



www.greenbeltconsulting.com

---

# Protecting Riparian Area Values

by Elliott Menashe

Our region is experiencing enormous growth and development pressure. Now is the time to consider goals, needs, processes, and future consequences of unintegrated, haphazard development and provide guidelines and procedures for protection of the riparian complexes which provide the public benefits discussed below. Poor planning and development must eventually be paid for and the costs of mitigation and restoration are always greater than preservation.

The following outline is intended as a point of departure and can be used as a check list of things to consider:

## USEFUL DEFINITIONS:

**Watershed:** The geographic area within which surface waters drain to reach a stream, lake, or other body of water. They are defined by the ridges which separate one watershed from another.

**Riparian area:** The transitional zone between aquatic and terrestrial ecosystems. The width of this area depends on the morphology of the associated stream and topographical features.

**Buffer zone:** An area of undisturbed, natural vegetation having species and structural diversity which occurs adjacent to a stream and its riparian area. The purpose of a buffer zone is to protect the integrity of the stream system.

## FUNCTIONS OF BUFFER ZONES

- Sediment filtering and erosion control
- Water storage and release
- Aquifer recharge
- Channel and streambank stabilization
- Stream temperature regulation
- Streambank protection
- Values of Buffer Zones
- Improvement of water quality (sediment filtering)
- Flood reduction (water storage and release mechanisms)
- Non-point pollution reduction (filtration of pollutants)
- Fish and wildlife habitat maintenance (movement corridors, cover)
- Aesthetic and recreational values
- Stream flow fluctuation reduction (water storage and retention)

## HOW RIPARIAN AREAS ARE DAMAGED

- Vegetation removal (predisposes site to erosion, reduces wildlife and fish habitat)
- Stream channelization (reduces recharge capacity, increases runoff)
- Streambank disturbance (by animals, people roads)

- Catastrophic stream flow fluctuations (from upstream, storm drains)
- Siltation, pesticides and other pollutants (affects water quality)
- Operation of heavy equipment in or near stream (destruction of soil structure and vegetation)
- Diversion or impoundment of waters (disrupts flow, fisheries)
- Upper watershed disruptions (e.g. logging, fire development)
- (see "Stream Problems")

### **WHY PROTECT RIPARIAN AREAS?**

The buffer zones surrounding riparian areas are sometimes the last defense for reducing the adverse impacts sustained by a watershed where development, logging, or other disturbances have caused accelerated runoff, sediment, pollutant transport, and erosional losses. These areas furnish increasingly critical habitat for wildlife and fisheries resources in urbanizing areas.

### **HOW TO PROTECT RIPARIAN FUNCTIONS AND VALUES**

#### **Agency and government**

- Education of populace regarding the need for protection
- Identification of critical areas
- Baseline assessment Site description - Determination of existing parameters of the project site for a working referent (i.e. hydrology, stream morphology, vegetation)
- Identification of site specific functions and values (e.g. wildlife and fisheries, erosion control, flood reduction)
- Planning and management practices (e.g. critical tolerances, cumulative impacts, compromise and trade offs, covenants and restrictions, identification of responsible parties throughout process, legal liabilities, transfer of liability)
- Planning and implementation of mitigative measures throughout the process of infrastructure development (e.g. removal of hazard trees, determination of necessary buffer extent, enhancement needs, design of construction practices that minimize stream degradation)
- Monitoring - Establishment of procedures and responsibility for monitoring impacts before, during, and after development
- Enforcement and adequate penalties to pay for restoration and repair

#### **Private landowners Preserve adequate buffer zones**

- Factors to consider when determining width:
  - Size of stream and contributing watershed
  - Slope of surrounding area
  - Gradient of stream
  - Soil type (e.g. sandy, hydric, hardpan)
  - Offsite influences (e.g. storm drains, runoff from parking lots)
  - Condition and quality of existing vegetation
  - Occurrence and diversity of fish and wildlife

- Factors to consider when assessing vegetational effectiveness:
  - Structural diversity (e.g. ground covers, shrubs, trees)
  - Diversity of age classes (i.e. young, mature, old, dead)
  - Diversity of species (deciduous, evergreen, etc.)
- Retain organic debris within the riparian and buffer area
- Large woody material (e.g. downed trees, large limbs) supplies nutrients to stream system, wildlife food, and habitat; aids erosion control; contributes to stream channel stability.
- Small debris (leaves, limbs, etc.) supply compost material, mulch, and soil components.
- Practices to Avoid
  - Routing roof drains and driveway runoff directly into streams
  - “Cleaning up” the stream area of natural debris
  - Clearing vegetation down to the banks
  - Dumping of garbage and yard wastes into or near streams
  - The use of plastic landscaping fabric and beauty bark near streams
  - The application of pesticides
  - Dumping household chemicals, paints, etc. into or near streams
  - Planting of lawns near streams
  - Breaking down stream banks
  - Operation of heavy equipment near streams during winter and spring.
  - Areas of bare soil
- Practices to Encourage
  - Fence riparian areas to exclude stock
  - Restrict access to established paths and crossings
  - Work with neighbors to enhance the stream
  - Plant native trees and shrubs to improve wildlife habitat Install and maintain bird feeds and nest boxes
  - Report any odd colors or odors from stream water to the local authority in your area
  - Educate your children regarding riparian benefits.
  - Exercise extreme care when removing obstructions
  - Know the laws and regulations governing streamside modifications (e.g. grading permits, Hydraulic Project Approval)
    - Federal: E.P.A., Army Corps of Engineers, etc.
    - State: D.N.R., Dept. of Fisheries, Dept. of Wildlife, D.O.E., etc.
    - Local: County and city planning departments

---

Written by Elliott Menashe of Greenbelt Consulting, ([www.greenbeltconsulting.com](http://www.greenbeltconsulting.com)) an environmental education, assessment, and management service in the Pacific Northwest.