Range Management for Quality Wildlife

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I'm like a lot of professional rangemen, I suspect, in that I enjoy hunting as a favorite pastime. It's quite natural for me to think of wildlife as a product of the range resource, and to cast an eye toward range management as it relates to the product yield. All hunters, however, don't automatically share this association of range with the wildlife it produces. We need the understanding of these people and the support that could be generated from their interest for a multitude of range-related problems. The American hunting public makes up a sizable block of folks!

As with all other renewable natural resources, management has a great impact on the ability of rangeland to produce sustained yields of desirable products, and wildlife is no exception. In fact, these animals are very often a reflection of the condition of the range, since it relates so directly to their specific needs.

It has been stated that nutrition, or the lack of adequate nutrition, is the number one problem of the Texas deer herd. The ability of the range to supply satisfactory nutritional levels is a concern to deer hunters. While genetic limitations certainly influence ultimate deer size and antler growth, even the "best" genes can't produce a trophy buck if nutrition is inadequate.

Some people feel they can feed deer nutritional requirements "out of a sack." A look at the deer in areas where corn feeding has been a standard practice for many years tells us we can build body fat, but not necessarily bone (antlers) and muscles. The protein level of corn, if we look at this nutrient, will not meet requirements of deer for maximum development. While reportedly there are now available on the market deer feeds with sufficient protein and that deer will eat, what about the cost and distribution of such products, and utilization by enough deer in sufficient quantities?

Protein for Quality Deer

In many instances, properly managed rangeland could produce the required protein levels for deer. Some of the biggest whitetails in the state come from areas where little or no feeding of deer is done by ranchers. Range plants can furnish the nutritional levels required for big-bodied, big-antlered deer. Keep in mind that the nutrition from the range was all that was available to the old mossbacks of yesteryear, and quality deer were once produced in areas that now support only small, nutritionally deprived deer herds. High quality native range plants not only provide better nutrition, but they are the most economical and efficient form available. Whether or not they are present on the

range and in sufficient quantity to do the job may be a different story.

Range plants occur in three basic groups; grasses, forbs, and shrubs (with cacti being considered a part of the shrub group). The first and last categories are obvious ones, but the word forb is sometimes confusing. Even today, a lot of people tend to think of rangeland forbs simply as "weeds," overlooking the contribution they make to range nutrition.

Wildlife and livestock find forbs very attractive grazing plants and often select them over grass when they are available, particularly in certain stages of growth. In some instances, forbs are present on the range when grass availability and quality are very low. Deer are known to rely heavily on them to increase the nutrient content of their diet, but cattle, although primarily grass eaters, also search out these plants and use them readily. Heavy grazing with cattle and particularly sheep may prove detrimental

Guayacan (Protelia angustifolia) is an evergreen shrub species consistently browsed by deer in south Texas. Photo courtesy C.J. Scifres.

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Note: protein analyses of vegetation used in the article were furnished by Dr. J.E. Huston and B. Rector, Texas Agricultural Experiment Station, San Angelo.
Forbs Source of Protein

Deer have a protein requirement of between 13 and 16%, or nearly double that of a cow. Forbs are often the best source of protein on the range, and particularly during critical time periods when the nutritive value of grasses and shrubs is low. The cool season forb plantago, a common plant on much of our deer range, contained over 19% crude protein in February, and over 10% from late December until late May. Orange zexmenia and sweet gaillardia, two forbs which, because of their selection by livestock and wildlife decrease on the range with heavy grazing, contained 18% protein in late March of the same year. It is obvious that forbs are a significant nutritional contributor on the range during the late winter season when fawns and bucks are replacing antlers. In fact, on many ranges, forbs may be the only vegetation providing even body maintenance requirements for brief periods.

Deer also rely on browse in their diet from the woody shrubs and cacti on the range. The nutritional value of these woody plants provides a clue to their selection by deer. Since grasses are low on the preference list and seldom provide adequate protein levels, and forbs are often short-lived or nonexistent during dry periods, shrubs provide a stabilizing influence on diet quality. Cacti, for example, are often utilized heavily by deer in South Texas during droughts and in late winter months.

Elbow bush is a prime browse species in the Edwards Plateau and Rio Grande Plains. Samples of leaves and twigs taken in March contained over 20% crude protein. Live oak, catclaw acacia, shin oak, aligerita, guajillo, and other common species often provide protein levels of 20% or higher during March and April. These plants develop new growth from moisture supplies deep in the soil profile, while many grasses and annual forbs are dependent upon current rainfall to initiate growth.

Since these range plants are native species, why don’t we have high levels of nutrition in our deer herds? The answer to this question is obviously complex. There are many reasons for inadequate nutrition on range, and often several operate in combination to confound the issue.

Competition Is Critical Influence

Perhaps the most critical influence on the availability of satisfactory deer nutrition on the range is competition. This competition may come in several forms. It may be competition between domestic livestock and deer, or may reflect deer vs. deer in high populations. It may also be competition between types of vegetation on the same range.

Livestock are known to select diets that are usually on a higher nutritional plane than a composite sample of the range plants. This simply means that they pick and choose plants and plant parts. High quality forbs are oftentimes high on the selection list of livestock and are grazed heavily. This can mean a lower quality diet available to deer at critical times.

The effects of deer vs. deer in competition for range nutrition is obvious. At the turn of the century, deer numbers in the nation were estimated at an all time low of about 50,000 whitetail and mule deer out of the original population of about 50,000,000 thought to inhabit North America at the time of arrival of European man. Since the early 1900’s, numbers have rebuilt to densities considered to be all-time highs in some parts of the nation. Earlier in the century, fewer deer meant greater diet selection from existing vegetation, assuming livestock competition to be equal. Many of us have seen the apparent correlation between increasing deer numbers and decreasing deer size and condition on the range.

Competition among kinds of vegetation can simply mean that monocultures, or areas supporting a single plant species, may support fewer deer than where a balance of vegetation types exists. Range dominated entirely by brush can be a disadvantage to deer. Woody plants can become “overmature,” that is, the young twigs may be inaccessible to deer for browse and the plants may support a low proportion of nutritious plant parts. Research showed that an old stand of decadent mixed-chaparral brush produced only 13 to 106 pounds of browse per acre yearly. After fall or early spring burns, this same area produced 750 to 2,750 pounds of browse per acre. There is a vast difference in amount of foodstuff produced that is also accessible following manipulations of the old brush stands. Other studies have shown four to five-fold increases in deer densities on burned as opposed to unburned adjoining chaparral. Not only had forage production been increased but the new production was also more nutritious.

A shrub that is a desirable browse species may become undesirable if a major portion of its growth is woody. Thickening of woody plant stands can also decrease forb and grass production. Just having a great many woody “browse” plants on the range is not necessarily the answer to good deer nutrition. Even such devoted browsers as goats prefer leaves and tender twigs and prefer to consume relatively little tough, woody growth. Manipulation of woody plants by burning, roller chopping, shredding, chaining, or with other brush control practices decreases the proportion of woody to succulent growth on these plants and increases acceptability by grazing animals. Many woody plants are basal sprouters, producing more palatable and more nu-
tritious forage that is well within reach of animals following top-growth removal.

On Texas ranges that support vegetation communities with all three plant categories, shrubs, grasses, and forbs, the key to good deer nutrition rests with maintaining a proper balance of plants and animals. We must remember that the rancher has to make the resource pay, and that livestock operations which depend primarily on grass must continue at economic levels. But, hunting income is often very significant and combination livestock/wildlife operations provide more flexibility—an important consideration when livestock prices are low.

**It Can Be Done**

Can we have good livestock range and provide deer nutritional needs from the same area? Following are examples where attention is given to wildlife needs in range improvement programs.

The system of rotating grazing livestock through a series of pastures in one herd is getting attention by Texas ranchers. It is called “short duration grazing” and is designed to provide short grazing periods (perhaps 7 to 21 days) followed by longer rest periods between grazing uses. A 14 day graze-140 day rest system would require 11 pastures.

The value of some type of rotational grazing system to wildlife using the same area is clear. Deer have access to the resting pastures and get the advantage of “first pick” on forbs and key browse species. Competition is limited to only a portion of the total area in the system at any one time.

Another example of concern shown for wildlife habitat would be the familiar strips or block designs left in brush during mechanical brush control operations. The enhancement of deer habitat by increasing the area of edge effect is well known. Also important is the need to leave untreated strips when herbicides are applied to rangeland. Forbs, both annual and perennial, are particularly susceptible to the conventional herbicides used for range brush control. While the chemicals do not prevent eventual recovery of these plants, they can be effectively removed from the range for an entire season or longer. Research at two locations in south Texas has shown that from 70 to 80% of a pasture can be treated with herbicides without lasting detrimental effects to deer population or condition. However, consideration for the kind and amount of the key forage species produced by individual range sites would be important in each area to be treated. The size of the treated area in relation to the overall size of the ranch and its remaining resources is also an important concern.

Year-round grazing of the same pasture by livestock, known as continuous use, is still a widely practiced method of grazing in Texas. Even at moderate stocking rates, the livestock are able to select the preferred plants on the whole area. This puts the pressure on high quality, preferred forbs, as well as the better browse and grass species. When forage supplies run short because of drought, or simply due to excessive livestock numbers, the situation becomes critical very quickly for deer.

The rancher has the option of deciding on a goal for his range vegetation and then managing to attain this goal. If he wants to emphasize wildlife production, those plant species which are primary plants for wildlife can be identified and protected in his management plans. Conversely, the rancher has the right to manage for increase of a particular plant category on his range with substantial or even drastic reductions in the others. For example, ranchers may decide to take large areas out of brush and establish them to grass—often a single species of grass. Root plowing and seeding to an introduced grass may also reduce forb production after 1 or 2 years of above-average yield.

Fortunately for hunters, landowners cannot economically disregard wildlife in most cases and are anxious to protect the range for multipurpose use. This is being done by many of today’s ranchers. Such management does not normally mean “no brush control” or “no grazing by livestock.” It means an understanding of the range resource, and setting short and long range objectives, identification of the key forage plants for all animal users, development of a plan to provide for animal needs in keeping with objectives, and application of practices in accordance with the plan.

Hunters can become involved in some of the problems of good range management both by their support and participation. For example, population control of the deer herd by removal of excess does is often an area where they can help. A better general understanding of the synergistic role of range and wildlife management to meet their needs could bring together a whole new support for our efforts.