



SPRING CREEK RIPARIAN BUFFER RESTORATION AND EDUCATION PROJECT

Spring Creek Buffer

The Spring Creek Riparian Buffer Restoration and Education Project is a partnership between the Dauphin County Conservation District (DCCD) , Derry Township, and Derry Township School District. Financial and other support for this project was provided by Pennsylvania American Water, PA League of Women Voters—Water Resources Education Network, and Mike Leonard Plumbing. Working together the project partners restored 4,400 linear feet of riparian buffer along an unnamed tributary of Spring Creek located on Derry Township and Derry Township School District land in Derry Township, PA. Thanks to a team of DCCD staff, residents and students, more than 670 native trees, shrubs, and wildflowers were planted along the stream's banks. The buffer provides many water resource benefits and also serves as an outdoor classroom to teach students about the importance of streamside buffers and how to protect them.

What Does This Mean for You?

Establishing and protecting the vegetation along Spring Creek and its tributaries helps to improve water quality, protects the streambank, prevents erosion, traps sediment and filters other pollutants. This is important to the community because Spring Creek feeds into the Swatara Creek which is one of the sources of drinking water for Derry Township.

What Can You Do?

The project area is also used as an outdoor classroom to teach students about the importance of streamside buffers and how to protect them. You can help by walking on the paths provided and cleaning up pet wastes. If you live along a stream, you can help prevent polluted runoff of waterways by planting native plants and trees that filter pollutants and help wildlife conservation. Keep a natural buffer and do not mow to the edge of the stream.

Riparian (Streamside) Buffers

Riparian, or streamside, buffers are designed to maintain or restore streamside land in its natural vegetated state, in order to take advantage of the benefits that a forest's biological processes can provide to the stream's habitat. They are vegetated strips of land along a stream that "buffer," or protect, the stream from the impact of human activities. Preventing harmful pollutants from entering the stream benefits the entire stream habitat, as well as people who use the stream for swimming, fishing, boating, and as a source of drinking water. Trees and shrubs along the stream are more beneficial than a grass-lined streambank.

Benefits of Buffers

Riparian buffers have numerous water quality and stream protection benefits. They include: 1) Protecting streams from contaminants carried in runoff, such as fertilizers, pesticides, sediment, grease, oil and chemicals; 2) Helping to reduce localized flooding by decreasing the amount of runoff entering local streams immediately after a storm; 3) Helping to reduce streambank erosion by roots holding the soil in place, reducing the erosive force of the stream; 4) Helping to recharge the groundwater supply by providing infiltration; 5) Protecting the habitat by providing a shade canopy that protects the stream from the sun's heat, which keeps the water temperature cool during the summer; 6) Supplying food, shelter, and breeding habitat for fish and other organisms through leaves and woody debris that fall into the stream; 7) Providing habitat for wildlife; and 8) Improving the appearance of streambanks and promoting recreational uses.

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Unsuitable Uses and Activities

In order to preserve the buffer's effectiveness and stream health, certain land uses and activities are not suitable within a designated buffer zone. The threat to water quality posed by the land use or activity is included in parentheses. They include: construction related to development, plowing fields and grading the streambank (sediment, nutrients); Impervious surfaces (chemicals); Application of fertilizers, pesticides and manure (nutrients, bacteria); Livestock grazing (bacteria/pathogens, sediments); Septic tank drain fields (bacteria/pathogens, nutrients); Waste disposal sites (chemicals, bacteria/pathogens); Logging roads (sediment); and Mining (sediment).

Buffer Design

There are a wide variety of buffer designs in use. Buffers can be found from a few feet to several hundred feet. Some designs are developed not only for water quality but for wildlife conservation. To be effective, a buffer must have enough width to allow filtration and infiltration processes to occur. It is also critical that water flow into and across the buffer as sheet flow rather than concentrated flow. Concentrated flows will likely cause erosion and will also reduce the buffers filtering and storage capacity. Two common designs are the forested buffer and the three zone buffer. In the forested buffer, the entire width is planted to or preserved as undisturbed forest. This is the design used for this project. The second common design is the three zone design. See Figure 1. There are many guidance publications available from resource agencies and online related to buffers.

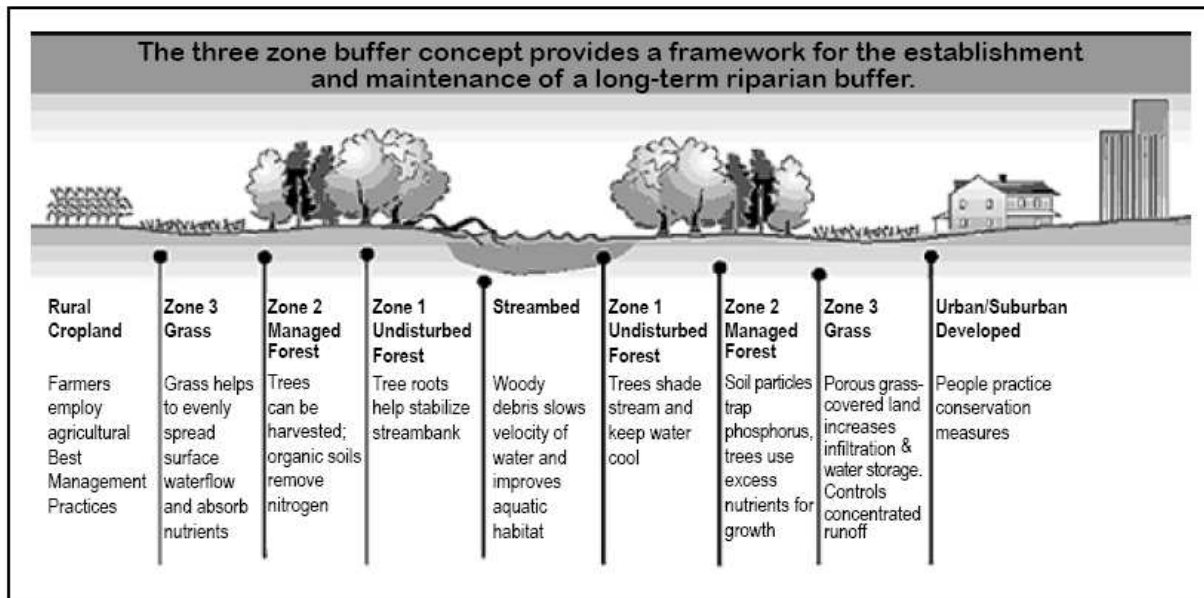


Figure 1. Diagram of Buffer Zones and Land Uses Recommended for Each Zone
Courtesy of the University of Maryland

Buffer Management

Once a buffer is established, maintenance is key to its success. The following tips will help ensure that a buffer system functions effectively over the long term: 1) Designate a buffer manager who will perform buffer inspections and maintenance; 2) Conduct annual buffer inspections assessing streambank erosion and human and livestock damage; 3) Plant additional trees, shrubs and ground cover, if necessary, to compensate for excessive losses; 4) Inspect the buffer for gully formation after severe storms; 5) Remove piles of debris completely blocking streamflow; 6) Control weeds for two or three growing seasons; and 7) Remove invasive plants.