

# Grazing Management for Streamside Areas

Habitat Extension Bulletin

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*Streams are among our most valuable resources. They provide water for livestock, wildlife, irrigation and domestic use. With proper management, streams can provide many other benefits.*

*Proper management of a stream and its banks will reduce erosion and siltation, protecting property values, improving water quality and extending the life of irrigation pumps, ditches and reservoirs. Proper management can also reduce spring flooding, provide water storage for release during dry periods (even without dams and reservoirs) and improve forage production. Recreational and scenic values of streams can be protected and enhanced, and the benefits to fish and wildlife increased. Stream banks are often the only places that trees will grow across much of the arid West. Better stream management can improve tree growth.*

*Goals will vary for each landowner, but all streams should be managed for: 1) stable, non-eroding banks; 2) good water quality; 3) stable, year-long flows and 4) continued use without abuse over the long term. When these goals are met, many of the benefits described above will follow.*

## **Streamside Vegetation**

Plants growing along streams are usually much different from vegetation found on surrounding upland sites. Included are succulent grasses, sedges and forbs; shrubs like willow, chokecherry and alder; and trees like cottonwood, ash and elm. These plants grow along streams because they require more water than is provided by normal precipitation. This green band of vegetation is called the "riparian area" or "riparian zone."

Riparian vegetation plays an important role in protecting a stream. Roots hold stream bank soils in place, reduce erosion, maintain the water table

and protect real estate. Stems, leaves and leaf litter filter sediment from rain, snowmelt and irrigation runoff, helping to keep water clear and clean. Riparian forage is usually more abundant, succulent and palatable than upland forage. Shade and hiding cover provided by the vegetation are sought by livestock, wildlife and fish. The



spongy soil held in place by riparian plants absorbs and holds water during high flows and releases it during low flows, sometimes changing an intermittent stream into one that flows year-round.

Many activities can damage streamside vegetation. Examples include improper

grazing, logging, road building, water diversion or channel manipulation. Sometimes willows or other shrubs are intentionally removed in an attempt to provide more forage or expand cultivated fields. This usually results in increased erosion, a drop in the streamside water table and reduced grazing capacity.

## **Grazing Management**

Properly managed riparian areas can be valuable sources of livestock forage. Excessive or improper grazing, however, can be very damaging. Livestock often concentrate along streams, overgrazing riparian vegetation and ignoring upland forage. Damage to the stream bank from trampling and vegetation loss can result in reduced water quality, a drop in the water table, a shift to less desirable plant species, reduced riparian forage production and reduced livestock weight gain.

Many different grazing systems are in use across the West. Of course, management must be tailored to the unique conditions found on each ranch. But pastures with streams ("riparian

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*The banks of streams are particularly vulnerable to trampling from the first snow melt through the high water of spring. Damage to streamside habitat at this time of year can reduce forage production, damage wildlife habitat, and impair water quality.*

pastures") should receive special consideration to insure that riparian areas are not damaged. Several management options are available.

#### *Use Rates*

With proper grazing, four to six inches of grass and forbs should remain along streams at the end of the growing season (late fall). Browsing on shrubs should be very light. This residual vegetation will help maintain stable stream banks, improve late-season flows and filter runoff. By adjusting the season of use and distributing animals over the entire pasture, riparian pastures can still be grazed at moderately heavy rates.

#### *Season of Use*

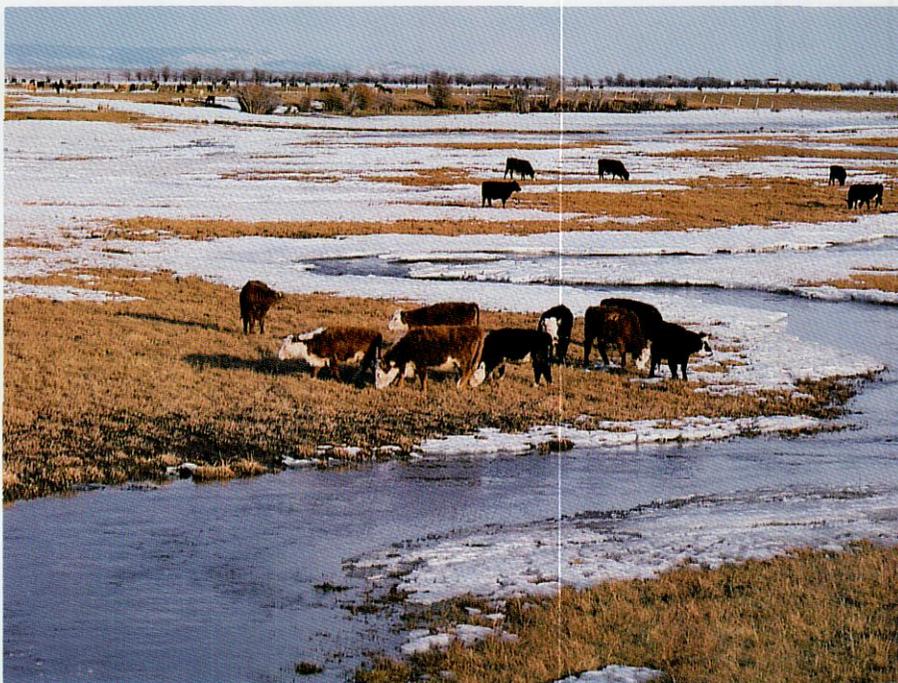
Many researchers and range managers recommend grazing riparian pastures only during spring. Water and succulent forage are available in the uplands during spring, so livestock are less likely to concentrate along streams. Spring grazing also leaves adequate time for regrowth of grazed plants, allowing for the desired four to six inches of residual vegetation.

Stream banks are vulnerable to damage from trampling and hoof action when soil moisture is high, however. For this reason, grazing along streams should not begin until after the high water of early spring has subsided (late May or early June in many areas of Wyoming). Avoid grazing riparian areas in early spring when water levels are high and soils are saturated.

Livestock should be moved to other pastures when upland vegetation begins to brown and dry (usually late June or early July). Riparian pastures should not be grazed during the hot, dry portion of the summer.

Heavy stocking of riparian pastures during a relatively short spring period is preferable to moderate stocking over a longer period. Even a few animals grazing a riparian area over the entire season may cause unacceptable damage to stream banks and vegetation.

Repeated spring grazing over many years can deplete nutrient reserves in the plants' root systems. Resting the riparian pasture or grazing it during fall instead of spring every third year, for



example, can help maintain high forage productivity.

When spring grazing is impractical or undesirable, late fall grazing is usually the best alternative. Riparian plants are often dormant and less likely to attract concentrations of animals during fall. Livestock also need less water and shade then, so they are less likely to abuse streamside areas. However, livestock often prefer shrubs and young trees during fall because they remain succulent longer than grasses and forbs. Monitor woody vegetation closely during fall and move livestock before browsing becomes excessive.

Some managers prefer deferred-rotation or rest-rotation systems in which no pasture is grazed the same season (spring, summer or fall) two years in a row. A year of rest for each riparian pasture every three or four years is very beneficial and can often be included in a grazing schedule.

Summer grazing of riparian areas should be avoided because animals are likely to concentrate and remain along streams during this period. Upland vegetation is largely ignored by livestock during summer. Where necessary, summer grazing must be very light to insure that adequate riparian vegetation remains at the end of the season. Concentrations of livestock along the stream must be minimized.

#### *Improving Animal Distribution*

Grazing only during the spring will reduce livestock concentrations along streams. Developing water sources away from streams, using wells, windmills, guzzlers or water piped from streams will also help.

An effective way to provide water for livestock is through installation of a "water gap" in a fence



*Stream banks can be rebuilt, but the work often requires large equipment and always demands special expertise. Once the bank has been stabilized (below), grass and other vegetation usually re-establish themselves. The stream runs cooler and deeper, offering better fish habitat, and the banks produce forage for wildlife and livestock. Everybody wins.*

misuse. Occasionally, fencing is the best alternative for protecting a stream bank or rehabilitating a damaged stream. Sometimes the addition, removal or re-routing of one or more fences will isolate streams to one pasture. This can simplify grazing management and protect riparian areas.



#### *Other Grazing Considerations*

Much stream bank damage due to livestock is caused by trampling and hoof action. Because they are smaller and lighter, sheep tend to cause less stream bank damage than cattle, given equal forage use rates. Grazing sheep rather than cattle in riparian pastures may be a reasonable option for some ranchers. Proper management, including spring-only grazing during most years, is still important whether sheep or cattle are used.

that otherwise excludes livestock from the riparian area. The fence is routed to allow livestock access to a straight section of stream with a gradually sloping bank, rather than along a bend, where danger of bank failure is greater.

Water developments are not a cure-all, however. Proper stocking rates remain important. Prescribed burns or other range improvements can improve upland forage and spread grazing pressure. Salt blocks and shade (trees, shelters, etc.) can also be located in upland areas.

Moving cattle from riparian areas to spread grazing pressure over the entire pasture is a good idea. This also provides a good opportunity to inspect for signs of excessive grazing pressure or stream bank damage.

When moving cattle between pastures, avoid using stream banks as stock driveways. Large barrier logs, laid at right angles to the bank, spaced at approximately 100-yard intervals, will keep cattle from trailing along stream banks.

Fencing streams to exclude cattle is costly and rarely necessary but is usually much cheaper than repairing stream bank damage resulting from

Monitor streams closely. If banks collapse, riparian vegetation is altered or other damage occurs, act immediately before it worsens. Vegetation can usually be restored within a few years, but bank damage is often much slower to heal.

Before spending time and money to repair a damaged stream bank, identify and correct the cause of the problem. Continued abuse or mismanagement can result in continued degradation, despite ongoing efforts to repair previous damage. Preventing problems through proper management is always preferable to, and less expensive than, repairing damage caused by mismanagement.

The basic strategy for stabilizing eroding stream banks is to protect the bank with live vegetation, rock riprap, well-anchored tree revetments, etc. (Junked cars and other materials are illegal and unacceptable.) Downcutting can be stopped with various dams and drop structures. Several agencies are available to help and should be consulted before work on the stream begins. Improper structure installation or channel modification will result in accelerated damage. Sources of professional assistance are listed below.

*Rock riprap holds this stream bank in place. Old auto bodies, appliances, brush, or dirt backfill won't work in these circumstances and may even exacerbate the problem. A landholder who wants to help his stream banks is well advised to consult with professionals.*

### Sources of Help

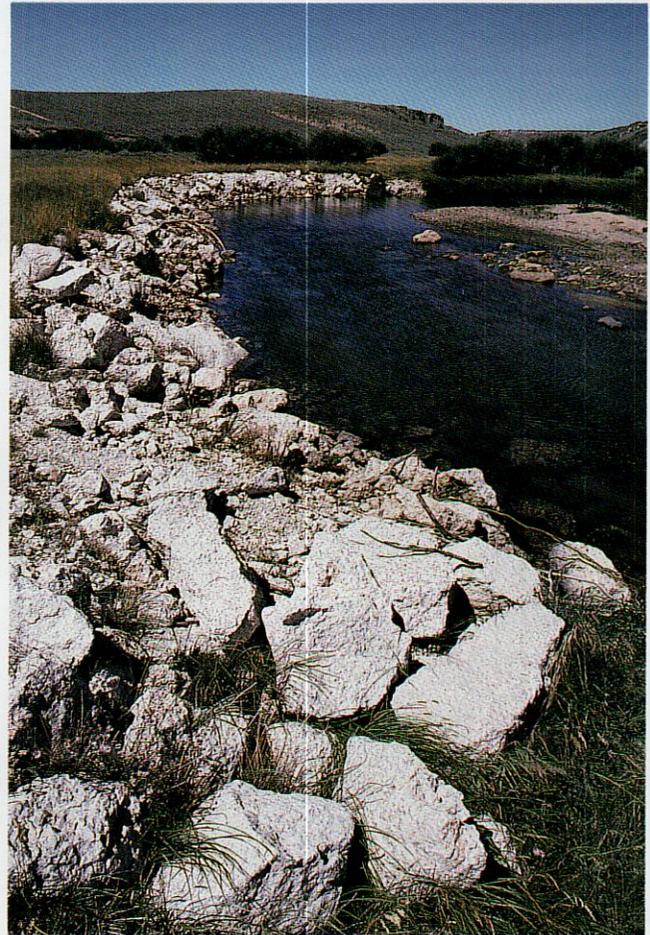
Wyoming Game & Fish Department: Biologists are available statewide to help landowners plan habitat improvement projects on both public and private land. Depending on the amount of public benefit, the department may also be able to provide money, manpower, equipment or materials through their Habitat Extension Program. Other habitat extension bulletins on stream management are also available. Contact your nearest Game & Fish office:

Jackson ..... 1-800-423-4113  
Laramie ..... 1-800-843-2352  
Cody ..... 1-800-654-1178  
Lander ..... 1-800-654-7862  
Sheridan ..... 1-800-331-9834  
Casper ..... 1-800-233-8544  
Green River ..... 1-800-843-8096  
Cheyenne ..... 1-800-842-1934  
Pinedale ..... 1-800-452-9107

Soil Conservation Service (in association with local conservation districts): Technical and financial assistance, materials and manpower may be available for projects to improve stream stability or reduce erosion. Offices are located throughout the state. Check the phone book under U.S. Government, Department of Agriculture.

Bureau of Land Management: The BLM maintains riparian demonstration areas, showing how some streams have been protected and improved. Several publications are also available. Offices are located in Cheyenne, Rawlins, Rock Springs, Worland, Casper, Cody, Lander, Pinedale, Kemmerer, Mills, Buffalo and Newcastle. Check the phone book under U.S. Government, Department of the Interior.

Wyoming Riparian Association: This group of professional society and agency representatives, private agricultural groups and environmental organizations offers advice and educational materials promoting the proper management and use



of streamside and lakeside areas statewide. For further information, contact the Wyoming Association of Conservation Districts at (307) 632-5716.

Army Corps of Engineers: Projects involving placement of dredged or other fill material in a stream, wetland or other water body require a permit from the Corps. In eastern Wyoming, their address is: 504 West 17th Street, Cheyenne, WY 82001 (307-772-2300). In western Wyoming, write to: P.O. Box 809, 1225 Market St., Room 102, Riverton, WY 82501 (307-856-5283).

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*This publication is one in a series of habitat extension bulletins produced by the Wyoming Game and Fish Department. Call 1-800-842-1934 for additional information or assistance.*