Wetlands

By: Jean Llewellyn

Many people view wetlands as wastelands, places with a prevalence of bugs and odd smells, functionless places to be avoided or better yet filled in. They are wrong. If you look a little closer, wetlands are wondrous, beautiful natural areas with numerous economical and cological functions.

They are priceless irreplaceable areas worthy of our respect and protection. Until recently, the policy of the federal government has been to encourage, even subsidize, the filling or draining of wetlands for agriculture or other purposes. This policy, in addition to similar private efforts, resulted in a reduction of the total wetlands in the U.S. to half of the original 220 million acres. A broad concern for these losses created political support for the protection of wetlands beginning in the 1970's. This led to increasing regulation of wetlands and a change in the government's and public's attitude toward them. Wetlands are now protected by the Clean Water Act and are subject to the act's prohibition against filling without a permit. The Clinton Administration has also adopted the Conservation Foundation's recommendation of no net loss. Despite this, wetlands continue to be lost at 70,000 - 90,000 acres annually. Therefore, we still need to take positive steps toward protecting the remaining wetlands.

What is a wetland?

The US Army Corp of Engineer's definition is: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (42 Fed. Reg. 37, 125-26, 37128-29: July 19, 1977)."

Wetlands have a number of important functions:

Hydrological

Because of the nature of their soils and vegetation, wetlands slow the flow of water and act as natural sponges and trap and store rain, snow melt, surface water, and flood water. This holding capacity reduces flood peaks and controls storm water's erosive potential. It has been shown that the peak flow in a stream leaving a watershed is directly related to the total amount of wetlands in the watershed. This relationship may not be linear, for progressive loss of wetlands may have an escalating effect on flood peaks. For example, in the Minneapolis metropolitan area, runoff per unit area of watershed increased rapidly when wetland area decreased to less than ten percent of the total watershed area (Johnson et al. 1990). In our area, in 1955, when hurricane Diane hit the Poconos, many small bridges were destroyed in Monroe county, but the Bog Lane Bridge south of the Tannersville Bog was not. This was due to the bog's tremendous ability to absorb the storm's water. Wetlands slowly released this stored water in drier times, providing a base flow for streams and a source of recharge for groundwater. This is particularly important in areas, like ours, that depend upon groundwater as a water source. Wetlands, in effect, protect our communities from the damages of flood waters and help insure the availability of a reliable water source for drinking purposes.

Wetlands also moderate climate. They slowly absorb heat in the spring and slowly release it in the winter. They also store carbon in their plant communities and soils instead of releasing it as carbon dioxide. This may alleviate the green house effect (global warming) caused by the accumulation of CO2 in the atmosphere (resulting from the burning of fossil fuels). For these reasons, wetlands may be important in the stabilization of our climate.

Water Quality

Wetlands intercept water runoff from adjacent lands. When they do, due to the nature of their vegetation and soils, they slow the flow rate of water which results in a retention of sediments. They also filter out, store, and transform pollutants, nutrients, and certain heavy metals. Their effect on the nutrients nitrogen and phosphorous are particularly striking. As uplands become developed and as the area of wetlands is reduced, the nutrient processing and retention become impaired. It has been shown that nitrogen and phosphorous increase as

watersheds are cleared, and that the nitrate concentrations in streams are inversely related to the amount of wetlands in a watershed. In fact, this filtering capability can save communities tremendous amounts of money. For example, EPA states a 1990 study showed that without the Congaree Bottomland Hardwood Swamp in South Carolina the area would need a five million dollar waste water treatment plant. Therefore, although wetlands occupy only a small percent of the watershed in which they are located, they process a vast amount of sediments, nutrients and pollutants from the uplands and contribute greatly to the area's water quality.

Ecological Benefits

Wetlands are one of the most productive ecosystems in the world, comparable to rain forests. They provide food, nesting, and a cover for a vast amount of vertebrates and invertebrates. More than one half of the threatened or endangered species in America live in wetlands or use wetlands at some point in their life. Many rare plants and animals reside in wetlands in or near our watershed. Two rare shrubs, three rare sedges, a rare moth, and two rare dragon flies reside in the Long Pond wetlands owned by the Nature Conservancy. The Lost Lakes preserve, a mix of bogs, conifer swamps, and old growth hardwood forest, contains the following rare Pennsylvania plants: bog clubmoss, yellow cowlily, thread rush, Labrador tea, poor sedge, and few seeded sedge. Therefore, wetlands protection is important in preserving biodiversity.

Recreation

Wetlands provide recreational activities such as hunting, hiking, and nature study. They are one of the best places for bird watching requiring a little more effort to explore than terrestrial areas, but those that venture forth will be rewarded by observing areas replete with fascinating plants and animals.

Our watershed has numerous wetlands, due to the depressions and drainage patterns produced by past glaciation. There are wetlands in the state game lands, state forest, and lands owned by the Nature Conservancy. Wetlands are beautiful places, some of the most pristine areas around. If your life has become too fast or distracted, slow down, go to a bog or a marsh. Observe the activities of wetland creatures. Take the family, relax, and enjoy some of the nations last truly wilderness areas.

What can you do?

Despite progress toward slowing the loss of wetlands, substantial wetlands continue to be lost. Nationwide, Permit 26 allows the filling of up to 1 acre of wetland with no regulatory review and 10 acres with minimal review in headwaters and isolated waters. Isolated waters are defined as "the nontidal waters of United States that are not part of a surface tributary system to interstate or navigable waters of the United States and that are not adjacent to suchtributary bodies of water (33 CFR 330.2)." The scientific basis of this policy is weak, for isolated wetlands often are interconnected by groundwater. But even when they are not, they provide many of the same functions as other wetlands. Special treatment of headwaters is also questionable since headwaters affect quality downstream. The net effect of this permit is the continued cumulative loss of wetlands. Without a public outcry, this trend will continue.

You can help by supporting wetland conservation initiatives and encouraging the government to establish programs to effectively protect wetlands. You can also encourage private owners not to fill in wetlands, and support organizations, like the Nature Conservancy, that protect wetlands by acquisition of land. Get involved. The cumulative effort of many single individuals can result in a reduced net loss of our wetlands and their inherent economical and ecological functions.