information
www.njaudubon.org/Conservation/CatsIndoors	Cats Indoors! program

"Why We Cannot Ignore Invasive Plants", Elizabeth J. Czarapata, p. 18 *Wild Ones Journal*, July-August 2002.

Trees for Teens. 2002. Iowa Department of Natural Resources, Des Moines. (Iowa Invasive Species.)

Invasive Species Alerts and information are available from a variety of sources

Information and background on some invasive species:

Pigeons and **Starlings**-eat grains and fresh fruits, damaging crops
Norway & **Black Rats**-extensive damage on farms, cause $19 billion in damages/year
Cats-control rats, but some go wild (feral) and kill millions of songbirds each year
Fish-140 alien species cause $3 billion annual damage to commercial/sport fishing
Zebra Mussel-degrades aquatic substrate conditions, infests half our inland waters
Gypsy Moths-eat tree leaves which kills trees, forests have been destroyed, $11 million in damage/year

Purple Loosestrife-brought as ornamental-purple flowers, wetland weed, chokes out native vegetation and dense stands slow water flow, causes $45 million in damages/year
Buckthorn-shrub brought as ornamental, shades out native forest vegetation, aggressively competes with native vegetation, still sold legally as an ornamental
Multiflora Rose-brought for use as a living fence & habitat, chokes out native prairie plants
Garlic Mustard-brought as an herb, more recent invader, spreads rapidly, shades out woodland plants deer don't eat it!
Wild Parsnip-problem in open sunny areas, invades slowly but spreads quickly, causes severe blisters if sunlight shines on plant juices on skin
Honeysuckle-bush forms used as ornamentals, but invade woods, dense thickets shade out natives, causes erosion.

Why and how?
A species is invasive when it can flourish in a new environment and out-compete native species. This can be due to absence of natural competitors and diseases that would keep a species in check in its native environment. (Up to 85% introduced plant species cause little harm.) Invasive plants often have a longer growing season than native plants, making it easier for them to compete for water and nutrients. They usually also have a large capability to reproduce rapidly (many seeds), and can colonize disturbed soil easily due to fast growth rates. Many of these plants are also adapted to a wide range of growing conditions.
The harm caused to native species by invasives can degrade habitat for related wildlife, reduce crop yields, decrease native plant vigor, hinder recreational activities, and affect water quality. Most problem species got out of control because they were not detected controlled early enough. Now we spend billions of dollars per year trying to reduce their negative effects.
Human activities have broken down the limits of natural boundaries like oceans, mountains, and deserts which previously prevented the rapid spread of alien species. The rate of spread of alien organisms has increased in recent decades as humans travel farther and more frequently.

Many problem species were brought by humans for their usefulness, but without consideration of how their introduction would affect native ecosystems. Many plants were brought for food, medicinal, and ornamental uses. Some weeds and insects were brought by accident when seeds or bugs were in with crop seeds, or came here in infested wood products.

We can reduce the chances of spreading invasive species by not taking living animals, insects, plants or plant parts on vacation, and cleaning equipment (boats/trailers) and clothing (shoes/boots) before traveling to a new place. Being educated about invasive species can help greatly.