

Cattle and Fire—Important Tools Benefiting Wildlife

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“CATTLE GRAZING DOES NOT BENEFIT wildlife or rangeland.” “Prescribed burning will not improve my rangeland.” “The best management for rangeland is total exclusion from grazing.” Most of us have heard these or similar statements. The Kerr Wildlife Management Area¹ (WMA) located 12 miles northwest of Hunt, Texas, can prove that these three statements are in fact misconceptions.

The 6,493-acre Kerr WMA is owned and operated by the Texas Parks and Wildlife Department. It was purchased by the Texas Game and Fish Commission in 1950 as a wildlife research and demonstration area.

The topography, soil types, and vegetation of the Kerr WMA are typical of the Edwards Plateau Resource Region of Texas. Soils are generally shallow and rocky with a parent material substratum of limestone. Topography is gently rolling to hilly with occasional draws and small canyons.

The climax vegetation is a savanna of grasses, forbs, oak species and numerous small shrubs. Climax vegetation consists of 80–85% grasses, 10–15% forbs and 5–10% woody plants. Little bluestem is the dominant climax

grass species. Liveoak is the dominant climax woody plant.

Current vegetation on the Area is composed of a dominant vegetation overstory of liveoak, white oak, Texas oak, and ashe juniper. The more common warm-season grasses include little bluestem, curlymesquite, sideoats grama, and threeawn. A dominant cool-season grass is Texas wintergrass. Most forbs present on the WMA are annuals, with their presence influenced by rainfall. Data collected by WMA personnel indicate perennial forbs, including knotweed leafflower and velvet bundleflower have increased in the last decade.

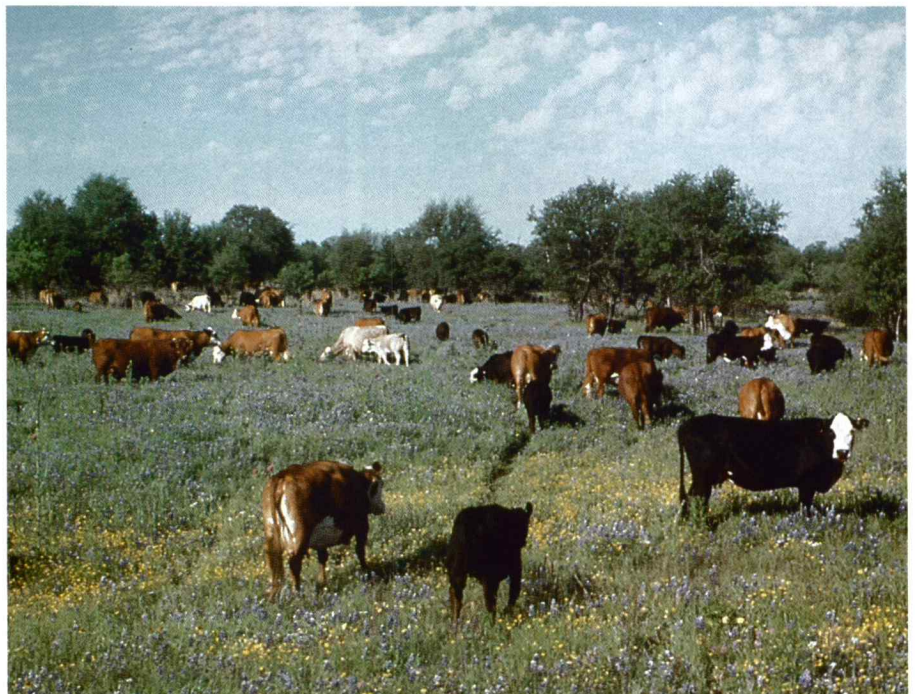
LIVESTOCK STOCKING RATES during the early 1900's were generally very heavy and under a continuous grazing regime. The Area was originally stocked with large numbers of cattle, sheep, goats, horses, donkeys, and mules. During the 30's and 40's, livestock numbers approached 80 animal units per section. This continuous heavy stocking rate and the absence of fire caused a dramatic shift in the vegetation from a tall grass dominated prairie to short grasses dominated by dense stands of ashe juniper. White-tail deer numbers started increasing dramatically at this time.

When the WMA was purchased in 1950, a continuous grazing system including cattle, sheep and goats was

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Cattle grazing under a one herd, short duration grazing system in early spring. Average pasture deferment is 90 to 120 days depending on the growing season.





Prescribed burning is used on the Kerr WMA to control juvenile ashe juniper and to stimulate root sprouts on desirable trees and shrubs.

used. Ashe juniper was the dominant overstory vegetation. White-tailed deer numbers continued to increase. Several changes occurred in 1954. The continuous grazing system was abandoned and replaced by a system where livestock were moved at random. A 96-acre enclosure was established to determine the effects of total exclusion from grazing and the area began holding their first controlled public hunts to harvest excess deer. Biologists realized the only way to reduce the herd to the desired carrying capacity was to conduct either sex deer hunts. Either sex hunting began on the WMA in 1958. In 1963, two grazing systems, a 3 pasture-1 herd and a 4 pasture-3 herd were initiated.

The dense stands of ashe juniper were removed through chaining and dozing by 1966. This resulted in succession of more desirable deer food plants. Since goats competed heavily with deer, their removal in 1967, along with improved habitat, produced a healthier, larger deer herd. Sheep were removed from the WMA in 1973 for similar reasons. In 1977, it was determined that the 4 pasture-3 herd system was not producing the desired range improvement. It was replaced with a HILF (High Intensity Low Frequency) system. Stocking rates were adjusted according to the vegetation status.

THE EITHER-SEX DEER HUNTS, initiated to reduce the deer population to one deer to ten acres on the improved habitat, proved unsuccessful. Large numbers of deer were removed through hunting, which resulted in some short-term improvement in range condition. Deer from neighboring ranches moved in and filled the void, so actual reduction of the WMA herd was not achieved. In 1968, a deer-proof fence was constructed around the

WMA to stop the ingress of deer from neighboring ranches. Heavy hunting pressure was applied for four years following the construction of the deer-proof fence to reduce the deer herd to the desired carrying capacity of one deer per ten acres.

A wildfire burned portions of three pastures in January 1971. High winds, low humidity, and numerous brush piles



Desirable black-capped vireo habitat, 25–75% canopy of brush with no browse line, has been created on the Kerr WMA through management of white-tailed deer, livestock and fire.



Liveoaks often rootsprout following a prescribed burn. Other desirable species, such as flameleaf sumac and Texas redbud, increase in germination following prescribed burning.

created a very hot fire, crown killing many overstory trees. Oaks and other brush began to rootsprout and fire climax species, such as flameleaf sumac, had an increased germination rate. The change in the overstory vegetation resulted in improved habitat for white-tailed deer and cattle. Non-game species such as the black-capped vireo, an endangered bird species, also benefited from the wild-

fire. Today, this area is now the main nesting habitat for a colony of black-capped vireos.

A severe drought in 1984 caused the termination of the HILF and the 3 pasture-1 herd systems. A reduction in animal units was made and the cattle were placed in one herd and rotated under a short duration grazing system. A second major wildfire also occurred that year. This fire moved through the canopy of a mature cedar brake. The fire intensity removed over 95 percent of all the tree canopy along with the herbaceous ground cover. Deer populations were reduced through continued hunting and cattle were deferred on the burned area to allow re-seeded grasses and forbs to become established. Vigorous growth of rootsprouts and fire climax species developed into a very good mosaic of low growing oak thickets intermixed with other brush species including flameleaf sumac, shin oak, Texas redbud, and hackberry. This area is also evolving into black-capped vireo habitat.

At present, 25 pastures are incorporated into a short duration grazing system. Grazing periods for each pasture are determined by rate of plant growth, based on key forage species and range condition of individual pastures. The average deferment of pastures varies from 90 days during the growing season to 120 days during the dormant season. Livestock numbers are adjusted when prescribed burning is planned to allow for deferment before and after burning.

There is an increase in ashe juniper seedlings, often called regrowth cedar, following control of larger ashe juniper stands. To keep the regrowth cedar under control, the Kerr WMA began a prescribed burning program in 1979. Personnel plan to burn 10–15 percent of the area every year. The actual amount varies according to range



Trophy hill country bucks are achieved by providing habitat where adequate nutrition is available during antler development.

and climatic conditions prior to and at burning time. The burning program has maintained desirable rootsprouting plants such as shin oak, liveoak, and flameleaf sumac in a low growing position in the plant community. An increase in fire climax species including flameleaf sumac, Texas redbud, and escarpment blackcherry have added diversity to the plant community.

REDUCTION OF THE ASHE JUNIPER, improved plant diversity including forbs and browse, and an increased palatability of more forage species have improved the white-tailed deer habitat. Cattle grazing under the short duration grazing system keeps vegetation in different growth stages at different times of the year, allowing a large percentage of the Area to be deferred each year.

Tall grasses, including big bluestem, Indiangrass, little bluestem, and desirable forbs are increasing and improving range condition. This improved habitat has developed a stable, healthy, and productive deer herd. Fawn production and survival has improved. Prior to 1969, the average fawn crop was about 56 percent. Average fawn crop for the period 1979–1989 was 109 percent. Average field dressed weights of all age classes of deer have also increased. There are indications that the animal units of livestock can be raised from the current 120 animal units to 160 animal units based on the improved range condition without being detrimental to the wildlife habitat.

The Area's deer, livestock, and fire management programs have helped create habitat suitable for the black-capped vireo. Approximately 25 to 75 percent canopy of low growing brush, with no browse line, is necessary for black-capped vireo nesting habitat. The grazing management program is planned to limit cattle grazing near the main colony of black-capped vireos during peak nest-

ing periods. This helps lure brown headed cowbirds, which parasitize on vireo nests, away from prime nesting areas. The number of young vireos fledged on the area has increased over 600 percent since 1985.

The exclusion of grazing in the 96-acre enclosure for 36 years resulted in a poor condition rangeland. Initially, there was a positive response in the number of grasses and forbs in the enclosure. These numbers and the basal intercept of grasses have decreased significantly since their peak in 1960. Woody species have increased to the point where, in 1989, the enclosure had developed into a dense stand of ashe juniper with little understory and only one forb species recorded on a vegetative transect. This illustrates that grazing can be an important component for maintaining or improving range condition, plant vigor and a healthy plant community.

The methods in which prescribed burning and cattle grazing are used is restoring the plant community to the tall grass prairie with scattered trees and brush that once existed in the Edwards Plateau. Prescribed burning is used to stimulate an increase of climax plants species and helps maintain low growth desirable brush while stimulating forb production. Rotational grazing of cattle is used to manipulate the grass community to achieve a desired result, whether it be to enhance forb production, to maintain vigor in grasses, or to increase grass production for prescribed burning. The end result of the Kerr WMA's manipulation of the plant community through grazing, deferment, prescribed burning, and animal control is improved habitat for all forms of wildlife and domestic livestock and greater plant diversity, which creates a more stable ecosystem.