

## **Prescribed burns may need to include both summer and winter fires**

VERNON – To the untrained eye, grass is grass. But for the nutrition and palates of wildlife and cattle, the grass is as different as roast beef and green beans or potato chips and dip are to humans, according to a Texas AgriLife Research scientist.

Sometimes it takes fire to set the best plate, or pasture, for the animals utilizing the grass, said Dr. Jim Ansley, AgriLife Research range ecologist. Landowners must know whether to “barbecue” or “bake” or use a combination to manage the grasses.

Ansley has spent 20 years conducting research on the effects of fire on grasses and woody plant species. The latest results of his study provide some of the first long-term data showing a possible benefit of mixing prescribed fire in different seasons.

He said because of mesquite invasion and overgrazing, most grasslands once dominated by warm-season midgrasses have degraded to cool-season midgrasses (mainly Texas wintergrass) and warm-season shortgrasses (mainly buffalograss).

Ansley said historical fire regimes likely included a mixture of summer and winter season fires and this may have been important for the maintenance of the perennial midgrasses in these ecosystems.

His study shows how alternate-season fire treatment in a prescribed burning management plan can restore warm-season midgrass cover and enhance overall herbaceous production and diversity.

Warm-season midgrasses are more productive and can increase livestock carrying capacity in a pasture, he said. Grasses such as sideoats grama, vine mesquite and Texas cupgrass are palatable warm-season midgrasses.

“Fire treatments are designed to reduce mesquite and other brush canopies and hopefully restore grasslands toward more of a warm-season midgrass dominance,” Ansley said.

He has determined that winter-season fires reduced mesquite temporarily but do not shift cool-season midgrass dominance to warm-season midgrass dominance.

Treatments with a severe summer fire combined with more moderate winter fire a few years later were able to do that. However, Ansley said, a combination of two severe summer fires “overshifted the grass composition toward warm-season shortgrass dominance as opposed to warm-season midgrass dominance. It improved palatability, but not production.”

Ansley’s research was conducted on a 300-acre fenced enclosure south of Vernon. Livestock grazing was excluded during the study period in order to identify effects of fire season alone on post-fire changes in grass community composition, he said.

Ansley’s tests compared the results of a no-fire control, three winter fires in five years, two summer fires in three years, and alternate season fires with one summer fire between two winter fires. Grass composition was measured for 10 years after all fires were stopped.

The original purpose of the treatments was to determine if a concentrated series of repeated fires in different seasons could increase mesquite mortality and restore grass production, he said. All of the treatments top-killed most of the mesquite, but did not kill many plants outright and they resprouted, Ansley said. However, there were remarkable differences in how the grass community and the three perennial grass functional groups responded to the treatments.

The alternate-season fire treatment was the only treatment that increased warm-season midgrass cover, he said. This treatment was also most effective at increasing grass diversity by generating a better balance in basal cover among the three perennial grass functional groups.

The repeated summer fire treatment increased warm-season shortgrass cover, but did not increase warm-season midgrasses, Ansley said. Grasses in the repeated winter-fire treatment stayed mainly as Texas wintergrass.

Current commercial livestock grazing operations in the High Plains and Rolling Plains that utilize prescribed fire as a management tool typically burn every 10-15 years, he said. Grass production and precipitation are not sufficient to both maintain livestock grazing and burn annually or biennially as is found in the tall-grass prairie regions of eastern Kansas.

The frequency of fire treatments in Ansley’s study would not be possible in a commercial operation in Texas, however, he says the study shows that a combination of the winter and summer fires may be necessary to bring a balance of grasses back to the pastures.

