

## Using Buffer Strips to Protect the Kayaderosseras

### *What's the Problem?*

Polluted runoff—which occurs when rainfall, snowmelt, or irrigation washes pollutants such as sediment, nutrients, and pesticides into lakes, streams, and ground water—is the number one source of pollution to the waters of New York State. Eroded sediment is the primary pollutant in the Kayaderosseras Creek. Silt and sediments smother aquatic insects, fish and fish eggs and can interfere with trout spawning. In some places, built-up sediment makes the stream too shallow for canoeing or kayaking. Eroded and slumping stream banks can lead to wider, shallower and warmer channels and even result in flooding.

One of the reasons streams are receiving more runoff is because there is more impervious area and less woodland 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.

### *What's the solution?*

One of the best ways to prevent erosion and keep polluted runoff from reaching the creek is with a **vegetative buffer strip** or zone. Buffers are zones of variable width which are located along both sides of a stream. They are designed to provide a protective natural area along a stream corridor. In developing the land, we have removed many of the natural **buffers** and our job now is to replace them wherever we can to protect our waterways and prevent further degradation.

While grassy strips may slow the flow of runoff and absorb some pollutants, they are ineffective against bank erosion. Only forested buffers - green corridors planted with native trees and shrubs - protect streambanks and provide a full range of buffer benefits.



## Native Species for Planting Buffers along the Kayaderosseras Creek

<u>Common name:</u>	<u>Scientific name:</u>
<b>Trees</b>	
American Beech	<i>Fagus grandifolia</i>
American elm	<i>Ulmus americana</i>
Basswood	<i>Tilia americana</i>
Balsam fir	<i>Abies balsamea</i>
Black cherry	<i>Prunus serotina</i>
Black willow	<i>Salix nigra</i>
Canadian hemlock	<i>Tsuga canadensis</i>
Red maple	<i>Acer rubrum</i>
Serviceberry	<i>Amelanchier spp.</i>
Shag-bark hickory	<i>Carya ovata</i>
Sugar maple	<i>Acer saccharum</i>
Swamp white oak	<i>Quercus bicolor</i>
White ash	<i>Fraxinus americana</i>
White birch	<i>Betula papyrifera</i>
White pine	<i>Pinus strobus</i>
White oak	<i>Quercus alba</i>
<b>Shrubs</b>	
Arrow wood	<i>Viburnum recognitum</i>
Elderberry	<i>Sambucus canadensis</i>
High-bush blueberry	<i>Vaccinium corymbosum</i>
High-bush cranberry	<i>Viburnum trilobum</i>
Nannyberry	<i>Viburnum lentago</i>
Red-stemmed dogwood	<i>Cornus stolonifera</i>
Silky dogwood	<i>Cornus amomum</i>
Speckled alder	<i>Alnus rugosa</i> or <i>A. serrulata</i>
Spicebush	<i>Lindera benzoin</i>
Winterberry	<i>Ilex verticillata</i>
Witch hazel	<i>Hamamelis virginiana</i>

This is not a complete list of plants suitable for a forested buffer area, but it does contain native species known to thrive in the Kayaderosseras watershed. For information about which plants are best for upland or lowland installation, please consult the Saratoga County Soil & Water Conservation District or Saratoga County Cornell Cooperative Extension.

### **Buffer Width**

Although the ideal width for a buffer strip is 250 feet, this is not always feasible. The width is based on factors in the stream corridor - adjacent land uses; soils, slope and stream profile; the presence of wetlands, habitat and wildlife corridors, recreational trails, and the amount of nearby paved surfaces, to name a few. When planning a buffer, consult with experts at the Saratoga County Soil and Water Conservation District.

### **Buffer Benefits**

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#### **Buffers trap sediments before they enter a stream.**

Sedimentation occurs when excess soil particles accumulate in water bodies, which can suffocate organisms and reduce sunlight needed by aquatic life. Plants in the buffer zone trap sediments in runoff and prevent them from entering the stream.

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#### **Buffers reduce pollutants**

Pollutants that are attached to soil particles are transported by sediment to the water. Two common pollutants, phosphorus and nitrogen, cause excessive algae growth, deteriorate water quality, and can kill fish. Phosphorus and nitrogen are the basic nutrient elements of manures or fertilizer applied to farm fields or suburban lawns. By trapping sediments, buffers trap pollutants as well.

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#### **Buffers reduce erosion by keeping banks stable.**

The roots of trees and shrubs bind together soil particles, helping to hold the banks in place. Eroding and slumping stream banks are a source of sediment contamination in themselves. They also lead to wider, shallower and warmer channels.

## ✂ **Buffer Benefits**

### ✂ **Buffers improve habitat.**

On land, buffers can serve as corridors for wildlife and homes for migratory songbirds, mink, otter, reptiles and amphibians. Trees and shrubs also help shade the creek's waters, keeping them cool enough for trout. Buffers add natural beauty to the stream setting, a benefit for all who visit or pass by.

## **How do Buffer 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, slowing downhill water flow. Duff layer and low herbaceous plants filter sediment and other pollutants from runoff. Uneven soil surfaces (hummocks) allow rain to puddle and infiltrate. 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.

## **What can you do?**

**Buffers on both sides of the Kayaderosseras will protect the creek and its tributaries more than any one thing landowners, municipalities or agencies can do in the watershed .**

- ✂ Lay out an adequate buffer (ideally, 250 feet) along your Kayaderosseras Creek property. Don't include paved roads or driveways in calculating buffer width.
- ✂ Plant native trees and shrubs (see list) in open areas of the buffer zone, at a density of one plant every ten feet, or 60 plants per 500 square feet.
- ✂ Where manures are used in the floodplain, supplement the planting with an additional strip of perennial grasses outside the landward edge of the buffer zone. Cut and remove this grass crop once every one to three years, after spring floods. Do not mow within the buffer zone!
- ✂ Keep contaminants out of the buffer zone. Avoid activities that could threaten the creek - no livestock, septic system leach fields, construction, or soil disturbance.
- ✂ Any break in the buffer is a potential entry point for sediments and contaminants. Make sure that drainage ditches, roadway runoff and culverts discharge to a settling area in the buffer, not directly to the creek. Grade paths into the slope and surface them with permeable gravel or wood chips.
- ✂ Control runoff from impervious surfaces such as rooftops and driveways on your property; reduce non-porous surfaces.

*For more information on buffers, contact:*

Saratoga County Soil and Water Conservation District  
50 West High St.  
Ballston Spa NY 12020  
(518) 885 – 6900

Friends of the Kayaderosseras  
PO Box 223, Ballston Spa NY 12020  
*Conserving the Creek*