

Fire on the Land: The Consequences

Part 1

The following is the first of a three part series about the role of fire as a natural and human agent on the land. This first article gives a historical perspective. The second article will explain why and how fire is being reintroduced as a land management tool. The third will give the specifics of a prescribed burn.

Kimble County lies in the ecological region of Texas referred to as the Edwards Plateau. Like most of Texas, the local landscape no longer appears as it once did. The land itself has not changed shape but the vegetation covering it has changed. When our European ancestors first showed up in the area 200-300 years ago, they found a land covered predominantly by grasses and wild flowers, with most of the trees and other woody species found mainly in the draws and along the waterways. Today's experts describe what these early settlers found as grassland savannas with only a scattering of small Shin Oak or Live Oak motts and an occasional larger Live Oak. There were no extensive cedar (Ashe juniper) breaks which we find covering our hills today. Neither was there nearly the amount of Mesquite nor prickly pear we find today on the land. The one thing they did see more in abundance was flowing springs and creeks. So, as you look across our landscape try to visualize large expanses of tall grasses and wild flowers rather than the cedar breaks and scrub that exist today.

How did we get here and is this a good thing? To answer these two questions one should first understand what had been happening here before the European settlers moved in. Archeological evidence and research have led many experts to believe that the first humans showed up in our area somewhere between 10,000 and 12,000 years ago or more. Since then, the land has seen many short and long term climatic changes which affected both the plant and animal life. The consensus, though, is that for thousands of years, up until the appearance of the Europeans the region was, as described, a grassland savanna with wooded draws and valleys. These grasslands thrived for all of those years because they were frequently visited by fires set by lightning and then by the first Americans as they learned to use fire as a tool. Studies have shown that the frequency of these fires varied from 1 to 6 years in our region. Most of the lightning fires, as well as those set by the Native Americans, occurred during the hot dry summers. These summer fires suppressed or killed most woody plants while stimulating the regeneration of grasses and forbs (wild flowers). The cedar, Spanish oaks, and other woody plants along the steep slopes and bluffs survived the fires because of a lack of surface fuel. Therefore, the Native Americans learned to use fire as a tool to maintain the grasslands for the buffalo, upon which they depended.

This all began to change with the introduction of cattle, sheep, and goats brought in by the settlers. What looked like an unlimited supply of tall grasses was soon grazed off and replaced by shorter grasses, which were more resistant to grazing. With less fuel in the dry summer, fewer lightning fires occurred. Living in wooden houses and fencing with cedar posts and stays settlers feared fires and unlike the native people did not set fires to manage the land. One rangeland expert tells a story of a distant relative sweeping the dirt yard around her home until it was bare of potential fuel as a defense against possible wild fires. So with the fuel gone and the removal of fire as a tool by the people, things began to change rapidly. The small Live Oak and Shin Oak, which had always been suppressed by fire, began to sprout more and grow larger. Likewise other woody plants began to appear in greater numbers. Bare soil allowed cedar berries, dispersed by birds to germinate and take root, so the cedar came out of the draws and began to move across the land as did Mesquite also.

What about those flowing springs and creeks which were here? Many of them are still flowing, but not as many or as much as they did over those thousands of years of tall grasslands. Their flow has always fluctuated with the climate as there have always been cycles of drought. The ground water that provides these flows remains somewhat of an unknown, but more is being learned everyday about the recharge and how this subsurface water moves. One advantage of tall grasses is that their deep root systems not only hold the soil in place, but help rainwater percolate deep into the subsoil to be stored for use later. There's various information on how much rain water is used by a cedar tree, but there is a consensus that each cedar uses a substantial amount and either prevents much of that water from going deeper or allows for more of it to become runoff. Besides the affect on our water table, probably the greatest loss, since the Europeans first showed up, is the topsoil that the grasses helped create and held in place. Figures, such as 5 to 12 inches, have been given for the amount of soil that once covered our rocky hill tops.

This transformation from grasses to woody plants has taken about 100 years. When ranchers began to realize what was happening, they brought out the ax, the chain saw, and the bulldozer. Even with the aid of government sponsored programs, it's been an expensive and labor intensive battle for the ranchers, who meantime have had to also deal with markets, droughts, and all the other uncontrollable factors in their business. During this time, they have depended upon the land for their livelihood, often having to "work the land hard" to just survive or help put their children through college. So, it's not fair to judge past practices, but rather to learn from history and understand the importance of good stewardship and the type of management practices that will preserve the valuable natural resources for future generations on the land. Every land owner has the right to manage his or her land as they wish in order to reach the goals they have for his or her land. It is important though, that all understand that what each does or not does do on their land, will be a major contributor to what the land becomes. For example, a new land owner might say "I think I'd like to just let my land go back to nature." If so, then those cedar and brush species already there will more than likely become thicker, choking out the grasses that may or may not be there. If an evergreen forest of thick cedar bushes or a prickly pear and Mesquite flat is what they believe nature intended, then by doing nothing it's a good chance that's what they will have. Remember, nature has not been totally in control of the land since the human species first showed up and started hunting and gathering and using fire as a tool to help them survive.

The next article in this series will look at the reintroduction of fire as a management tool and the ramifications of such. Much of the information of this article was derived from articles written by Dr. Charles "Butch" Taylor with the Texas A&M University Research Station, Sonora, Texas and Dr. Jake Landers, Extension Range Specialist, Emeritus at the Texas A&M University Research & Extension Center in San Angelo, Texas.