

How to Manage Deer Habitat: Edwards Plateau

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Summary

Habitat management includes managing deer numbers, livestock numbers, livestock grazing systems, classes of livestock, exotic numbers, brush control practices and nutritional supplementation. All of these practices should be used in combination to improve deer habitat.

Introduction

When most people talk about deer management, they are concerned with deer numbers, buck to doe ratios, fawn crops, doe harvest, buck harvest, etc. Many people make a complex subject out of something very simple; they have trouble seeing the forest for the trees. There are two overriding, separate forces or fundamentals which control the quality and quantity of a deer herd. One fundamental is nutrition. The other is genetics. Nearly all management decisions concerning livestock and deer should begin with the question, "Will this decision improve the nutritional level of my range or improve the genetics of my herd?" A basic understanding of both components is needed to manage a deer herd. The genetic component will be discussed in another paper.

The Nutritional Component

If you can provide forage for a deer, you can grow a deer. The better quality and more nutritious the forage, the better quality the deer will become. Better quality means increased body size, antler growth, reproduction and survival. The deer's genetic potential will be the final determining factor in deer quality if a deer is given a highly nutritious diet. The first priority in managing a deer herd, then, should be increasing the quality of the diet. There are several ways in which deer nutritional levels can be improved. The first of these is habitat management; the second is through feeding programs; and the third is through supplementation.

Artificial Feeding

Artificial feeding by planting food plots or providing feeders is not considered a long-term solution to deer management. It is also relatively expensive. It will not be discussed in this paper except to say that these practices are to be considered as supplements to proper management and should not be used in place of proper management.

Supplementation

Supplementation, unlike feeding, means providing minerals, protein or other nutrients where forage, though adequate, is deficient in these nutrients. For instance, most ranges in Texas are deficient in phosphorus. Supplementation of the deer diet with phosphorus then would enhance deer habitat. But how do you do it?

Managing Deer Diet

The best long-term solution to improving deer diet is through manipulation of deer habitat. Deer habitat here is defined as an area in which deer can find both food and cover. Since most deer live within a 1 square-mile area, both food and cover need to be available in that area. Plant species such as live oak motts can function as both food and cover. Other plant species such as "cedar" (ashe juniper) are primarily cover plants. They provide little nutrition. In general, deer should not be more than a 1/4 mile from cover. Most biologists in the Edwards Plateau recommend brush strips of mature cedar, as these strips will not be removed by overgrazing. However, the most important aspect of deer habitat management is the production of food, and this should receive the greatest emphasis from the land manager.

There are some management decisions that must be made in order to manage for white-tailed deer habitat. The first of these decisions deals with the classes of livestock to be stocked on a range. The second decision deals with the numbers of each class of livestock to be placed on the range. Deer food habit studies have demonstrated that deer primarily are forb and browse consumers. They prefer forbs when they are available. Browse usage increases as forbs become less available. For practical management purposes, deer are not grass consumers. Studies of sheep food habits also have demonstrated that sheep are primarily forb eaters, but unlike deer, sheep will take both browse and grass as forbs become unavailable. The studies also have shown that goats prefer browse when available. They also will use grasses and forbs as browse becomes unavailable. They compete with white-tailed deer primarily for browse. The common exotics (axis deer, fallow deer, sika deer, aoudad sheep and blackbuck antelope) have food habits similar to sheep or goats.

That is, they can use all three classes of forage – forbs, browse and grass. The white-tailed deer can utilize only two – forbs and browse. Cattle also can utilize all three classes of forage, but unlike sheep, goats or exotics, they prefer grasses. For this reason, many biologists recommend moderately stocking ranges with both deer and cattle if a deer management program is desired. The cows tend to eat the grass which allows for forb and browse growth. The deer tend to eat the forbs and browse, which allows for the grass to grow. The two, when properly stocked and managed properly, can compliment each other.

If you have a range that will provide adequate forage for 100 browse-eating animals with 90 being goats and 10 being deer, then all animals will have adequate amounts of forage. If 90 are deer and 10 are goats, all animals will still have adequate diets. The problem in the Edwards Plateau is that everyone tries to raise 150 goats and 150 deer. Since the deer do not have as wide a range of diet as goats, they suffer from malnutrition and frequent die-offs. Both classes of livestock and animal numbers (deer and livestock) determine habitat quality, which in turn affects deer quality.

The type of livestock grazing system(s) used on a range also affects habitat quality. Rotational grazing systems such as the HILF and the three pasture, one-herd system improve habitat quality. These systems allow rest periods from livestock grazing, which in turn allows the more preferred plants to mature and reproduce. Continuous grazing systems, unless very lightly stocked, do not allow the more preferred forages to grow and reproduce.

In the Edwards Plateau, both mature cedar breaks and areas of extensive regrowth cedar provide poor habitat. By removing the mature cedar and then maintaining the habitat in a live oak savannah condition, the carrying capacity for deer and livestock can be increased.

One useful method of maintaining a live oak savannah after clearing a cedar break is the proper use of prescribed burning to control regrowth cedar. Prescribed burns also will stimulate the production of deer food plants such as flameleaf sumac.

Hand cutting of regrowth cedar is another common practice used to control regrowth cedar. It is generally more costly and does not stimulate as wide a variety of browse and forb production as prescribed burning.

Still another practice used to control regrowth is the overstocking of pastures with goats. This is definitely not recommended since goats only eat cedar after all other food sources are consumed. This method destroys the range.

As grazing pressure from domestic livestock and deer is reduced on preferred plant species through proper stocking and proper harvest, there probably will be a

corresponding increase in quantity of the lesser preferred species because there is less grazing on these plants. For example, a range is being heavily grazed by sheep, goats, cows and deer. There is a definite browse line on the live oaks. Algarita and regrowth cedar are the major browse plants available below 5 feet. Both of these plants are being lightly grazed. Removing sheep and goats, proper stocking with cattle in an HILF system and reducing deer numbers to carrying capacity should result in an increase in regrowth (root sprouting) of live oak. (Proper stocking is considered to be the stocking of the pasture with cattle so that under normal range conditions approximately 90 percent of the cattle would be bred if bulls were left in the pastures for a 3-month period.) Deer fawn crops would exceed 100 percent based on September counts. Almost all grazing on algarita and cedar would cease. Moderately preferred species such as hackberry, bumelia and grape should begin to appear. With a dramatic decrease in both deer and livestock, there would be increases in the more preferred species such as Texas (Spanish) oak and elm.

However, there are some undesirable effects in this management scheme. There also will be increases in undesirable plant species such as cedar. This is due principally to the lack of grazing on these plants. Therefore, an organized system of controlling these plants needs to be implemented at the same time that herd reductions are taking place. Burnings are an efficient and economical method of controlling regrowth cedar and at the same time stimulating the forb and desirable browse species. Training in the proper use of prescribed burning is necessary for this technique to be successful. Various agencies such as the Texas Agricultural Extension Service, the Texas Parks and Wildlife Department and the Soil Conservation Service will assist you in learning more about the proper use of fire to manipulate rangelands.

How to Recognize Proper Stocking and Overstocking for Deer

Experienced range and wildlife managers generally use key species of browse plants to judge if a range is overstocked by deer or livestock.

Let's take a typical example of range destruction brought on by the continuous overstocking of white-tailed deer and, in this case, sika deer. The sika deer could just as well be sheep or goats. The principle here is range destruction brought on by improper control of animal numbers. In this example, we are going to look at primarily live oak and shinoak as key species. These are two of the most abundant and, therefore, more important (key) management species in the Edwards Plateau. They are not necessarily the best deer foods. In fact, live oak is nutritionally very poor deer food. Shinoak is a good indicator of summer grazing because it is a moderately preferred browse. Live oak, because it is not readily grazed in the summer if other species are present, is a good indicator of winter grazing. For habitat management purposes,

biologists do not want to see live oak being grazed in the summer months.

In this study, browse below 5 feet was classified as either light, moderate or heavily grazed. This determination was made in mid-August.

Six sika deer and five white-tailed deer were placed in a 96-acre enclosure in 1971 (Table 1). There were no livestock in the pasture. By 1974, heavy grazing was occurring on shinoak with live oak being moderately grazed. There were approximately 15 white-tailed deer and 19 sika deer at this time. Heavy grazing again occurred on shinoak in 1975 with some heavy grazing now on live oak. There were now 29 white-tailed deer and 18 sika deer. With the absence of an acorn crop in 1975, the grazing on live oak became severe by the middle of the winter period. A major die-off of white-tailed deer occurred during the winter of 1975 to 1976. Heavy grazing was again recorded on the summer forage (shinoak) and the winter forage (live oak) in August 1976. There were now six white-tailed deer and 32 sika deer in the pasture. By 1977, all the live oak was being very heavily grazed during the summer. There were now only seven white-tailed deer and 37 sika deer. By August of 1979, all summer and winter browse plants were depleted. All white-tailed deer had died by the end of 1979. There were 62 sika deer. The sika deer did not die off. They had shifted the bulk of their diets to grass while at the same

time keeping the grazing pressure on the smaller and smaller quantities of deer browse. Cedar during this time did increase, although it received some light grazing by sika deer.

The initial loss of white-tailed deer occurred when moderately grazed summer plants such as shinoak were depleted early in the summer and grazing on the winter forage (live oak) began too early in the year. This left little winter forage for deer during the critical winter period.

The lesson to be drawn from this study is that populations of animals should be managed to maintain a proper balance between animal numbers and key plant species within the habitat. A key plant species should be one that is abundant and of moderate to low preference by white-tailed deer. In the case of deer in the Edwards Plateau, live oak is a good winter range indicator. It should not be grazed during the summer months. Shinoak is good summer range indicator. It should not receive heavy grazing during the summer months. If either of these browse species are heavily grazed, then either livestock or deer numbers (or a combination of both) need to be reduced. In most cases, this reduction should be rather severe in order to reverse range destruction. In the case of the sika/white-tailed deer study, more than 79 percent of the population of white-tailed deer was lost to malnutrition.

Table 1. August Grazing Pressure on Key Browse Species With a Population of White-tailed and Sika Deer 1971-1979.

Year	Grazing Pressure				Deer Populations	
	Light-Moderate Grazed		Heavy Grazed		White-tailed	Sika
	Liveoak	Shinoak	Liveoak	Shinoak		
1971	100%	100%	---	---	10	9
1972	100%	57%	---	43%	17	12
1973	100%	71%	---	29%	16	15
1974	97%	---	3%	100%	15	19
1975	87%	---	13%	100%	29	18
1976	43%	2%	31%	98%	6	32
1977	---	---	100%	100%	7	37
1978	---	---	100%	Depleted	5	47
1979	---	---	100%	Depleted	6	62

