



JUST THE FACTS...

ABOUT WETLAND FUNCTIONS AND ASSESSMENT

"Damp, insect-ridden, often foul-smelling and mysterious area of muddy soils and relatively still water where strange and different animals and plants reside."—Wetlands definition, 1800s

For much of our nation's history, wetlands descriptions like the one above formed our perception of wetlands as disease-ridden wastelands. With the help of government programs, we drained, ditched, and filled wetlands to convert them to "more productive" uses. We were highly successful! In California, for example, nearly 90 percent of the original wetlands are gone. In Oregon, about 38 percent of our wetlands have been converted to other uses.

Changing Perceptions

Finally, we realized that as wetlands disappeared, ducks and geese disappeared—as did many of the "strange and different" animals and plants that reside only in wetlands. Researchers also discovered that wetlands provide many valuable ecological functions, such as flood control and water quality improvement.

Today, learning from our mistakes, state and federal programs have turned their efforts toward wetlands protection, wetlands restoration, and comprehensive watershed management. Similarly, citizen groups and watershed councils spearhead local efforts to restore streams and wetlands and educate citizens about the "free" services that wetlands provide the community. The many functions that wetlands perform make protection, restoration, and wise management of wetlands important to landowners, communities, and the general public.

Assessing Wetland Functions and Values

Because wetlands vary greatly by type and location, not all perform the same functions and not all are equally valued by society. Wetland assessment may involve one or all of the following aspects:

- ▶ *Functions*—the ecological processes in wetlands, such as nitrogen cycling
- ▶ *Values*—the societal importance attached to those functions, such as water quality improvement
- ▶ *Condition*—the degree to which a wetland is altered or degraded, generally by human impacts

It is far too difficult and expensive to conduct a detailed study of every wetland. Therefore, rapid wetland assessment methodologies rely on the presence or absence of various characteristics that are known to correspond with certain functions. For example, certain wetland characteristics are "indicators" of good migratory bird habitat. Another set of characteristics may "indicate" that a wetland is good at removing pollutants from water.

Rapid wetland assessment methods like the *Oregon Freshwater Wetland Assessment Methodology* use indicators that allow us to quickly evaluate the extent to which a specific wetland may perform a given function, and help us to compare wetlands and evaluate their relative importance (value). The more robust methods—like the hydrogeomorphic (HGM) method being developed by DSL for Oregon, is based upon extensive data gathered from a wide range of wetlands (called reference site wetlands).

How Is Assessment Information Used?

In Oregon, wetlands are assessed for three primary purposes:

- ▶ Wetland function assessment is required by the state Removal-Fill Law and federal Clean Water Act for wetland fill permits (both laws require replacement of lost wetland functions).
- ▶ For identifying "significant wetlands" for protection under Statewide Planning Goals 5 (Natural Resources) and 17 (Coastal Shorelands).
- ▶ For wetland and watershed restoration planning and evaluating restoration project success.

Examples of Wetland Functions and Values

Flood Storage and Water Supply

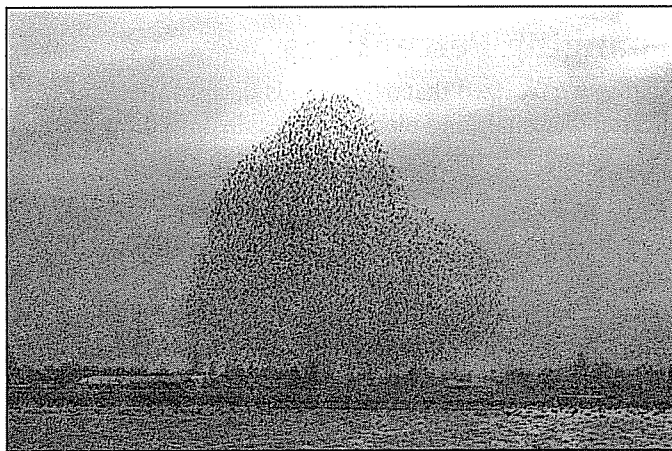
Many wetlands absorb and temporarily store stormwater flows, which reduces flood velocities and streambank erosion. Preserving these wetlands reduces flood damage and the need for expensive flood-control devices such as levees. When the storms are over, these wetlands slowly release the stored water back to the stream system, augmenting summer stream flows when the water is needed. Seasonal wetlands—the most common in Oregon and the most easily overlooked because they are dry in the summer—have great capacity to absorb storm water as they “recharge” in the winter and spring.

Food-web Support

Because of their high productivity, wetlands provide essential food-web support. Ample water and sun combine to produce that green scum that coats cattail stems and ankles, providing food for an abundance of tiny organisms that, in turn, feed fish, wildlife, and humans.

Wildlife and Fish Habitat

Wetlands provide essential water, food, cover, and reproductive areas for many wildlife species. For example, nearly two-thirds of the commercially important fish and shellfish species are dependent upon estuarine wetland habitats for food, spawning, or nursery areas. Similarly, millions of waterfowl, shorebirds, and other birds depend on wetlands. In semi-arid eastern Oregon, riparian (stream-associated) wetlands and springs are crucial to the survival of many birds, amphibians, and mammals.



Thousands of dunlin (a small shorebird) form a living cloud over a Willamette Valley farmed wetland. (Photo by Peter Sanzenbacher.)

Rare and Endangered Species

As the old wetlands definition suggests, wetlands are full of “strange and different” animals and plants. Take the carnivorous pitcher plant, for instance, a bog plant with a cobra-like hood that traps insects. Nationally, nearly 35 percent of all rare and endangered animal species depend on wetlands, even though wetlands comprise only about 5 percent of the land area. In Oregon, 29 percent of native wetland plant communities are “imperiled.”

Water Quality Improvement

Wetlands are highly effective at removing nitrogen and phosphorous, some chemicals, heavy metals, and other pollutants from water. For this reason, artificial wetlands are often constructed for cleaning stormwater runoff and for tertiary treatment (polishing) of wastewater. Wetlands bordering streams and rivers and those that intercept runoff from fields and roads provide this valuable service free of charge.

Aesthetics, Recreation, and Education

Depending on their type and location, wetlands provide opportunities for fishing, hunting, plant identification, and wildlife observation. They are also visually pleasing, interesting elements in the landscape, often increasing property values in urbanized areas. Wetlands are also wonderful outdoor classrooms and laboratories.