



Pasture Burning in the Flint Hills. Photo courtesy of Larry Schwarm.

## **PRAIRIE FIRES PASTURE BURNING IN THE FLINT HILLS**

**by Jim Hoy**

A prairie fire, burning uncontrolled and undirected in the wrong place at the wrong time, can be extremely destructive. A spark from a locomotive, a lightning bolt striking the ground, a match or cigarette tossed from a car window can cause many thousands of dollars worth of damage to livestock and property—not to mention severe damage to the environment. During the dry, windy summer of 1984, for instance, accidental fires broke out in Butler, Chase, and Marion counties, destroying the forage on nearly half a million acres of pastureland before they were extinguished. Small wonder that most people automatically assume that prairie fires are bad.

And yet every spring since the days of early settlement farmers and ranchers in the Flint Hills of Kansas have, in opposition to popular opinion and, until a couple of decades ago, in defiance of scientific advice, deliberately set the prairies ablaze, burning off the old grass so that cattle could have easy access to the new growth. In recent years the efficacy of this folk practice has been vindicated by the experiments of rangeland scientists, who have shown that controlled pasture burning, particularly if conducted in mid to late spring, is an efficient and economic way to maintain a tallgrass prairie. It keeps the pastures relatively free of trees and brush while at the same time promoting better weight gains in livestock.

In fact, there would be no tallgrass prairie without a fire, at least not in the Flint Hills, where the annual rainfall is high enough to support relatively dense stands of trees. Poorly managed pastures, suffering the effects of overuse, soon become overrun with trees—elm and hedge in the southern Flint Hills, red cedar to the north. One defense of fire given by ranchers is that an overgrazed pasture can't be burned. If there is no grass left at the end of pasture season, there won't be enough for a fire in the spring: graze half, leave half is the rule of thumb. So for well over a century and a quarter blazing pastures, hazy skies, and the faint, sweet smell of grass smoke have been a hallmark of spring on the tallgrass prairie.

Pasture burning as a springtime ritual in the Flint Hills predates white settlement. Early explorers noted the burned prairies and the proclivity of the Osage and the Kansa Indians to fire the dead grass in order to lure bison, antelope, elk, and deer onto the newly greening hillsides—and into range of their arrows and spears. Folk memory among Flint Hills ranchers records that

the Native Americans would set the prairie afire by wrapping rawhide around a big ball of dead grass, lighting it, then pulling it behind a running horse. Back then, and in pioneer times as well, with no roads, highways, or large expanses of plowed fields to slow the headfire, a prairie fire would burn from river to river, keeping the Flint Hills free of trees.

Early Euro-American pioneers in the Flint Hills, whether learning from the aboriginal inhabitants or perhaps bringing with them the practice of agricultural burning, soon settled into the custom of a spring burn. Elisha Mardin, for instance, one of the early settlers in the area, who first came to Bloody Creek (now Chase County) in 1858, records in his 1863 diary the deliberate burning of various of his pastures during March (once) and April (five times). Within a dozen years burning was so common in the Flint Hills that the editor of El Dorado's *Walnut Valley Times* (Butler County) railed against the practice, echoing popular sentiment in blaming prairie fires for drought, scorching winds, grasshopper infestations, failed springs and creeks, and ruined crops. But where members of the general public saw only the devastating effects of prairie fires (particularly if they had lost houses, outbuildings, crops, livestock, or even family members to an uncontrolled fire), Flint Hills graziers saw fresh grass, lush pastures, and contented cattle. By the end of the century many grazing contracts specified that pastures were to be burned so that the new grass would be ready when the Texas cattle arrived in mid-April for the beginning of grazing season.

Today, now that range scientists and ranchers have come to terms on the general efficacy of burning, the major contention between the two groups concerns the appropriate time of year for fires. Some Flint Hills operators still burn in March, a carry-over from the days when aged Texas steers filled Flint Hills pastures. Others, however, follow modern scientific advice in burning from mid-April to mid-May for maximum weed control and forage growth and minimum erosion damage. Also, whereas some ranchers will burn their pastures nearly every year, many others are more likely to skip a year or more between burns. Thus in earlier years someone might set a fire that would burn uncontrolled, and unremarked, throughout many pastures in an entire watershed, say from the Southfork and Verdigris Rivers, to the Cottonwood. However, today, some pasture owners want their land burned early, some want it burned late, and some not at all. Pasture burning has become a more precise and a more time-consuming job. Many ranchers, in fact, consider it the hardest of their various chores, including building fence and making hay.

A typical pasture burn is often a cooperative venture, with workers from two or more ranches involved. One crew will be from the ranch whose pastures are to be burned. The others are from bordering spreads and are there to trade work ("neighboring," it is called) or to protect pastures that are not to be burned

at this particular time. After listening to the weather forecast, the rancher organizing the burn will notify the others as to the day, place, and time. Ideal burning conditions include warm temperatures and a recent rain (so the new grass will spring up quickly) with a mild to moderate wind blowing in the right direction. Wind coming from the wrong sector or at too great a speed will occasion a postponement, whereas no wind at all, especially when combined with overly dry conditions, will result in a slow burn that can cause damage to both grass and fence posts.

In earlier years equipment consisted primarily of matches to start a fire, a steel-handled rake to spread the fire by dragging burning dead grass, buckets of water, and gunny sacks or old overalls to soak in the water and beat out the fire. Beginning about the time of World War Two, mechanical sprayers became available. Today burning crews are usually outfitted with at least one mechanical sprayer and water tank mounted on a four-wheel-drive pickup or on a trailer pulled by a tractor and some kind of mechanical fire starter (propane torch, drip torch, or firestick). Crews will also carry gunny sacks and water buckets, to put out small fires. Experienced pasture burners carry matches at all times so that, should they be caught in the open prairie with a headfire bearing down upon them, they can start another fire and then step into the burned area and thus escape the main blaze.

When the crews have assembled, the first order of business is usually to set fireguards, thus creating a barrier between the pasture to be burned and adjoining grass that will not be burned that particular day. Typically this barrier is created by setting backfires, unless there is a road or a plowed field to form a natural barrier. If the wind is from the south, for instance, the workers will create fireguards on the east, north, and west sides of the pasture. To create a fireguard in the open prairie or along a fence row, a worker operating a cattle sprayer will lay down a heavy strip of water. Following close behind on the upwind side of this strip will be another worker setting the grass afire. The dry grass will burn into the wet area, then usually go out. To insure that it does, another cattle sprayer or some workers with wet sacks will follow the fire setter, paying special attention to smoldering cow chips that might later rekindle the fire. In the meantime the fire setter has gone back and forth on the upwind side, lighting small strips of grass so that the fireguard is widened beyond the point where the backfire, which is left to burn, can jump the burned area. Once the fireguards are large enough so that a headfire will not jump them, a fire will be set on the upwind side. This headfire will travel quickly throughout the rest of the pasture, until it burns into the fireguards and goes out. Occasionally there will be small patches inside a large pasture that don't burn, protected from the headfire by cattle trails or short grass. These spots are usually fired with matches a day or two later, a practice known as "patching."

Starting a prairie fire is not difficult, but building a proper set of fireguards, and keeping them from escaping into areas not to be burned, requires great mental and physical effort. And luck—a sudden gust of wind or an unexpected change in wind direction has more than once resulted in an escaped fire that has burned not only an unintended pastureland but barns and haysheds as well. Another hazard of pasture burning is getting a vehicle stuck in a mud hole or high centered in a ditch and having to abandon it to the flames.

Pasture-burning equipment and techniques have become more sophisticated over the years, but the results are the same now as they have been since the settlement of Kansas, and for thousands of years before that: a tallgrass prairie that blankets the Flint Hills with a rich variety of grasses and wildflowers.



Flint Hills Fire at night. Photo courtesy of Larry Schwarm.