



SECTION 9

Pasture and Riparian Management

Keeping Hauser Lake Clean

Over the past several years, there has been a migration from city residential areas to more rural housing developments as well as homes on small acreages. This section will address conservation and pollution prevention measures which can be implemented to protect pastures and riparian areas on lots up to twenty acres in size. The need for this type of information has been clearly demonstrated in watersheds throughout the state.

Most owners of these small farms are concerned about what they can do to help with the restoration of the watershed. Improper grazing management of pasture and riparian areas by small farms can lead to pollutants such as sediment, nutrients, and bacteria entering streams and ground water. Individually, their contribution may seem small, but as the numbers of small farms increase, the potential for more pollutant input on a watershed scale increases. This section will provide information these landowners should consider to become a part of the solution to improve water quality.

Pastures

Pastures in good condition provide adequate protection from erosion by wind or water. Proper grazing systems help to prevent erosion and sediment or nutrients delivery from pasturelands. Soil compaction and increases in water runoff can occur when pastures are grazed when wet or overgrazed. This can occur on pasturelands used as winter and spring feeding areas, on pastures grazed in early spring while soils are still wet, and on pastures grazed during or too soon after irrigation. Overgrazing can leave pastures vulnerable to erosion by water and lead to excessive nutrient leaching or runoff.

For a successful grazing program, the following management tips should be considered:

- Eliminate continuous grazing; allow 30 day rest periods or use a high-intensity, short-duration grazing system to rejuvenate poor condition pasture.
- Subdivide large pastures into smaller sections, and develop a pasture-rotation system.

- Corral livestock and feed them hay until your pasture grasses are 6" to 8" high. Move livestock when 50% of the grass plant has been eaten (3" to 4" height remains). Do not re-graze until grasses are at least 6" high (will take up to one month).
- During winter months, continue your rotation and feed in dry pastures to distribute manure. Feed evenly across your pastures or hold animals in a corral.
- Horses do not need 24-hour access to feed or forage. Their nutritional needs can be met with only a few hours of grazing on good pasture each day. Corral animals for a period each day to prevent overgrazing of plants and extend usage of available forage.
- Provide a water source for each pasture.
- Irrigate each pasture (if irrigation is available) immediately after grazing to get plants growing again. Do not graze on wet soils.
- Restrict or end grazing early enough in the Fall to maintain 3 inches of stubble going into Winter.

What Is A Riparian Area?

Riparian areas are areas adjacent to creeks, streams, wetlands, lakes and rivers where vegetation is strongly influenced by the presence of water.

Riparian vegetation filters out sediment which builds streambanks, forms productive wet meadows and floodplains, and reduces sedimentation of lakes and reservoirs. Riparian areas in good condition slowly release water to stream channels, thus improving seasonal water quantity and quality. They also stabilize the water table, add to aquifer recharge, and assist in the beneficial recycling process of accumulated nutrients. Therefore, any alteration, degradation or destruction of riparian habitat can have significant environmental and economic consequences on the watershed.

How Does Grazing Affect Riparian Areas?

Management of animal grazing on riparian areas for small plots of land should follow the same basic strategy as that for larger plots of public or private land. Improper animal grazing can affect the amount, timing, and quality of water in riparian areas. Improper animal grazing affects on riparian areas include loss or reduction of streamside vegetation and trampling of streambanks and channels. Channel stability can be reduced and become more susceptible to erosion by high flows. Stream downcutting or channelization of riparian areas will result in additional erosion and lowering of the water table. Streambank compaction can also occur and contribute to poor plant root development and decrease the soil's infiltration rate. Improper grazing can eliminate woody vegetation which would result in decreased shade and a potential increase in stream temperatures. This increase in stream temperature can have a negative impact on the life cycles of Hauser's cold water fishery and the organisms on which they depend for food.

Degraded Riparian Areas Have:

- Little vegetation to protect and stabilize stream banks and shade stream.
- Lowered water table and saturated zone, reduced subsurface water storage.
- Reduction or elimination of summer stream flows.
- Warmer water in summer and increased icing in winter.
- Poor habitat for wildlife, fish and other aquatic organisms.

Healthy Riparian Areas Have:

- Diverse vegetation and root systems protect and stabilize stream banks; stream shaded.
- Elevated water table and saturated zone increase subsurface water storage.
- Sustained summer stream flows.
- Cooler water in summer, reduced icing in winter.
- Good habitat for wildlife, fish and other aquatic organisms.
- Increased potential for nutrient recycling.

Potential Groundwater Impacts

Poor grazing management practices often lead to slower soil infiltration rates. Decreased plant cover leaves more soil exposed to raindrop impact and soil compaction, further reducing infiltration rates. A slower infiltration rate means that more water will run off and less water will be available for plant growth, subsurface percolation, and groundwater recharge.

The potential impact on the quantity and quality of deep groundwater aquifers is low. However, grazing can impact the quality, amount, and timing of shallow groundwater. In many cases, the flow of perennial and intermittent springs and streams is sustained by shallow groundwater flow. Groundwater is cooler than surface water and helps maintain lower stream and lake temperatures to support aquatic life during hot dry times of the year when snow melt is no longer contributing to streamflows. Decreased soil infiltration will cause increased overland and reduced groundwater flow and can also cause a shift in plant species and increased evapotranspiration.

Potential Surface Water Impacts

Research indicates that impacts on surface water from poor grazing management practices includes increased bacteria, nutrient concentrations, and increased sediment production in downstream portions of the watershed. It appears that coliform bacteria in streams are a function of animal density and their direct access to streams. Bacteria are not nutrients and do not lead to the increased eutrophication of Hauser Lake. They do however, pose a human health risk to anyone ingesting water that is contaminated.

Of the nutrients that could impact streams, nitrogen and phosphorus are of the most concern. Phosphorus binds to soil organic and mineral particles and is a potential pollutant any time soil erosion rates are high. On pastures receiving fertilizer, there is the potential for nutrient loss to streams, especially in areas with poor drainage, poor grazing management, or soils that have a high leaching potential.

Riparian Grazing Solutions

Best: Use fencing to exclude livestock from riparian areas. Livestock exclusion allows riparian plants the greatest opportunity for recovery in the shortest period of time. Significant improvement is often seen in only two to three growing seasons. Use watering troughs away from surface water wherever possible.

Good: If riparian grazing is necessary, use fencing to allow *controlled* grazing of the riparian area. Avoid grazing the riparian area until stream banks are stable and well vegetated, then graze only in the late spring for short periods. Avoid early spring grazing because stream banks are saturated and vulnerable to trampling. Avoid summer and fall grazing because this is when livestock tend to overgraze shrubs, especially willows. In just a few days, livestock can remove an entire year's shrub growth. Avoid grazing riparian plants shorter than three inches.

Best Management Practices (BMPs)

BMPs are practices or combinations of practices found to be the most effective and practical means of preventing or reducing the amount of pollution generated by non-point sources. For any BMP to be practical, it must be technically feasible, economically feasible, and socially acceptable.

Best Management Practices that could be useful to the small farm type operation for grazing of both pasture and riparian areas are:

- **Fencing** is the enclosing or dividing of an area of land with suitable permanent structures that act as a barrier to animals, wildlife, or people. Rotational grazing can be used with properly fenced pastures. Temporary fencing can enhance grazing systems.
- **Livestock exclusion** is the exclusion of animals from an area not intended for grazing. Fencing is an excellent way to exclude animals from riparian areas. The width of area fenced should be carefully planned.
- **Nutrient management** is managing the amount, form, placement, and timing of applications of plant nutrients. Performed properly, nutrient inputs to streams from fertilizer applications can be substantially reduced. Soils should be tested regularly to determine proper fertilizer needs and prevent over fertilization.
- **Pasture management** is the proper treatment and use of pasture. Planning and maintaining the proper use and fertilization, minimum forage height and pest control of pastures helps focus other practices towards water quality goals.
- **Planned grazing system** is a practice where two or more grazing units are alternately grazed. This could be useful where separation of pastures will continue to improve forage.
- **Excavated ponds** may be used to water animals. Small constructed ponds are valuable as sources of water when stream access is prevented to provide riparian area protection.
- **Proper grazing** is using correct timing, duration, and animal numbers that will maintain enough cover to protect soil and maintain or improve vegetation quality and quantity. This can be used in conjunction with a planned grazing system.
- **Water development** is improving springs and seeps by excavating, cleaning, capping, or providing collection and storage facilities. Also includes wells and pipelines in order to place water where desired. When springs are located on the property, they can become an excellent source of stock water. This can be part of a riparian protection plan.
- **Critical area planting** is planting native vegetation (trees, shrubs, vines, grasses or legumes) on erodible areas. This practice is an excellent way to reduce sediment runoff from any problem area. It should be used with other measures, such as animal exclusion or rest.
- **Ephemeral watercourse planting** is using adapted plant species and double seeding techniques to reduce the formation of seasonal gullies. When used in combination with mulching and small rock structures, this can be very effective at reducing erosion.
- **Fish stream improvement** is improving a stream to create fish habitat or enhance existing habitat. This practice will require a stream alteration permit from the U.S. Army Corps of Engineers and other appropriate agencies. When used with other riparian area protection methods, a small farm can have both grazing and an improved in-stream fishery.
- **Heavy use area protection** is protecting heavily used areas by establishing plant cover, surfacing, or structures. This is an excellent way to prevent erosion from high traffic areas.
- **Stream bank and shoreline protection** is using native vegetation or structures to stabilize and protect stream banks against scour and erosion (may require a stream channel alteration permit). When suitable riparian protection is initiated, stream bank improvements are very effective.
- **Wetland development and restoration** is the construction or restoration of a wetland facility to provide the hydrological and biological benefits of a wetland. Establishing or improving wetlands is an excellent way to improve riparian areas and raise water tables to be utilized by forage plants.

- **Salting** Salt blocks are useful for controlling animal distribution. Placing salt away from watering locations will help reduce time spent near water.

Summary

Utilizing proper grazing management strategies and improving pasture and riparian areas is beneficial not only for human health concerns, but to the landowner as well as water quality, fish and wildlife. Virtually all of the practices mentioned above result in some type of improvement in forage or water table levels which translates into improved productivity over the long term. Small farm owners concerned with water quality as well as increased productivity should seek the proper technical assistance for the implementation of a plan to improve forage production, riparian areas, and animal watering capabilities. Proper management of both pasture and riparian areas can benefit your property in the following ways:

- Reduces the risk of any human health concerns.
- Creates diverse vegetation and root systems which protect and stabilize stream banks and reduces the likelihood of flooding.
- Maintains water table and saturated zone and increases subsurface water storage which promotes deep root growth and reduces the threat of invasive weed species.
- Reduces stream channel icing in winter; insulates and shades water in summer heat.
- Increases quantity and quality of animal forage.
- Reduces soil erosion and off-site sediment delivery.
- Reduces the risk of both surface and groundwater contamination.
- Improves aesthetic values and related property values.

Recommended Reading:

Living On A Few Acres, Jack Hayes, Bob Bergland and the US Department of Agriculture.

For More Information

Call, write or visit...

Natural Resources Conservation Service
7830 Meadowlark Way, Suite C-1
Coeur d'Alene, ID 83815
(208) 762-4939

Kootenai Shoshone Soil and
Water Conservation District
7830 Meadowlark Way, Suite C-1
Coeur d'Alene, ID 83815
(208) 762-4939 Ext 101

Idaho Department of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene, ID 83814
(208) 769-1422

Idaho Department of Water Resources
7600 Mineral Drive, Suite 100
Coeur d'Alene, ID 83815
(208) 762-2800

Kootenai County Building and Planning Dept.
451 Government Way
Coeur d'Alene, ID 83814
(208) 446-1070

See Resource Directory (Appendix B) for additional agency contacts.

Notes: