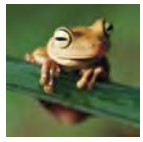


Riparian Buffers
The Very Best Protection

Joe Coleman

What is a Riparian Buffer?

+ Riparian buffers are strips of grass, shrubs, and, ideally, trees and shrubs along the banks of rivers and streams.

+ Buffers Work

- As Filters
- As Stream Flow Regulators and Stabilizers
- As Air Cooler and Conditioner
- As Wildlife Habitat
- Recreation and Aesthetics

+ How Buffers Work

As Filters:

Riparian buffers trap pollutants and nutrients that would otherwise wash into our streams. Such as phosphorous and nitrogen from fertilizer and animal waste.

Depending on the width and complexity (amount of vegetated cover), between 50 and 100 percent of the sediments and nutrients settle out and are absorbed by buffer plants.

+ The Effect of Different Size Buffer Zones on Potential Reductions of Sediments and Nutrients from Field Surface Runoff

Buffer Width Ft	Buffer Type	Sediment Reduction %	Nitrogen Reduction %	Phosphorus
15	Grass	61.0	4.0	28.5
30	Grass	74.6	22.7	24.2
62	Forest	89.8	74.3	70.0
75	Forest / Grass	96.0	75.3	78.5
95	Forest / Grass	97.4	80.1	77.2

Percent reduction = 100 x (Input – Output) / Input

(from Lowrence, R., et al, *Water Quality Functions of Riparian Forest Buffer Systems in the Chesapeake Bay Watershed*, 1995)

+ How Buffers Work

As Stream Flow Regulators & Stabilizers:

Riparian buffers slow the velocity of the water running off the land, allowing water to soak into the soil and recharge the groundwater supply.

By reducing runoff and holding bank soil together, buffers keep stream banks and streambeds stabilized.

LWC Habitat Restoration, Phillips Farm
November 15, 2008

Stream without Riparian Buffer

How Buffers Work

Stream without Riparian Buffer

Stream with Riparian Buffer

How Buffers Work

- **As Air Cooler and Conditioner:**

  The forest leaf canopy provides shade, keeping water cooler, which helps retain more dissolved oxygen. This provides a better habitat for invertebrates and fish.

  The canopy also improves air quality by filtering dust from wind erosion, construction, and farm activities.

Invertebrates Measure Stream Health

In use since the early 1900s, aquatic invertebrate monitoring is the most widespread method for measuring the health of America's freshwater systems.

Sensitive stoneflies, mayflies, caddisflies, crayfish, and hellgrammites are the first to disappear from impacted streams. They are replaced by pollution-tolerant midges, worms, and snails.

Streams without Buffers

Bank disturbance and erosion are obvious results of urbanization. However, non-point-source pollution and increased water temperatures also cause changes in invertebrate populations, impacting long-term stream health.

Fort Collins, Colorado
© Scott Hoffman Black

How Buffers Work

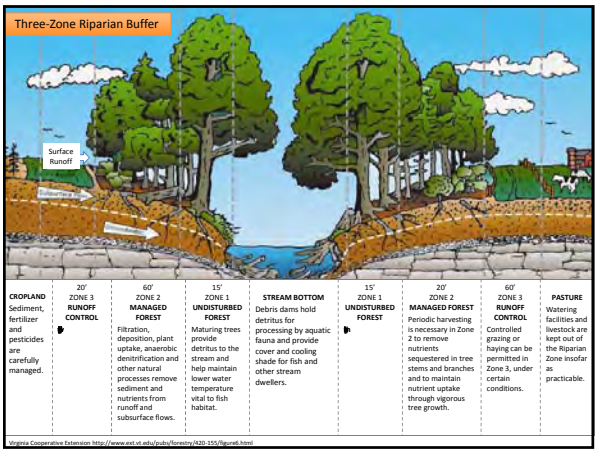
- **As Wildlife Habitat:**

  Riparian buffers are home to a multitude of plant and animal species, provide wildlife corridors, and woody debris creates shelters.

How Buffers Work

- **Recreation and Aesthetics:**

  Buffers provide attractive green screens along waterways as well as recreational opportunities for hiking, fishing, and camping.



Making a Difference in Loudoun County

LWC Habitat Restoration

- In March and November 2008, over 100 volunteers planted 600 trees and shrubs and removed invasive alien vegetation on the Waterford Foundation's Phillips Farm.
- The plantings were part of an ongoing effort to restore riparian buffers along the Catoctin Creek.

Making a Difference in Loudoun County

LWC Habitat Restoration and Stream Monitoring

Sources & Resources:

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