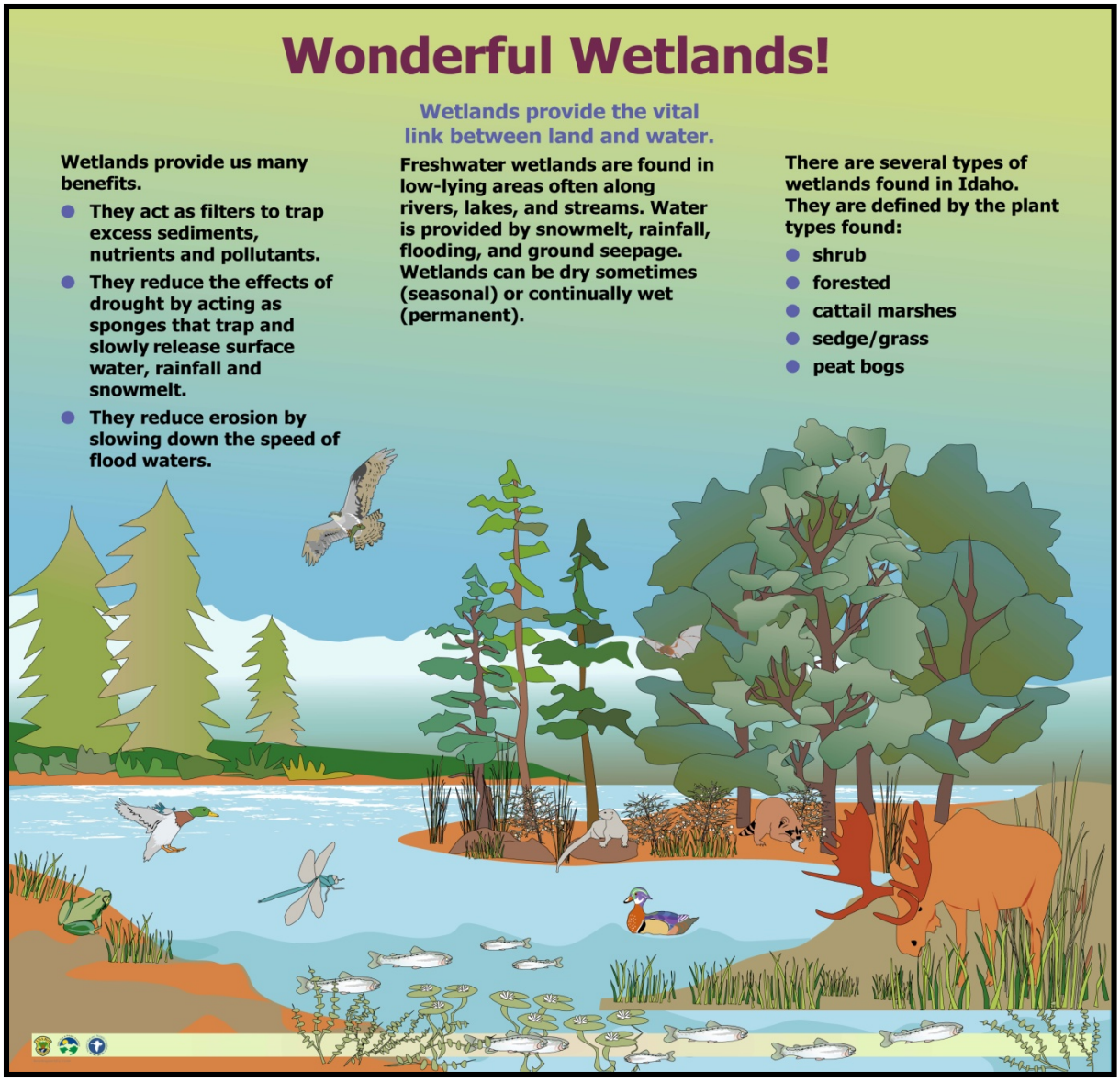

Learning Objectives-after this lesson, students will be able to:

List three things that define a wetland
Describe three ways wetlands are important
Describe why the Wetland Forest Trail is a wetland

Vocabulary Words

Protozoa	Bacteria	Fungi	Marine
Wetland	Detritus	Lacustrine	Palustrine
Estuarine	Nutrients	Riparian	Aquatic Life

WONDERFUL WETLANDS

Due to the large variety of wetlands worldwide, the definition of what a wetland is can vary. According to the official definition used by the U.S. Government, wetlands must contain the following three specific features:

1. Hydrology (amount of and period of time that water is present);
2. Hydrophytic vegetation (plants adapted to wet soil);
3. Hydric soils (soils low or absent in oxygen due to their saturation in water).

The U.S. Fish and Wildlife Service accepts as wetlands areas that meet one of these three criteria, while the U.S. Army Corps of Engineers only classifies areas as wetlands that meet all three criteria.

Why Wetlands are Important

Wetlands are exceptionally productive because of the amount of vegetation they contain. Abundant plants constantly photosynthesize, converting carbon dioxide to oxygen and producing energy and food. Nutrients produced by the plants are distributed widely through floods, storms, and tides. The nutrients from detritus also fuel more plant growth which in turn feeds herbivores, such as deer and moose.

Dead and dying plants (detritus) form the base of food webs. Protozoa, bacteria, fungi, and larvae consume the detritus. Fish, worms, birds, and insects consume the detritus-consumers. These animals in turn are eaten by other animals further up the food chain, such as hawks, eagles, mink, and coyotes.

The dense vegetation in wetlands creates a natural water treatment system that surpasses anything that humans have created. As water enters a wetland it slows down. Sediment settles out and is trapped by the wetland plants and their roots. Plants also absorb almost two-thirds of the nitrate and phosphorous, commonly carried in storm water runoff and floods, especially runoff from agricultural areas with their heavy loads of fertilizer.

Bacteria in the water and soil also can neutralize wastes, including the body wastes of animals and humans. The slowed, cleansed water of a wetland may pass into another waterway, but much of it percolates into the ground and recharges groundwater supplies.

There are many types of wetlands in the world (e.g., marine, estuarine, riverine,

lacustrine, and palustrine). In Idaho, we have the following three types riverine, lacustrine, and palustrine.

At the WaterLife Center

A wetland dominated by woody plants, which is what we have here at the WaterLife Center, is typically called a swamp or wooded wetland. The soils are saturated during the growing season and at certain times of the year standing water is common. Waterlines are visible on the trunks of trees and rocks.

Woody plant species common to wooded wetlands of the Pacific Northwest include tree species such as western red cedar, black cottonwood, and paper birch, and woody shrubs such as common snowberry, red-osier dogwood, Sitka alder, and Wood's rose.

Wildlife

Wetlands support an abundant and diverse array of wildlife including:

- Mammals such as moose, deer, beaver, mink, raccoons.
- Birds like waterfowl, songbirds, woodpeckers, wading and shore birds, raptors.
- Reptiles and Amphibians such as frogs, toads, salamanders, snakes.
- Insects such as butterflies, spiders, beetles, dragonflies.

Suggested Activities

Make Your Own Wetland

(Materials: four jars per student group, gravel, four types of soil, organic material, and water.)

Break students into groups of 4 (+/-). Demonstrate some of the properties of wetlands and how they are formed, using four jars and varying amounts of soil and organic material. Put an inch of gravel in the bottom of each jar. Add a different kind of soil to each jar. Fill half full, with one inch of organic material on top.

Add water to the jars in 50 ml increments, waiting at least two minutes in between in addition of water. When there is standing water on the surface of the soil, stop adding water.

Which type of soil drains most quickly? Why? Which soil type absorbs the most water before showing puddles? All containers now satisfy one of the conditions for being a wetland. Discuss what other conditioners should be met for these containers to become "real" wetlands.

Think about a simple wetland food web that includes, 1) organisms you can see, and 2) organisms you can't see (whether cryptic or small).