

# VEGETATIVE BUFFERS AND HOW THEY WORK

## 1. Why Do We Need Buffers?

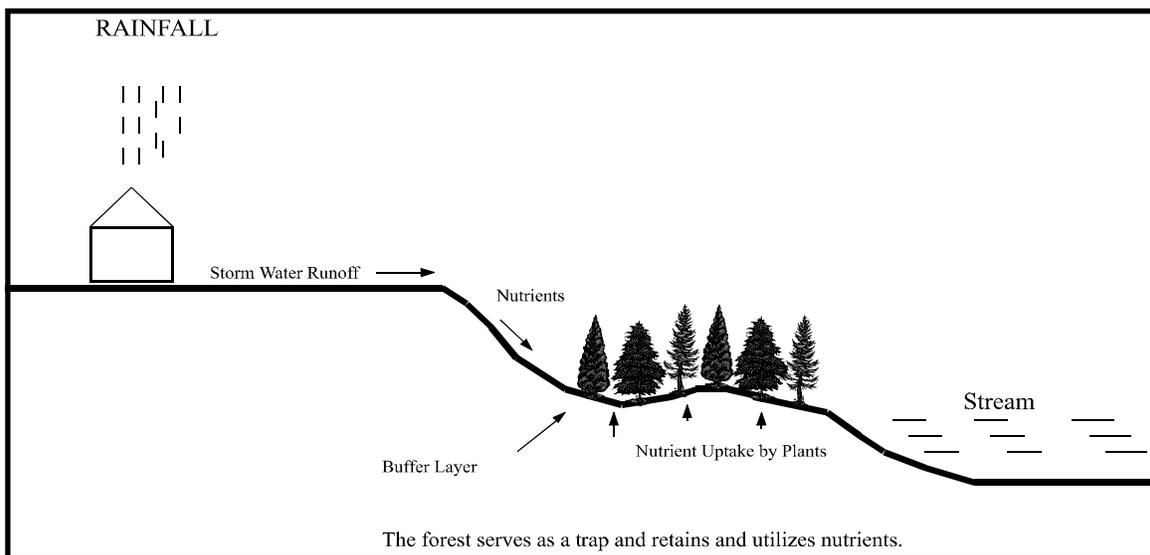
Lakes are receiving more and more runoff and non-point source pollution every year from existing and increased development and human activity in their watersheds. This increase is showing up as declining water quality, increased algae blooms and loss of wildlife. One of the reasons lakes are receiving more runoff is because there is more impervious area and less “woods” in their watersheds. Roofs, roads, driveways, parking areas and lawns prevent rain from soaking in and instead allow it to run off and into the nearest body of water. As rain passes over these impervious areas, it picks up pollutants such as grease, oil, fertilizers, pesticides, detergents, soil, nutrients and organic debris. One of the best ways to prevent this runoff from reaching a lake or other body of water is with a vegetative buffer strip or zone. We have removed many of the natural buffers and our job now is to replace them wherever we can to protect our lakes and prevent further degradation.

## 2. How Do Buffers Work?

- \* Tree and shrub canopy intercepts raindrops and reduces impact on soil below.
- \* Leaf surfaces collect rain and allow evaporation.
- \* Root systems hold soil in place and absorb water and nutrients.
- \* Duff layer and low herbaceous plants filter sediment and other pollutants from runoff.
- \* Uneven soil surface (hummocks) allows rain to puddle and infiltrate.

## 3. Elements of a Good Buffer

To be effective, buffers need to be downslope of any activity or development and upslope of the water you want to protect.



Buffers should have several vegetation layers and a variety of plants to get the maximum benefit of each type.

TREES (evergreen or deciduous)

- \* Absorb impact of rain and wind.
- \* Deep root systems absorb water and nutrients and maintain soil structure.
- \* Provide shade and habitat.
- \* Long-lived.

SHRUBS (flowering or non-flowering)

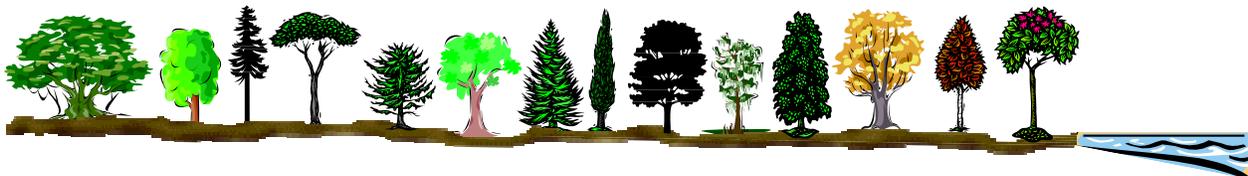
- \* Absorb impact of rain and wind.
- \* Medium depth root system absorbs water and nutrients and hold soil in place.
- \* Attractive to wildlife and people.
- \* Many are long-lived and low-maintenance.

GROUND COVERS (grasses, vines, flowers, herbs)

- \* Slow down surface water flow.
- \* Trap sediment and organic debris.
- \* Shallow root system holds soil/protects surface from erosion/absorbs nutrients and water.
- \* Available in many forms attractive to wildlife and people.

Buffers should not have channels through them and only a winding footpath made of stable, unerodable material. The soil surface should not be smooth but hummocky to allow infiltration. They should be as deep as possible and span the length or width of the development area you are buffering against.

Literature from New England suggests the following buffer widths or depths to be effective for bank stability, water quality protection and wildlife habitat. (From: Native Vegetation for Lakeshores, Streamsidess and Wetland Buffers, Vermont Department of Environmental Conservation, 1994.)



200-600 feet  
Wildlife habitat protection

100 feet  
water quality protection

50 feet  
bank stability

Needless to say, most property owners do not have this kind of land to work with. A buffer of any width will help protect the lake. Any erosion that can be prevented and any runoff that can

#### 4. Benefits of Buffers

- \* Shade, shelter and food source at the water's edge.
- \* Wildlife habitat back from the water.
- \* Water quality protection - a healthy lake benefits everyone.
- \* Bank stabilization.
- \* Privacy.
- \* Protects against noise.
- \* Provides for a variety of areas in the yard.
- \* Attractive.
- \* Long-lived.
- \* Easily maintained.
- \* Low cost.

#### 5. Buffer Design

Generally, you want less emphasis on lawn and more on the views you want to preserve or enhance, the traffic control you want (path to the lake, etc.), the activity areas you want to preserve and the type of buffer you want to look at.

##### TYPES OF BUFFERS

- \* Natural - stop mowing and allow Mother Nature to take over.
- \* Enhanced - add to what is already there or what you will want when nature has finished.
- \* Landscaped - plant the entire area to plants you want and where you want them.

##### SITE CONDITIONS TO CONSIDER

- \* Exposure to sun.
- \* Soil types.
- \* Slopes.
- \* Water flow paths.
- \* Activity areas.
- \* Views.

