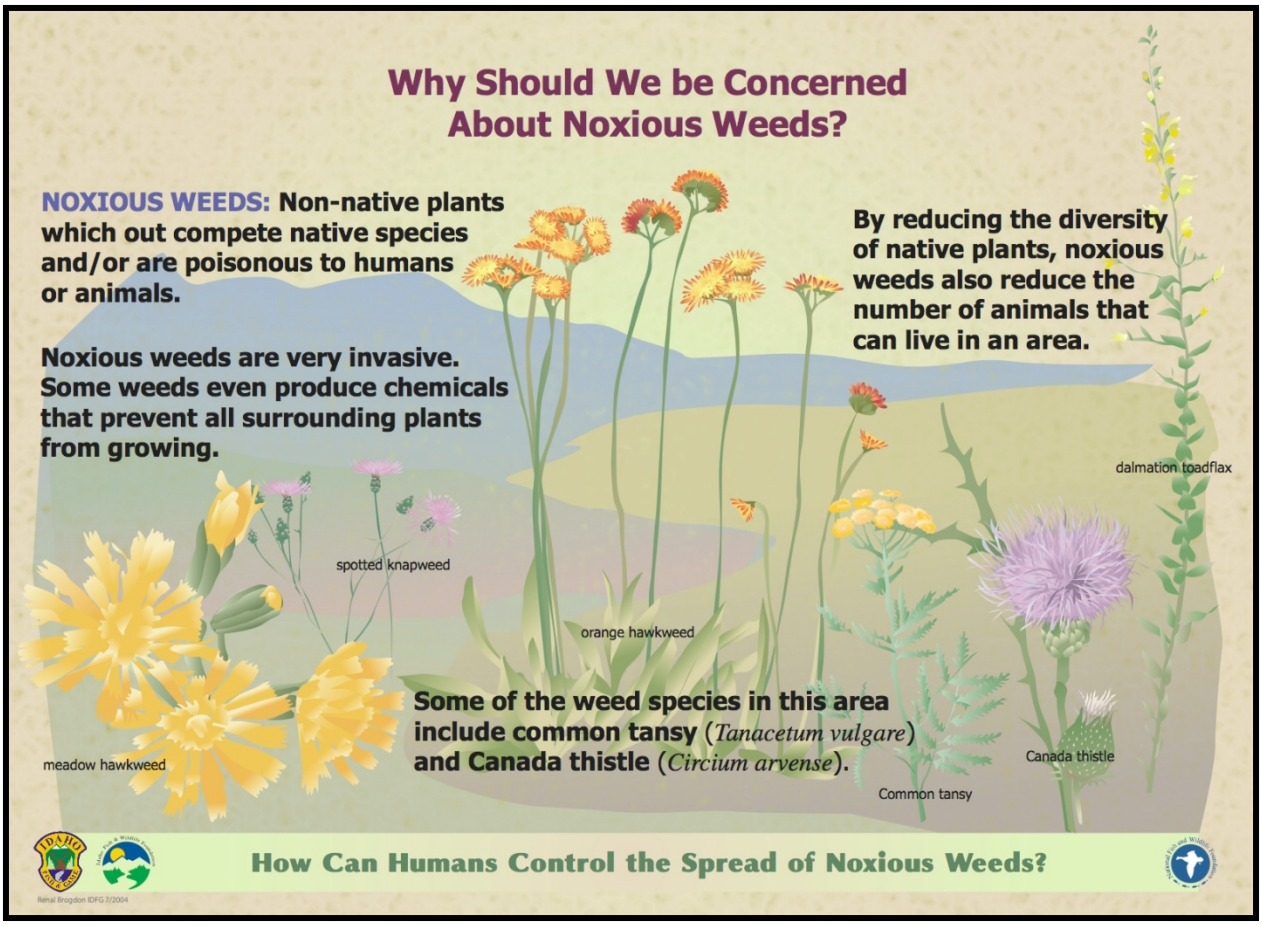

Learning Objectives-after this lesson, students will be able to:

Explain what a native plant is/Explain what a non-native plant is
List the attributes of a noxious weed
Describe the competitive process between native plants and noxious weeds
Describe the effect noxious weeds have on wildlife, human recreation, agriculture.

Vocabulary Words

Competition	Invasive Species
Native Species	Noxious Weed
Non-native Species	Habitat

NOXIOUS WEEDS

Native plants in Idaho are those which evolved here. Native plants have developed adaptations to survive in Idaho under certain climate conditions, weather patterns, fire patterns, and wildlife that feed on them. Native plants in Idaho have natural limits to their growth.

Non-native plants in Idaho are plants that evolved somewhere else and were transported to Idaho. These plants could be from elsewhere in this country, or from other countries. Not all non-native plants are "bad" (e.g. apple tree). However, some non-native plants are considered "bad." These plants are called **noxious weeds** (invasives) and spread rapidly out-competing native plants. Invasive plants can cause economic, aesthetic, recreational, and ecosystem damage.

Invasive plants out-compete natives because they often:

1. Produce larger numbers of seeds than natives
2. Germinate quicker and grow faster than natives
3. Monopolize nutrients and water through extensive root systems or by releasing toxins that kill surrounding plants
4. Avoid predation from herbivores through spines, thorns, hairy leaves, and/or toxins that have a foul taste
5. Tolerate a broader range of environmental conditions (extreme heat or cold, low nutrient availability)

Remember that just because a plant is not native to Idaho, doesn't make it a noxious weed! It must be an invasive plant. The state of Idaho has an official noxious weed list. These plants have been identified by the state as problem plants; time, money and labor are dedicated to eradicating them!

The Idaho Weed Awareness Campaign website can help you learn more about noxious weeds, learn what plants are on Idaho's noxious weed list, and help you identify weeds. http://www.idahoweedawareness.org/

Terrestrial and Aquatic Invasive Plants

Some invasive plants, such as spotted knapweed, are considered terrestrial plants. The word terrestrial refers to plants that live and grow on land. Aquatic invasive plants, those that live and grow in the water, include Eurasian water milfoil and curly leaf pond weed. Once an invasive species has established itself in an area, it

is very difficult to remove. The most common reasons non-native species thrive in a new environment is because abundant food sources are available and they have few, if any, natural predators or parasites to moderate their growth.

How to Control Invasive Species

There are over 4500 non-native species in North America. Many are pests to agriculture, businesses, industries, and humans. A few of the methods used to control non-native species are:

- **Prevention** – Once an invasive species has established itself in an area, it can be *very* difficult to eradicate. Preventing the introduction of non-natives is the best control. Preventative measures include inspecting vehicles that transport them, and educating the public.
- **Physical control for plants** - Cutting or harvesting plants, crop rotation, and burning to keep their numbers from growing, spreading and reduce their reproductive rates.
- **Chemical control for plants** - Chemicals can be sprayed directly on plants to kill them or introduced in the soil to inhibit plants from germinating.
- **Biological control for plants and animals** - This method generally consists of identifying a natural enemy or predator for the known pest and introducing it into an area to control the population of the pest.

At the WaterLife Center

The WaterLife Discovery Center and the Wetland Forest Trail have invasive weeds! Common tansy and Canada thistle are two weeds you are likely to see here. Check your noxious weed manual or the kiosk on the trail for photos helpful in identifying these plants.

Wildlife

Noxious weeds destroy wildlife habitat, food, water, shelter and space each animal needs to survive. Noxious weeds often do not have the nutritional content of native vegetation, which may directly affect herbivores both large (e.g., deer and moose) and small (insects). Indirect impacts may include a decline in species that depend on insects for food. Humans can be affected when invasive species compete with cultivated crops and forage for domestic livestock.

Eurasian water milfoil (EWM) can be found in Lake Pend Oreille and in the Pend Oreille River. Although waterfowl will eat EWM, it has less value as a food source for waterfowl than the native plants it replaces. This may compromise an animal's health when compared to those whose diet consists of primarily native species. Dense beds of EWM can obstruct predation, alter feeding success and behavior, and cover spawning areas as well. Fish abundance in a native plant community can be as much as 3 to 4 times greater than that of an area over taken with EWM. Beds of EWM support fewer invertebrate species and significantly lower population density of invertebrates than beds of mixed native vegetation.

Spotted Knapweed is one of the most aggressive and damaging invasive species in the United States. In Glacier National Park it has put wildlife at risk, infesting over four million acres and reducing six native plant species to "rare" status and bunchgrass, which is important forage for elk, has been reduced by 97.8 percent.

Some songbirds exhibit delayed breeding, diminished productivity, and reduced site fidelity in knapweed-invaded habitats compared to native habitats.

Grasshoppers and other insects significantly decline with knapweed invasions, supporting the contention that waning food resources are driving impacts of knapweed on songbirds and other insectivorous wildlife species.

Suggested Activities

The WaterLife Center should have a classroom set of "Noxious Weeds of Bonner County" to carry with them while at the Waterlife center. Have each student find as many different invasive species as they can and write and illustrate each in their journal.

What methods might be effective in controlling these? Name some positive and negative aspects of each control measure?

Look at the forest succession section, can you predict in what habitats you would expect to find more or less noxious weeds.