

Riparian Notes

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Steve Nelle, NRCS, San Angelo, Texas

Drought in the Riparian Area

Drought is one of the harshest natural calamities for Texans, and especially for those who live on the land. Although drought is a normal and recurring part of our climate and ecology, no one is ever fully prepared for it.

All parts of the landscape are hit hard by drought. Dryland crops fail to produce. Yards and pastures become parched. Livestock and wildlife suffer from the heat, poor food supply, or lack of water. Even hardy plant species may die or become weak. Springs cease flowing. Water levels drop in wells, ponds and lakes. Creeks and rivers are reduced to a trickle or dry up completely. No one will dispute the consequences of a severe drought.

But in many riparian areas, there is a glimmer of optimism even in the midst of a drought. A healthy riparian area is dominated by dense vegetation. These riparian areas and the vegetation are usually connected to an unseen water table. In fact, most creeks are in direct contact with these shallow aquifers. As the water level in these aquifers drop due to drought, riparian plants chase the receding water by expanding their root systems. As these water-loving plants seek to stay in contact with subsurface water, they put all available energy into new root growth. The new roots grow laterally under the channel providing a denser and stronger “root basket” to reinforce the channel. The roots also grow deeper, seeking to stay in contact with wet soil. These dense networks of interwoven roots are what provide stability to banks and channels. The more roots there are, the more resistance to erosion and flood damage. Riparian plants equipped with underground rhizomes are especially well suited to rapid expansion.

Another response of drought in riparian areas is the recruitment of large wood into the channel and floodplain. Those who study creeks, rivers and riparian areas have discovered that large logs and fallen trees are important and necessary parts of a functional riparian area. These large dead trees, which fall into the channel, act like retaining walls, helping to dissipate energy, stabilize banks and trap moving sediment. Over time, many of these logs become partially or completely buried in sediments. During severe drought, some old large trees inevitably die. No one enjoys seeing a huge old tree die and fall over, but this is a natural and essential process. After these trees die and their root systems begin to deteriorate, they are susceptible to falling into the creek. Some people may think this is unsightly. Some well-meaning landowners often remove these dead trees under the impression that they clog the creek. However dead trees are vital to the proper function of many riparian areas and dead trees and logs should generally be left in place unless they pose a safety hazard downstream. As these trees and logs become entrapped and locked into the channel by other trees, they provide a matrix of strong wood that can eventually assist in the restoration of the creek or river.

No one eagerly anticipates a drought; we just wish they would end. But just like your dad probably taught you, hardship and suffering are what build character and make you a stronger person. In a similar way, drought does seem to have underlying purposes to help expand riparian root systems and add large wood.