

TEXAS' ANTLERLESS DEER HUNTING SYSTEM: METHODS AND EFFECTIVENESS

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Abstract: Texas initiated antlerless white-tailed deer (*Odocoileus virginianus*) hunting in 1953. The harvest of antlerless deer is regulated by permits issued to landowners, who distribute the permits to hunters utilizing their property. Since the inception of this program, approximately 1.4 million antlerless deer have been harvested in Texas. In 1979, 290,120 antlerless deer permits were issued to 25,201 landowners, resulting in a harvest of 89,225 antlerless deer. The harvest comprised 5% of the adult female segment of the population. The approximate cost of administering the permit system was \$261,400.00 in 1979, representing a cost of \$2.93 for each antlerless deer harvested.

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Following a period of decline around the turn of the century, Texas white-tailed deer populations began increasing in the 1920's and by 1973 were estimated at 3.4 million animals. The need for harvest of antlerless deer was first documented by Sanders (1941) as a means of achieving more balanced sex ratios in areas subjected to heavy buck hunting pressure. Hahn (1943) promoted the harvest of antlerless deer as a means of maintaining deer populations within the carrying capacity of their habitat. Die-offs in the Edwards Plateau due to nutritional stress have been reported by Hahn (1945), Taylor and Hahn (1947), and Marburger and Thomas (1965).

The Texas Parks and Wildlife Department (TPWD) first received authority to regulate seasons and bag limits for game species in 1943; however, this authority was limited to that area of the State west of the Pecos River. It was not until 1953 that the TPWD received authority to regulate the harvest of antlerless deer in an area where deer were overpopulated.

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METHODS

Many landowners and managers are skeptical of implementing new wildlife management programs on their lands (Berger 1974); consequently, the introduction of antlerless deer hunting in Texas necessitated a conservative approach and development of a system that would allow the landowner to exercise satisfactory control of his property. From the outset, antlerless deer hunting in Texas has been regulated through a permit system whereby an appropriate number of antlerless deer hunting permits are issued to each landowner having property within an antlerless deer hunting compartment. The landowner then distributes the permits to his hunters. With the exception of some limited experimentation with either-sex

bag limits where harvest quotas were not established, the permit system has been the only method used to harvest antlerless deer in Texas.

During the early years of the program, antlerless deer hunting was permitted during only a portion of the normal 46-day deer hunting season; however, by the late 1950s, permits for antlerless deer were valid throughout the season. Another early safeguard of the program was a requirement that all antlerless deer be checked at a Department check station. This requirement was terminated in 1961, when it became apparent that regulated antlerless deer hunting was not going to extirpate the deer population. Other safeguards included in the original statutes pertaining to antlerless deer hunting that persist today are: permits may be issued only to a landowner or his authorized agent, the landowner must agree in writing to the removal of a specific number of antlerless deer, hunters must have the consent of a landowner to hunt on his property, landowners are not required to participate in the program or to harvest the number of antlerless deer recommended by the Department, and some counties have the authority to disapprove the Department's regulations.

Antlerless deer harvest quotas are determined annually. The 1st step is to identify areas having deer that are under nutritional stress during at least part of the year, as evidenced by observations of poor physical condition, obviously poor habitat conditions, and die-offs. Declining trends in body weights and antler development (Hobson et al. 1979) and browse utilization surveys (Lay 1967) are also used to document overpopulated conditions.

Once overpopulated areas are identified, antlerless deer harvest quotas are determined. A prerequisite to determining these quotas is an estimate of the deer population density and herd composition within each compartment. One aspect of deer management that may be somewhat unique to Texas is the ability to census deer with a relatively high degree of reliability. Approximately 20,125 km (12,500 miles) of transects are surveyed annually. Survey methods include fixed wing aircraft, roadside spotlight counts, daytime roadside counts, walking cruise lines, and track counts.

Once these parameters are estimated, permit issuance rates are calculated for each compartment. A variety of formulas have been used for this purpose, all with the basic objective of deriving a harvest quota that, if attained, would reduce the deer population to the desired level. Typically, harvest quotas are determined by the relationship: $(1.00 + I) (P - H) = C$ where:

I = Herd Increment (Young/Adult)

P = Observed Population (Deer per 405 ha)

C = Desired Population

H = Recommended Harvest (Unknown)

H/2 = Recommended Antlerless Deer Harvest

Following the establishment of harvest quotas, schedules for issuing permits are prepared and publicized. Normally permits are issued on designated dates at the county courthouse in each participating county. Landowners or their agents come to the issuance location at the designated time, sign an application form, and are issued the permits for their property. Landowners then disseminate the permits to hunters utilizing their property. A hunter who kills an antlerless deer during the regular hunting season must tag the deer with an antlerless deer hunting permit as well as with a deer tag from his hunting license.

RESULTS AND DISCUSSION

The 1st year of the program 1,136 antlerless deer permits were issued to 52 landowners in portions of 2 counties—southeastern Mason County and northeastern Gillespie County (Carroll 1957). A total of 946 antlerless deer was harvested.

A 3rd county, Llano, participated the following year and in 1955, portions of 5 counties were open to antlerless deer hunting. Despite the controversy that most new programs generate, antlerless deer hunting gained in popularity and acceptance by Texas hunters and landowners. By 1964 antlerless deer hunting was permitted in 73 counties, providing a harvest of approximately 74,000 (Fig. 1).

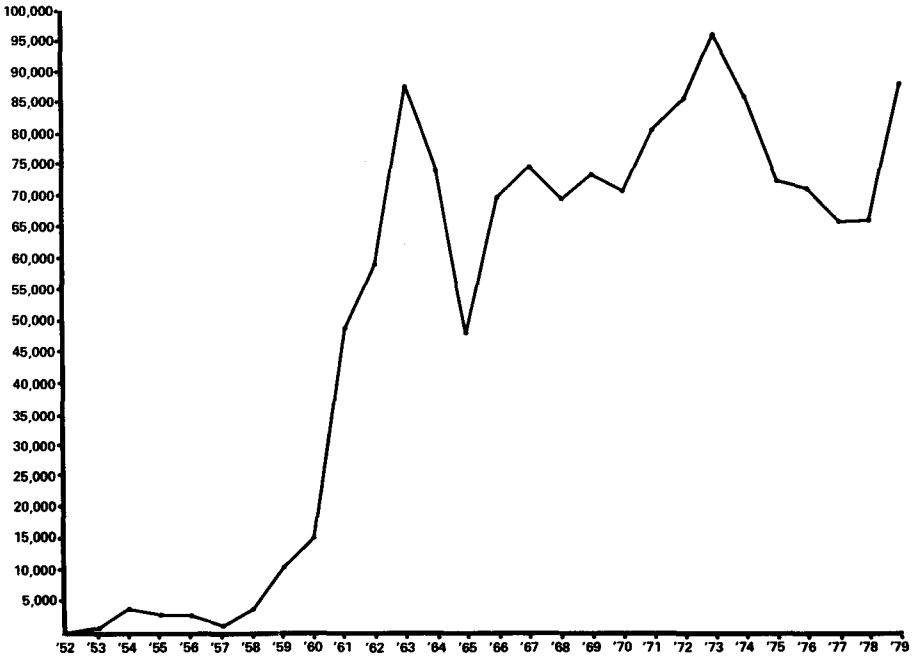


Fig. 1. Texas' antlerless deer harvest, 1953 - 1979.

A total of 290,120 permits was issued in 1979 to 25,201 landowners in 114 counties who controlled deer hunting on 13,861,927 ha (34,255,739 acres), approximately half of Texas' white-tailed deer range. A total of 89,225 antlerless deer was harvested. Antlerless deer comprised 27% of the white-tailed deer harvest in the State (Boydston and Harwell 1980). Since the inception of the program, over 1.4 million antlerless deer have been harvested in Texas providing approximately 20 million days of hunting opportunity.

While these figures are impressive, the program has had little effect on the deer population. Of Texas' 3,000,000 deer, approximately 56% are adult females. The 89,000 harvested in 1979 comprised only slightly more than 5% of the female segment of the population. Although the total number of permits issued was approximately the number desired to achieve an optimum harvest, only 31% of the permits were utilized. While the utilization of permits has been increasing in recent years, a significant increase in the antlerless deer harvest will be necessary to achieve desired population levels.

Costs of administering the antlerless deer program in Texas can be separated into 3 major categories — census, determination of harvest quotas, and issuance of the permits. A fall deer census is conducted throughout the State's 28.4 million ha (70 million acres) of deer range to obtain data on population trends, fawn production, and gross herd and habitat conditions. These criteria are used to formulate antlerless deer harvest quotas. In 1979, the TPWD expended approximately 2,100 man-days to survey 21,664 km (13,456 miles) of deer census transects. A total of 408,223 ha (1,008,829 acres) was sampled at a cost of \$171,000. Field personnel expended 301 man-days analyzing census data and formulating antlerless deer harvest quotas. Estimated cost of this activity was \$24,700.

Activities associated with issuing permits to landowners, which includes the cost of printing permits, publicizing issuance schedules and physically issuing the permits entailed 800 man-days at a cost of \$65,700. Thus, the total cost of administering the antlerless deer harvest program in Texas in 1979 was \$261,400 or \$2.93 for each antlerless deer harvested.

CONCLUSIONS

Antlerless deer hunting has been the most controversial deer management program implemented in Texas. While the concept of harvesting female deer has generally been accepted by landowners and hunters, there is reluctance to harvest antlerless deer in sufficient numbers to achieve desired population reduction.

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