2006 Study of Deer Hunters participating in State Park Deer Hunts with Special Regulations and Minnesota's Early Antlerless Deer Season

Prepared by:

David C. Fulton, U.S. Geological Survey
Assistant Unit Leader & Adjunct Associate Professor
Minnesota Cooperative Fish and Wildlife Research Unit
Department of Fisheries, Wildlife, and Conservation Biology
University of Minnesota

Lou Cornicelli
Big Game Program Coordinator
Minnesota Department of Natural Resources
Division of Fish and Wildlife

Marrett D. Grund
Farmland Research Project Leader
Minnesota Department of Natural Resources
Division of Fish and Wildlife

Introduction

Acknowledgements

This study is a cooperative effort supported by the Minnesota Department of Natural Resources, Division of Fish and Wildlife (MnDNR) and the U.S.G.S Minnesota Cooperative Fish and Wildlife Research Unit at the University of Minnesota. We especially wish to thank Michael DonCarlos and Edward Boggess for their support of this project. We also wish to thank the MnDNR deer management committee and numerous area wildlife managers who reviewed various drafts of the survey. Finally, we thank the many Minnesota deer hunters who pursued deer during these special seasons and took the time to complete the survey and furthered our understanding of this important segment of the hunting population.

Introduction

Table of Contents

Introduction

List of Figures

List of Tables

Introduction

In 2003, deer harvest regulations were liberalized to allow the taking of antlerless deer without making application for a special permit. This change was instituted mostly to offer additional opportunity to hunters with the goal of reducing deer populations. While this change can be considered a fundamental programmatic shift, it is likely not enough to lower deer densities appreciably in all areas. Consequently, other harvest strategies need to be developed that go beyond simply adding the number of days to the season or the number of deer in the bag. In several states, regulations such as earn-a-buck (EAB: where a hunter must kill an antlerless deer before being authorized to take a buck), antler point restrictions (APR), buck license lotteries, and special antlerless seasons have been used to varying degrees of success. In Missouri and Pennsylvania, antler point restrictions have been used for several years, while Wisconsin has implemented both earn-a-buck and special antlerless seasons. Additionally, both North and South Dakota have a lottery system for both buck and antlerless licenses. In Minnesota, more than two-thirds of all deer permit areas allow the taking of antlerless deer without making application. In the remaining one-third, hunters can take a buck but must apply for the opportunity to harvest antlerless deer.

Beginning with the 2005 deer season, Minnesota initiated a research project to evaluate the effects of alternative harvest regulations on deer populations. Alternative regulations were loosely defined as those harvest regulations that fall outside the traditional deer management paradigm of increasing season length and bag limits as means to promote additional deer harvest. Specifically, APR and EAB regulations were tested on 7 Minnesota State Parks, while a special antlerless season was enacted during mid-October on 8 deer permit areas (Table I-1). State Parks were selected because they generally require an application to participate. Consequently, it was believed that a more committed evaluation of the regulations could be made because hunters made application with the knowledge they would be hunting under a special regulation. The only exception is Itasca State Park, which does not require a special application. The 8 deer permit areas selected for the special antlerless season (herein referred to as early antlerless) were chosen due to chronically high deer populations. In essence, these areas have allowed the take of 5 deer per hunter for at least 5 years, yet have not exhibited appreciable deer population declines. Prior to implementation of the early antlerless season, extensive public comment was sought through public meetings and web-based solicitation of public comment. Ultimately, the public was supportive of the season, and it was implemented in October, 2005.

Concurrent with the implementation of alternative harvest regulations, Department of Natural Resources (DNR) staff began a process of surveying hunters who participated in the special hunts regarding the effectiveness and support for these regulations . Previous surveys of Minnesota deer hunters have assessed both satisfaction with deer management and preferences toward regulatory changes. Fulton et al. (2004) examined attitudes of northwest Minnesota deer hunters towards management for more antlered males and support for alternative harvest regulations. Fulton et al. (2006) also surveyed deer hunters regarding support and preference for regulatory changes. The current survey represents the second of a three year project to evaluate hunter opinions regarding alternative deer management strategies.

Introduction

Each group of study respondents experienced a different regulatory package. Those packages were:

- Antler point restrictions – hunters had to apply for the opportunity to hunt the park and could take any antlerless deer but could only take antlered males that possessed a minimum number of antler points.
- Itasca State Park- any hunter could participate in the hunt. They could take any antlerless deer but could only take antlered males that possessed a minimum number of antler points.
- Earn-a-buck – hunters had to apply for the opportunity to hunt the park and could take any antlerless deer but could not take an antlered buck until they had tagged an antlerless deer.
- Early antlerless – any hunter could participate and they could take only antlerless deer.
- Control - hunters from the general population who could take any deer (buck or antlerless).

Study Purpose and Objectives

The study was designed to collect information regarding motivations, hunting patterns, and opinions relative to hunting deer under special regulations. Ultimately, the purpose of this project is to assess support and participation in future hunts with special regulations.

The specific objectives of the project are to:

1. Describe hunter effort and hunting patterns in Minnesota in 2006 including: type of land hunted, hunting methods and locations, and number of years hunting;
2. Describe hunting satisfaction with deer hunting in Minnesota in 2006, and identify activities and experiences that affect hunting satisfaction;
3. Determine support for special hunts and if hunters will continue to hunt under special regulations in the future.
4. Make comparisons among special hunt participants and the general deer hunting population.

Methods

Sampling

In total, 5 unique surveys were developed: earn-a-buck, antler point restriction, Itasca State Park, early antlerless, and control. The control survey was developed to determine whether or not hunter attitudes and hunting patterns differed from park and early antlerless hunters. While Itasca State Park (ISP) is an antler point restriction hunt, it was separated from the other antler point respondents because ISP does not have a special lottery drawing. Any hunter with a valid license can hunt ISP, whereas the other antler point hunts require an application due in early September. Consequently, the participants were differentiated and separate analyses were conducted. In all cases, the samples were drawn from a complete sample of hunters participating

in the park hunts, while statistically representative samples of both early antlerless and control hunters were selected from the 2006 ELS license database.

Survey design

Each survey contained 3 sections. The first section contained questions that assessed recent hunter experiences and general perceptions about hunting deer in Minnesota. The second section included questions to quantify respondent's experiences during their 2006 deer hunt. The final section collected information hunting methods, patterns, and motivations.

Data collection

Data were collected using a mail-back survey questionnaire following the process outlined in Dillman (2000). The process involved development of a survey that was relatively easy to complete, and was not time consuming. The first mailing was sent in February, 2006. In the initial attempt, a cover letter, survey questionnaire, and postage-paid envelope were sent to participants. The cover letter attempted to convey the importance of completing and returning the survey. Approximately 30 days later, a second survey, postage-paid envelope and new cover letter was sent to non-respondents. Approximately 8 weeks after the first mailing, a third mailing was sent to non-respondents with another survey, postage-paid envelope, and cover letter. Returned surveys were collected through May, 2007.

Data entry and analysis

Data were analyzed using the Statistical Program for the Social Sciences (SPSS 15[1]). For individual surveys, descriptive statistics and frequencies were computed. For continuous variables, descriptive statistics were analyzed and extreme outliers were removed from the analysis. Comparisons across samples were made using chi-square tests, analysis of variance (ANOVA), and cross-tabulations.

Survey response rate

Of the 3,420 questionnaires mailed, 216 were undeliverable, which resulted in 3,204 valid surveys. A total of 2,123 deer hunters completed and returned the questionnaire, yielding an overall response rate of 62%. By survey, control participants had the lowest response rates (53%), while hunters participating in antler point restriction hunts had the highest (76%: Table I-2). Also, while the number of antler point respondents is small (n = 125), it does represent the hunting population (N = 150).

[1]Mention of trade names or commercial products does not imply endorsement by the U.S. Government.

Introduction

Table I-1. Locations selected for alternative harvest regulations in Minnesota.

Regulation	Location
Earn-A-Buck	St. Croix, Great River Bluffs, Maplewood, and Wild River State Parks
Antler Point Restriction	Itasca, Savanna-Portage, and Forestville State Parks
Early Antlerless Season	Deer permit areas 209, 210, 225, 227, 236, 252, 256, 257

Table I-2. Response rates for each survey.

Survey	Initial Sample Size	Number Undeliverable	Valid Sample Size	Number Returned	Response Rate (%)
Antler Point Restriction	150	12	138	125	76.2%
Control	1000	65	935	517	52.8%
Early Antlerless	1000	69	931	561	58.4%
Earn-a-Buck	782	48	734	584	66.1%
Itasca State Park	488	22	466	336	63.5%
Total	3,420	216	3,204	2,123	62.1%

Section 1: Experience, Background, and Hunter Participation

Findings

This suite of questions focused on hunter participation and effort for the study areas of interest. In general the questions were consistent across all 5 surveys.

Participation

Respondents were asked if they participated in their respective hunts during 2006. For all 5 study samples, 97% of respondents participated in their hunts. These data were consistent with the 2005 park survey group (Fulton et al. 2007), where the vast majority of hunters actually participate in their hunt. By study sample, we detected no differences in participation rates (Table 1-1).

Days scouting

Respondents were asked how much time they spent scouting for deer for both the regular hunting seasons (archery, firearm, muzzleloader) and their special hunts (excepting the control). Overall, less than half of respondents indicated they did any pre-season scouting. For those who scouted, they spent an average of 4.5, 5.6, and 7.6 days scouting prior to the firearm, muzzleloader, and archery seasons, respectively (Table 1-2). By study group, early antlerless hunters spent the most time scouting before their hunt (4.7 days) and antler point hunters spent the least amount of time (2.7 days; Table 1-3). With the exception of the control respondents, the mean number of days spent scouting between treatment and control groups were similar (Table 1-4).

For the 3 special hunts (Itasca, antler point restriction, earn-a-buck), respondents were asked how many days they scouted the area prior to hunting. Overall, hunters spent an average of nearly 2 days scouting their hunt area. By park, Itasca hunters spent the least time scouting (mean = 1.4) with antler point restriction hunters spending the most time scouting (2.5 days; $F = 2.97$, $p = 0.052$; Table 1-5).

Days hunting

Respondents were asked how many days they participated in their special hunt. These data are slightly confounded by the fact that the number of available days varied by hunt area. For example, earn-a-buck parks had either a 4 or 6 day hunt, while control hunters had either a 6, 9, or 16 day season, depending on their zone. The only hunts that had a fixed number of available days were the early antlerless (2 days) and Itasca State Park (9 days). However, given that few hunters pursued deer throughout the entire season, we did not expect to see wide variation in average days even though it was possible. Indeed, with the exception of early antlerless (89%) and antler point hunters (53%), the majority of respondents who hunted deer at least one day hunted less than 50% of the maximum possible time (Table 1-6). With respect to the early antlerless season, it appears hunters maximized their opportunity during those two days as the vast majority hunted both days (mean = 1.8 days).

Section 1: Experience, Background, and Hunter Participation

Years of experience

Respondents were asked how many years they had participated in their special hunt, how many years they had hunted their preferred permit area, and how many years they had been hunting deer in Minnesota. Overall, respondents averaged 24 years of Minnesota deer hunting experience, which was comparable with Fulton et al. (2006). We detected no differences in years of hunting experience between groups ($F = 1.18$, $p = 0.317$; Table 1-7). Respondents were also asked how long they had been hunting their traditional deer permit area (other than their special hunt). Overall, antler point respondents had hunted the fewest number of years in one area (mean = 10 years), while the control group exhibited the highest site fidelity (mean = 16 years; Table 1-7). These results were expected because with the exception of Itasca State Park, hunters must apply annually to participate. So, while a hunter may exhibit annual fidelity to their hunting location, they may not hunt a park annually because they would likely not be drawn every year. The clear exception is Itasca, which has no application; hence the average number of years hunting the park and hunting their traditional permit area were functionally the same.

Hunting patterns

In total, a majority of hunters (68%) pursued deer on private land. To a lesser extent, hunters pursued deer on state forests (15%), wildlife management areas (9%), or other public lands (9%; Table 1-8). We observed statistical differences across all seasons; however, some clear patterns emerged. For example, during the firearm season, the vast majority of Itasca hunters tended to pursue deer on public land (95%), which is further indication of high site fidelity of that hunting group. Conversely, the most of the control and early antlerless hunters pursued deer on private land (86% and 82%, respectively; Table 1-9), which is comparable to Fulton et al. (2006) who found that 85% of regular season firearm hunters pursued deer on private lands. Antler point restriction and earn-a-buck respondents were less reliant on any particular land type, which indicated those groups did not hunt exclusively at their special hunt location. Finally, we compared treatment versus control respondents and found that with the exception of the firearm and muzzleloader seasons, there were no differences in the percentages of hunters who pursued deer on different land ownership types (Table 1-10).

State park hunters (earn-a-buck, antler point restriction, and Itasca) hunters were asked to state their primary reason for participating in their special hunt. Overall, the reasons for hunting the park differed between respondents ($\chi 2 = 124.08$, $p < 0.001$; Fig. 1-1). Itasca respondents typically hunted as a party with family or friends (46%) or hunted the park every year (45%). Additionally, very few Itasca hunters (7%) noted high deer populations as their primary reason for hunting as compared to earn-a-buck (35%) and antler point (25%) hunters. Interestingly, very few hunters pursued deer on their area because they were simply interested in the regulation (Figure 1-1). Early antlerless respondents were given slightly different reasons for hunting that season; thus, they are not comparable to the other group. Overall, early antlerless hunters indicated most often they normally hunted the permit area and were looking for more opportunities (40%). Secondarily, early antlerless respondents believed the season was a good chance to put venison in the freezer early (31%), 11% thought there were too many deer in the area, 10% had never hunted the permit area and were looking for more opportunity. Finally, 9%

listed 'other' as the reason with the majority indicating they wanted to take a youth hunting before the regular season.

Control hunters were given different options so they were not comparable to other study groups. Overall, hunting as part of a party (55%) and typically hunt the area (36%) were most frequently listed. The believed there were enough deer to increase personal odds of success (2%) and there were simply too many deer (1%) were also listed as reasons. Finally 6% of respondents noted 'other' with the most frequent reason being they owned the land they hunted.

Respondents were also asked if they hunted: new areas every year, new areas every 1 to 2 years, new areas every 3-5 years, or the same area every year. A large majority of hunters (84%) indicated they hunted the same area every year; but responses varied by study group. Hunters in the control group stayed in their traditional areas most often (91%), while hunters in earn-a-buck (75%) and antler point (74%) areas were least likely to stay in the same locations every year (Table 1-11). These findings are consistent with Fulton et al. (2007) who found that 83% of the 2005 survey respondents pursued deer in the same location every year. The contrast with previous research is with the draw-only hunts where respondents tended to hunt different areas. This finding makes intuitive sense as a hunter may apply every year for a park but they are not guaranteed a successful application. Consequently, if they are unsuccessful in the lottery, they still hunt but do so in another area.

Respondents were asked their harvest intent for deer throughout the season: 1 – hunt big bucks all season, 2 – hunt big bucks early, take any deer later, 3 – take any legal buck, 4 – take the first legal deer they can, 5 – take only anterless deer. Overall, hunters were most inclined to take the first legal deer that presented a shot (64%). In total, 29% of respondents indicated they either hunted for big bucks early in the season (15%) or all season (14%). Only 4% of those surveyed indicated they exclusively hunted antlerless deer. By study group, the control group was most inclined to hunt all season for big bucks (19%), while Itasca state park hunters tended to take the first legal deer (81%; Table 1-12).

Hunting methods

The majority of hunters in this study hunted deer from a tree stand (71%), while a much smaller percentage preferred to still hunt (12%). These results were nearly identical to Fulton et al. (2007) who found that 68% and 13% used tree stands or still hunted, respectively. In total, hunters were least likely to hunt from ground blinds (10%), participate in deer drives of at least 5 people (4%), or deer drives of less than 5 people (3%; Table 1-13).

Respondents participating in antler point restriction hunts were more inclined to either still hunt (24%) or hunt from the ground (19%). To a lesser extent, earn-a-buck and Itasca hunters were also inclined to hunt deer this way. These results are likely due to the fact that state park regulations do not allow a person to leave their tree stand overnight. Consequently, the effort required to remove a stand daily may contribute to a higher percentage of hunters choosing to hunt from the ground.

Section 1: Experience, Background, and Hunter Participation

Table 1-1. Deer hunter participation rates for 5 study areas, 2006.

Hunting Region	*N*	% Who Hunted
Antler Point Restriction	109	97.2%
Control	557	97.7%
Earn-A-Buck	510	96.7%
Early Antlerless	603	96.0%
Itasca State Park	281	94.3%
Total	2,060	96.5%
χ^2=6.788, n.s.		

Table 1-2. Mean number of days spent scouting deer prior to the three traditional deer seasons.

Season	Spent time scouting	*n*	Mean (days)	SE
Archery	8.5%	182	7.64	0.54
Firearm	35.4%	762	4.41	0.17
Muzzleloader	6.0%	129	5.57	0.50

Table 1-3. Mean number of days spent scouting, by study group.

	Season											
	Early Antlerless			Archery			Firearm			Muzzleloader		
Study group	*n*	Mean	SE	*n*	Mean	SE	*n*	Mean	SE	*n*	Mean	SE
Antler Point Restriction	1	1.00	.	8	5.13	1.53	36	2.72	0.35	3	4.67	2.67
Control	31	4.35	0.97	76	8.18	0.89	348	4.96	0.27	59	5.44	0.57
Early Antlerless	312	4.72	0.35	57	7.39	0.90	138	5.12	0.46	39	5.56	1.10
Earn-a-Buck	12	1.33	0.14	35	8.11	1.34	152	3.67	0.27	21	5.62	1.48
Itasca State Park	0	0.00	0.00	6	3.83	0.48	88	3.10	0.35	7	6.86	2.47
Total	356	4.56	0.32	182	7.64	0.54	762	4.41	0.17	129	5.57	0.50

Table 1-4. Comparison of days spent scouting for treatment versus control study group respondents.

Season		*n*	Mean	SE	95% Lower CI	95% Upper CI	F	*p*
Early antlerless	Treatment[1]	325	4.58	6.17	0.34	3.91	0.04	n.s.
	Control[2]	31	4.35	5.38	0.97	2.38		
	Total	356	4.56	6.09	0.32	3.93		
Archery	Treatment	106	7.25	6.87	0.67	5.93	0.73	n.s.
	Control	76	8.18	7.78	0.89	6.41		
	Total	182	7.64	7.26	0.54	6.58		
Firearm	Treatment	414	3.95	4.12	0.20	3.55	9.43	0.002
	Control	348	4.96	4.99	0.27	4.44		
	Total	762	4.41	4.56	0.17	4.09		
Muzzleloader	Treatment	70	5.67	6.62	0.79	4.09	0.05	n.s.
	Control	59	5.44	4.41	0.57	4.29		
	Total	129	5.57	5.69	0.50	4.57		

[1]Treatment: early antlerless, Itasca, earn-a-buck, and antler point respondents
[2]Control: control survey respondents

Table 1-5. Mean number of days spent scouting prior to participating in a special hunt on a Minnesota State Park with special regulations.

Hunting Area	N	Mean	SE	95% Lower CI	95% Upper CI
Antler Point Restriction	106	2.47	0.38	1.74	3.21
Earn-A-Buck	507	2.16	0.26	1.66	2.66
Itasca State Park	265	1.40	0.14	1.13	1.67
Total	878	1.97	0.16	1.66	2.28

Table 1-6. Mean number of days hunters participated in their special hunt.

	Days hunting study area			
Study group	Mean	SE	Maximum Available Days	Maximum Percent of Season
Antler Point Restriction	3.18	0.17	6	53.0%
Control	5.38	0.12	16	33.6%
Earn-a-buck	2.94	0.06	6	49.0%
Early antlerless	1.77	0.02	2	88.5%
Itasca State Park	3.66	0.11	9	40.7%
Total	3.38	0.05		

Table 1-7. Mean number of years respondents have hunted their special hunt area, their primary deer permit area, and Minnesota.

	Years hunting survey area		Years hunting permit area		Years hunting in Minnesota	
Study group	Mean	SE	Mean	SE	Mean	SE
Antler Point Restriction	4.1	0.44	10.3	1.15	24.5	1.33
Control	N/A	N/A	16.3	0.54	24.1	0.60
Earn-a-buck	4.8	0.22	11.6	0.49	23.5	0.60
Early antlerless	N/A	N/A	11.3	0.49	25.0	0.57
Itasca State Park	15.8	0.73	15.2	0.72	25.3	0.83
Total	8.1	0.31	13.2	0.27	24.4	0.31

Table 1-8. Percent of hunting activity on each land ownership type (all surveys combined).

Property	Early Antlerless	Archery	Firearm	Muzzleloader	Total
Wildlife Management Area	9.2	10.6	8.1	9.1	8.9
State Forest	5.7	3.6	22.4	10.1	14.7
Other Public Land	6.1	3.8	11.6	7.9	8.8
Private Land Posted	56.1	53.7	40.0	52.8	46.7
Private Land Not Posted	22.9	28.4	17.8	20.1	21.0

Section 1: Experience, Background, and Hunter Participation

Table 1-9. Percent of hunters pursuing deer on different land ownerships, by study group.

		Study Group											
		Antler point restriction		Control		Earn-a-buck		Early antlerless		Itasca State Park		Total	
Season	Property	*n*	Percent	*N*	Percent	*n*	Percent	*n*	Percent	*n*	Percent	*n*	Percent
Early antlerless	Wildlife Management Area	2	5.7	6	6.5	22	13.8	10	5.1	7	25.9	47	9.2
	State Forest	3	8.6	4	4.3	20	12.6	1	0.5	1	3.7	29	5.7
	Other Public	2	5.7	1	1.1	17	10.7	9	4.6	2	7.4	31	6.1
	Private Posted	22	62.9	56	60.9	74	46.5	124	62.9	10	37.0	286	56.1
	Private Not Posted	6	17.1	25	27.2	26	16.4	53	26.9	7	25.9	117	22.9
$\chi 2 = 147.72$, $p < 0.001$													
Archery	Wildlife Management Area	2	33.3	5	9.3	6	12.5	58	10.0	2	40.0	73	10.6
	State Forest	1	16.7	4	7.4	10	20.8	8	1.4	2	40.0	25	3.6
	Other Public	2	33.3	0	0.0	6	12.5	18	3.1	0	0.0	26	3.8
	Private Posted	1	16.7	32	59.3	16	33.3	321	55.5	1	20.0	371	53.7
	Private Not Posted	0	0.0	13	24.1	10	20.8	173	29.9	0	0.0	196	28.4
$\chi^2 = 116.46$, $p < 0.001$													
Firearm	Wildlife Management Area	17	18.5	10	2.0	67	15.2	34	6.0	20	8.4	148	8.1
	State Forest	36	39.1	40	8.2	158	35.8	35	6.2	140	58.8	409	22.4
	Other Public	15	16.3	21	4.3	84	19.0	27	4.8	65	27.3	212	11.6
	Private Posted	18	19.6	274	55.9	114	25.9	315	56.0	9	3.8	730	40.0
	Private Not Posted	6	6.5	145	29.6	18	4.1	151	26.9	4	1.7	324	17.8
$\chi^2 = 809.40$, $p < .001$													
Muzzleloader	Wildlife Management Area	5	45.5	1	1.1	14	15.1	14	7.6	3	10.0	37	9.1
	State Forest	0	0.0	5	5.6	17	18.3	11	6.0	8	26.7	41	10.1
	Other Public	2	18.2	5	5.6	5	5.4	12	6.5	8	26.7	32	7.9
	Private Posted	4	36.4	48	53.9	46	49.5	109	59.2	8	26.7	215	52.8
	Private Not Posted	0	0.0	30	33.7	11	11.8	38	20.7	3	10.0	82	20.1
$\chi^2 = 84.56$, $p < 0.001$													

Table 1-10. Comparison of property hunted between treatment and control study groups.

		Treatment		Control	
Season	Property	*n*	Percent	*n*	Percent
Early antlerless	Wildlife Management Area	41	9.8	6	6.5
	State Forest	25	6.0	4	4.3
	Other Public	30	7.2	1	1.1
	Private Posted	230	55.0	56	60.9
	Private Not Posted	92	22.0	25	27.2
$\chi^2 = 7.17$, n.s.					
Archery	Wildlife Management Area	68	10.7	5	9.3
	State Forest	21	3.3	4	7.4
	Other Public	26	4.1	0	0.0
	Private Posted	339	53.2	32	59.3
	Private Not Posted	183	28.7	13	24.1
$\chi^2 = 5.34$, n.s.					
Firearm	Wildlife Management Area	138	10.4	10	2.0
	State Forest	369	27.7	40	8.2
	Other Public	191	14.3	21	4.3
	Private Posted	456	34.2	274	55.9
	Private Not Posted	179	13.4	145	29.6
$\chi^2 = 217.24$, $p < 0.001$					
Muzzleloader	Wildlife Management Area	36	11.3	1	1.1
	State Forest	36	11.3	5	5.6
	Other Public	27	8.5	5	5.6
	Private Posted	167	52.5	48	53.9
	Private Not Posted	52	16.4	30	33.7
$\chi^2 = 21.35$, $p < 0.001$					

Table 1-11. Percent of hunters who change hunting locations.

		Where do you primarily hunt every year (%)			
Study Group	*n*	Never same area every year	Change every 1 to 2 years	Change every 3 to 5 years	Same place every year
Antler Point Restriction	108	5.6	7.4	13.0	74.1
Control	563	1.2	3.6	4.3	90.9
Earn-a-Buck	520	3.7	9.0	12.7	74.6
Early Antlerless	613	1.5	3.6	5.5	89.4
Itasca State Park	280	2.9	5.7	10.4	81.1
Total	2,084	2.4	5.4	8.0	84.2
χ^2= 80.83, $p < 0.001$					

Table 1-12. Preferred type of deer pursued by hunters.

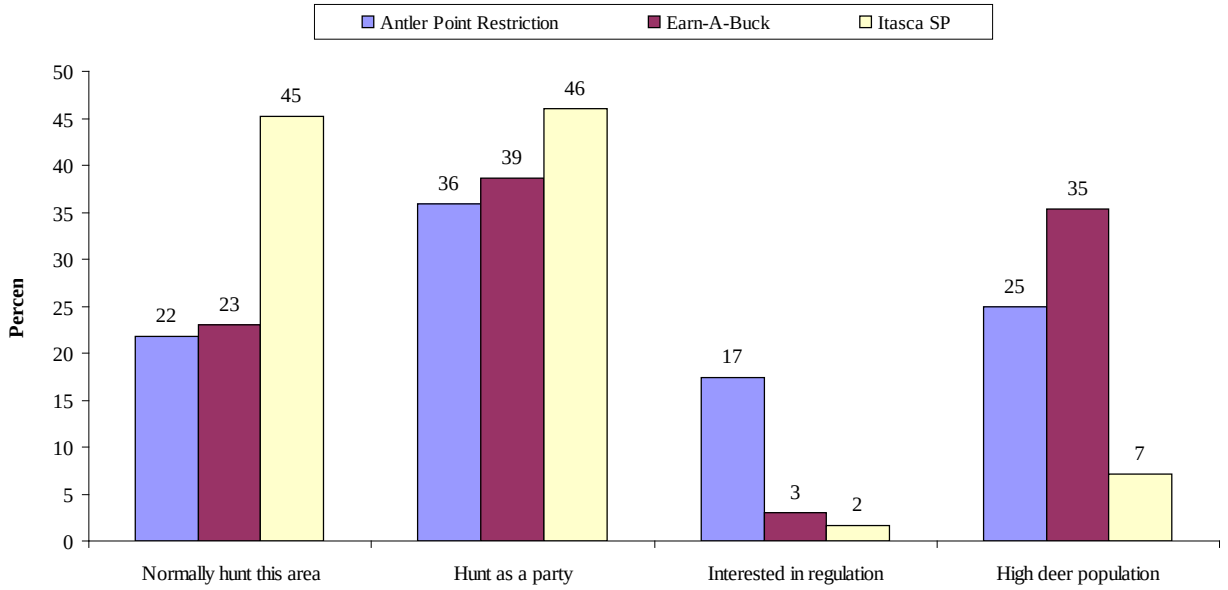
		Preferred type of deer pursued (%)				
Study Group	*n*	Hunt big bucks all season	Hunt big bucks early, any deer later	Shoot any legal buck	Shoot first legal deer	Shoot only antlerless deer
Antler Point Restriction	104	14.4	14.4	1.9	62.5	6.7
Control	525	15.2	18.9	5.1	57.0	3.8
Earn-a-Buck	495	13.3	11.7	2.0	68.1	4.8
Early Antlerless	584	17.0	15.4	2.1	60.6	5.0
Itasca State Park	278	7.2	9.4	2.2	80.6	0.7
Total	1,986	14.1	14.5	2.9	64.4	4.1
χ^2= 70.74, $p < 0.001$						

Section 1: Experience, Background, and Hunter Participation

Table 1-13. Hunting techniques.

Region	*n*	Percent indicating their primary method of hunting					
		Deer drive < 5 people	Deer drive > 4 people	Tree stand	Ground blind	Still hunt	Other
Antler Point Restriction	107	1.9	1.9	52.3	18.7	24.3	0.9
Control	553	2.4	5.2	74.7	7.4	8.9	1.4
Earn-a-Buck	510	2.4	2.2	68.6	10.6	15.7	0.6
Early Antlerless	584	4.1	4.8	73.1	8.0	7.9	2.1
Itasca State Park	275	0.4	0.4	69.5	12.7	16.7	0.4
Total	2,029	2.6	3.5	70.8	9.7	12.2	1.2
$\chi 2 = 97.03$, $p < 0.001$							

Figure 1-1. Reasons given for participating in a special hunt, by study group.



Section 2: Hunter Observations, Harvest, and Satisfaction

Findings

This suite of questions examined the observations, harvest, and overall satisfaction of respondents. Some questions varied by study group and were analyzed and compared whenever possible.

Hunter observations

Respondents were asked to note how many deer they observed while participating in their special hunt. For control hunters, that period of time was the regular deer season, and early antlerless hunters were asked to indicate deer seen only during the 2-day hunt. For the park hunts, the requested numbers of deer were animals seen just during their time spent at the park. Overall, the average number of legal bucks observed varied from 0.68 at Itasca State Park to 2.5 on the control areas. Similarly, the average number of antlerless deer observed varied from 3.4 at Itasca to 9 on the antler point restriction hunts. For the hunts with special regulations, only Itasca and antler point hunters observed fewer sub-legal bucks then legal bucks (Table 2-1). Also, there was a significant relationship between both the number of legal bucks ($F = 35.54$, $p < 0.001$) and antlerless deer observed ($F = 28.73$, $p < 0.001$) and the number of days spent hunting, when controlling for season length (Table 2-2). Consequently, the longer a hunter stayed in the field, the more opportunity they had for seeing both antlered (partial $r = 0.21$, $p < 0.001$) and antlerless deer (partial $r = 0.18$, $p < 0.001$).

Prior to enacting the earn-a-buck and antler point restriction regulations, DNR staff heard anecdotally that the regulations would not be supported for a variety of reasons. One frequently cited reason was hunters want the opportunity to harvest a buck and if restrictive regulations were in place, they would be denied that opportunity because invariably a 'buck of a lifetime' would present itself for a shot and the hunter would be unable to take the deer. Consequently, we asked hunters in all study groups what type of deer they observed first and how that interaction ultimately concluded. We also asked them if they harvested the deer and if not, why. Overall, we observed differences in the type of deer seen first by study group. Earn-a-buck (27%) and Itasca State Park (22%) hunters were more likely to see a buck first, while antler point hunters were most likely to see an antlerless deer first (62%; Table 2-3). Although there were disparities in the first deer seen, ultimately one-third were able to harvest the deer and we observed differences between study groups in that antler point hunters were least likely to harvest the first deer they saw ($\chi^2 = 11.12$, $p = 0.02$; Table 2-3).

Respondents were also asked why they were unable to take the first deer they observed. Reasons given to respondents varied by study group as not all were germane for each respondents. For example, only earn-a-buck respondents had the choice 'had not shot an anterless deer first' and only control respondents were given the choices of 'too small a buck' and 'too early in the season'. However, choices were consolidated and standardized where possible. Overall, most hunters noted they failed to harvest the first deer they saw because it did not present a good shot or they shot and missed. That response was consistent across study groups. Interestingly, less than one-half (44%) of earn-a-buck hunters did not take their first deer because it was a buck and they hadn't harvested an antlerless deer yet, which was identical to the percentage observed in the 2005 survey. Conversely, a small minority of respondents participating in antler point hunts

definitively identified a sub-legal buck (Table 2-4). These results indicate that some earn-a-buck hunters were forced to stay in the field because they legally could not harvest a buck first. For Itasca hunters, few were sure they observed sub-legal bucks but exercised caution because they weren't sure if the deer was legal or not. In total, 41% indicated they could not tell if the deer was legal or not. Ultimately, a majority of respondents had opportunities and either failed to shoot or missed the deer.

Harvest

Special hunt

One of the objectives of the alternative research program is to design a regulation that encourages hunters to harvest antlerless deer. Analysis of Minnesota DNR harvest data indicates that almost 75% of hunters harvest only one deer and an additional 20% take two deer. Consequently, regulations that allow for more deer in the bag likely reach a point of diminishing returns when the bag limit exceeds two. In other words, less than 5% of the hunting population is impacted by increasing the bag limit; thus increasing the bag limit to infinity would have the same overall effect on the population as a limit of three.

Overall, we observed significant differences in success rates and the types of deer harvested. Itasca hunters were the least successful (29%), while control hunters had the highest success (51%; Table 2-5). Interestingly, a high proportion of early antlerless hunters failed to take a deer because they indicated, 1) the season was an opportunity to take a youth hunting, or 2) they did not want to take a fawn so early in the year or the doe had fawns. These motivations for hunting may have contributed to success rates. While we do not infer causation, it is certainly plausible that hunters perceived the early antlerless season as a chance to get out and if they did not harvest a deer, they would just wait until the regular season.

By deer type (antlered vs. antlerless), we observed significant differences in deer harvest between study groups. Itasca State Park hunters were least likely (35%) to take an antlerless deer, while earn-a-buck hunters were most likely (55%). These data should be compared to the control respondents (42%), who can be considered the reference group. Interestingly, there was a 17% difference in the percentage of Itasca and other antler point respondents who took an antlerless deer. For antlered bucks, success ranged from 9% for antler point respondents to 33% for the control group. As expected, buck harvest success was lower on all three special hunt study groups than the control group (Table 2-5).

Statewide

We also examined the total number of deer killed during all seasons combined (early antlerless, archery, firearm, muzzleloader). In theory, the control group should serve as a reference point for comparing harvest between treatments. For example, control hunters could legally take any deer (antlered or antlerless), while treatment hunters were restricted to taking a certain type of deer. Theoretically, we should see differences between the type of deer taken by area and also the average number of antlerless deer taken per respondent. Additionally, Minnesota hunters can legally hunt in more than one season and take deer during all of those seasons. Our results indicate that total harvest is cumulative and hunters are taking deer in more than one season. By

study group, the average number of antlered deer per respondent during the firearm season ranged from 0.13 during the antler point hunt to 0.34 for early antlerless hunters (control hunters = 0.23; Table 2-6). As expected, the average number of antlerless deer taken during the firearm season was much higher for the hunts with special regulations than for the control group. The exception was Itasca State Park, where a mean of 0.43 antlerless deer per hunter was observed. This was the lowest observed rate for all study groups and may be another indicator of the fact that Itasca hunters may not perceive the deer population as too high and are unwilling to take antlerless deer. For the archery and muzzleloader seasons, there were no statistical differences between study groups (Table 2-6).

In looking at total number of deer taken (per respondent) over the course of all seasons, we detected some apparent trends between all hunters and only successful hunters (respondents indicating they killed at least one deer). For example, the control group (reference) killed an average of 0.74 deer/hunter and 1.58 deer per successful hunter (bucks and antlerless deer combined) (Table 2-7). We also observed an overall increase in these averages for all treatment groups, with early antlerless hunters taking the highest number of deer overall. In total, they killed 2 deer per person for all hunters, while successful hunters took 2.5 deer per person (Table 2-7). Smaller increases were noted for Itasca (mean = 0.96), antler point restriction (mean = 1.31), and earn-a-buck hunters (1.50). These data indicate that in 2006, the early antlerless season was the most aggressive as hunters were inclined to take more than 1 deer/season. Given one of those deer (by definition of their season) was antlerless, we believe this season may be the most aggressive management strategy. However, its limitation is evident because participation is not mandatory and individual increases in harvest (per hunter) may not translate into a population level increase in harvest (all hunters).

Satisfaction

Overall satisfaction

Study participants were asked to rate their satisfaction with deer hunting as: 1 = Very Satisfied, 2 = Slightly Satisfied, 3 = Neither, 4 = Slightly Dissatisfied, and 5 = Very Dissatisfied. Respondents appeared generally satisfied with the outcome of their 2006 special hunt. In total, 65% of respondents indicated they were very satisfied (43%) or slightly satisfied (22%) with their season. Only 23% said they were slightly dissatisfied (13%) or very dissatisfied (10%). The previous satisfaction ratings were identical to the 2005 survey. By study group, antler point restriction hunters were most satisfied (79%), while hunters at Itasca State Park expressed the highest dissatisfaction rates (39%; Table 2-8). The overall high dissatisfaction rates at Itasca State Park is troubling given this was the only special hunt location where hunters did not have to apply. As the project is scheduled to last for at least three years with hunters being evaluated annually, attention should be paid to Itasca hunter patterns, fidelity, and satisfaction levels. Conversely, we observed extremely high satisfaction among lottery-only antler point restriction hunters; thus, more research will be needed to determine the confounding effects and which will impact participation and management. Finally, control group satisfaction (57%) was lower than the 2005 satisfaction level (62%) from last year's survey.

Satisfaction with deer numbers and quality

Respondent's were also asked whether they agree or disagree with the quality and number of mature bucks, and numbers of both antlerless and total deer observed. These ratings were similar to the satisfaction rating where 1 = Strongly Agree, 2 = Slightly Agree, 3 = Neither, 4 = Slightly Disagree, and 5 = Strongly Disagree. Early antlerless hunters were not presented with this suite of questions because their hunt did not allow the taking of antlered males.

Legal bucks

While a majority of hunters indicated they had heard about or had seen legal bucks in the area they hunted (63%; Table 2-9), they were nearly split as to whether they agreed with the statement "I am satisfied with the quality of bucks in the area I hunt" (35% agree and 45% disagree; Table 2-10). Additionally, 50% of respondents indicated disagreement with the statement "I am satisfied with the number of legal bucks" in the area they hunt (Table 2-11). These results suggest that, although hunters had seen (or heard about) mature bucks, they were inclined to believe there should be a higher proportion in the total deer population. In all cases, Itasca State Park hunters noted the lowest level of agreement as compared to all other study groups.

Antlerless deer and total population

Overall, respondents were generally satisfied (53%) with the total number of antlerless deer they observed while hunting (Table 2-12). We did observe significant differences between study groups, in that antler point respondents had the highest level of agreement (72%), while Itasca hunters had the lowest (35%). With respect to total deer numbers, 47% hunters agreed with the statement "I am satisfied with the number of deer I see while hunting", although there was a wide disparity between study groups (Table 2-13).

The clear pattern that has developed with these data is the consistent belief among Itasca hunters that deer populations are not too high. They are also uniformly dissatisfied with all aspects of the deer population (bucks, antlerless, and total numbers) and have noticeably lower satisfaction when compared to other groups. These results are essentially the same to data form the 2005 deer season.

Comparison of satisfaction levels

In comparing overall satisfaction with the 2006 deer hunt (Table 2-8) with opinions relative to deer population structure (legal bucks; Table 2-9) and total numbers of deer (Table 2-13), we observed a significant relationship across question responses. After removing neutral responses, nearly all hunters who classified their deer season as slightly or very dissatisfying disagreed with the statement "I am satisfied with the number of legal bucks" (90%). Conversely, hunters who rated their season as very or slightly satisfied were more inclined to agree with the above statement (58%) (Table 2-14).

We observed similar relationships between overall satisfaction and the total number of deer in the population. Hunters who classified their season as very or slightly satisfying were much

more likely to agree with the statement "I am satisfied with the number of deer I see while hunting" (79% and 50%, respectively) than hunters who were either slightly (14%) or very dissatisfied (6%) with their deer season (Table 2-15). These findings suggest that hunter satisfaction is likely to decrease as deer densities decrease, regardless of the proportion of mature bucks in the deer population.

Interpretation of mean scores

Overall, Bonferroni adjusted ANOVA results indicated significant regional differences in satisfaction regarding deer quality, legal bucks, antlerless deer, and total populations. Antler point restriction and control respondents were generally satisfied with legal bucks seen or heard about, antlerless deer, and total deer numbers. Conversely, Itasca hunters were not satisfied with 4 of 5 items (legal bucks, buck quality antlerless deer, total deer). In fact, Itasca hunters were the only group with a mean score (> 3.5) indicating that on average they were dissatisfied with total deer numbers (Table 2-16).

Overall support

Special hunt respondents were asked to indicate their level of support for the regulations they hunted under during 2006. Hunters had to apply for the opportunity to hunt both earn-a-buck and antler point restrictions areas, whereas Itasca state park was open to anyone with a valid license (although it has high site fidelity), and the early antlerless season was open in 8 permit areas only and was available to anyone with a valid license.

Overall, 69% of respondents supported the regulations they hunted under in 2006. It was anticipated that the early antlerless season would be supported (85%) because this was a voluntary season that offered additional hunting opportunity for a relatively low cost. However, we were unsure if applicants who were hunting their traditional areas would also be supportive. For the application hunts, 81% of antler point hunters were supportive, while 60% of earn-a-buck hunters indicated support. Itasca hunters were the only group who expressed less than one-half support for their regulation (45%). Itasca hunters were also likely to indicate strong opposition (41%), as compared to all other groups (Table 2-17).

Future hunt participation

As mentioned previously, these special hunts will continue for at least 3 consecutive years. In order to assess future participation, respondents were also asked if they intended either to hunt (early antlerless, Itasca) or apply in 2007 (antler point restriction, earn-a-buck). Overall, the majority of respondents indicated they would either definitely (58%) or probably (22%) participate in the 2007 hunt. Similar to previous questions, Itasca hunters were different from the other respondents in that they were less inclined to indicate their intentions to hunt next year (Table 2-18).

In comparing overall hunt satisfaction with respondent's intentions to hunt in 2007, we found that nearly all hunters who were very satisfied (97%) or slightly satisfied (87%) would participate in the season again and even hunters who were slightly dissatisfied intended to

participate in 2007 (54%). Additionally, 39% of respondents who were very dissatisfied with their 2006 hunt planned on not hunting their area in 2007 (Table 2-19). By study area, antler point restriction and early antlerless respondents were nearly unanimous in their interest in participating in 2006. All study group respondents were likely to apply if they were either satisfied or neither, while they were unlikely to apply if they were dissatisfied with their 2006 hunt (Table 2-20).

Finally, we looked at whether or not a respondent harvested at least one deer during their special hunt to determine if killing a deer influenced the likelihood to hunt in 2007. Overall, antler point hunters intended to apply regardless of harvest success while earn-a-buck, early antlerless, and Itasca hunters were more likely to hunt if they killed a deer. While we did find statistical significance on the influence of success on intent to hunt next year this effect was not very strong (Table 2-21). Functionally, harvest success should not be considered a primary motivating factor in predicting participation.

Cross-tagging

Minnesota is one of the few states that allow hunters to shoot and tag deer for one another. The method is most often referred to as party hunting; however, we have opted to call it cross-tagging, which more accurately describes the procedure. Currently, there has been discussion regarding making this practice illegal for either all deer or just antlered bucks. Consequently, we asked respondents to indicate their level of support for prohibiting cross-tagging of all deer (buck and antlerless). In a recent study of deer hunters, Fulton et al. (2006) observed 46% support for ending buck cross-tagging and only 28% support ending all cross-tagging. For this study, we asked identical questions to determine if our respondents differed by study group and from Fulton et al. (2006). Overall, only 28% supported eliminating all cross-tagging with Itasca hunters least likely to support (25%) and earn-a-buck hunters most likely (34%; Table 2-22), which was consistent with Fulton et al. (2006, 2007).

Slightly higher support was observed for instituting a regulation that would eliminate buck cross-tagging. In total, 39% percent of hunters supported this regulation, which was 7% lower than the support reported by Fulton et al. (2006). By study group, Itasca (38%) and control hunters (40%) were least likely to support the regulation, while antler point hunters most often indicated support (48%; Table 2-23).

We also asked respondents if they had either killed a deer for another member of their party or if someone from their party had killed a deer for them. Interestingly, more people indicated they had killed a deer for someone (22%) than admitted having a deer killed for them (15%). With respect to killing a deer for someone else, only 14% of Itasca hunters indicated doing it while 35% of early antlerless hunters killed a deer for someone at some point in the deer season (Table 2-24). These results are slightly contradicted by the percent support for banning cross-tagging in that Itasca hunters, who kill proportionately fewer deer than other respondents were most likely to oppose restricting cross-tagging.

Finally, we compared support for banning buck party hunting with both questions regarding killing a deer for someone or someone killing a deer for a person. In both cases we found no

relationship between buck cross-tagging and killing a deer for someone ($\chi^2 = 1.38$, $p = 0.848$) or someone killing a deer for the respondent ($\chi^2 = 1.98$, $p = 0.740$). These results suggest cross-tagging is ingrained in the Minnesota hunting culture and whether or not an individual currently participates in the practice does not influence their attitude toward continuing the practice.

Early season hunting behavior

One of the objectives of this study is to determine if hunter behavior was altered if they participated in the early antlerless season. For example, if a hunter was successful in the early season, would they be less inclined to harvest a yearling buck during the regular season? In order to determine if hunting behavior was changed, we asked several questions regarding the effects of participating in the early season. We asked three specific questions regarding hunting behavior, 1) were hunting patterns altered (yes/no), 2) intentions to change behavior, and 3) ultimately, was behavior changed. In the third question, we noted a high percentage of 'others', which were largely attributed to individuals who were not able to take a deer during the regular season. This option was not presented on the survey and will be added for 2008. For the last two questions, other was removed from the analysis.

All early season hunters

In total, only 17% of early antlerless hunters indicated that their hunting patterns were affected during the firearm season because they participated in the early hunt. We detected no differences between the eight deer permit areas included in the early season ($\chi^2 = 10.85$, $p = 0.145$). We also asked respondents to make specific reference to how their firearm hunting might be altered by participating in the early season. As 83% of hunters indicated they would not alter their behavior, a majority of respondents indicated they would not change their behavior because the type of deer they kill in unimportant (34%), they take the first legal deer (27%), or only hunt mature bucks (5%). Very few respondents (1%) indicated that because they took a deer during the early season, they would not hunt the regular firearm season. Additionally, we noted differences in reasons between deer permit areas (Table 2-25).

Ultimately, changing hunter behavior is an important objective of the deer management program. That change could range from taking a second deer when you normally would not to becoming more selective in the deer you harvest such as selecting a doe over a yearling buck. In this survey, we found that for those hunters who altered their behavior, most took an antlerless deer instead of a young buck (19%), held out for a mature buck (13%), and decided not to kill a small buck and was unsuccessful (12%). We also noted response differences by deer permit area hunted (Table 2-26).

Successful early season hunters

As expected, hunters who killed at least one deer during the early season were more inclined to indicate that their hunting behavior was altered (12% vs. 25%; $\chi^2 = 11.44$, $p = 0.001$). Certainly, this result is expected because simply participating in a season would likely not influence behavior, whereas harvest success might. Specifically, successful hunters were more inclined to

hunt only for a large buck (19% vs. 8%), intended to more selective (30% vs. 18%), and were less inclined to shoot the first legal deer (18% vs. 29%; Table 2-27).

Ultimately, successful hunters were more inclined to hold out for a mature buck (21% vs. 10%) and shoot an antlerless deer over a small buck (26% vs. 17%; Table 2-28). These data suggest that if successful during the early hunt, respondents were less likely to harvest smaller bucks. Indeed, success might in itself cause a slight behavioral shift as suggested by our successful vs. unsuccessful comparison.

Section 2: Hunter Observations, Harvest, and Satisfaction

Table 2-1. Average number of deer seen, by study group.

	Legal bucks seen		Sub-legal bucks seen		Antlerless deer seen		Deer seen, couldn't identify	
Study group	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Antler Point Restriction	0.99	0.17	1.08	0.14	8.97	0.60	1.93	0.19
Control	2.47	0.14	*	*	7.78	0.28	2.09	0.12
Earn-a-Buck***	1.64	0.09	0.90	0.05	4.83	0.22	**	**
Early Antlerless	1.73	0.09	*	*	5.88	0.27	1.37	0.11
Itasca State Park	0.68	0.07	0.82	0.08	3.35	0.24	1.57	0.12
Total	1.70	0.07	1.13	0.04	5.34	0.13	1.54	0.06

*For these surveys, there was no sub-legal category
**Deer seen but not identified was not presented as an option on the earn-a-buck survey
***Sub-legal bucks for this survey means a buck seen before tagging an antlerless deer

Table 2-2. Average number of deer seen as compared to days hunted, controlling for season length.

	Means		Correlations		ANOVA	
Deer Type	Deer seen	Days hunted	partial r	*p*	F	*p*
Legal Buck	1.85	3.46	0.208	< 0.001	35.544	< 0.001
Antlerless	3.33	5.31	0.182	< 0.001	28.728	< 0.001

Table 2-3. First deer observed, and whether the respondent was able to harvest the deer.

		First Deer Observed (%)				
Study group	*n*	Antlered buck	Antlerless deer	Mixed group	Did not see a deer	Killed first deer (% Yes)
Antler Point Restriction	106	17.0	62.3	11.3	9.4	22.1
Control	543	21.0	58.6	11.0	9.4	34.6
Earn-a-Buck	500	27.4	53.6	7.8	11.2	32.6
Early Antlerless	593	19.2	52.6	9.3	18.9	38.7
Itasca State Park	259	22.4	55.6	6.2	15.8	33.0
Total	2,001	22.0	55.4	9.1	13.5	34.3
$\chi 2 = 49.95$, $p < 0.001$						$\chi 2 = 11.12$, $p = 0.02$

Section 2: Hunter Observations, Harvest, and Satisfaction

Table 2-4. Reasons for not harvesting the first deer observed.

Study group	*n*	Saw a buck first	Had not killed antlerless first	Unsure it was legal/was not legal	No good shot or missed	Sub-legal buck	Don't shoot antlerless deer	Too small a buck	Too early to take antlerless
Antler Point Restriction	56	N/A	N/A	12.5	64.3	16.1	7.1	N/A	N/A
Control	280	N/A	N/A	0.7	62.1	N/A	4.6	5.0	27.5
Earn-a-Buck	275	N/A	43.6	9.5	46.9	N/A	0.0	N/A	N/A
Early Antlerless	252	43.3	N/A	6.7	50.0	N/A	N/A	N/A	N/A
Itasca State Park	140	N/A	N/A	41.4	37.1	7.9	13.6	N/A	N/A

Table 2-5. Success rates and types of deer taken, by study group.

	Harvest at least one deer	Antlered Buck		Antlerless Deer	
Study group	Percent	*n*	Percent	*n*	Percent
Antler Point Restriction	46.8	9	9.4	49	51.6
Control	50.7	162	32.5	209	42.4
Earn-a-Buck	47.2	91	20.2	246	55.2
Early Antlerless	44.7	No Season		168	44.7
Itasca State Park	38.5	52	22.6	79	35.0
		$\chi 2=33.75$, $p < 0.001$		$\chi 2=30.19$, $p < 0.001$	

Table 2-6. Average number of deer taken by respondents during all the deer seasons.

	Average number of deer taken by respondents						
	Early Antlerless	Archery		Firearm		Muzzleloader	
Study group	Antlerless	Buck	Antlerless	Buck	Antlerless	Buck	Antlerless
Antler Point Restriction	0.00	0.15	0.45	0.13	1.12	0.00	0.09
Control	0.45	0.07	0.23	0.31	0.51	0.03	0.10
Earn-a-Buck	0.70	0.06	0.29	0.28	0.84	0.01	0.14
Early Antlerless	0.69	0.10	0.38	0.34	0.83	0.05	0.15
Itasca State Park	0.00	0.05	0.16	0.25	0.43	0.02	0.04
Total	0.69	0.08	0.31	0.29	0.70	0.03	0.12
	F = 0.30 n.s.	F = 1.23 n.s.	F = 1.95 n.s.	F = 4.61 $p = 0.001$	F = 21.28 $p < 0.001$	F = 1.50 n.s.	F = 1.66 n.s.

Section 2: Hunter Observations, Harvest, and Satisfaction

Table 2-7. Average number of deer taken for all hunters and successful hunters, by study group.

	All Hunters					Successful Hunters				
Study group	*n*	Mean	SE	LCLM	UCLM	*n*	Mean	SE	LCLM	UCLM
Antler Point Restriction	105	1.50	0.22	1.07	1.92	63	2.49	0.30	1.89	3.10
Control	296	0.74	0.06	0.62	0.86	139	1.58	0.09	1.39	1.76
Earn-a-Buck	534	1.31	0.06	1.19	1.42	346	2.01	0.07	1.88	2.15
Early Antlerless	628	2.00	0.08	1.85	2.15	496	2.54	0.08	2.38	2.69
Itasca State Park	560	0.96	0.05	0.85	1.06	308	1.74	0.07	1.60	1.87
Total	2,123	1.35	0.03	1.28	1.42	1,352	2.12	0.04	2.04	2.20
	$F = 47.853$, $p < 0.001$					$F = 19.696$, $p < 0.001$				

Table 2-8. Respondent's satisfaction with their 2006 special hunt.

		Percent indicating their satisfaction with their 2006 special hunt.				
Study group	*n*	Very Satisfied	Slightly Satisfied	Neither	Slightly Dissatisfied	Very Dissatisfied
Antler Point Restriction	106	55.7	23.6	6.6	6.6	7.5
Control	547	30.5	26.3	15.0	17.7	10.4
Earn-a-Buck	508	39.4	24.8	12.2	13.8	9.8
Early Antlerless	601	61.6	16.5	12.5	3.5	6.0
Itasca State Park	270	28.9	21.5	10.4	22.6	16.7
Total	2,032	43.0	22.2	12.5	12.6	9.6
$\chi^2 = 206.31$, $p < 0.001$						

Table 2-9. Agreement/disagreement with having heard about or seen legal bucks in the area.

		Percent agreement with the statement that hunters had heard about or seen legal bucks in the area they hunt				
Study group	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Antler Point Restriction	102	37.3	27.5	12.7	8.8	13.7
Control	524	33.0	32.1	11.8	7.1	16.0
Earn-a-Buck	459	36.8	30.3	10.9	7.6	14.4
Itasca State Park	253	23.3	28.5	11.9	9.1	27.3
Total	1,338	32.8	30.4	11.6	7.8	17.4

χ^2= 30.23, p = 0.003

Table 2-10. Agreement/disagreement with satisfaction related to buck quality.

		Percent agreement with hunter satisfaction regarding the quality of bucks in the area they hunt				
Study group	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Antler Point Restriction	100	13.0	18.0	27.0	22.0	20.0
Control	519	15.0	18.9	15.6	21.2	29.3
Earn-a-Buck	443	12.9	28.7	19.4	16.3	22.8
Itasca State Park	247	11.3	16.2	27.5	13.4	31.6
Total	1,309	13.4	21.6	20.0	18.1	26.8

χ^2= 47.54, p < 0.001

Table 2-11. Agreement/disagreement with the number of legal bucks present in the area hunted.

		Percent agreement with hunter satisfaction regarding the number of legal bucks in the area they hunt				
Study group	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Antler Point Restriction	100	16.0	14.0	25.0	19.0	26.0
Control	528	14.8	19.3	14.0	21.4	30.5
Earn-a-Buck	451	14.9	23.3	17.5	20.4	23.9
Itasca State Park	254	7.9	15.0	19.3	16.5	41.3
Total	1,333	13.6	19.4	17.0	20.0	30.0

χ^2 = 41.66, p < 0.001

Table 2-12. Agreement/disagreement with the number of antlerless deer present in the area hunted.

		Percent agreement with hunter satisfaction regarding the number of antlerless deer in the area they hunt				
Study group	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Antler Point Restriction	105	40.0	32.4	8.6	2.9	16.2
Control	534	30.7	28.5	8.4	12.4	20.0
Earn-a-Buck	466	25.5	26.0	10.3	15.7	22.5
Itasca State Park	258	16.3	18.6	13.2	18.2	33.7
Total	1,363	26.9	26.0	10.0	13.9	23.2
$\chi^2 = 64.79$, $p < 0.001$						

Table 2-13. Agreement/disagreement with the total number of deer present in the area hunted.

		Percent agreement with hunter satisfaction regarding the total number of deer in the area they hunt				
Study group	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Antler Point Restriction	105	36.2	26.7	10.5	11.4	15.2
Control	538	22.5	30.1	8.2	17.5	21.7
Earn-a-Buck	482	20.7	24.9	11.4	18.7	24.3
Itasca State Park	263	16.3	16.0	7.6	17.1	43.0
Total	1,388	21.8	25.4	9.4	17.4	26.2
$\chi^2 = 72.43$, $p < 0.001$						

Table 2-14. Agreement/Disagreement with the number of legal bucks present, as compared to hunt satisfaction.

		Percent agreement with hunter satisfaction regarding the number of legal bucks in the area they hunted				
Overall satisfaction with the deer season	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Very Satisfied	472	27.1	28.8	19.9	15.3	8.9
Slightly Satisfied	333	9.6	25.5	16.8	26.4	21.6
Neither	153	5.2	11.8	20.9	29.4	32.7
Slightly Dissatisfied	217	2.8	7.4	13.4	23.5	53.0
Very Dissatisfied	149	4.0	2.0	8.1	6.0	79.9
Total	1,324	13.6	19.5	16.8	20.0	30.1
$\chi^2 = 462.51$, $p < 0.001$						

Table 2-15. Agreement/Disagreement with the total number of present, as compared to hunt satisfaction.

		Percent agreement with hunter satisfaction regarding the total number of deer in the area they hunted				
Overall satisfaction with the deer season	*n*	Strongly Agree	Slightly Agree	Neither	Slightly Disagree	Strongly Disagree
Very Satisfied	489	47.9	31.1	8.4	7.0	5.7
Slightly Satisfied	341	11.7	38.7	11.1	24.6	13.8
Neither	165	8.5	23.0	15.2	23.6	29.7
Slightly Dissatisfied	228	2.6	11.4	7.5	27.6	50.9
Very Dissatisfied	156	3.8	2.6	4.5	12.2	76.9
Total	1,379	21.8	25.5	9.3	17.3	26.1
$\chi^2 = 702.98$, $p < 0.001$						

Table 2-16. Mean scores of ratings for agreements with deer population composition and numbers.

Issue	Average rating of satisfaction for the number and quality of deer				F	*p*
	Antler Point Restriction	Control	Earn-a-Buck	Itasca State Park		
n responses	*111*	*574*	*539*	*296*		
Satisfied with legal bucks	3.25	3.34	3.15	3.69	7.810	<0.001
Satisfied with quality of bucks	3.18	3.31	3.07	3.38	3.332	0.019
Heard about or saw legal bucks	2.34	2.41	2.32	2.89	9.157	<0.001
Satisfied with antlerless deer	2.23	2.63	2.84	3.34	18.701	<0.001
Satisfied with total deer	2.43	2.86	3.01	3.54	18.087	<0.001

Notes:
1 – Strongly Agree
2 – Slightly Agree
3 – Neither
4 – Slightly Disagree
5 – Strongly Disagree

Table 2-17. Support for alternative deer regulations indicated by special hunt participants.

Study group	*n*	Percent support for alternative deer regulations				
		Strongly Support	Moderately Support	Neither	Moderately Oppose	Strongly Oppose
Antler Point Restrictions	106	67.0	14.2	9.4	5.7	3.8
Earn-A-Buck	509	32.2	27.7	12.8	11.4	15.9
Early Antlerless	590	64.9	20.0	7.8	2.5	4.7
Itasca State Park	271	19.9	24.7	14.0	13.7	27.7
Total	1,476	45.5	23.1	10.8	7.9	12.7

$\chi^2 = 268.23$, $p < 0.001$

Table 2-18. Percent indicating their intentions to participate in a 2007 special hunt, by study group.

		Percent indicating their intentions to either apply for or hunt in the special area next year (2006)				
Study group	*n*	Definitely will hunt/apply	Probably will hunt/apply	Not sure	Probably not hunt/apply	Definitely not hunt/apply
Antler Point Restriction	106	67.0	16.0	9.4	1.9	5.7
Earn-a-Buck	511	57.1	19.2	14.9	4.3	4.5
Early Antlerless	602	63.6	23.9	7.5	3.2	1.8
Itasca State Park	273	42.9	27.5	18.3	8.1	3.3
Total	1,492	57.8	22.4	12.1	4.4	3.3
χ^2=66.94, $p < 0.001$						

Table 2-19. Comparison of hunt satisfaction and whether or not respondents will participate in their special hunt in 2007.

		Percent indicating their intentions to either apply for or hunt in the special area next year (2006) versus overall satisfaction				
Study group	*N*	Definitely will hunt/apply	Probably will hunt/apply	Not sure	Probably will not hunt/apply	Definitely will not hunt/apply
Very Satisfied	707	81.2	15.6	2.7	0.6	0.0
Slightly Satisfied	308	54.2	32.5	8.4	3.9	1.0
Neither	172	30.8	34.9	25.0	5.8	3.5
Slightly Dissatisfied	159	28.3	25.2	30.8	10.1	5.7
Very Dissatisfied	139	15.1	15.1	30.9	16.5	22.3
Total	1,485	57.9	22.3	12.1	4.4	3.3
χ^2=633.18, $p < 0.001$						

Table 2-20. Likelihood a respondent will participate in their special hunt in 2007 based on their overall hunt satisfaction, by study group.

			Percent indicating their likelihood of participating in a special hunt next year (2007)				
Study group	Satisfaction (3 levels)	*n*	Yes	Maybe	No	χ^2	*p*
Antler Point Restriction	Satisfied	84	91.7	4.8	3.6	24.860	< 0.001
	Neither	7	71.4	14.3	14.3		
	Dissatisfied	15	40.0	33.3	26.7		
Earn-a-Buck	Satisfied	136	90.4	7.4	2.2	56.071	< 0.001
	Neither	28	60.7	25.0	14.3		
	Dissatisfied	106	47.2	30.2	22.6		
Early Antlerless	Satisfied	326	92.9	5.5	1.5	163.634	< 0.001
	Neither	62	62.9	27.4	9.7		
	Dissatisfied	120	37.5	34.2	28.3		
Itasca State Park	Satisfied	469	95.5	2.8	1.7	162.120	< 0.001
	Neither	75	69.3	24.0	6.7		
	Dissatisfied	57	45.6	24.6	29.8		
Total		1,485	80.2	12.1	7.7		

Table 2-21. Likelihood a respondent will participate in their special hunt in 2007 based on their harvest success, by study group.

			Percent indicating their likelihood of participating in a special hunt next year (2007)				
Study group	Killed at least one deer	*n*	Yes	Maybe	No	$\chi 2$	*p*
Antler Point Restriction	No	54	75.9	13.0	11.1	3.973	n.s.
	Yes	52	90.4	5.8	3.8		
Earn-a-Buck	No	159	64.2	21.4	14.5	7.268	0.026
	Yes	114	78.9	14.0	7.0		
Early Antlerless	No	256	65.2	21.5	13.3	35.005	< 0.001
	Yes	255	87.5	8.2	4.3		
Itasca State Park	No	434	85.3	8.8	6.0	7.509	0.023
	Yes	168	93.5	4.2	2.4		
Total		1,492	80.2	12.1	7.6		

Table 2-22. Percent indicating support for eliminating all cross-tagging.

		Percent indicating support restricting cross-tagging for all deer				
Study group	*n*	Strongly Support	Moderately Support	Neither	Moderately Oppose	Strongly Oppose
Antler Point Restriction	109	20.2	16.5	16.5	11.9	34.9
Control	567	15.2	11.8	10.6	14.1	48.3
Earn-a-Buck	519	23.3	10.6	11.2	16.8	38.2
Itasca State Park	617	17.2	7.3	9.9	15.2	50.4
Total	1,812	18.5	9.7	10.3	15.4	46.1
χ^2=52.238, $p < 0.001$						

Table 2-23. Percent indicating support for eliminating buck cross-tagging.

		Percent indicating support for eliminating buck cross-tagging				
Study group	*n*	Strongly Support	Moderately Support	Neither	Moderately Oppose	Strongly Oppose
Antler Point Restriction	109	30.3	17.4	16.5	11.0	24.8
Control	559	21.1	19.1	11.6	14.5	33.6
Earn-a-Buck	522	25.5	17.2	9.6	15.7	32.0
Itasca State Park	616	20.5	17.0	11.2	14.3	37.0
Total	1,806	22.1	17.0	10.9	15.2	34.8
χ^2 = 33.909, p = 0.005						

Table 2-24. Percent indicating participation in cross-tagging of deer during any of the Minnesota seasons.

	Killed a deer for someone		Someone killed a deer for you	
Study group	*n*	% Yes	*n*	% Yes
Antler Point Restriction	109	15.6	109	11.9
Control	567	17.1	564	13.8
Earn-a-Buck	522	21.5	519	13.7
Early Antlerless	621	34.5	619	17.4
Itasca State Park	280	14.3	280	11.8
Total	109	15.6	109	11.9
	χ^2 = 73.530, $p < 0.001$		χ^2 = 9.445, n.s.	

*Question was omitted from this survey

Section 2: Hunter Observations, Harvest, and Satisfaction

Table 2-25. Effect of the early season on respondents intentions during the firearm season.

		Effect of the early season on respondents' intentions during the firearm season. Question was: *Because I hunted during the early season, I*					
Deer Permit Area	*n*	Intended to only harvest mature buck	Intended to be more selective harvest mature buck or antlerless	Killed deer during early season planned not to hunt anymore	I did not plan to change my hunting patterns, only hunt mature bucks	Did not plan to change hunting patterns, I shoot the first legal deer	Did not plan to change type of deer I kill is unimportant
209	61	9.8	31.1	0.0	1.6	19.7	37.7
210	79	15.2	25.3	3.8	3.8	20.3	31.6
225	125	4.0	18.4	1.6	2.4	35.2	38.4
227	75	6.7	24.0	0.0	5.3	29.3	34.7
236	63	11.1	19.0	0.0	9.5	31.7	28.6
252	12	25.0	50.0	0.0	16.7	0.0	8.3
256	29	10.3	24.1	0.0	6.9	17.2	41.4
257	21	9.5	28.6	0.0	4.8	23.8	33.3
Total	465	9.2	23.9	1.1	4.7	26.7	34.4

$\chi 2=51.58$, $p = 0.035$

Table 2- 26. Ultimate effect of the early season on respondents' hunting patterns.

		Ultimate effect of the early season on respondents' hunting patterns. Question was: *Ultimately, were your hunting patterns altered because of the early season*				
Deer Permit Area	*n*	Yes decided not to kill small antlered buck and did not kill another deer	Yes, held out and shot a mature buck	Yes, shot antlerless deer instead of small antlered	No, I shot a small antlered buck	No, I shot the first deer I could
209	51	9.8	7.8	31.4	3.9	47.1
210	70	17.1	14.3	22.9	11.4	34.3
225	92	6.5	6.5	14.1	4.3	68.5
227	54	5.6	22.2	9.3	14.8	48.1
236	49	18.4	16.3	12.2	2.0	51.0
252	12	41.7	25.0	25.0	8.3	0.0
256	28	7.1	3.6	28.6	3.6	57.1
257	19	10.5	15.8	26.3	10.5	36.8
Total	375	11.7	12.5	19.2	7.2	49.3

$\chi 2=68.29$, $p < 0.001$

Section 2: Hunter Observations, Harvest, and Satisfaction

Table 2- 27. Comparison of hunting behavior for successful vs. unsuccessful early season deer hunters.

Harvest an early season deer	*n*	Intended to only harvest mature buck	Intended to be more selective harvest mature buck or antlerless	Killed deer during early season planned not to hunt anymore	I did not plan to change my hunting patterns, only hunt mature bucks	Did not plan to change hunting patterns, I shoot the first legal deer	did not plan to change type of deer unimportant
No	185	8.1	18.4	1.1	5.4	29.2	37.8
Yes	152	19.1	30.3	0.0	6.6	18.4	25.7
Total	337	13.1	23.7	0.6	5.9	24.3	32.3
$\chi^2=22.29$, $p < 0.001$							

Table 2- 28. Comparison the ultimate effect of hunting patterns between successful and unsuccessful early season deer hunters.

		Difference between successful and unsuccessful hunters on the effect of the early season on respondents' hunting patterns during the firearm season. Question was: *Ultimately, were your hunting patterns altered because of the early season?*				
Harvest an early season deer	*n*	Yes decided not to kill small antlered buck and did not kill another deer	Yes, held out and shot a mature buck	Yes, shot antlerless deer instead of small antlered	No, I shot a small antlered buck	No, I shot the first deer I could
No	133	16.5	9.8	17.3	6.8	49.6
Yes	133	11.8	20.6	25.7	8.1	33.8
Total	266	14.3	15.4	21.8	7.5	42.1
$\chi^2=12.66$, $p < 0.013$						

Section 3: Importance of experiences and feelings towards MDNR

Findings

This suite of questions focused on the importance of experiences on deer hunting satisfaction and respondents' opinions regarding the management of deer by DNR staff.

Important considerations – Regulation changes

Respondents were asked to indicate their level of agreement with several statements regarding considerations that should be taken before regulations were changed. The issues ranged from personal (e.g., increasing your own opportunity) to landscape-level (e.g., forest protection, public land crowding).

Regulations that lead to a better image of hunters and hunting were important to the vast majority of respondents (82%) and 81% agree the interest of farmers was an important consideration to take before changing regulations (Table 3-1). Reduction of public land crowding (74%) and protection of forested areas from deer damage (70%) also ranked very high. A majority of respondents believed that regulations that led to increased firearm opportunity (64%), increased opportunity to take a mature buck (63%), increase DNR's ability to control deer populations (60%), and encourage new people to take up hunting (60%) should also be considered.

ANOVA results indicated significant differences among the study groups for all items except regulations that do not result in increased doe harvest. All other issues yielded significant differences in mean scores (Table 3-2).

Important consideration – Hunter experiences

Respondents were asked to indicate the level of importance of several statements regarding how an experience contributes to overall satisfaction. The experiences varied from the importance of killing a deer to sharing skills and knowledge.

Overall, nearly all respondents indicated that enjoying nature (91%) and good behavior among hunters (90%) was either very or extremely important. Getting away from crowds of people (82%), hunting with family (75%) and friend (68%), and reducing tension and stress (62%) were very important to overall hunting satisfaction (Table 3-3). Interestingly, the act of killing a deer was less important than the issues that focused on internalized attributes. Only half of hunters noted that seeing a lot of deer was very or extremely important and less than one-half thought it was important to harvest any deer (45%) or at least one deer (43%), seeing a lot of bucks (31%), and harvesting a large buck (30%). In fact, harvesting a large buck was the lowest ranking item on the list. These data strongly indicate that the experience of getting away, enjoying the company of family and friends, and relaxing were much more important than actually killing a deer. This finding further highlights the management challenge of encouraging increased harvest rates.

ANOVA results indicated significant differences among the study groups for 14 of the 21 listed factors. Generally, early antlerless hunters were more interested in harvesting any deer or at least one deer, and having access to different hunting areas, as compared to other respondents. Earn-a-buck and control hunters were more interested in harvesting a large buck and seeing a lot of bucks, as compared to the other respondents. Conversely, Itasca hunters were less interested in harvesting any deer and finding open public areas (Table 3-4).

Trust in DNR

The Minnesota deer program has been in a state of transition in recent years. Licensing procedures and types have changed, zone boundaries have been modified, new seasons have been instituted, and DNR has embarked on a large project to find assess alternative deer management programs. Because all of these changes have occurred in a relatively brief period of time (*circa* 2003), we opted to ask a series of questions related to respondents' trust in DNR decisions and staff.

Overall, 63% of respondents believed DNR does a good job of managing deer in Minnesota and 55% agreed DNR would make fair deer management decisions. Trust in good resource decisions (56%), honesty about management decisions (55%), and well-trained managers (55%) ranked next. Slightly less than one-half (49%) of respondents believed DNR listened to deer hunter concerns (Table 3-5). The neutral category did garner 28% to 38% of responses, while the percent disagreeing with each statement ranged from 7% (well-trained biologists) to 17% (DNR listens to deer hunter concerns).

While the mean of all issues exceeded three (neutral) for all issues and study groups, we found differences between all six issues. In general, Itasca hunters were less inclined to indicate agreement with all six issues, as compared to other respondents. Conversely, antler point and earn-a-buck hunters tended to indicate higher levels of agreement with the issues (Table 3-6).

We also examined the effects of overall hunt satisfaction with the trust metrics. In all cases, the vast majority of respondents who were satisfied with their hunt also agreed with the trust statements. However, even those who noted dissatisfaction with their deer season still indicated general agreement with the trust statements. Of hunters who expressed dissatisfaction, the statements, 'MDNR' listens to deer hunter concerns' (46%), 'MDNR' does a good job managing deer (46%), and 'MDNR has well-trained managers' (45%) achieved less than majority agreement (Table 3-7).

Section 3: Importance of experiences and feelings towards MDNR

Table 3-1. Importance of selected items that should be considered prior to changing deer hunting regulations.

	n	Percent of hunters indicating they agree/disagree this is important when considering changing deer regulations					Mean[1]
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
Do **not** result in an increased total buck harvest.	1,981	15.3	23.8	42.3	12.7	5.9	2.70
Do **not** result in an increased doe harvest.	1,990	5.7	14.4	38.4	27.9	13.6	3.29
Increase DNR's ability to control the deer population.	2,010	16.2	44.2	25.6	8.3	5.8	2.43
Increase hunting opportunity for bowhunters.	1,974	17.9	24.2	39.7	10.2	8.1	2.66
Increase hunting opportunity for muzzleloader hunters.	1,962	17.2	25.2	43.6	8.4	5.7	2.60
Increase hunting opportunity for firearm hunters.	2,050	25.1	39.2	26.9	5.7	3.1	2.22
Increase **my own** chances of taking an antlered buck.	2,054	23.9	33.7	33.2	5.7	3.5	2.31
Increase **my own** chances of taking a large antlered buck.	2,060	31.7	31.1	29.7	4.5	3.1	2.16
Increase **my own** chances of taking antlerless deer.	2,055	19.4	37.7	36.4	4.5	2.0	2.32
Encourage new people to take up deer hunting.	2,037	26.1	34.0	30.9	5.3	3.8	2.27
Lead to a better public image of hunters and hunting.	2,062	44.1	37.3	15.6	1.9	1.0	1.78
Protect the interests of farmers and other landowners.	2,062	42.5	38.9	14.7	2.2	1.6	1.82
Protect areas so that deer do not cause forest and other habitat damages	2,052	25.6	44.2	23.4	4.6	2.2	2.14
Reduce crowding of hunters on public lands.	2,032	38.2	35.4	21.1	3.4	1.9	1.95
Do not result in decreased access to private land	1,998	28.0	31.3	31.9	5.1	3.8	2.25

[1]Notes: 1 – Strongly Agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 – Strongly Disagree

Section 3: Importance of experiences and feelings towards MDNR

Table 3-2. Importance of selected items that should be considered prior to changing deer hunting regulations, by region.

Issue	Average rating of importance when considering changing deer hunting regulations					Overall mean[1]	F	*p*
	Antler Point Restriction	Control	Earn-A-Buck	Early Antlerless	Itasca State Park			
(n) range of responses	*98 - 108*	*525 - 556*	*501 - 524*	*568 - 607*	*257 - 278*			
Do **not** result in an increased total buck harvest	2.78	2.57	2.86	2.54	2.97	2.70	13.107	< 0.001
Do **not** result in an increased doe harvest.	3.13	3.27	3.31	3.36	3.21	3.33	1.729	n.s
Increase DNR's ability to control the deer population	2.25	2.69	2.28	2.34	2.48	2.40	13.519	< 0.001
Increase hunting opportunity for bowhunters	2.57	2.76	2.57	2.57	2.89	2.60	5.759	< 0.001
Increase hunting opportunity for muzzleloader hunters	2.45	2.64	2.65	2.40	2.94	2.66	13.541	< 0.001
Increase hunting opportunity for firearm hunters	2.30	2.39	2.23	2.05	2.22	2.20	8.941	0.000
Increase **my own** chances of taking an antlered buck	2.20	2.39	2.19	2.30	2.45	2.31	4.384	0.002
Increase **my own** chances of taking a large antlered buck	2.05	2.22	1.95	2.16	2.48	2.18	13.331	< 0.001
Increase **my own** chances of taking antlerless deer	2.18	2.51	2.28	2.15	2.51	2.31	14.363	< 0.001
Encourage new people to take up deer hunting	2.29	2.20	2.31	2.21	2.43	2.24	3.141	0.014
Lead to a better public image of hunters and hunting	1.76	1.78	1.73	1.73	2.00	1.78	5.763	<0.001
Protect the interests of farmers and other landowners	1.88	1.68	1.92	1.71	2.11	1.86	15.339	< 0.001
Protect areas so that deer do not cause forest and other habitat damage	2.04	2.19	2.10	2.08	2.26	2.12	2.809	0.024
Reduce crowding of hunters on public lands	1.83	2.02	1.77	2.02	2.07	1.95	7.758	< 0.001
Do not result in decreased access to private land	2.14	2.43	2.13	2.22	2.26	2.27	6.284	< 0.001

[1]Notes: 1 – Strongly Agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 – Strongly Disagree

Section 3: Importance of experiences and feelings towards MDNR

Table 3-3. Importance of different experiences that contribute to overall hunt satisfaction.

		Percent of hunters indicating importance of various experiences to their overall hunting satisfaction					
	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean
Harvest at least one deer	2,053	9.6	18.1	29.7	25.2	17.4	3.23
Access to different hunting areas	2,045	19.2	16.6	27.0	24.2	13.0	2.95
Harvesting any deer	2,035	11.6	14.1	29.4	27.1	17.7	3.25
Being on my own	2,032	20.0	16.6	27.4	22.8	13.2	2.93
Hunting with friends	2,040	6.1	7.1	18.8	36.7	31.4	3.80
Developing skills and abilities	2,044	8.0	10.2	26.8	34.3	20.7	3.50
Hunting with family	2,045	6.7	6.0	12.5	31.4	43.4	3.99
Enjoying nature	2,060	0.9	1.7	6.0	32.8	58.5	4.46
Getting away from crowds	2,049	2.5	3.8	11.2	31.3	51.2	4.25
Getting food for my family	2,052	22.4	19.1	25.7	17.6	15.2	2.84
Getting information about hunting seasons	2,043	7.7	16.3	28.1	29.3	18.6	3.35
Seeing a lot of bucks	2,043	14.3	19.9	34.7	18.2	12.9	2.96
Good behavior among deer hunters	2,052	1.7	2.0	6.5	28.8	61.1	4.46
Having a long deer season	2,053	6.9	10.9	27.7	26.6	27.9	3.58
Hunting areas open to the public	2,043	14.0	11.0	21.6	25.5	27.9	3.42
Harvesting a large buck	1,235	18.7	21.0	30.8	14.1	15.4	2.87
Reducing tension and stress	2,049	7.0	8.4	31.4	31.4	30.4	3.70
Seeing a lot of deer	2,056	3.7	10.9	35.1	30.7	19.6	3.52
Sharing my hunting skills and knowledge	2,052	7.2	12.5	32.9	29.7	17.7	3.38
Thinking about my personal values	2,050	6.0	9.5	27.1	32.1	25.4	3.61
Using my deer hunting equipment	2,058	6.3	11.3	30.4	28.7	23.3	3.51

[1]Notes: 1 – Not at all Important, 2 – Slightly Important, 3 – Somewhat Important, 4 – Very Important, 5 – Extremely Important

Section 3: Importance of experiences and feelings towards MDNR

Table 3-4. Importance of different factors that contribute to overall hunting satisfaction, by study group.

Issue	Mean scores for factors that contribute to overall hunting satisfaction: Antler Point Restriction	Control	Earn-A-Buck	Early Antlerless	Itasca State Park	Overall mean	F	*p*
(n) range of responses	*87 - 109*	*461 - 550*	*422 - 525*	*449 - 595*	*245 - 283*			
Harvest at least one deer	3.08	3.18	3.26	3.19	3.39	3.23	2.064	n.s.
Access to different hunting areas	3.20	2.59	3.43	2.67	3.27	2.95	43.894	<0.001
Harvesting any deer	3.17	3.19	3.29	3.25	3.33	3.25	0.824	n.s.
Being on my own	2.99	2.88	2.98	2.86	3.03	2.93	1.326	n.s.
Hunting with friends	3.85	3.71	3.92	3.62	4.12	3.80	11.627	<0.001
Developing skills and abilities	3.52	3.49	3.59	3.44	3.43	3.50	1.470	n.s.
Hunting with family	3.99	3.98	4.06	3.87	4.15	3.99	3.275	0.011
Enjoying nature	4.45	4.46	4.49	4.46	4.45	4.46	0.193	n.s.
Getting away from crowds	4.20	4.28	4.29	4.21	4.22	4.25	0.786	n.s.
Getting food for my family	2.64	2.84	2.68	3.20	2.48	2.84	18.089	<0.001
Getting information about hunting seasons	3.39	3.33	3.36	3.48	3.06	3.35	6.439	<0.001
Seeing a lot of bucks	2.90	3.08	3.11	2.74	2.89	2.96	8.493	<0.001
Good behavior among deer hunters	4.49	4.48	4.54	4.35	4.47	4.46	4.150	0.002
Having a long deer season	3.39	3.47	3.64	3.77	3.35	3.58	8.629	<0.001
Hunting areas open to the public	3.77	2.93	3.90	3.13	4.00	3.42	61.670	<0.001
Harvesting a large buck	2.73	2.94	2.95	*	2.61	2.87	5.398	0.001
Reducing tension and stress	3.66	3.65	3.74	3.74	3.65	3.70	0.685	n.s.
Seeing a lot of deer	3.50	3.45	3.57	3.52	3.53	3.52	0.889	n.s.
Sharing my hunting skills and knowledge	3.28	3.38	3.41	3.44	3.24	3.38	1.785	n.s.
Thinking about my personal values	3.68	3.67	3.59	3.64	3.48	3.61	1.536	n.s.
Using my deer hunting equipment	3.44	3.52	3.49	3.60	3.38	3.51	1.986	n.s.

[1]Notes: 1 – Not at all Important, 2 – Slightly Important, 3 – Somewhat Important, 4 – Very Important, 5 – Extremely Important

Section 3: Importance of experiences and feelings towards MDNR

Table 3-5. Respondents' opinions of DNR deer management program, trust in DNR, and professional staff.

	n	Percent indicating how respondents feel about the MDNR and deer management program					
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean[1]
The MDNR does a good job of managing deer in Minnesota	2,111	12.1	50.9	23.5	9.4	4.1	3.58
When deciding about deer management in Minnesota, the MDNR will be open and honest in the things they do and say	2,109	11.4	43.6	31.9	9.5	3.6	3.50
The MDNR can be trusted to make decisions about deer management that are good for the resource	2,104	10.6	45.6	28.9	10.6	4.3	3.47
The MDNR will make decisions about deer management in a way that is fair	2,108	10.9	46.4	30.7	8.6	3.4	3.53
The MDNR has deer managers and biologists who are well-trained for their jobs	2,108	12.6	42.6	38.4	4.1	2.4	3.59
The MDNR listens to deer hunters' concerns	2,110	8.4	40.7	34.0	12.0	4.8	3.36

[1]Notes: 1 **–** Strongly Disagree, 2 – Disagree, 3 – Neither, 4 – Agree, 5 – Strongly Agree

Section 3: Importance of experiences and feelings towards MDNR

Table 3-6. Respondents belief that DNR is trustworthy, makes good decisions, and listens to deer hunters.

	Mean score for DNR trust-related issues							
Issue	Antler Point Restriction	Control	Earn-A-Buck	Early Antlerless	Itasca State Park	Overall mean[1]	F	*p*
(n) range of responses	*108 - 109*	*566 - 570*	*524 - 526*	*621 - 623*	*283 - 286*			
The MDNR does a good job of managing deer in Minnesota	3.78	3.43	3.63	3.64	3.54	3.58	5.870	<0.001
When deciding about deer management in Minnesota, the MDNR will be open and honest in the things they do and say	3.69	3.35	3.57	3.52	3.54	3.50	5.449	<0.001
The MDNR can be trusted to make decisions about deer management that are good for the resource	3.71	3.31	3.56	3.54	3.39	3.47	8.083	<0.001
The MDNR will make decisions about deer management in a way that is fair	3.74	3.38	3.61	3.60	3.44	3.53	8.027	<0.001
The MDNR has deer managers and biologists who are well-trained for their jobs	3.78	3.47	3.68	3.58	3.59	3.59	5.941	<0.001
The MDNR listens to deer hunters' concerns	3.52	3.25	3.43	3.44	3.21	3.36	6.274	<0.001

[1]Notes: 1 – Strongly Disagree, 2 – Disagree, 3 – Neither, 4 – Agree, 5 – Strongly Agree

Section 3: Importance of experiences and feelings towards MDNR

Table 3-7. Percent indicating their agreement with DNR trust questions as compared to overall hunt satisfaction.

			Percent indicating agreement levels				
Issue	Hunt Satisfaction (3 levels)	*n*	Agree	Neither	Disagree	χ^2	*p*
The MDNR does a good job of managing deer in Minnesota	Satisfied	1,278	72.7	10.3	17.0	102.902	<0.001
	Neither	474	56.5	17.3	26.2		
	Dissatisfied	268	45.9	14.2	39.9		
When deciding about deer management in Minnesota, the MDNR will be open and honest in the things they do and say	Satisfied	1,119	72.4	10.7	16.9	60.655	<0.001
	Neither	638	58.2	15.0	26.8		
	Dissatisfied	264	53.4	13.3	33.3		
The MDNR can be trusted to make decisions about deer management that are good for the resource	Satisfied	1,140	73.8	10.0	16.2	101.684	<0.001
	Neither	578	58.0	16.8	25.3		
	Dissatisfied	299	48.2	13.4	38.5		
The MDNR will make decisions about deer management in a way that is fair	Satisfied	1,165	74.1	9.9	16.1	105.923	<0.001
	Neither	617	54.9	17.5	27.6		
	Dissatisfied	237	49.8	12.2	38.0		
The MDNR has deer managers and biologists who are well-trained for their jobs	Satisfied	1,122	73.1	9.7	17.2	78.978	<0.001
	Neither	771	57.7	16.1	26.2		
	Dissatisfied	128	44.5	14.8	40.6		
The MDNR listens to deer hunters' concerns	Satisfied	1,000	74.5	9.7	15.8	132.307	<0.001
	Neither	685	61.8	16.8	21.5		
	Dissatisfied	336	45.5	11.9	42.6		

Literature Cited

Dillman, D.A. 2005. Mail and Internet surveys: The tailored design method. Wiley Publishing, New York, New York.

Fulton, D.C., L. Cornicelli, and M.D. Grund. 2006. 2005 Survey of Deer Hunter Satisfaction and Preferences for Regulation Changes in Minnesota. Unpubl. Proj. Rep. Minn. Coop. Fish and Wildl. Res. Unit. 81pp.

Fulton, D.C., L. Cornicelli, and M.D. Grund. 2007. 2005 Study of Deer Hunters participating in State Park Deer Hunts with Special Regulations and Minnesota's Early Antlerless Deer Season Unpubl. Proj. Rep. Minn. Coop. Fish and Wildl. Res. Unit. 41pp.