

# landowners

## can use techniques to stabilize riparian areas

Riparian areas are zones that border a stream or creek that often support vegetation.

Riparian areas are shaped by water flowing across the landscape creating a natural cycle of erosion and deposition. In Wyoming, riparian zones are typically long, linear areas along rivers and streams which are occasionally flooded by high flows in spring following storms.

Characteristics of the stream such as floodplain level, drainage area, stream capacity, channel slope, and soils influence flooding and erosion. Riparian areas are critical components of the landscape in Wyoming. Although riparian areas make up a relatively small component of the land, they provide the foundation for supporting the livestock and wildlife of the entire landscape.

### Healthy riparian areas

Healthy streams and riparian areas are naturally resilient, which allows recovery from disturbances; however, natural and human im-

pacts can cause erosion, flooding, and degradation of the riparian area. Landowners and land managers need to be aware of how their management of the land affects riparian areas and the quality of the water flowing through it. A healthy riparian area will help provide the aesthetics and productivity that make the area an attractive place to live.

The stability of the stream bank is a good indicator of riparian area health. If a stream bank is lacking stable vegetation, then that bank is more likely to erode during high flows.

### Typical improvements

There are different ways of addressing riparian area issues. Landowners and/or volunteers can use native riparian vegetation in combination with natural and synthetic materials such as rope, twine, and concrete to stabilize the stream bank and reduce erosion. These treatments often use plants as the primary structural component.

Stream bank stabilization can stop small erosion areas from



*Brush-mattress technique consists of live woody plant material placed into the slope face along trenches excavated along slope contours.*

becoming large areas. This can require expensive, traditional engineering solutions or simple do-it-yourself revegetation efforts. It can also minimize potential impacts to adjacent resources.

Natural vegetation is generally more aesthetically pleasing than comparable man-made, hard structures, and the roots hold the soil together to increase bank stability. Vegetation protects the stream bank from in-stream flows and from mate-

rials such as broken branches, ice, or other materials carried by the water.

Aquatic and terrestrial wildlife habitat can also be improved through natural revegetation techniques.

Stream bank projects using plants are best installed during late fall (dormant season), winter, and early spring when there is low water. The vegetation will do best when planted while dormant.

Success of stream bank improvements will be dependent upon local climate and conditions. This is especially true in the semi-arid areas of the state where attention to detail can mean the difference between success and failure.

Using locally collected, native plant materials provides additional savings and greater success in establishment. The greatest expense when using locally collected material is usually labor for harvesting, handling, and transporting material to the project site.

## Native plants

When possible, collect plants from areas similar to the project location. Most stream bank treatments involve material collected from plants that will easily root from a hardwood cutting, such as willow and dogwood species. Most species should be harvested in the late fall to early spring after leaf fall and before buds swell. Choose healthy material free of splits, rot, disease, and insect infestation. Make sure the plant is known so weeds are not accidentally planted.

Harvest less than two-thirds of the parent to keep it healthy. Soak cuttings a minimum of 24 hours in cool, aerated water before planting. Optimum time for soaking is seven

to 14 days. When planting, make sure 4 inches of the stem is buried.

Stream bank stabilization efforts will generally have greater success if the material used is self-renewing and will grow stronger with time. Inspections of the site should be done after increased flows and periodically to monitor the need for remedial planting.

Not all stream bank stabilization efforts will be successful but, with proper plant selection, proper planting techniques, and proper follow up management, long-term success is likely.

Landowner objectives and protection of riparian health and property should be primary considerations. When a river is about to flood a landowner's house, vegetation should not be recommended as a quick fix!

For information on technical and cost-share assistance specific to a property, contact a local NRCS office. A listing of Wyoming offices is available at [www.wy.nrcs.usda.gov/](http://www.wy.nrcs.usda.gov/) by clicking the Find a Service Center

## U.S. Army Corps of Engineers

Certain permits may be needed when excavating fill material in a stream channel. They can be obtained through the U.S. Army Corps of Engineers. The size, purpose, location, and extent of a project will affect the need for a permit. A typical project implemented on a small acreage may fit under a nationwide permit if excavation is included. If only vegetative practices are being implemented, no permit would be needed. For more information, visit the Corps of Engineers Web site at [www.usace.army.mil](http://www.usace.army.mil).

link. Publications and information on stream bank projects are available online at [www.plant-materials.nrcs.usda.gov/idpmc/riparian.html](http://www.plant-materials.nrcs.usda.gov/idpmc/riparian.html).



*Fascines or wattles (willow bundles) - This method involves packing lengths of woody plant material into cables or bundles (sometimes called live fascines) about 8 to 10 inches in diameter. The cabling effect along the slope helps to intercept surface water runoff and route it laterally before it creates erosion problems. The wattles help trap sediment by creating barriers (living fences) to protect downslope areas against material falls or erosion. Woody plants which are particularly suitable to contour wattling are willow, red-osier dogwood, and snowberry.*

Christina Rhyne is a resource conservationist with the Wyoming office of the Natural Resources Conservation Service in Casper. She can be reached at (307) 233-6764 or [chris.rhyne@wy.usda.gov](mailto:chris.rhyne@wy.usda.gov).