

EVALUATING THE EFFECTS AN EARLY ANTLERLESS-ONLY DEER HUNTING SEASON HAS ON ANTLERLESS HARVESTS

Marrett Grund

SUMMARY OF FINDINGS

I examined white-tailed deer (*Odocoileus virginianus*) harvest data associated with an early antlerless-only (EA) season offered in Minnesota. Individuals who purchased an early antlerless-only license had higher harvest success rates than hunters who did not purchase an early antlerless-only license. A higher percentage of early antlerless-only hunters also harvested multiple antlerless deer. Antlerless harvests associated with early antlerless-only hunters were approximately 300% higher than harvests associated with other hunters. I concluded that including an early antlerless-only season would increase the antlerless harvest. However, total antlerless harvest did not substantially increase because of very low hunter participation in the early antlerless-only season. I suggest conducting additional hunter surveys to assess why hunters have not participated in the early antlerless-only season and to determine methods to increase participation.

INTRODUCTION

Deer densities are above population goal levels in approximately half of Minnesota. Minnesota Department of Natural Resources (MNDNR) liberalized deer hunting regulations over the past 10 years in attempt to increase antlerless harvests thereby reducing deer densities. However, deer densities continued to increase in many permit areas despite the liberal hunting regulations. In 2005, MNDNR initiated a research project to evaluate alternative hunting regulations that may further increase antlerless harvests (Grund et al. 2005). An EA hunting season was 1 of the regulations tested in this experiment.

The concept of an EA season is to provide hunters with an additional opportunity to harvest an antlerless deer prior to the regular firearms season. Hunter participation in the EA season is voluntary, and previous research indicated that approximately 60% of deer hunters would hunt in an EA season if offered in the permit area they normally hunt (Fulton et al. 2006). A concern of MNDNR about the EA season was that hunters who were successful at harvesting an antlerless deer during the EA season would be less likely to harvest antlerless deer during other hunting seasons (herein referred to as Non-EA seasons). Thus, the potential existed that the EA season would simply shift antlerless harvest from 1 season to another and therefore EA harvest would not be additive to the overall harvest. This paper evaluates harvest patterns associated with the first 3 years of EA hunting seasons to address the compensatory/additive harvest concern.

OBJECTIVES

- Compare harvest patterns of hunters participating in the EA season against those hunters who did not participate.

METHODS

An EA season was offered in 5 permit areas in northwestern Minnesota and 3 permit areas in the north metro region of Minnesota during 2005, 2006, and 2007. EA seasons were offered in an additional 15 permit areas during 2007. The EA season was held the second weekend of October each year. Participating hunters were required to purchase an EA license at a reduced cost.

EA hunters, identified in MNDNR 2005, 2006, and 2007 Electronic Licensing System (ELS) databases, were categorized according to their respective permit areas. Individuals who purchased regular firearms licenses in the same permit areas, but did not purchase an EA hunting license (Non-EA hunters), were also identified in each database. All analyses were performed on 8 permit areas (209, 210, 225, 227, 236, 256, 257, and 260) that held an EA season since 2005, and on 8 permit areas (214, 221, 222, 241, 243, 244, 346, and 349) that implemented an EA season in 2007.

For the 8 permit areas hunted since 2005, I tallied the number of EA and Non-EA hunters each year. I then used the ELS deer harvest database to identify the number of EA hunters who harvested 0, 1, or 2 deer in each permit area during the EA season (bag limit was 2 antlerless deer during the EA season). I also determined the number of EA hunters who also harvested 0, 1, 2, or >2 antlerless deer during Non-EA seasons (annual bag limit was 5 antlerless deer). For making comparisons to Non-EA hunters, I used the ELS deer harvest database to determine the number of Non-EA hunters who harvested 0, 1, 2, and >2 antlerless deer each year. I then conducted a simple frequency analysis to estimate the percentage of individuals who harvested 0, 1, 2, and >2 deer for each group of hunters. To compare harvest efficiency between groups, I projected numeric antlerless harvests by standardizing the number of hunters in each group. I simply assumed there were 100 individuals hunting in each group and projected the numeric antlerless harvest based on the proportion of hunters who harvested 0, 1, 2, and >2 deer to standardize the results and make comparisons between the groups of hunters.

Similar analyses were performed on the 8 permit areas that were added in 2007. The primary difference was that I first identified the hunters who purchased an EA hunting license in 2007, and calculated the number of hunters who harvested 0, 1, 2, and >2 antlerless deer in all deer hunting seasons (EA and Non-EA) in 2007. I then identified the same individuals in the 2005 and 2006 ELS harvest databases and calculated the number of individuals harvesting 0, 1, 2, and >2 antlerless deer during those years. I then identified hunters who did not purchase an EA license in those 8 permit areas during 2007 and performed the same analyses. By conducting this analysis, I was able to identify whether an individual hunter harvested a deer in 2007 and then determine if the same individual also harvested a deer in 2005 or 2006. I compared harvest efficiency between groups of hunters and across years to determine if the EA season increased the overall number of antlerless deer killed during all hunting seasons.

RESULTS AND DISCUSSION

Participation Rates

For the 8 permit areas with EA hunting since 2005, hunter participation rates in the EA hunting season was low in all permit areas, averaging 14%, 16%, and 16% in 2005, 2006, and 2007, respectively. Participation rates in the northwest Minnesota permit areas were comparable to those observed in the north metro permit areas. These observed participation rates were noticeably lower than the predicted participation rates (60%), which were based on hunter survey data collected before the season was offered in 2005 (Fulton et al. 2006).

Similarly, participation rates were generally low in the 8 permit areas where an EA season was first offered in 2007. Participation rates were somewhat higher in permit areas located in central Minnesota (range=20-23% participation) than in southeastern Minnesota permit areas (range=13-15% participation).

An opportunity exists to increase the antlerless harvest during the EA season by increasing the percentage of hunters participating in the EA season. Additional modifications to the EA season may provide incentives for additional hunters to participate in this season. For example, previous survey data indicate that the ability to harvest an antlered deer is an important factor for hunters to support a regulation (Fulton et al. 2006). Perhaps allowing an individual to hunt antlered deer after registering 2 antlerless deer would increase hunter

participation rates in the EA season. Further consideration about alternative methods to increase participation rates is clearly warranted if the intent is to increase antlerless deer harvests during the EA season.

Harvest Patterns

Early Antlerless-Only Permit Areas established in 2005

Approximately 33% of hunters harvested 1 antlerless deer during each EA hunting season (Table 1). Hunter success rates in the northwest permit areas were higher (45-55% individuals harvested deer) than those observed in the north metro (25-30% individuals harvested deer). Only 5% of hunters harvested 2 antlerless deer during the EA hunting seasons.

EA hunters also had slightly higher success rates (approximately 35%) during the Non-EA seasons than Non-EA hunters (approximately 30%). About 25% of hunters harvested 1 antlerless deer during Non-EA seasons regardless of whether they purchased an EA license. However, I observed higher percentages of EA hunters harvesting multiple antlerless deer during Non-EA seasons (Table 1).

Early Antlerless-Only Permit Areas established in 2007

Hunters who purchased an EA license for the first time in 2007 had high success rates even without the EA season in 2005 and 2006 (Table 2). However, while the success rate (approximately 33%) remained the same for Non-EA hunters in 2007, the success rate increased from approximately 50% in 2006 to 60% in 2007 for the EA hunters (Table 2). In addition, a higher percentage of these EA hunters harvested multiple antlerless deer in 2007 than they did in 2005 and 2006 (Table 2).

These results indicate that adding the EA season will increase hunter success rates as well as the percentage of hunters harvesting multiple antlerless deer. The results in Table 2 also suggest that EA hunters may be a unique group of hunters who are more willing to harvest antlerless deer, because these hunters had higher success rates than Non-EA hunters even when an EA season was not offered in 2005 and 2006. Thus, attempting to recruit additional hunters into this season may be challenging because the Non-EA hunters may have less interest in harvesting an antlerless deer regardless of hunting season. Further analyses should be conducted on Non-EA hunters to assess their willingness to harvest antlerless deer based on past harvest data.

Projected Antlerless Harvests

Even during the short, 2-day EA season, EA hunters had higher kill rates per hunter during the EA season than Non-EA hunters did during the Non-EA seasons in the permit areas established in 2005 (Figure 1). Similarly, EA hunters also had higher kill rates per hunter than Non-EA hunters during the Non-EA hunting seasons. EA hunters had approximately 300% higher kill rates per hunter than Non-EA hunters when the EA and Non-EA harvests were totaled for the EA hunters in 2007.

Likewise, projected harvests were higher for EA hunters in the EA permit areas established in 2007 (Figure 2). Harvest rates per hunter for Non-EA hunters were comparable among years, and were consistently lower than the group of hunters who purchased an EA license in 2007. Although the 2007 kill rate per hunter remained the same for Non-EA hunters, the kill rate per hunter increased by 30% for the group of hunters who purchased an EA license in 2007 (Figure 2).

These projected harvests suggest that including an EA season will effectively increase the antlerless harvest by increasing the success rate for EA hunters and increase the

percentage of EA hunters harvesting multiple antlerless deer. In addition, it does not appear that adding the EA season will reduce the antlerless harvest for Non-EA hunters, which indicates that the additional harvest that occurs by EA hunters is additive.

MANAGEMENT IMPLICATIONS

These findings suggest that the EA hunting season will increase the antlerless harvest. However, wildlife managers should not expect marked increases in antlerless harvests with the type of EA season used during this study. An attempt should be made to increase participation rates during the EA season. Increasing participation rates is an opportunity that should be explored for increasing the effectiveness of the EA season because: 1) participation rates for the EA season were very low, and 2) it will likely be challenging to find ways (e.g., extending the EA season, adding another EA season) to increase harvest rates for EA hunters because the projected harvest rates were very high even with the existing EA season format. Additional human dimensions research should be conducted to improve our understanding about why hunters are not participating in the EA season and what could be done to increase participation rates.

LITERATURE CITED

- Fulton, D. C., L. Cornicelli, and M. D. Grund. 2006. 2005 Survey of deer hunter satisfaction and preferences for regulation changes. Project Report: Minnesota Department of Natural Resources, St. Paul, Minnesota, USA. 81pp.
- Grund, M., L. Cornicelli, D. Fulton, B. Haroldson, E. Dunbar, S. Christensen, and M. Imes. 2005. Evaluating alternative regulations for managing white-tailed deer in Minnesota - a progress report. Pages 132-137 *in* P. Wingate, R. Kimmel, J. Lawrence, and M. Lenarz, editors. Summaries of Wildlife Research Findings, 2005. Division of Fish and Wildlife, Minnesota Department of Natural Resources, St. Paul, Minnesota, USA.

Table 1. Percentage of hunters harvesting 0, 1, 2, and >2 antlerless deer during the early antlerless-only and during other available hunting seasons in early antlerless-only season permit areas^a established in 2005, 2005 – 2007, Minnesota. For early antlerless-only hunters, harvests occurring during the early antlerless-only season were not included with the other hunting seasons.

	Early antlerless-only hunters				Non-early antlerless-only hunters						
	Early antlerless-only season ^b			Non-early antlerless-only seasons				Non-early antlerless-only hunters			
	0	1	2	0	1	2	>2	0	1	2	>2
2005	62	34	4	66	24	7	3	71	24	4	1
2006	58	35	7	66	25	7	2	71	24	4	1
2007	67	28	5	64	26	8	2	71	23	5	1

^aPermit areas 209, 210, 225, 227, 236, 256, 257, and 260

^bThe bag limit of antlerless deer in the early antlerless-only season was 2 antlerless deer

Table 2. Percentage of hunters harvesting antlerless deer in permit areas^a where early antlerless-only seasons were first implemented in 2007, Minnesota. Both groups of hunters were first identified in the 2007 deer harvest data, then the same hunters were identified in the 2005 and 2006 deer harvest databases. Values reflect percentages of individuals harvesting 0, 1, 2, >2 antlerless deer each year.

	Early antlerless-only hunters				Non-early antlerless-only hunters			
	0	1	2	>2	0	1	2	>2
2005	50	33	11	6	66	27	5	2
2006	52	30	13	5	66	26	6	2
2007	39	37	16	8	67	26	5	1

^aPermit areas 214, 221, 222, 241, 243, 244, 346, and 349

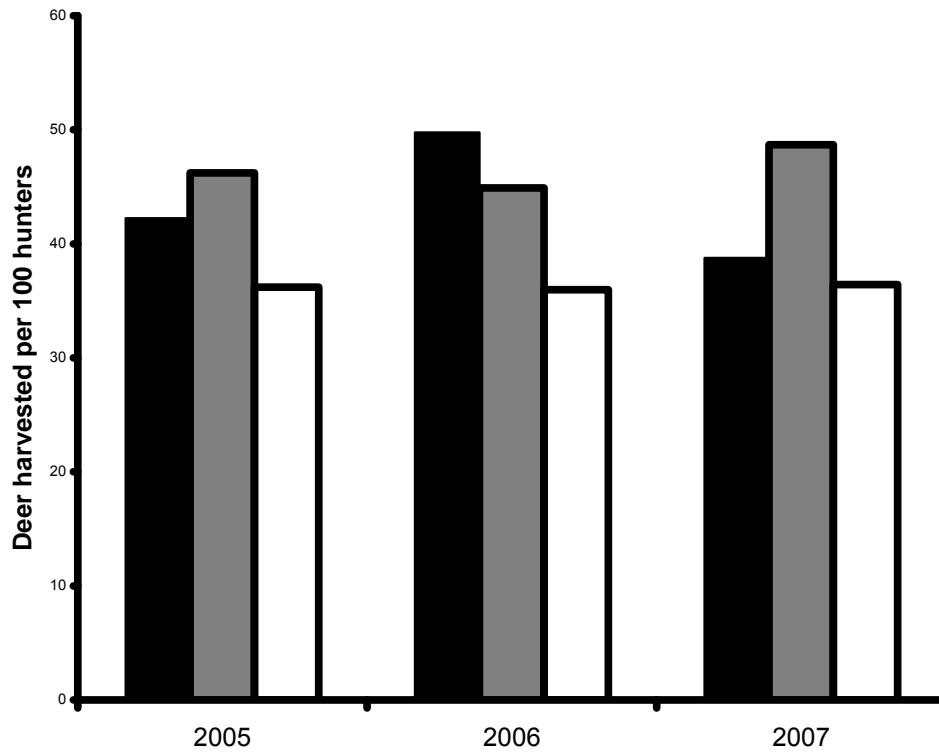


Figure 1. Number of antlerless deer harvested: 1) for every 100 early antlerless-only hunters during the early antlerless-only season (black), 2) for every 100 early antlerless-only hunters in other available hunting seasons (grey), and 3) for every 100 non-early antlerless-only hunters (white) in the early antlerless-only permit areas established in 2005, Minnesota, 2005-2008.

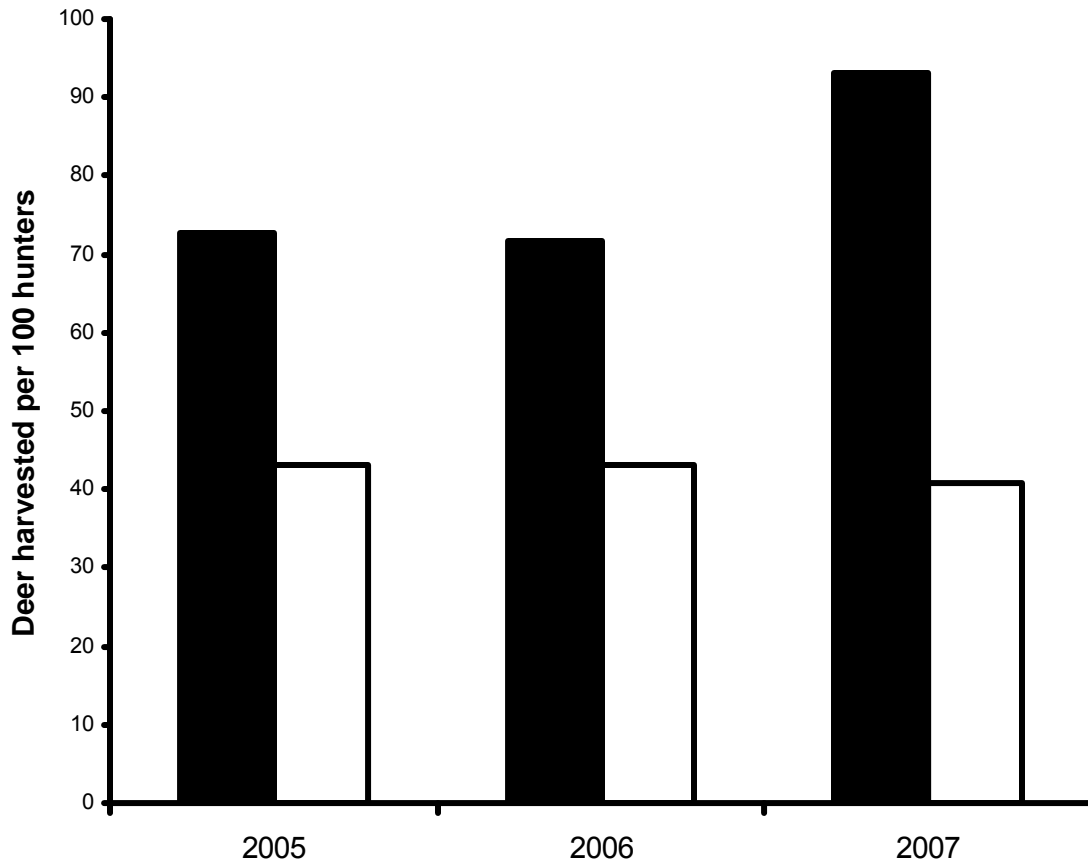


Figure 2. Number of antlerless deer harvested for every 100 early antlerless-only hunters who purchased an early antlerless-only license in 2007 (black), and the number of deer harvested for every 100 hunters who did not purchase an early antlerless-only license in early antlerless-only permit areas established in 2007 (white), Minnesota. Values for the early antlerless-only hunters in 2005 and 2006 depict the number of antlerless deer harvested without an early antlerless-only season.