

## “Saving The Water And The Soil Must Start Where The First Raindrop Falls”

Lyndon Johnson said that back in 1947. He was right back then and it is still true today. And where does the first raindrop fall? On the land. And in the Hill Country, the land generally means rangeland.

So, as discussed last week, what is on the land, or what is not on the land, and its condition makes all the difference in the quantity and quality of the water available to us all. Here is why that is.

Raindrops falling on rangeland may strike vegetation first or bare soil where there is no vegetation. The droplets falling on vegetation either fall off onto the ground or stay on the leaves and evaporate. Once the water is on the ground it can either soak into the ground or run off. Both for our own benefit and for the future condition of the habitat, we want the raindrops to soak into the ground. Only water that has soaked into the ground can be picked up by roots and nourish vegetation, and only water that has soaked into the ground can seep deeper underground to replenish local water tables and aquifers which provide the base flow to our creeks and streams.

Water that evaporates back into the atmosphere from the leaves of the vegetation or from the surface of the ground is lost and does us no good.

Water that runs off carries with it some of the soil which silts up rivers and lakes, causes erosion and flooding downstream, and is lost to the Gulf of Mexico before it can do us much good. Raindrops striking bare soil dislodge soil particles and initiate the worst erosion.

In an experiment under the conditions of a very heavy rainstorm, 24 percent of the rain falling on native bunchgrass pasture ran off carrying about 175 pounds of soil per acre with it. In a similar experiment, when the rain fell on bare ground, 75 percent ran off carrying almost 5,000 pounds of soil per acre!

Erosion is the worst thing that can happen to our rangeland because less soil means the land can grow less vegetation. Soil cannot be replaced in our lifetimes. Clearly, from the standpoint of keeping the rainwater on the land where it can soak in, native bunchgrasses are desirable. Any vegetation, dead or alive, however, is better than bare ground.

But too much vegetation can be detrimental also. In areas with large, dense juniper (cedar), these trees intercept significant amounts of light and moderate rain which never reaches the ground and evaporates back into the atmosphere. So growing good stands of native grasses and managing cedar cover can be beneficial to capturing rainfall as well as maintaining good habitat for livestock and wildlife.

Rangeland management has evolved over the years from concentrating on maximizing the number of livestock that could be raised (1800s through early 1900s), to gradually being concerned about growing more forage (mid to late 1900s) to improving the habitat for both livestock and wildlife (currently). These latter management practices allow ranchers to have multi-use rangeland which not only allows for livestock production, but also for wildlife habitat. This can lead to extra income from hunting, bird watching, photography, hiking, and other uses by the general public.

Many have heard the story of the Bamberger Ranch Preserve which had no surface water and no working wells when David Bamberger bought the property. But now that good management practices have been in place for some time, Bamberger not only has a beautiful lake and several creeks, but the excess water captured on his ranch now flows into the Colorado River and the folks in Austin have water they didn't have before, at no cost to them.

Fortunately, the same management practices that work to improve the habitat for multiple uses also provide the best conditions for optimal water capture. And for those of us in the semi-arid Hill Country, the latter may become even more important in the future. I was surprised recently when I read in a range management textbook, published in 1995, the following statement, "We believe that in the near future range management practices will be geared primarily toward water production rather than forage production..." (Holechek, Pieper and Herbel, "Range Management. Principles and Practices".) That prediction may be pre-mature, but it underscores the importance of good land management to our water. Just as Lyndon Johnson said.

Until next time...

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