

# RIPARIAN FOREST STEWARDSHIP

## What is the Riparian Forest?

The riparian forest is found along the borders of streams, lakes, reservoirs, springs and seeps. Its wet soils and high water table create a place for water-loving plants such as alder, willow, cottonwood, cedar and spruce. Shrubs and herbaceous plants may become thick and almost impenetrable. It's referred to as the "green zone," because vegetation stays green longer in the summer months. It may be narrow, next to the steep bank of a small creek, or a broad lowland, along streams, rivers, lakes and ponds. While less than 5 percent of the total forest, its plant and animal variety make it a productive and valuable part of the forest ecosystem. Lush plant growth and its proximity to water make it a magnet for many uses (see illustration). Although limited in size, it performs a valuable service.

## What Does it Do?

### *It's a filter that traps sediment.*

The riparian forest's thick vegetation and mat of decomposing plant material acts like a filter. Sediment, pollutants and other forest debris are trapped in the riparian forest, unable to enter the stream, lake or other water body.

### *It's a sponge that controls water flow.*

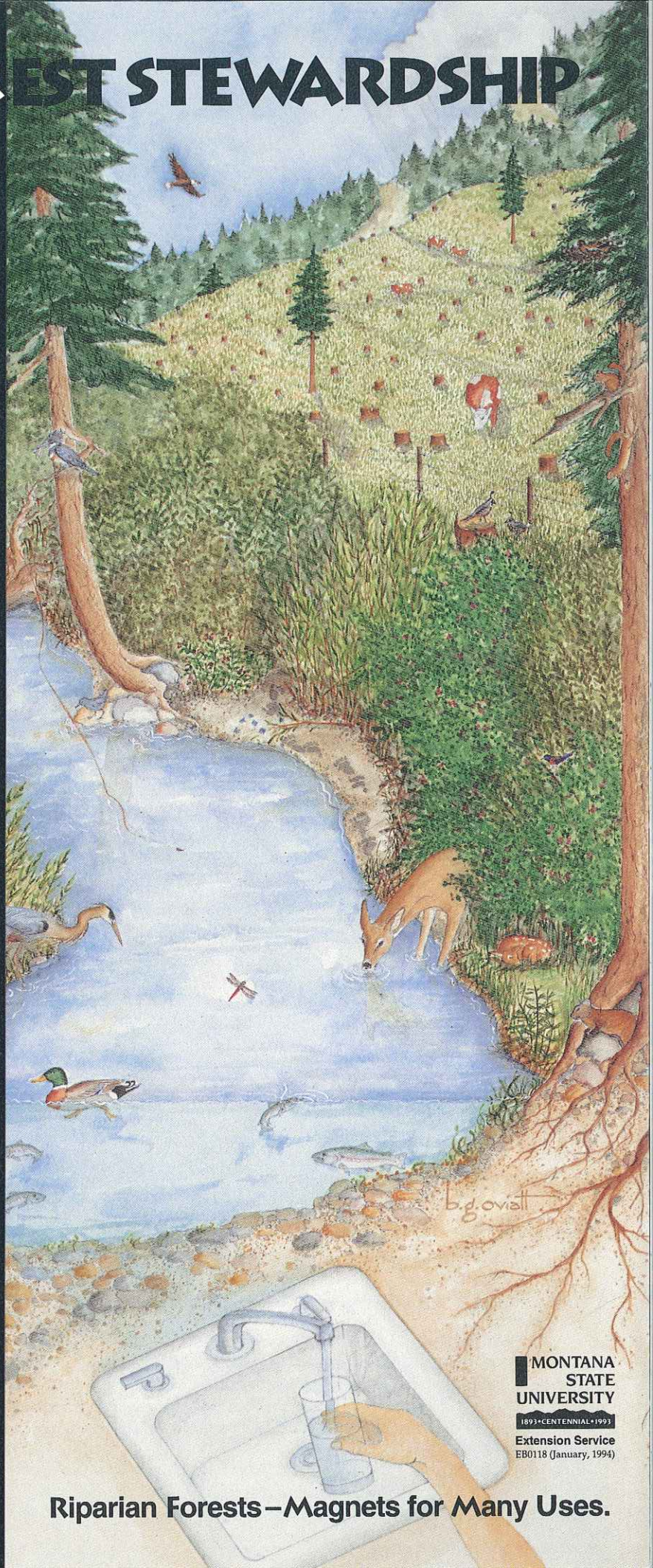
Riparian forest soils act like a sponge; they collect and hold water. Gradually the water leaks out, replenishing streams and lakes during dry summer months. The filter and sponge of the riparian forest have a direct effect on the amount and quality of water supplied by forest lands. Fisheries, domestic water users and downstream irrigators benefit from healthy riparian forests.

### *Its plants protect the streambank.*

A bank knit together with deep, dense roots and fallen logs is less likely to erode during spring runoff and floods than a barren one.

## What if it's Damaged?

Damage to the riparian forest can destroy the sponge, ruin the filter, erode banks and result in deterioration of water quality. Other consequences are increased filtering costs for drinking water, damaged irrigation systems, increased flood potential, reduced wildlife habitat and property loss.



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**Riparian Forests—Magnets for Many Uses.**



# KEEPING RIPARIAN FORESTS HEALTHY

## When Harvesting Timber

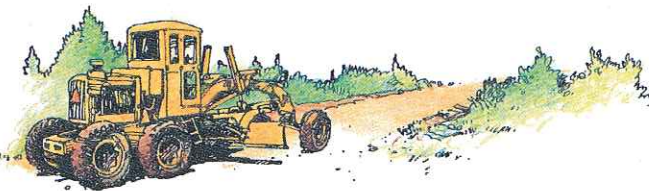
Within the riparian forest, timber harvesting requires special attention. The need to maintain water quality, fisheries, and wildlife habitat has priority. When conducting forest practices, **Montana's 1991 Streamside Management Zone (SMZ) Law** restricts the following 7 activities within at least 50 feet of any stream, lake, or other body of water. Forest practices are activities occurring within a timber sale and include accessing, harvesting, and regenerating trees for commercial purposes.

### Requirements of the SMZ Law:

1. Do not clearcut (remove all or most of the trees) within 50 feet of a stream, lake or other water body.



2. Do not allow slash (tree tops, branches) to enter streams, lakes or other water bodies.
3. Do not construct roads in the SMZ except when necessary to cross a stream or wetland.



4. Do not side-cast soil or gravel into a stream, wetland or watercourse during road construction, grading and maintenance.
5. Do not operate wheeled or tracked equipment in the SMZ except on established roads.



6. Do not handle, store, apply, or dispose of hazardous or toxic materials in a manner that pollutes streams, lakes, or wetlands or causes damage or injury to humans, lands, animals, or plants.



7. Do not broadcast burn in the SMZ (allow fire to spread through riparian areas).

### For more information:

Contact your local Department of State Lands office or request publication No. EB0096 Montana Forestry BMP's - Forest Stewardship Guidelines for Water Quality; Extension Publications, MSU, Bozeman, MT 59717-0204.



Fencing out livestock for 4 years resulted in dramatic riparian and stream improvement (right-1977). The wide, shallow stream channel was gradually replaced by a narrower, deeper, more stable channel with well-vegetated banks. Improved summer streamflow and enhanced fish and wildlife habitat were direct results of the riparian forest recovery.



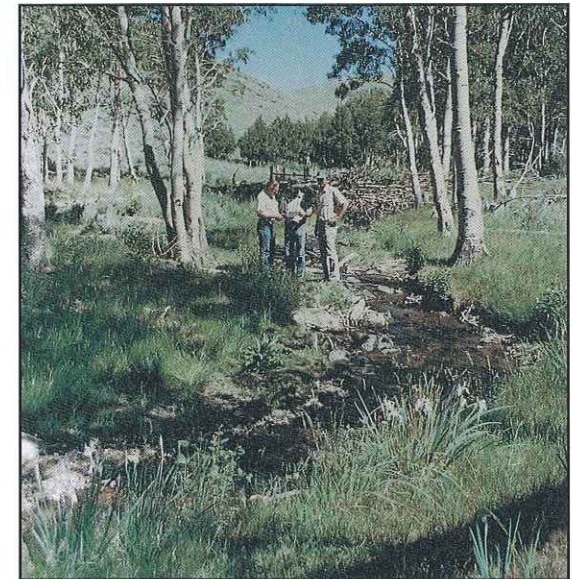
### Tips on livestock management to improve riparian forests at minimal cost:

- Plan a grazing system that takes into account the present condition and wildlife use of the riparian forest.
- Alternate the season of use. Do not graze the riparian forest at the same time year after year.
- Wait until stream banks dry out before grazing.
- Shorten the length of the grazing period and lengthen the rest period. This allows plants to regain growth and vigor.
- Allow time for regrowth after grazing.
- Fencing or pasture rotation can control livestock use of riparian forests.
- Trail livestock away from streams.
- Yearling cattle and sheep often have less impact than cow-calf pairs because they tend to spend less time in riparian areas.
- Prescribed burning of uplands can increase forage palatability and attract livestock away from riparian forests.
- Never construct corrals in riparian forests.
- Be sure livestock waste won't reach the water.
- Pipe water away from the stream, develop upland water and place salt out of the riparian forest.
- Watch for streambank trampling and overuse of shrubs. These are signals of damage to the riparian forest.

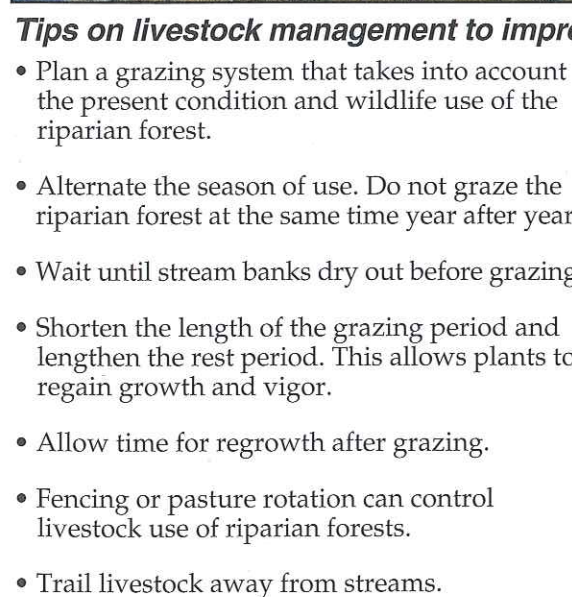
**For more information:** Contact the Soil Conservation Service or your County Extension Service.

## When Grazing Livestock

◀ The riparian forest is susceptible to bank trampling, soil compaction and loss of vegetation. Uncontrolled or season-long grazing may result in wide, shallow stream channels, with flattened banks or steep eroding cutbanks. In 1973, the trampled and heavily grazed filter and sponge of this stream (left) offered little protection from sediment and other pollutants. The consequences were poor water quality and the loss of fish and wildlife habitat.



◀ In 1992, livestock were allowed to re-enter the restored riparian area. Grazing was limited to 2-4 weeks in July. The results (left) illustrate the need to carefully manage grazing in riparian areas and allow time for regrowth. The key to healthy riparian forests is grazing management.





# : Tips on Protection and Enhancement

## When Planning a Homesite

Summer cabins, homes, and 20-acre ranchettes can be a major threat when located in the riparian forest. The ability of the riparian area to act as a filter for pollutants and as a sponge to store water can be permanently destroyed by development activities.

### ***Other reasons not to locate homesites in riparian forests:***

- Building sites too close to streams may create a flood hazard or require costly bank protection, causing loss of fish and wildlife habitat.
- Septic systems may fail; ground water and stream pollution can occur.
- Yard fertilizer and pesticide runoff can pollute streams and lakes.
- Wildlife travel routes may be cut off and wildlife habitat may be lost.



### ***Tips on reducing the impact of homesites in riparian forests:***

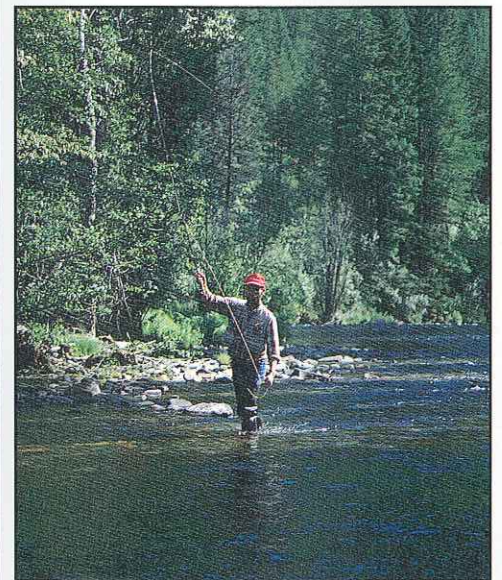
- Plan for minimum impact before building.
- Limit homesite development and other buildings to upland areas, away from riparian forests.
- Locate home access roads away from streams to reduce soil erosion and a continuous source of stream sediment.
- Avoid disturbing wildlife travel routes, and eagle, heron, and other sensitive species' nesting sites.
- Restrict free livestock access to streams (see tips on livestock management).
- Maintain native vegetation, especially trees and shrubs next to streams or lakes. A green lawn stretching to the water's edge may look nice, but a grassy streambank does not provide enough resistance to slow flood flows and prevent bank erosion. A bare dirt bank and property loss are likely to occur.
- Protect and plant native shrubs for rich wildlife habitat. Lawns are sterile habitat, providing little attraction for wildlife.

## When Recreating

One of our most popular pastimes – outdoor recreation – often takes place in the “heart” of riparian forests. Fishing, hunting, hiking, biking, camping and recreational vehicle use can all cause damage to the riparian forest filter and sponge.

### ***Tips on recreational use of riparian forests:***

- Use proper stock management when horse packing (see tips on livestock management).
- Clean up litter and debris from recreational outings.
- Avoid destroying vegetation to gain access to a stream or pond.
- Launch boats and canoes at developed sites to avoid bank damage.
- Avoid using roads during spring thaw when wet or muddy.
- Use vehicles, ATVs, motorcycles and mountain bikes only on established roads or trails.
- Keep human waste away from water.
- Camp only at designated sites and away from water's edge.



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# Benefits of Riparian Forest Stewardship

Bill Byrne



## ◀ Wildlife Habitat

Many wildlife species rely on riparian forests. In western Montana alone, 59 percent of the land birds use riparian forests for breeding. Of those birds, 39 percent *must have* riparian areas to breed. Turtles, beaver, muskrat and water snakes thrive among the grasses, shrubs and water plants. Moose, deer, wood duck and bear feed and seek cover in the vegetation. Eagles, owls and songbirds occupy the trees. Pools supply breeding sites for frogs, toads and insects. The riparian forest is a well-traveled corridor for wildlife, connecting one forest area with another.

## Clean Water

Healthy riparian forests result in high quality water from forested watersheds. They filter out sediment and release water for late summer streamflows. We depend on sediment-free water for household use, irrigation and healthy fisheries.

## Biodiversity

Riparian forests make up less than 5 percent of the total forest ecosystem, yet they contain 75 percent of the forest's plant and animal diversity. Several sensitive and rare species are dependent on these moist forests. The variety of plants and animals ranks riparian forests among the most productive and important of all forest lands.

## ◀ Fisheries

Trees and overhanging shrubs moderate water temperatures. Without them, streams would be warmer in summer and colder in winter. Some fish and aquatic organisms would be unable to survive. During the summer, cold water from shaded streams eventually flows into larger rivers, helping to maintain their fish and aquatic life by keeping downstream waters cool. When riparian trees die and fall into streams, their logs create small dams and pools in which fish can breed and hide.

Leaves and insects drop into streams from overhanging trees and shrubs. In fact, 90 percent of the food in forested streams comes from bordering plants. Even in large rivers, over 50 percent of the food consumed by fish is from streamside trees and other vegetation.

Bank overhang is created by stream waters undercutting well-vegetated stream banks and tree roots. Fish can rest, hide from predators, and feed in these protected areas.

## ◀ Timber Production

For those who grow and harvest trees, the riparian forest is a very productive part of the forest. Trees grow fast, responding to deep, fertile, and moist soils. Tree harvesting may occur, but it must be done carefully to maintain healthy riparian forests.

## Forage for Domestic Animals

The abundance of water and green vegetation makes riparian forests attractive to and important for domestic livestock production. Proper grazing management can maintain the long-term productivity of riparian forage.

## ◀ Flood Control

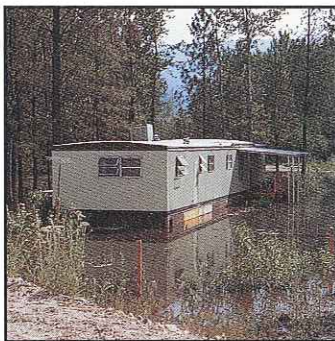
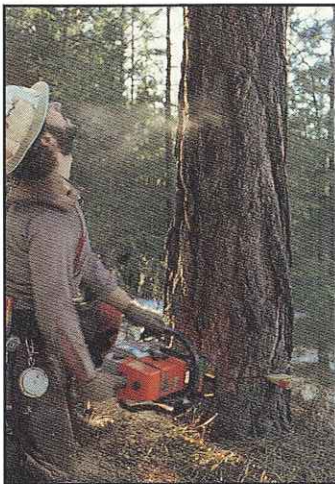
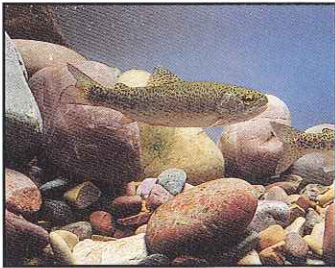
During times of high water, riparian forests reduce the speed of floodwaters. The dense vegetation and deep humus slow racing waters. Streambanks and downstream property owners suffer less soil erosion and damage when riparian forests are healthy.

Streambanks are stabilized by riparian shrubs and trees. They anchor banks and prevent erosion during periods of high water. Removing trees and shrubs and substituting shallow-rooted grasses can lead to streambank collapse, erosion and stream sediment.

## ◀ Recreation, and Other Human Uses

Many of us enjoy riparian forests for many reasons. We are drawn by the proximity of water, gentle terrain and green vegetation. Hunting, fishing, hiking, bird-watching, camping, and picnicking are just some of the recreational activities found in and around the riparian forest.

Riparian forests are valuable real estate. When properly protected, they provide many benefits to the property owner.





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