**"Invasive Species"**

It doesn’t sound very threatening, does it? But these invaders, large and small, have devastating effects on U.S. wildlife. **Invasive species are one of the leading threats to native wildlife.** Approximately 42% of Threatened or Endangered species are at risk primarily due to invasive species.

Human health and economies are also at risk from invasive species. The impacts of invasive species on our natural ecosystems and economy cost billions of dollars each year. Many of our commercial, agricultural, and recreational activities depend on healthy native ecosystems.

**What makes a species invasive?**

An invasive species can be any kind of living organism—an animal, plant, fungus, bacteria, or even an organism’s seeds or eggs—that is not native to an ecosystem and which causes harm.  They can harm the environment, the economy or even, human health. Species that grow and reproduce quickly, and spread aggressively, with potential to cause harm, are given the label of “invasive.”

An invasive species does not have to come from another country. For example, lake trout are native to the Great Lakes, but are considered to be an invasive species in Yellowstone Lake in Wyoming because they compete with native cutthroat trout for habitat.

**How do invasive species spread?**

Invasive species are primarily spread by human activities, often unintentionally. People, and the goods we use, travel around the world very quickly, and they often carry uninvited species with them.

* **Ships**: Ships can carry aquatic organisms in their ballast water.
* **Wood products**: Insects can get into wood, shipping palettes and crates that are shipped around the world.
* **Ornamental plants**: Some ornamental plants can escape into the wild and become invasive.
* **Pet trade**: Some invasive species are intentionally or accidentally released pets. Burmese pythons are becoming a big

problem in the Everglades.

**Why do invasive species pose such a threat?**

Invasive species cause harm to wildlife in many ways. When a new and aggressive species is introduced into an ecosystem, it might not have any natural predators or controls.  It can breed and spread quickly, taking over an area.  Native wildlife may not have evolved defenses against the invader or they cannot compete with a species that has no predators.

The direct threats of invasive species:

* **preying**on native species
* **out-competing**native species for food or other resources
* causing or carrying **disease**
* **preventing native species from reproducing**or killing their young

The indirect threats of invasive species:

* **Changing food webs**: Invasive species can change the [food web](http://www.nwf.org/Wildlife/Wildlife-Conservation/Food-Webs.aspx) in an ecosystem by destroying or replacing native food

 sources. The invasive species may provide little to no food value for wildlife.

* **Decreasing biodiversity**: Invasive species can alter the abundance or [diversity of species](http://www.nwf.org/Wildlife/Wildlife-Conservation/Biodiversity.aspx) that are important habitat for

native wildlife. Aggressive plant species like kudzu can quickly replace a diverse ecosystem with a monoculture of just

 kudzu.

* **Altering ecosystem conditions**: Some invasive species are capable of changing the conditions in an ecosystem, such as

changing soil chemistry or the intensity of wildfires.

**Examples of invasive species**

There are unfortunately many examples of invasive species invasions across the United States. Here are just a few:

* [**Asian carp**](http://www.nwf.org/Wildlife/Threats-to-Wildlife/Invasive-Species/Asian-Carp.aspx)—a catchall title for species of silver, bighead and black carp from Asia—are a fast-growing fish that out-

 compete native fish for food and habitat.

* [**Brown marmorated stink bugs**](http://www.nwf.org/Wildlife/Threats-to-Wildlife/Invasive-Species/Stink-Bugs.aspx)have become an increasing nuisance in homes and to the agriculture industry. Away

 from their natural predators, stink bug populations are expanding rapidly.

* **West Nile virus**, spread by mosquitoes infected with the virus, is an invasive pathogen that has caused direct harm to

humans (sometimes resulting in death) as well as to wildlife (especially birds). It has been detected throughout most of the

 continental United States.

* **Cogongrass**is an Asian plant that arrived in the U.S. as seeds in packing material. It is now spreading through the Southeast,

displacing native plants.  It provides no food value for native wildlife, and increases the threat of wildfire as it burns hotter

 and faster than native grasses.

* **Feral pigs**will eat almost anything, including native birds. They compete with native wildlife for food sources such as

acorns. Feral pigs spread diseases, such as brucellosis, to people and livestock.  E. coli from their feces was implicated in

 the E. coli contamination of baby spinach in 2006.

* **Zebra mussels**first came to the U.S. from Eurasia in ship ballast water released into the Great Lakes. Since 1988, they have

spread dramatically, out-competing native species for food and habitat. Zebra mussels can attach to almost any hard

 surface - they clog water intake and discharge pipes, attach themselves to boat hulls and docks, and they even attach to

 native mussels and crayfish.

* **European green crabs**found their way into the San Francisco Bay area in 1989. They out-compete native species for food

and habitat and eat huge quantities of native shellfish, threatening commercial fisheries.

* **Dutch elm disease**(caused by the fungus *Ophiostoma ulmi*) is transmitted to trees by elm bark beetles. Since 1930, the

disease has spread from Ohio through most of the country, killing over half of the elm trees in the northern U.S.

* **Water hyacinth**is a beautiful aquatic plant, introduced to the U.S. from South America as an ornamental. In the wild, it

forms dense mats, reducing sunlight for submerged plants and aquatic organisms, crowding out native aquatic plants and

 clogging waterways and intake pipes.

**Invasive species and global warming**

Higher average temperatures and changes in rain and snow patterns caused by [global warming](http://www.nwf.org/Wildlife/Threats-to-Wildlife/Global-Warming.aspx)will enable some invasive plant species—such as garlic mustard, kudzu and purple loosestrife—to move into new areas. Insect pest infestations will be more severe as pests such as mountain pine beetle are able to take advantage of drought-weakened plants.

**What you can do to help curb the spread of invasive species**

* **Plant native plants and remove any invasive plants in your garden.** There are many good native plant alternatives to

common exotic ornamental plants.

* **Learn to identify** invasive species in your area.
* **Report any sightings** to your county extension agent or local land manager.
* **Regularly clean** your boots, gear, boat, tires and any other equipment you use outdoors to remove insects and plant parts

that may spread invasive species to new places.

* When camping, **buy firewood near your campsite** (within 30 miles) instead of bringing your own from home, and leave any

 extra for the next campers. Invertebrates and plants can easily hitch a ride on firewood you haul to or from a campsite –

 you could inadvertently introduce an invasive to a new area.

Assignment

1. Kudzu is a type of vine intentionally introduced to the eastern US to control soil erosion. It became popular in the southeast as an ornamental plant for porches. Kudzu is now considered a highly invasive, devastating plant (called “the vine that ate the south”). Explain how this plant can be having such a destructive impact.
2. What are some positive effects of invasive species?
3. Research 3 other invasive species and provide 3 sentences (each) describing their impact.