

January 1, 2005  
Vol.2, No.1

**WETLANDS DEMYSTIFIED**  
Wetland Buffers, Part I  
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Wetland buffers or setbacks are no more than vegetative areas usually located upland from watercourses such as streams and rivers, or other bodies of water such as ponds, bogs and marshes. Buffers may also apply to wetlands, identified by soil type, as defined by Connecticut's statutes. There are fundamentally two types of buffers: riparian, which may include forested areas, and a vegetative strip, which is usually grass. The width of such buffers may vary depending on circumstance and the land or water resource they protect. To appreciate why buffers are important one must first understand why the complex ecological functions of wetlands and watercourses are important. The more we know about wetlands, the more valuable they become. In the remainder Part I of this article, the focus will be on why the protection of our wetlands is so vital to all of our interests. However, keep in mind that the scope of this article is limited by space in the Pomfret Times.

Many of the complexities and the importance of the wetland environment were not recognized even a decade ago, and while our understanding and appreciation of this important water resource is changing there is much more to learn. Wetland ecologists have found essentially four important functions of wetlands that apply directly or indirectly to us in Pomfret: water purification, flood protection, groundwater recharge and stream flow maintenance. These functions are discussed in detail below. Wetlands also provide habitat for birds and wildlife, including some species that could not exist without wetlands. Of course how a particular wetlands functions, and thus its relative land use value, depends on its location in relationship to other wetlands and water bodies and its type.

**Water Purification**

Wetlands trap excess nutrients and other pollutants and thereby improve water quality. This function becomes increasingly important when a wetland is connected to ground water resources used for drinking or recreation. Removal of pollutants is also vital to fish and wildlife that depend on wetlands. Pollutants such as fertilizers, pesticides, animal wastes, solvents and petroleum products, just to mention a few, usually contaminate wetlands and watercourses as a result of run-off (i.e., rain that becomes contaminated as it travels over or through contaminated land and enters a wetland or watercourse). In some rural areas agriculture and timber harvesting can have a negative effect because of run-off if not adequately managed. One example of the impact of contaminated run-off is the "algae bloom" seen on some ponds located down stream from an agricultural activity. The algae grow at an accelerated rate due to the excess nutrients from fertilizers. The pond becomes stagnant at best and could under some conditions become deadly to fish and other animals that use it.

Toxic chemicals such as heavy metals that reach surface waters can cause disease, illness or even death to plants and animals, including us humans. Wetlands trap and bury these harmful substances and thus reduce or eliminate harmful exposure to these toxic chemicals. Disruption of wetland soils, however, could result in the release of these toxins back into the environment. Wetlands therefore protect our surface waters and groundwater by removing or binding in the soil excess nutrients, sediments and other harmful pollutants. They are our natural water filtration systems.

### **Flood Protection**

Wetlands provide flood protection by holding excess water runoff after a storm and then releasing it slowly after the event. Not all wetlands are important in this capacity, but even isolated wetlands can reduce local flooding by acting as a sponge, holding back some water that otherwise could find its way to your backyard or cellar. Water will always find somewhere to go, so if the wetland is filled in, major flooding can occur.

### **Groundwater Recharge and Streamflow Maintenance**

Aquifers, which are simply groundwater reservoirs, are essential to anyone who depends on a well for drinking water. Aquifers are recharged (i.e., replenished) with rain and surface water that seeps into the ground. Wetlands allow slow water infiltration to occur. Groundwater may provide water for drinking, irrigation, washing and many other purposes. Groundwater also supplies water to streams, ponds and lakes. During droughts, the slow recharge of groundwater to these water bodies helps maintain minimum water levels. So long as our wetlands function correctly and are not disrupted, polluted, or destroyed, we can continue to enjoy our streams, ponds and lakes and continue to rely on groundwater as our source of drinking water, and hopefully not have to dig a deeper well in order to take a shower.

### **Wildlife Habitat**

Many animals rely on wetlands and watercourses for breeding, foraging and cover. Some animals, such as those that breed only in waterbodies known as vernal pools, would not survive as a species unless temporary bodies of water existed. Wetland plants and small animals, especially insects, that breed and live in wetland areas, are food sources for those animals higher up in the food chain. We humans do not much like mosquitoes, but bats, and frogs and salamanders love them. If we diminish the lowest levels of the food chain, we diminish the higher levels as well. If we get rid of the animals and plants at the lowest levels of the food chain, the animals higher up will die off or leave to find food sources elsewhere.

Wetlands also have other less obvious benefits. From a recreational standpoint, fisherman in Pomfret can attest to the importance of our Town's streams and ponds. I do

not know if there are many swimming holes in Pomfret, but I suspect there are a few. From an economic standpoint, we all depend on wells for our drinking water and septic systems for waste disposal. Should we compromise our wetlands beyond repair, the impact to our Town and thus to us all could be catastrophic indeed. But aside from those arguments, there are values associated with wetlands that are important only to the beholder. Is open space, the work of a beaver, the sounds of birds and the chorus of peepers heard on a summer night important to you and your family?

Sadly, wetlands do have limits. Not all wetlands function efficiently. A partially filled or otherwise degraded wetland can only partially perform its functions. A new road, a driveway or a house in the wrong place may compromise wetland function, and in the long term lead to significant environmental damage. Science has shown that wetlands provide many environmental benefits, and they are not indestructible. Once compromised or lost, they may well be gone forever, unless a great deal of money and time is spent in an attempt to restore them.

Buffers can help mitigate adverse impact to wetlands and watercourses by protecting these vital water resources to some extent. In Part II of this article, the two kinds of buffers and their importance to wetlands and watercourse will be our focus. We will also address the Commission's regulatory responsibility to require buffers as a land use restriction when needed. I hope you will stay tuned and certainly let the Wetlands Commission know your thoughts.

**Note:** Credit is given to Joy P. Michaud in her publication "At Home With Wetlands". Much of the information in this article came from her publication. This 32-page guide may be downloaded from the web at [www.ecy.wa.gov/programs/sea/pubs/90031/](http://www.ecy.wa.gov/programs/sea/pubs/90031/).