

FLOODWATERS

unleash powerful forces upon your land

Assess and
mitigate after
waters recede

Mae Smith

Water is a powerful force. Those who experienced flooding on their land know the devastating impacts water can have.

Flooding is a natural phenomenon during which, over time, a river shifts within its floodplain as it rushes through the land. Swift moving water scours banks on the outside and as it slows, drops sediment on the inside of the curves. This accentuates curves and moves the path of the river.

Plants with strong roots grow on the bank, helping stabilize the soil and reducing the amount of sediment washed downstream. During a big flooding event, the power of the water can overwhelm the strength of these plants. Banks not stabilized by plants are at greater risk of being lost.

Since this process of bank scouring and river meander occurs over centuries, we as humans think of the river as a stable entity and build structures in desirable places along

it. We are then reminded the river is alive when its waters scour the banks, overtops them, and spreads out across the landscape, taking out a fence or dropping a truckload of sediment in the driveway.

OK river, message received.

Now that the waters have receded, the effects can be assessed and clean up begins.

Scoured Banks

If the flood left scoured, undercut banks and the next flood does not threaten major structures, leave the river alone and nature will run its course; however, be very careful along undercut banks because they could slough at any time.

Plants will establish in bare areas. Succession often starts with annual plants, but the goal is for grasses or grass-like plants with dense, fibrous roots to establish because they add strength and stability to the bank. Shrubs like willows are also desirable

because they have big, strong root systems that withstand the daily flow of moving water.

This succession process can take years, and more bank area can be lost in the meantime. Jumpstarting the process may be desired. Willow cuttings are used in river reclamation projects, and they establish fairly quickly. Cuttings are taken from willow plants, and leaves and branches are removed. The base of "sticks" (stems) are then soaked in the river for a week and stuck into the bank where they are in contact with groundwater. The plants will root and begin growing within the year.

More drastic actions may be needed if major structures are threatened. Outside banks can be armored with large boulders. Sometimes this is adequate to prevent further erosion and other times this is only a Band-Aid on the problem. Redirecting river flow can be accomplished through the well-planned construction of structures called cross vane weirs, J-hooks, or others. Like armoring river banks with boulders, this is a major project that requires approval by the U.S. Army Corps of Engineers, the Wyoming Department of Environmental Quality, and designs by an engineer or fluvial geomorphologist, and is costly. "Fixing" one reach of the river may require changes in the river for a long stretch so the problem isn't just moved up or downstream.

Sediment Drop

Odds are pretty good when flood waters recede there will be a lot of new sediment in some places and



loss of soil in others. Rocks, branches, and other debris probably were also deposited. These can be moved if causing problems or are unsightly. The land can be smoothed if there are undesirable dips and valleys. Loss of all the topsoil in an area can make it hard to revegetate.

Call 811 to have utilities marked before getting out the tractor and moving sediment and debris. Their slogan is "Call before you dig," and you may not consider moving some dirt around digging, but utility lines may be closer to the surface in cuts or it may take more digging than anticipated to smooth the land.

Weed Seed Rafters

The water moved more than just sediment and tree branches. Weed seeds also went for a wild ride in the river and got dropped wherever water slowed or pooled. Flooding probably left some bare areas, and the first

plants to establish may be weeds. Keep a close eye on these areas and identify plants that come up.

Annual weeds may be the first step in succession and can stabilize the soil until perennial plants establish. Large, bare areas can be seeded with desirable vegetation. The goal is to eventually have a diverse and productive plant community. If vagrant noxious weed seeds have set up camp, contact the local weed and pest office to discuss control options. Use caution, and select a herbicide specifically for use near water.

Damage Prevention

When rebuilding structures that were lost in the flood, remember the river is alive and will continue to flood and move. Also, allowing the river access to the floodplain is critical. While it is usually undesirable to have flood waters cross your property, cutting off access to the floodplain can cause the river to do even more damage to banks downstream. Place new structures far from river banks (especially on the outside curves) or better yet, out of the floodplain. Some structures like fences cannot be moved farther from the bank, so additional reinforcement may be necessary or a more temporary fence used.

Land uses can also influence flood impacts. Managing river banks so the vegetation is composed of productive plants with dense, strong roots will reduce bank scouring. Healthy riparian systems dissipate the energy of moving water and decrease flooding effects.

*University of Wyoming Extension educator **Mae Smith** has offered gardening guidance, rangeland recommendations, and weed-wise advice, among many other resource topics. She is based in Big Horn County and serves northern Wyoming. She can be reached at (307) 765-2868 or maep@uwyo.edu.*