

Riparian Buffers



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Learning Objectives



- Learn what riparian buffers are.....
- Learn why they are important.....
- Learn some specific characteristics of riparian buffers and their valuable functions
- Learn how to enhance, preserve and protect them

What is a Riparian Buffer?



The simple definition:

A strip of vegetation along the bank of a stream, river or shoreline.

“Ripa” – Latin origin meaning “river bank” or “coast”

What is a Riparian Buffer?



A few other examples of Riparian Buffers.....



Many variables...



- variable types of vegetation
- variable strata (layers)
- variable slopes
- variable widths



Why are Riparian Buffers important?



- Protect aquatic ecosystems from adjacent land uses (a physical “setback” or “cushion”)
- Provide shade – important for temperature regulation
- Help to reduce bank erosion
- Filter pollutants:
 - ✓ Hydrocarbons, heavy metals (roads, parking lots)
 - ✓ Nutrients such as nitrogen and phosphorus (agricultural runoff, residential lawns)

Sources of Pollutants

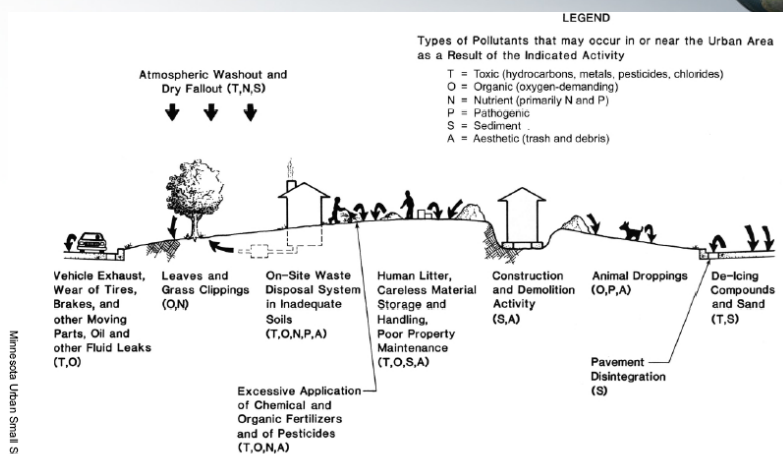


Figure 1-5
Source: Walesh, 1989

Why is preserving Riparian Buffers important?



- Difficult to re-establish riparian buffers once they are built upon
- Flood event elevations predictable with models, but changes in the watershed will necessarily change flood elevations



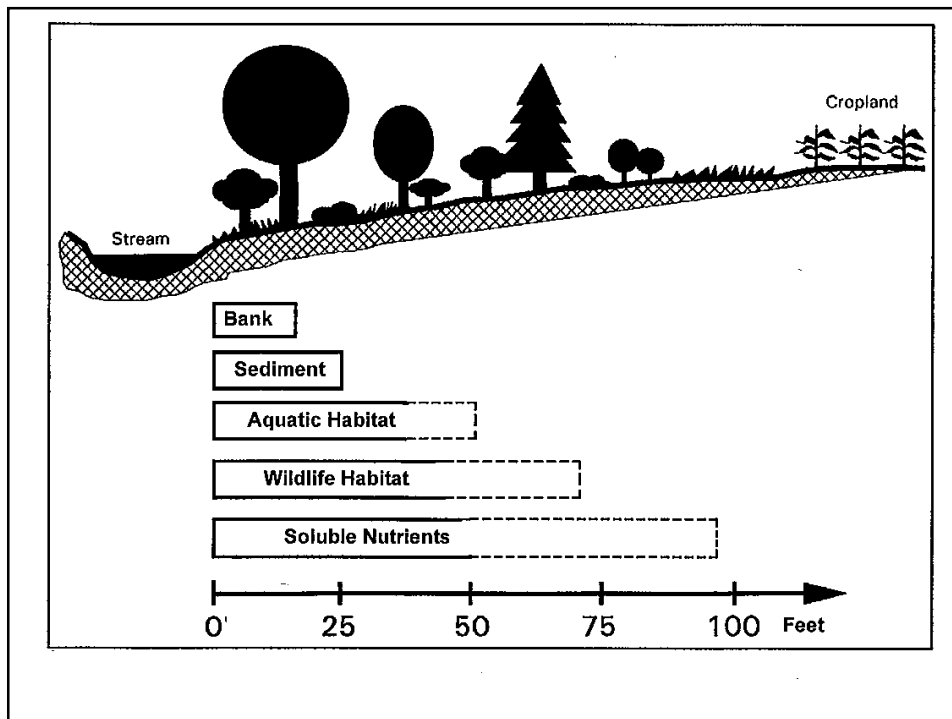
A word or two about riparian buffer widths.....



What is the appropriate width?



There is no formula for determining the appropriate width of a riparian buffer.



Tom's "Ten Commandments of Riparian Buffers":



- 1) There is no substitute for buffer widths
 - Most sediment is trapped in first 25% of the buffer
 - How wide is wide enough? Depends on your goals.....
- 2) Keep the livestock away
 - Damage to bank vegetation increases erosion potential
 - Do you really want livestock waste directly into your waterway?
- 3) Overhanging vegetation is a wonderful thing.....essential for fish and mussel survival
 - Shade effect keeps water temperatures lower in summer, reduces algal blooms
 - Leaves and fallen branches provide food and habitat for aquatic organisms
- 4) Vegetation is the key
 - Existing vegetation preferred.....but may be planted or supplemented
- 5) Vegetated channels are stabilized channels
 - Reduced erosion potential
 - Slows down flows, reducing level of stream energy

Tom's Ten Commandments....continued



- 6) Aesthetics are important
 - Riparian buffers can be pleasant places for fishing and walking paths
- 7) Slopes matter
 - Areas of steep slopes may require special engineering practices to limit erosion issues
- 8) Linear waterways + linear riparian buffers = wildlife corridors
 - Many habitat areas have become fragmented by development
 - Riparian buffers can become travel corridors linking larger habitat areas
- 9) Keep impervious (hard) surfaces to a minimum
 - More vegetation / less development
 - Consider pervious options (porous materials) for paths, boat launches, etc.
- 10) Preserve the topsoil
 - Maximize vegetation coverage to limit loss from erosion
 - Save and respread topsoil in areas of disturbance

Riparian Buffers are Vegetated!



- Could be upland, wetland, floodplain....hydrology will determine the species
- Vegetative diversity is preferred (control weeds)
- Ground coverage is important (bare ground will erode and deposit sediment into the waterway)
- Maintenance and management should focus on the establishment of a sustainable dense and diverse assemblage of native vegetation
- Routine maintenance must include debris clean up (trash or excessive natural woody debris)



Questions ?