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Texas Wetlands: A Valuable Resource

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A Texan cherishes his water--depending on where it is. If it's classified as a "wetland" and sitting right smack in the middle of a soybean field, chances are he doesn't embrace it with open arms. From his side of the fence, a wetland is pure aggravation slowing up his farming operation and taking up valuable land.

To make matters worse, if he understands the legalities, he knows he can't do much to change the situation.

Many Texans, however, are unaware of what classifies as a wetland, why it's important, and what kind of trouble they can get into trying to change it. Often, the only difference between a "blasted swamp" and a "national treasure" is point of view.

Differing opinions and knowledge can lead to heated discussion usually beginning with the question: What exactly is a wetland?

"I know that swamp in Louisiana is a wetland, but that low spot in my back forty couldn't be. Sure it's wet sometimes, but it'll go five or six years without so much as a puddle.

"A wetland is a difficult habitat to define, but that definition is very important for legal reasons," Dr. Milton Weller said. Weller is a wetland scientist with the Department of Wildlife and Fisheries Sciences at Texas A&M University.

Most scientists agree with the United States Fish and Wildlife Service (FWS) definition which states that a wetland must have at least one of the three following characteristics: 1) the land supports, at least periodically, predominantly hydrophytes (water-loving plants); 2) the land is predominantly undrained hydric soil (moist or dependent upon

moisture); and/or 3) the land is saturated with or covered by shallow water at some time during the growing season of each year.

One problem with the FWS definition is determining exactly which plants are "hydrophytes" and which soils are "hydric." Most people agree on clearcut examples, but marginal cases are subject to debate.

After a wetland has been defined, it is classified. Several methods of classification have been developed over the years for scientific purposes and legal procedures. These classification systems have changed over the years to reflect the changing issues and interest in wetlands.

In 1954, the FWS conducted a national wetlands inventory. The FWS used a system of 20 classes to describe wetlands. This system was designed primarily to evaluate the suitability of wetlands for their use as waterfowl habitats.

A new classification system evolved in 1974 as a preliminary to the more extensive current national wetlands inventory. The new system classifies wetlands into systems, subsystems, classes and subclasses. The three characteristics used to define a wetland--vegetation, water and soil--are used to distinguish between wetland types.

Classification enables scientists to analyze data more efficiently and to better predict the effects of intentionally changing a wetland.

Some wetlands constantly fluctuate from wet environments to dry and back again. This cycle may take days, months or even years depending on the climate. Plants flourish, then die, and wildlife species migrate in and out as the habitat changes. Since wetland characteristics change, some wetlands may actually fall into several different classifications over a period of only a few years.

Water levels of other wetlands may not fluctuate to such an extreme. They may, however, vary enough to influence the type of vegetation and, possibly, the species of wildlife present. As a result, relying on the type of vegetation and the level of the water to distinguish between classifications can be confusing.

That leaves the third variable: soil. Since they develop over a long period of time, soils change very slowly and serve as a better indicator of long-term "average" conditions. On the other hand, the permanence of soil characteristics can be a disadvantage. Relying on soil types may not accurately reflect wetlands recently drained or severe natural changes such as droughts or floods.

Since classification depends on three variables---vegetation, water and soil---and each variable independent of the others may not be a true indicator of the system, the process is complex and subject to interpretation.

"I don't care what you call it. I need to get rid of it. I can't get my tractor through it, and I need those acres to grow more soybeans."

Many landowners are unaware that wetlands are protected under several Federal laws by the Army Corps of Engineers. Anyone who wants to alter a wetland by draining, filling or otherwise changing it must get a permit from the Army Corps of Engineers.

The success of obtaining a permit depends largely upon the classification the wetland falls under. Some types are considered more valuable because alteration would have a severe impact on the environment.

Another consideration is the extent of the alteration.

"If you wanted to do something that would totally destroy a wetland, chances are you wouldn't get a permit to do so," Weller said. "But if you just wanted to make a minor change such as a canal or pipeline you probably could."

One legal avenue many large companies use to gain permits is mitigation. By improving another area the company offsets the damage or alteration to the wetland.

Altering wetlands is a controversial topic. Most opinions about wetlands differ from one extreme to the other making compromise difficult. Landowners and industry typically regard their wetland as a "blasted swamp" while environmentalists are more likely to see it as a "national treasure." Furthermore, fuzzy guidelines for classification and the difficulty of assessing potential effects of destroying wetlands complicate legislative procedures.

"It's a very complex thing to study," Weller said. "The effects of draining one wetland may not apply to another wetland.

"One thing is clear," he emphasized. "We are playing around with a very dynamic, complex system that we don't understand. We've already demonstrated that this kind of action can get us into trouble."

"All this red tape is really going to get in my way. That swamp is a nuisance. Who cares about wetlands any way?"

A wetland is an ecosystem--a basic unit of nature made up of living and non-living parts which function together as a whole. Animals are dependent upon plants which are dependent upon nutrients and on and on. If one part of the system is affected, other parts are also affected.

The value of a wetland cannot be precisely evaluated. It will differ from one area to the next and from one time to another. Readily apparent values of wetlands include their importance as nesting grounds for waterfowl, as spawning grounds for commercial fish and as nurseries for countless numbers of plant species.

Other values which are not so readily seen include flood protection, erosion control, underground water recharge, water quality control and the supply of nutrients.

"If you fill or drain a wetland, you take away the land's natural storage basin for water and increase the potential for floods," Weller explained.

Water is forced down a narrow channel until it reaches a point where it can spread out. Many cities have already experienced the devastating results of eliminating the land's ability to store excess water.

This in turn creates another problem. Soil erosion intensifies with the increasing pace of the water. Rich top soil picked up by the water no longer spreads out along flood plains.

Wetlands are also tremendous purifying basins, according to Weller. They absorb pollutants dumped in the water upstream and act as a natural filtering system for chemicals and wastes. Some cities actually use wetlands as part of their sewage treatment system.

Wetlands are reservoirs for nutrients which supply other ecosystems such as the ocean. Studies have shown that the level of productivity of shrimp and finfish in an ocean is directly related to the nutrient producing capability of its coastal marshlands.

"OK, I can see their overall importance, but that sure doesn't help me out. I'm stuck with a swamp I can't get my equipment across and 20 acres of unproductive land."

"People often see wetlands as wastelands," Weller said. "They overlook the long-term effects of destroying them and even the short-term benefits of maintaining the natural habitat."

Managing instead of cussing a wetland can be both esthetically and economically beneficial. The abundance of wildlife attracted by wetlands is a tremendous recreational resource.

With proper management, the landowner can encourage vegetation attractive to waterfowl, creating a prolific game reserve and enhancing the esthetic and economic value of the wetland.

The wetland survey conducted in the 1950s reported over three and one-half million acres of wetlands in Texas including river bottom swamps, shallow lakes and coastal marshes. In 1980, 13 to 16 percent of this land was owned by state or federal government. The remainder was in private ownership. To protect wetlands, state and federal governments are buying up areas with revenue from taxes directly related to wetlands. Revenues from the duck stamp, which must be purchased by duck hunters in addition to a hunting license, total over one million dollars each year. As a result, large areas of wetlands are now a part of federal and state game reserves.

A few new problems have emerged, however. Taking land out of the tax base generates local and state opposition. Objections are also voiced to increasing the amount of land owned by the federal government.

"You've convinced me that wetlands are important. After all I'm a reasonable guy. But good luck convincing the other landowners in this watershed!"

How much damage is being done? What would happen if no one did anything to protect wetlands? These questions as well as others are worthy of consideration. Economic and social incentives for landowners to convert wetlands to farmland are strong. The inherent productivity of wetland soil makes some of the best farmland in Texas.

Swamp Land Acts passed by Congress in 1849, 1850, and 1860 transferred millions of acres of wetlands to the states. As concern about the protection of natural resources grew, laws controlling wetland drainage were passed. At first, concern about wetland protection was centered on waterfowl. As scientists developed an understanding of the system, the concern shifted to broader values such as flood control, reduced erosion and improved water quality.

The future looks promising for preserving wetlands. Scientists are working together to bridge the gaps between environmentalists and developers. An increased awareness of the importance of the natural environment has also helped. Texans are beginning to see wetlands as a national treasure rather than as a bunch of "blasted swamps."