

# **Harvest: An Essential Strategy for White-tailed Deer Management**

## **by: Fielding Harwell, TPWD Technical Guidance Biologist, Kerrville**



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Harvest is a key management tool required to manage white-tailed deer populations; however, successful management must also involve proper range or habitat management. The basic strategy for deer population management, which involves harvest, consists of the following: (1) deer numbers must be maintained at or below range carrying capacity; (2) a desired sex ratio must be achieved; (3) the harvest rate of bucks must be established to attain the desired age structure of bucks available for harvest; (4) consideration for harvesting spike-antlered bucks as part of the harvest quota should be incorporated into the program.

### **Deer Numbers Versus Carrying Capacity**

Maintaining the deer population level within the food supply of the range is essential to improve the habitat and maintain a productive and healthy deer population. The harvest of does is frequently required to control deer numbers. Population reduction will increase the quantity, quality, and diversity of vegetation utilized by deer as food. The increase in food availability will improve fawn production and survival. Higher net fawn production will eventually result in more bucks available for harvest. There should also be a corresponding increase in body size and an improvement of antler development of bucks harvested.

High deer numbers, which exceed the carrying capacity of the habitat, may result in die-offs during drought conditions. Furthermore, the long-term effects of animal overpopulation will result in a decline of range carrying capacity. This occurs from overuse of preferred plants with key species being destroyed and seedlings being consumed before they become established.

In Texas, the carrying capacity may range from 100 deer per 1,000 acres or 10 acres per deer to less than 20 deer per 1,000 acres or 50 acres per deer. This is dependent upon rainfall, soil and vegetation types, the domestic livestock operation, and other land use practices.

Population management is successful only if good range management practices are carried out. A sound livestock program must consider the class of livestock to be grazed, the stocking rate, and the use of a deferred rotation system of grazing. Brush management is also important. Preferred browse plants must be protected and invading woody plants such as regrowth Ashe juniper should be controlled.

### **The Desired Adult Sex Ratio**

The sex ratio, expressed as does per buck, is crucial regarding the number of bucks available for harvest and the volume of does present for reproductive purposes. A wide ration of does per buck results in few bucks available for harvest and a surplus of does. A high volume of does can result in a very rapid increase of deer numbers under good range conditions and may be followed by a die-off when conditions deteriorate with the onset of a drought or severe winter.

The optimum sex ratio for many areas of Texas will range from 2.0 to 2.5 areas of does per buck. Under intensive management possible on a very large ranch or one that has a deer-proof fence, the desired ration may range from 1.0 to 1.5 does per buck. Occasionally, when a rapid increase in deer numbers may be warranted or where fawn survival is historically low, the desired ration may range from 3.0 or 4.0 does per buck.

### **Options Concerning the Buck Harvest Rate**

Hunting pressure on the antlered segment of the population determines the age of bucks available for harvest. Bucks complete body growth at 3 years of age and are mature at 4 years. Maximum antler development is achieved at 5 and 6 years of age. The manager may consider 1 of 3 basic buck harvest strategies. The first strategy is to manage for quality bucks that are mature animals 4 ½ years or older. To maintain a buck population with a substantial number of mature bucks, the harvest must be restricted to approximately 20% of the antlered male population. The kill rate may initially need to be dropped even lower to "stockpile" mature bucks, or it can be increased to 25% if there is a surplus of bucks. Management

for mature quality bucks is practical when there is light hunting pressure, the ranch has a high fence, or a large tract of land is involved in the program. A disadvantage of this type program is possible loss of bucks due to natural mortality, accidental death, or illegal harvest.

A second strategy is to furnish maximum recreation by harvesting 40% to 50% of the estimated buck population. The harvest quota will depend upon reproduction and the volume of replacement bucks from the fawn segment of the population. Under this harvest strategy, 75% to 85% of the bucks harvested will be young deer in the 1 ½ and 2 ½ year old age classes. In areas subject to heavy hunting pressure because of small landownership size, this may be a practical option.

The third option is an optional harvest rate of 30% to 33% of the estimated buck population. This option is between the limited harvest required to produce mature quality bucks and the maximum harvest of 50%. The 30% harvest rate furnishes greater volume of bucks to be harvested than the quality strategy of harvesting 20%; also, it provides for a greater number of older age deer than does the maximum harvest rate of 50%.

### **Harvest of Spike-Antlered Bucks**

The harvest of spike-antlered bucks is another important aspect of a management program. Spike-antlered bucks are the result of inadequate nutrition, age, and genetics, or combination of these factors. Spikes are generally found in the yearling or 1 ½ year old age class; however, yearling bucks can produce 4 to 8 points if nutrition is adequate. For nutrition to be adequate, deer numbers must be in balance with the habitat, competition with livestock must be minimal, and rainfall adequate. Additionally, research has shown that on the average, spike-antlered yearling bucks will remain inferior to fork-antlered yearling bucks when these two groups reach maturity. Consequently, spike-antlered bucks may be considered as part of the buck harvest quota. This permits the removal of poor quality bucks at an early age and it reduces hunting pressure on the more desirable bucks. The recommended spike buck harvest may comprise up to one-half of the buck harvest quota depending on how much the manager wants to reduce hunting pressure on better quality bucks and reduce numbers of spike bucks. An unlimited harvest of spike-antlered bucks is practical only under very intensive management. Importantly, the manager must remember that a high incidence of spike-antlered bucks is a symptom of rangeland overpopulated with deer and/or overstocked with domestic animals. These factors that limit deer quality must be corrected before the selective harvest of spike bucks is beneficial to the program.

### **In Closing**

Harvest plays a major role in the management of a white-tailed deer population; however, basic range management practices that concern domestic livestock must be implemented. These combined management practices are required to increase the quantity, quality, and diversity of range plants needed to support a productive and healthy deer population.