Youth Range Forum

White-Tailed Deer Management of the Edwards Plateau of Texas

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Today, the Edwards Plateau of Texas produces large bodied, beautiful, big-antlered bucks. This has not always been true. Ranchers first had to realize that if they could not grow food, they could not grow deer. This realization has recently become evident with this “deer-factory” area of Texas which supports in excess of 1.5 million white-tailed deer. This is more than 50% of the white-tailed deer population of Texas and is the largest white-tailed deer herd in the United States. Proper management of these deer can provide ranchers with an income that equals or exceeds the income from livestock production. The leasing of hunting rights results in a gross state revenue of more than $150 million annually.

The Edwards Plateau, where my home is located, covers 24 million acres in west central Texas and is predominantly rangeland with major ranching industries in cattle, sheep, and goats. This area is a vegetational savannah with an excellent mixture of forage plants-forbs, browse, and grass such as sideoats grama, the state grass of Texas.

Nutrition, or the lack of adequate nutrition, is a major problem of the white-tailed deer on the Edwards Plateau. Ranchers and hunters have observed that a trophy buck cannot be produced if nutrition is inadequate. Therefore, in the management of white-tailed deer in the area, the rancher must first consider food as the number one necessity and the deer as the number two concern. This all goes back to “if you can’t grow food, you can’t grow deer.”

Food grown to produce deer must fulfill 2 nutritional needs—that for body growth as a primary need, with antler development and reproduction as secondary needs. Deer need between 13 and 16% protein in their diet for body growth, nearly double the requirement of a cow. For antler growth, reproduction, and body growth, deer need a minimum of .65% calcium and .56% phosphorus in their diets. Given free choice and availability, the diets of white-tailed deer usually consist of 60% forbs, 30% browse, and 10% grass. Common forbs eaten by deer are Englemann daisy and orange zexmenia. Little-leaf lead tree, Texas kidneywood, and many species of oaks are frequent browse plants of deer. Deer rarely eat grass. The small quantities eaten are only the tender young shoots. Other grass parts are too difficult to digest.

Proper forage must be maintained all year, especially from May to October, the period before the breeding season when deer experience their greatest need for food. This time span corresponds to the major growth period and is a very critical period for fawn survival. Late winter may be a crucial time too, when gravid does are developing fawns and bucks are replacing antlers.

Competition for food is the greatest problem facing white-tailed deer in the Edwards Plateau today. Since deer prefer forbs and browse, their greatest food competitors are sheep who eat mainly forbs, and goats whose diet is mainly browse. Even cattle at times, may be competitors, but they are usually complements to deer. Cattle graze the grass and the deer are able to eat the browse and forbs which grow abundantly when the grass is decreased.

Livestock, unlike deer, can adapt their diets to available forage. Cattle switch their diets to choice browse when there is a shortage of grass. Goats and sheep also easily switch from browse and forbs to grass when preferred forage is in short supply. Deer, unfortunately, are not so versatile.

Efficient range management programs are important to
the survival of the white-tailed deer. Livestock and grazing management programs must be designed to reduce food competition between livestock and deer. The wise rancher will develop his management system to meet the needs of his white-tailed deer, livestock, and range.

Under a combined management plan, plants must be the primary consideration. It is well known that "if you can't grow food, you can't grow deer" or even livestock. Since plants make their food from their green leaves it follows that if all leaves are grazed off, a plant can not make food for itself, nor for the deer and livestock.

It is important that only 50% of the plant be utilized by grazing animals and the remaining 50% be left for the plant. Taking more than 50% of a browse species usually results in browse lines, which indicate poor range conditions for white-tailed deer or livestock. Small young deer are especially hurt by the high browse lines. Ideally for deer, there should be available forage from the ground level to 50 inches high. Over-browsed land is usually over-grazed land, causing a condition called retrogression. Retrogression is a backward trend in plant productivity, diversity, and nutritional value, but it can be corrected by proper grazing practices.

**Brush control is an important part** of a planned grazing system. This can be done in several ways—by chemical or mechanical means, or by prescribed burning techniques. Small forb come up after prescribed burns. These forbs are very important to the white-tailed deer, which especially like immature plants.

Following brush control measures, a systematic planned grazing system should be designed to suit the needs of the animals, the land, and the rancher. It is usually best to have two or more fenced pastures for manipulation of the livestock. Various "short duration" grazing systems, providing long rests for both browse and forbs plants to increase in vigor, are suitable for the Plateau area. High intensity/low frequency methods, which rotate one herd of cattle between several pastures, also allows long rest periods between grazing uses. A 16-cell pasture/one herd system is excellent for providing wildlife forage. It may also be modified to rotate the livestock in 12 pastures with the other 4 reserved for the deer. Flexibility is important in any grazing system. The Merrill 4 pasture, 3 herd, system has also been working very well for the co-management of deer and livestock on the Edwards Plateau.

**An ideal system for this area** is a 15 to 20 pasture rotation with half cows, one-fourth goats, one-fourth sheep, plus a statistically complementary number of deer. The advantage to the deferred-rotational grazing system is that the deferral allows the plant to rest and grow. Also, deer prefer to graze fallow land. The smart rancher quickly realizes that after cows have mown down a pasture, the deer are drawn to the freshly exposed forbs. Another advantage to a properly planned rotational system is that the same pasture will be rested and grazed at different times of the year at planned intervals. This is most beneficial to the plants and in turn to the wildlife and the livestock. Still another advantage to rotational systems is that livestock will have the chance to chose their favorite forage. Whereas, in a non-rotational system, species overselection by the livestock means a lower quality diet available to deer. In the rotational system, deer have access to resting pastures with first choice of the forbs and key browse species. This limits the forage competition with livestock to a very small part of the entire system.

Continuous grazing or year-round use is commonly practiced on many ranches on the Edwards Plateau. This method quickly puts stress on the deer. In this system, the numbers and kinds of animals are the only factors used to determine the proper grazing system and grazing rates. Usually the carrying capacity is maintained at or slightly below the appropriate level of the range, but can fluctuate due to species selection pressures. The rancher has to be flexible and he has to reevaluate his range for changes in deer and livestock population to match the changes in the available forage.

An important factor in the maintenance of high deer nutrition is to have a buck:doe ratio not to exceed 1 buck to 3 does (1:3). Good doe management is the key to balancing deer numbers with the food supply. Harvesting does prevents deer overstocking. On the Edwards Plateau a good buck: doe ratio is 1 buck to 2 or 2.5 does, depending upon available forage.

**The key factor, if man wishes to maintain** a thriving deer population, is available forage. To do this, the rancher must balance animals to available forage. If he does not, nature will take her awesome course. The course nature takes will be in the form of die-offs due to starvation and overgrazing. This process increases the chances for survival of the next deer generation and gives the forage a chance to grow back. Natural die-offs may occur at 5 to 7 year intervals if no management system is practiced. Even though sometimes harsh, nature does provide for the welfare of her deer.

Deer like men, are what they eat. If we ensure a plenteous supply of healthy, nutritious plants, we can expect heavy body weight and large antler size on our deer. Moreover, good nutrition results in a high fawn production with a high survival rate, as well as a sound resistance to disease. Yes, the well-informed rancher on the Edwards Plateau is fully cognizant that his deer must have quality ranges in order to have quality nutrition. They know well "if you can't grow food, you can't grow deer."