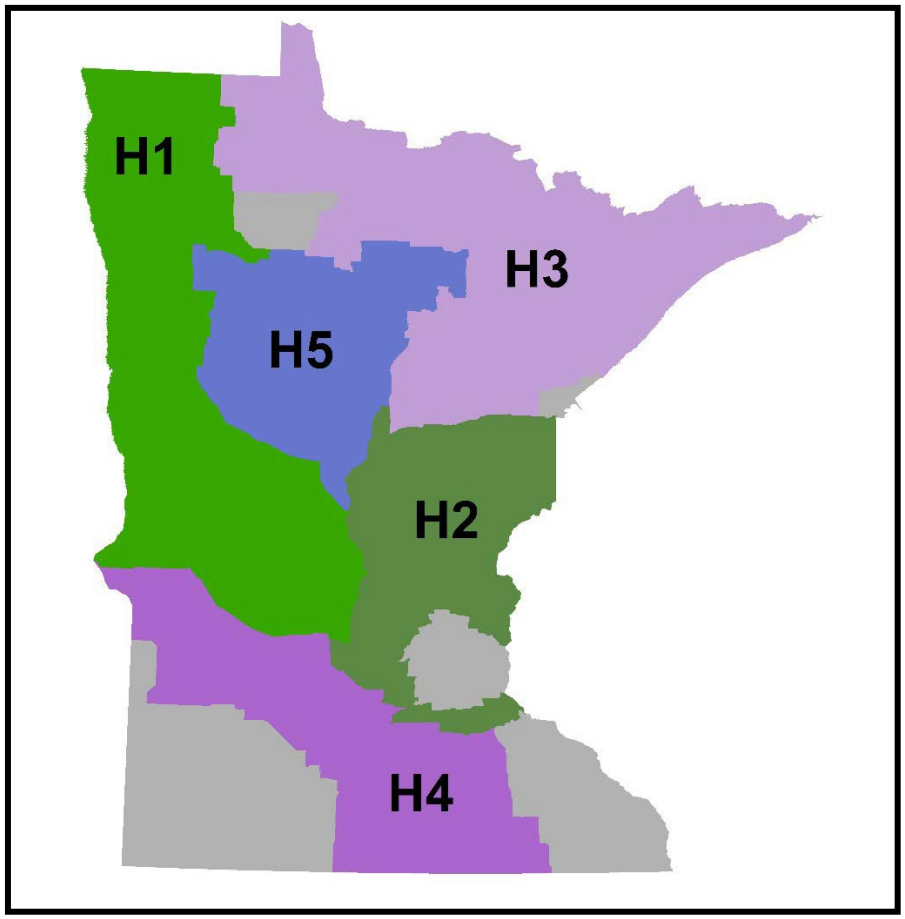
MINNESOTA DEER MANAGEMENT

A study of hunter opinions about deer populations and management: Blocks H1 – H5



Final Report

A cooperative study conducted by:

Minnesota Cooperative Fish and Wildlife Research Unit
Minnesota Department of Natural Resources

MINNESOTA DEER MANAGEMENT

A study of hunter opinions about deer populations and management: Blocks H1 – H5

Prepared by:

Leslie McInenly[1,2]
Lou Cornicelli[1,2]
Eric Walberg[1]

[1]Minnesota Cooperative Fish and Wildlife Research Unit
Department of Fisheries, Wildlife, and Conservation Biology
University of Minnesota

[2]Minnesota Department of Natural Resources

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Contact Information

Leslie E. McInenly
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155
(651)259-5235 (phone)
(612)625-5299 (fax)
leslie.mcinenly@state.mn.us

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Executive Summary

The 2015-2017 Minnesota deer hunting survey was conducted to assess hunters':

- participation and activities,
- deer population perceptions and preferences,
- satisfaction,
- attitudes about deer management,
- regulatory preferences,
- relationship with DNR, and
- involvement in agency decision-making.

Surveys were distributed to 25,319 deer hunters in five regions of the state (11,417 after the 2014 deer season, 10,403 after the 2015 season, and 3,499 after the 2016 season); 10,894 completed surveys were used for this analysis. After adjusting for undeliverable surveys and invalid respondents, the response rate was 44.8%.

Survey timing after the 2014 and 2015 seasons was coincident with the two lowest annual harvests in over a decade, a management response to population declines following two consecutive years (2013 and 2014) of moderate-to-severe winter conditions. During this time, Minnesota DNR was also coordinating a public process to revisit deer population goals for most of the deer permit areas (DPAs) in the state.

Respondent Experience, Background, and Participation in Deer Hunting

On average, survey respondents were about 50 years old; nearly 90% of respondents were male. Most respondents are not members of a hunting or conservation organization; reported membership was highest for local sporting clubs with smaller proportions of hunters indicating affiliation with organized deer hunting groups.

Respondents have hunted deer in Minnesota an average of 29 years and 20 years in the deer permit area they hunted most often. Almost all respondents (>98%) hunted during the previous[1] deer season; less than 1% indicated they hadn't hunted during the three previous years. Overall, 98% of hunters in all survey areas hunted during the firearm season; less than 20% reported participating in the archery or muzzleloader seasons.

As expected, fidelity to deer permit area was high; most respondents (>90%) reported they hunt the same area every year. The percentage of time spent hunting private vs. public land varied considerably by public land availability. Overall, more than half of hunters did at least some of their hunting on private land. With the exception of respondents in northeastern and north central Minnesota, slightly less than half of hunters indicated they did at least some of their hunting on public land. Roughly three-quarters of northeastern and north central hunters hunted at least a portion of the time on public land.

[1] H1 and H2 surveys were conducted after the 2014 season; H3 and H4 surveys after the 2015 season, and H5 after the 2016 season.

With respect to statements regarding their involvement with deer hunting, hunters indicated greatest agreement with items related to social relationships (e.g., opportunity to be with friends) and pleasure derived from the activity (e.g., one of the most enjoyable things I do). Notably, items associated with external perceptions (e.g., you can tell a lot about a person when you see them hunting) had some of the lowest levels of agreement.

Factors respondents reported as most important to deer hunting satisfaction were also primarily experiential and social, including enjoying nature and the outdoors, hunting with family, enjoying a preferred pastime, being with hunting companions, and hunting with friends. Items associated with harvest success, and particularly buck harvest success, were rated among the least important.

Hunting techniques, personal harvest restrictions, and hunting approaches differed slightly across the areas. Most respondents reported using an elevated stand for hunting with smaller percentages of respondents indicating use of a ground stand, stalking, or participation in deer drives (Figure 1). The majority of respondents also follow deer harvest restrictions that exceed state regulations (e.g., additional, personal restrictions on antlerless or buck harvest) and cooperate with other deer hunters on nearby properties so that there are similar strategies in place in the area they hunt. While a majority of hunters reported that they focus at least a portion of the firearm season on harvesting a large buck, most indicated they would shoot an antlerless deer if given the opportunity.

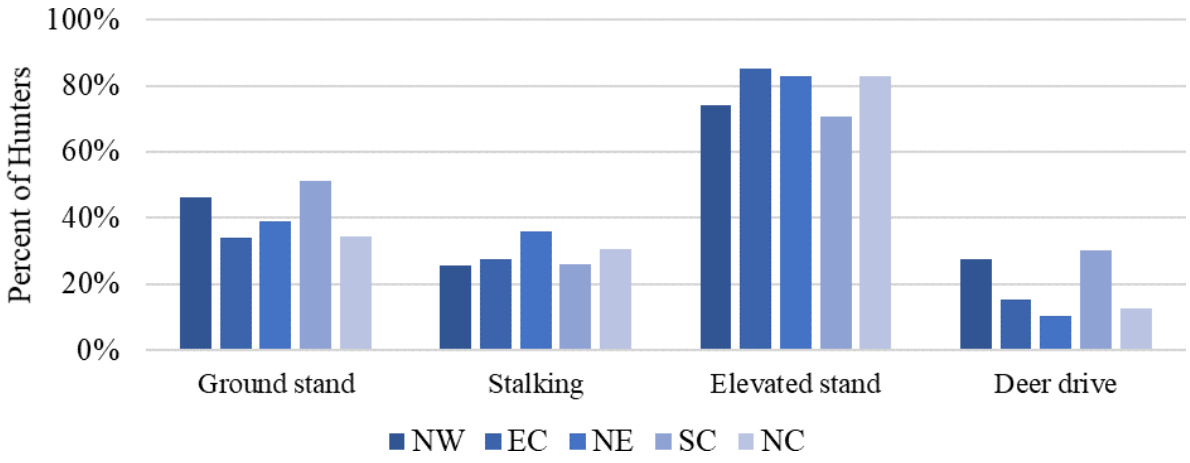


Figure 1. **Hunting techniques used during most recent year hunted, by survey area.**

Population Trends and Perceptions about Deer Populations

A majority of hunters in all areas indicated there were fewer deer in the deer permit area they hunt most often than 5 years ago and a majority also indicated the population was too low. Substantial differences in perceptions were observed among survey areas. In northeastern Minnesota, 81.9% of respondents indicated deer populations had declined whereas only 51.7% reported a decline in south central Minnesota. Respondents in northeastern Minnesota were most

likely to indicate that populations were too low (79.6%) whereas nearly half of the respondents in south central and north central Minnesota reported that they felt the deer population had not changed (44.1% and 44.4% respectively) or was too high (5.3% and 4.3 respectively).

More than two-thirds of respondents wanted to see an increase in deer densities at some level (Figure 2). Across areas, preferences for future deer population management also varied depending on the type of land hunted, with greater proportions of hunters who primarily hunt public land supporting deer population increases than those who primarily hunt private land.

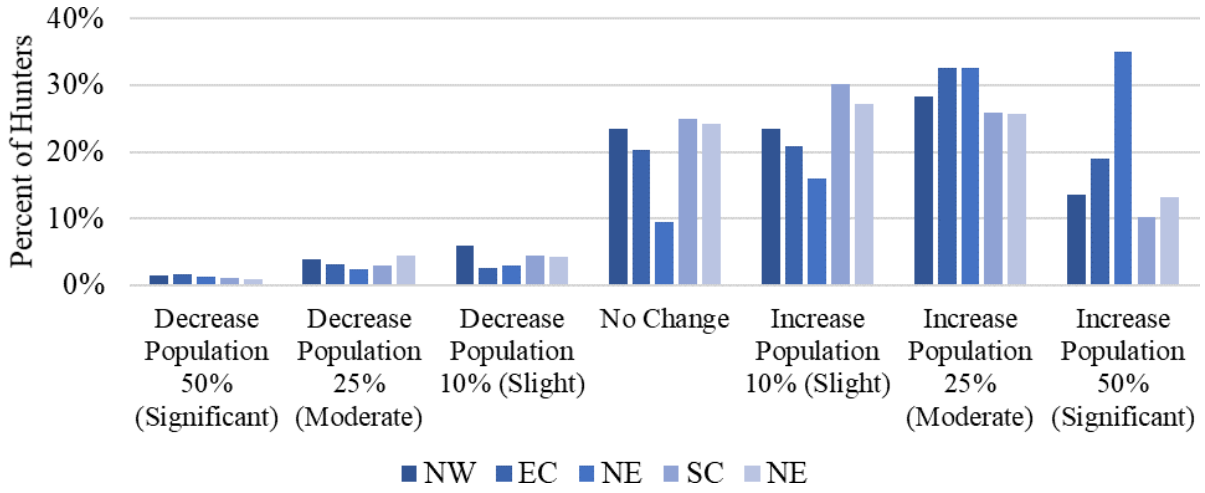


Figure 2. **Future deer management preferences, relative to 2014, 2015, or 2016 levels, by area.**

Population Management Considerations

To better understand the factors hunters believe are most important to consider when setting deer population goals, MN DNR asked respondents to rate the importance of 12 items that would lead to management for either higher or lower deer populations (Figure 3). Results provide mixed direction for deer population management because concerns about deer mortality would suggest management for lower populations whereas concern about deer hunting heritage and hunter satisfaction might suggest management for higher populations. Not surprisingly, hunters in southern Minnesota rated winter mortality as less important than did those in more northern portions of the state and hunters in northeastern Minnesota rated crop damage less important that did those in more agricultural areas of the state.

Respondents were asked about their level of agreement with steps in setting deer population goals. Strongest agreement was with the importance of having decision makers explain the different options considered when deer population goals are set and why the final option was selected, followed by opportunities for hunters and landowners to provide input. With respect to input opportunities, more respondents felt it was important that hunters and landowners have opportunities to provide input regarding deer population goals than did those that felt it was important for Minnesotans, in general, to have input opportunities. A majority of respondents

also agreed that it is important to use the best available science and follow consistent decision-making procedures. Less than half of hunters agreed that it is important to consider diverse interests in setting deer population goals. This finding is counter to the recommendation made by the Minnesota Office of the Legislative Auditor for MN DNR to enhance human dimension surveys in order to consider more diverse perspectives (Minnesota OLA 2016). Although the state manages wildlife for public benefit, broadly, continued tension relative to the weight given to various stakeholder perspectives should be anticipated.

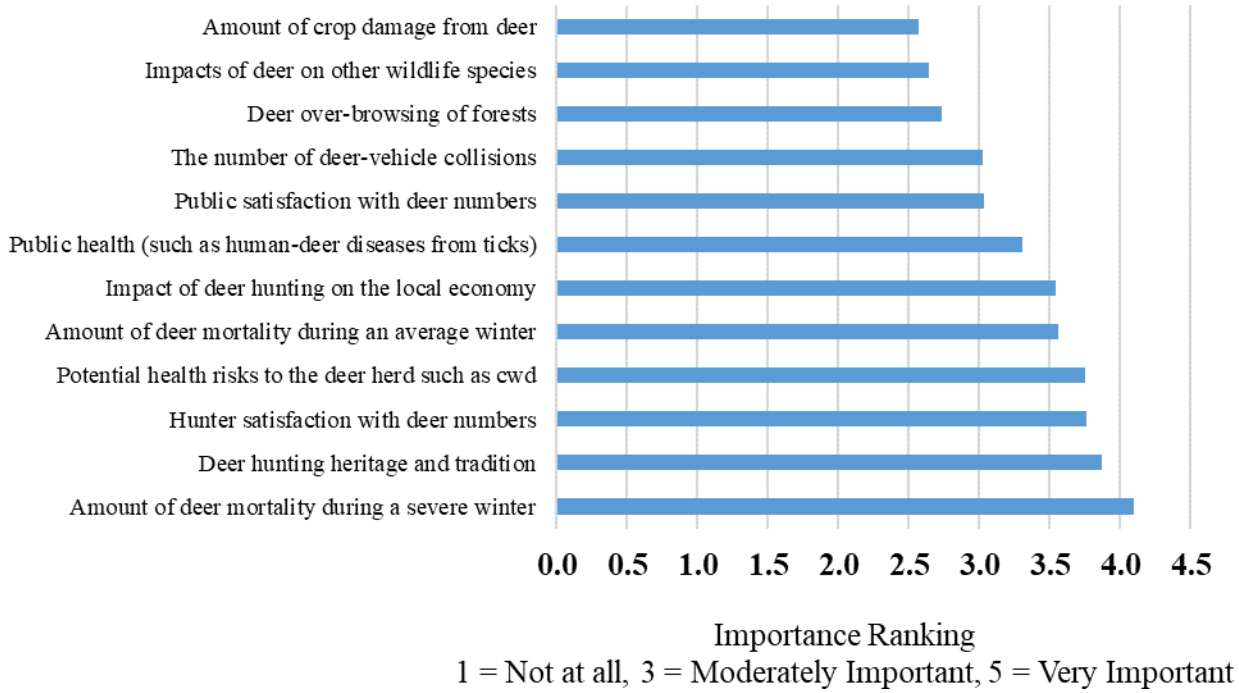


Figure 3. **Mean hunter rankings for factors to consider when setting deer population goals. Means reflect weighted averages for all deer permit areas.**

Hunter Satisfaction and Success

Hunters were asked to indicate their overall satisfaction with deer numbers as well as satisfaction specifically with the number of legal bucks, quality of bucks, total number of deer, and total number of antlerless deer. As evident below, measures of hunter satisfaction can be difficult to interpret because a number of variables may influence a satisfaction rating (see also Cornicelli & McInenly 2016). Contributing factors include personal motivations and expectations (many of which are non-consumptive), the context of the experience, and harvest success.

In general, reported hunter satisfaction with deer numbers and quality was low. When asked about current (2014, 2015, or 2016) deer numbers in the deer permit area they hunt, most respondents in east central, northwestern, and northeastern Minnesota reported they were dissatisfied. Notably, hunters in areas with the lowest estimated deer densities (D'Angelo &

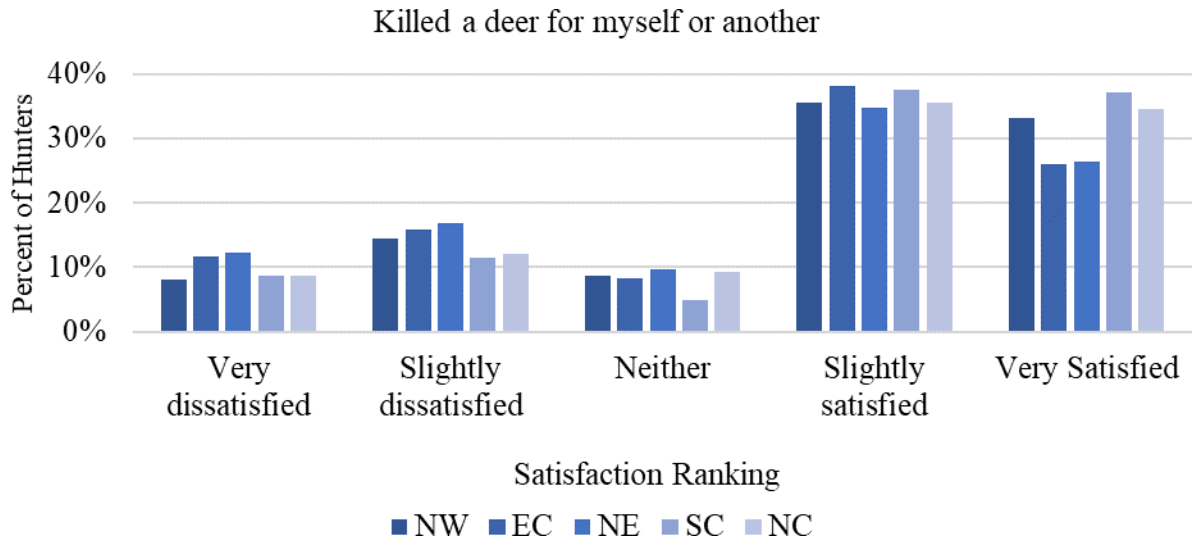
Giudice 2015) reported both the lowest (northeastern Minnesota) and highest (south central Minnesota) levels of satisfaction with deer numbers.

Similar to reports of satisfaction with deer numbers in deer permit areas, a majority of hunters in east central and northeastern Minnesota indicated dissatisfaction with the number of deer seen while hunting. Of note, larger proportions of hunters in each survey area reported satisfaction with the number of deer *seen while hunting* than reported satisfaction with deer numbers *in the deer permit area they hunt most often*, suggesting greater satisfaction with deer numbers observed at more local levels.

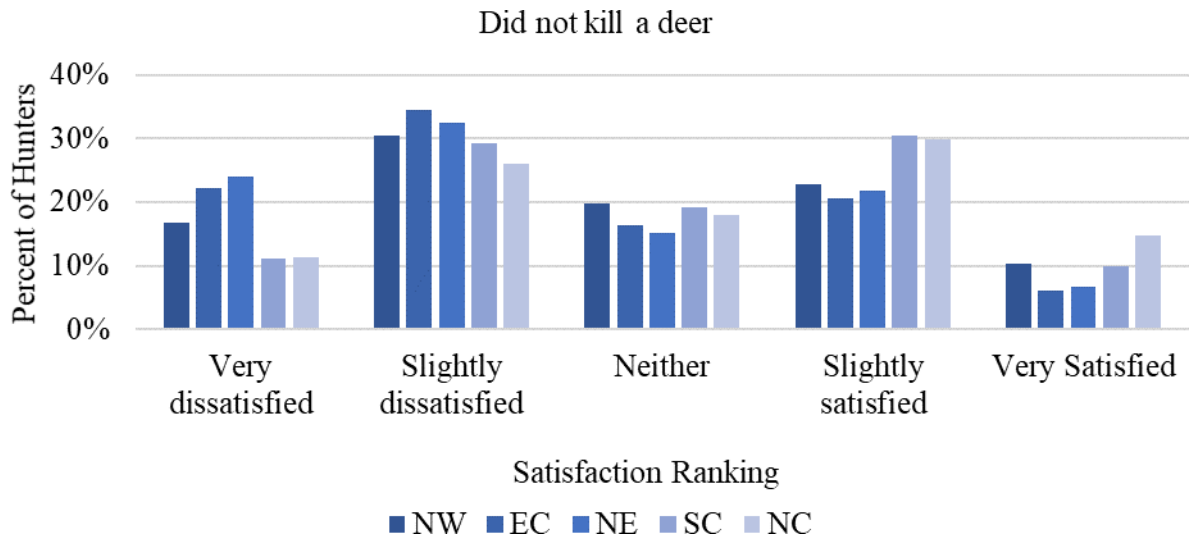
- While the importance of seeing a lot of bucks (for personal deer hunting satisfaction) received only moderate ratings from hunters in these surveys, most hunters reported dissatisfaction with the number of legal bucks and reported satisfaction was negatively correlated with the relative importance individual hunters placed on seeing bucks.
- Across all survey areas, more hunters reported dissatisfaction than satisfaction with the quality of legal bucks.
- Reported satisfaction with the number of antlerless deer varied across the state, with hunters indicating greater satisfaction in northwestern, south central, and north central Minnesota than those in northeastern or east central Minnesota.

Contrary to responses regarding deer numbers and quality, a majority of hunters indicated satisfaction with their general deer hunting experience during the recent season, reinforcing earlier results that suggest non-consumptive motivations can have a greater influence on satisfaction with the deer hunting experience than do consumptive motivations.

Overall satisfaction with the most recent deer hunt, a rating that likely included aspects of the deer population (numbers and quality) and the individual experience, varied across survey areas. Higher overall satisfaction levels were reported in northwestern, south central, and north central Minnesota than in northeastern or east central Minnesota. Of the hunters reporting overall satisfaction with their deer season, satisfaction ratings were significantly higher for those who reported killing a deer than for those who did not, and this trend was evident within all survey areas (Figure 4).



(a)



(b)

Figure 4. **Overall deer hunt satisfaction based on harvest success, by survey area. Responses reflect satisfaction ratings from hunters who killed (a) or did not kill (b) a deer during the most recent deer season**

Deer season regulations from 2014 to 2016 were designed to limit harvest and increase populations in most deer permit areas statewide. As a result, harvest was biased toward legal bucks and antlerless permits were unavailable or limited in many areas. Overall, 26.8% to 44.3% of hunters reported harvesting a deer for themselves or another hunter, depending on the survey area.

Regulatory Preferences for Deer Management

Hunters were asked about their preferences regarding the scale of regulation implementation, season options, and various potential regulatory changes. Across all survey areas, a preference for more local (DPA) or regional (zone) application was evident. A majority of hunters supported the establishment of a statewide youth season in mid-October (Figure 5).

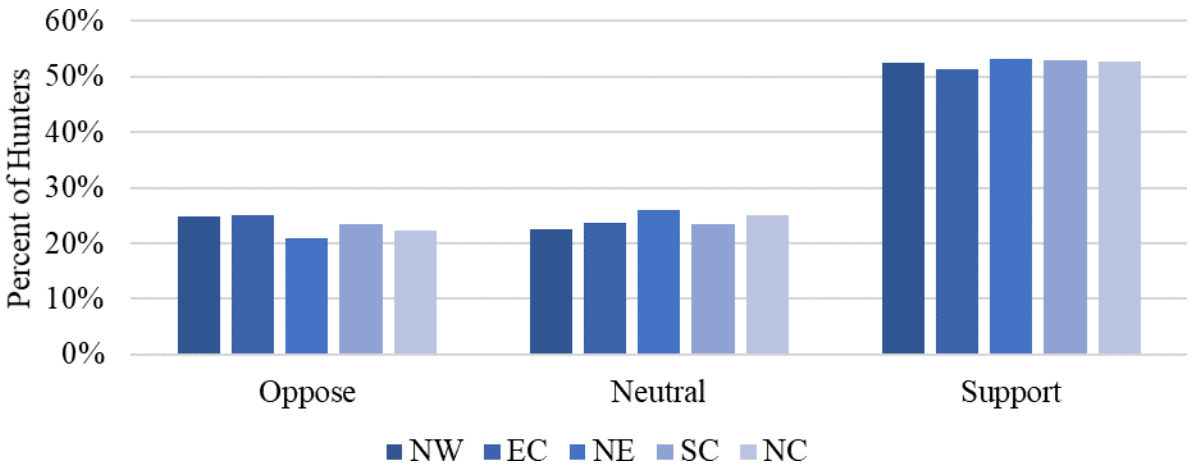


Figure 5. **Support for a statewide youth season in mid-October, by area.**

Across all areas, hunters indicated general support for a regulation that would increase the proportion of antlered bucks in the deer permit area they hunted most often. Consistent with previous surveys of Minnesota deer hunters, support for specific regulatory alternatives was lower than that expressed for an unspecified regulation (Figure 6).

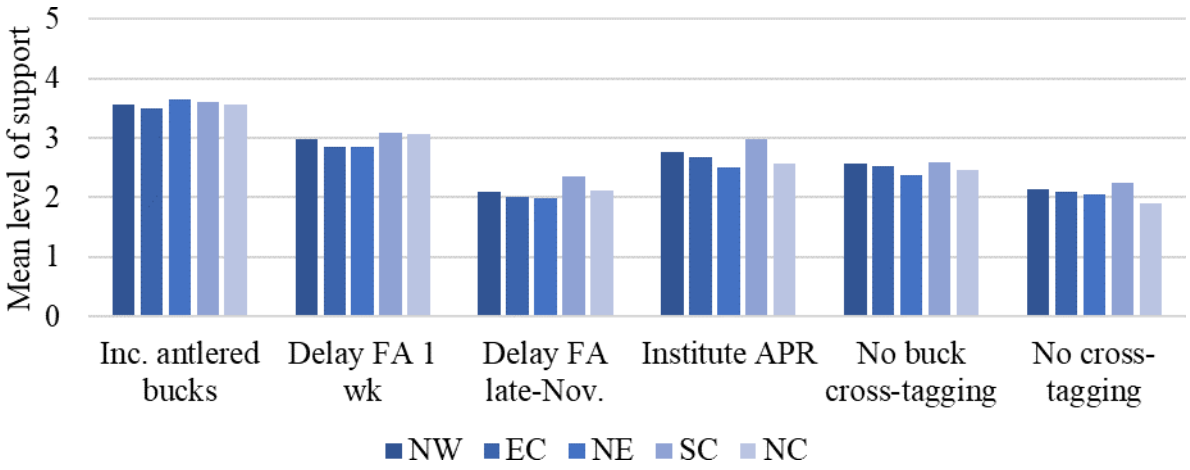


Figure 6. **Support for specific regulatory alternatives, by area. Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support**

Stated Choice Experiment: Regulatory Combinations

This study also included a stated choice experiment examining the preferences of deer hunters concerning different potential combinations of deer seasons and regulations in Minnesota. Stated choice models present hypothetical scenarios to respondents to derive individuals' preferences for alternatives composed of multiple resource and management attributes (Adamowicz et al. 1994; Oh et al. 2005).

Alternatives presented in this season choice experiment consisted of five attributes: (a) cross-tagging of harvested deer, (b) whether or not antler point restrictions are in place, (c) timing of the firearm opener during or out of the rut, (d) the population level or number of deer, and (e) deer harvest limit. Scenarios selected by respondents can be used to identify the relative importance, or influence, of each attribute on regulatory and season combinations. In addition, by analyzing individuals' preferences for different levels of each attribute, we can estimate the utility, or relative desirability, of each level among respondents.

Across all survey areas, timing of the opener had the most influence on scenario choice followed closely by deer numbers in all but north central Minnesota. The third most important attribute was cross-tagging in the majority of survey areas. Implementation of antler point restrictions had the least influence on scenario choice in northwestern and east central Minnesota whereas harvest limit was least important in northeastern, south central, and north central Minnesota.

Across all survey areas, and statewide (Figure 7),

- a hunting opener in early November had the highest utility and was preferred over a late-November opener,
- legal cross-tagging for either sex was preferred over cross-tagging restrictions,
- no antler point restriction was preferred over an antler point restriction regulation,
- deer numbers higher than 2014-2016 levels were preferred over levels experienced during that time period or lower population levels, and
- the preferred seasonal harvest limit was a one-deer, either sex regulation (Hunter Choice) rather than a one-deer limit with an antlerless lottery (Lottery) or a two-deer limit (Managed).

Market simulations based on the stated choice experiment suggest that,

- bag limit preferences are somewhat insensitive to population levels, i.e., the preference for a higher population is not driven by a desire to harvest more than deer based on current statewide hunter preferences, and that
- statewide, commonly proposed DNR regulatory packages that could increase the proportion of antlered bucks in the population are currently less attractive than existing DNR regulations even at higher population levels.

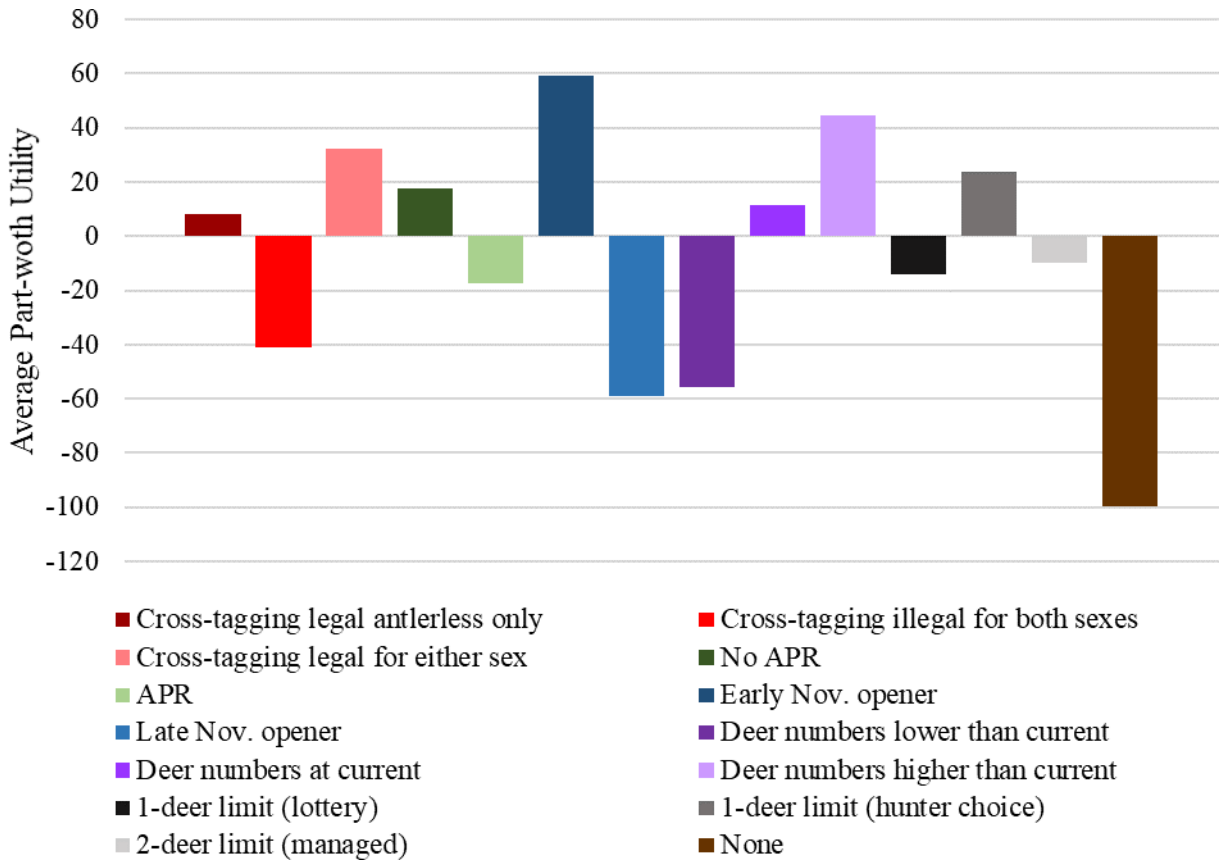


Figure 7. **Average part-worth utilities of attribute levels in statewide stated choice experiment**

Public Participation in Deer Management

With respect to statements about the approach MN DNR uses to set deer population goals (e.g., provides enough opportunities for input, provides adequate information), responses indicated neutral to slight disagreement across all areas. For most areas, the greatest proportion of respondents disagreed that MN DNR provides enough opportunities for hunters to provide input and do not trust MN DNR to establish appropriate deer goals.

On average, hunter agreement was neutral to negative with statements that MN DNR will be open and honest in the things they do and say, can be trusted to make decisions that are good for the resource, or will listen to the concerns of hunters. In contrast, hunter agreement was neutral to positive with statements that MN DNR will make decisions about deer management in a way that is fair and that MN DNR has deer managers and biologists who are well trained for their jobs.

Respondents were undecided about their level of agreement with most other statements related to agency decision making about deer population goals, including input opportunities for landowners and Minnesotans, the adequacy of information provided by MN DNR, consideration

of science, consistency of decision-making processes, and explanation of decision alternatives. Hunters were similarly undecided regarding their agreement with statements about the MN DNR approach to setting deer hunting rules, including opportunities for hunters to provide input.

Overall, fewer respondents were neutral about their relationship and communication with DNR than they were with statements about agency decision-making procedures. Across all areas, hunter agreement was neutral to negative regarding having adequate opportunities to communicate with DNR staff. In contrast, hunter agreement was neutral to positive regarding knowing who to contact if they have questions or comments about deer management. Responses indicated greater ties to local conservation officers than with local wildlife managers or deer management staff (Figure 8). Across all areas, a majority of those familiar with their local area manager felt that they had adequate opportunities to communicate with MN DNR whereas only about a quarter of those who did not know their local area manager felt they had adequate opportunities to communicate with MN DNR. Results suggest opportunities to enhance relationships between staff and hunters should be explored.

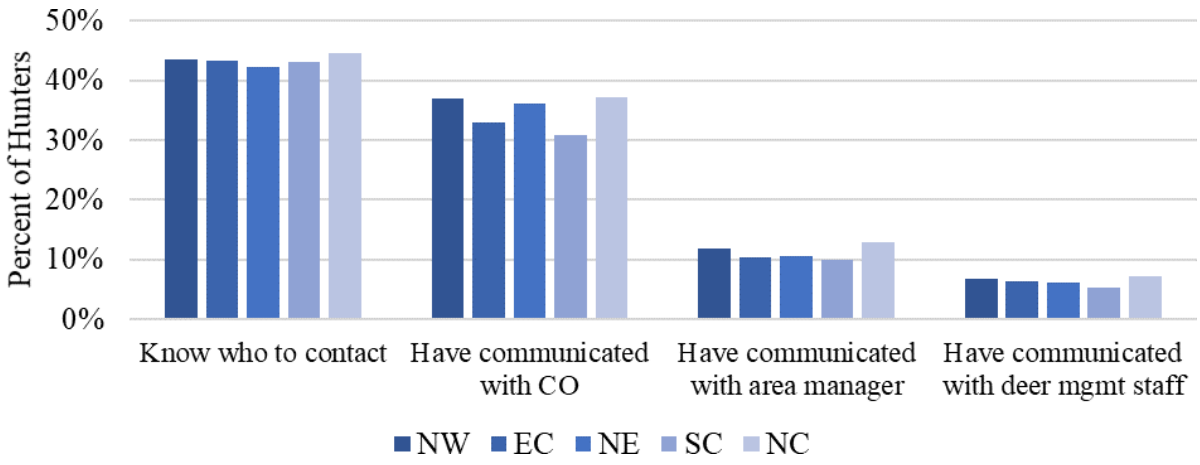


Figure 8. **Communication with MN DNR as it relates to deer management**

Survey responses indicated a preference for direct rather than representative input, with preferences for online questionnaires, written questionnaires, and public meetings. The least preferred option to provide input was via advisory teams, followed by informal communication and input through a representative organization (Figure 9). Notably, providing no input rated higher than all but the top three options. Across all areas, greater proportions of hunters over the age of 50 indicated a preference to provide input via public meetings and written questionnaires than younger hunters, whereas a greater proportion of younger hunters reported a preference to provide input via online questionnaires.

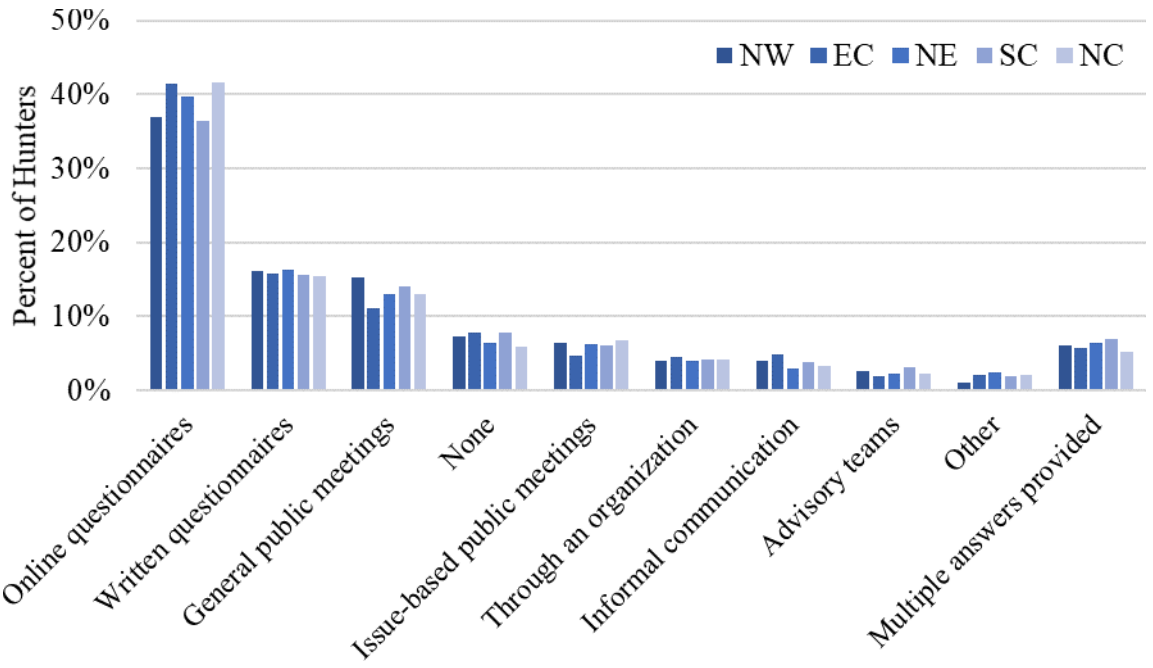


Figure 9. **Preferred means to provide input to MN DNR**

Across all areas, age was negatively correlated with trust that MN DNR will establish appropriate deer population goals, suggesting that older deer hunters are less trusting of MN DNR. On average, and across all areas, members of organized deer groups (MDHA, QDMA, MBI, and MWA) reported significantly lower levels of trust than those who were not members of an organized deer group.

Introduction

The Minnesota Department of Natural Resources (MN DNR) periodically conducts stakeholder surveys to collect information about public desires and opinions regarding specific natural resource management issues. Survey recipients are selected randomly and provide a statistically representative sample of stakeholder opinions. Over the past decade, MN DNR has conducted over a dozen deer hunter surveys to evaluate regulatory preferences and hunter satisfaction (Minnesota DNR 2016). Most recently, deer hunters were surveyed in 2014 to inform population goal setting discussions. This report provides a summary of extended surveys conducted to support the anticipated goal setting process in 2015 – 2016 and to better understand hunter experiences and attitudes about regulations and the deer management program.

Concurrently, in 2015, Minnesota's deer population management was evaluated by the Office of the Legislative Auditor (Minnesota OLA 2016). A key recommendation of the OLA report was to continue and expand the data collection via stakeholder surveys to provide greater insights relative to stakeholder perspectives on deer management. Results of these surveys are expected to support that goal.

Study Purpose and Objectives

Beginning in 2014, surveys of deer hunters were conducted to inform discussion about deer population goals and deer management in Minnesota (Walberg et al. 2015). The purpose of this study was to gather information at levels that adequately represent regional stakeholder attitudes (e.g., northeastern Minnesota) and provide an indication of preferences at more local levels (e.g. deer permit areas). This report presents the results from a series of extended surveys that include questions about deer population levels but also delve more deeply into issues such as DNR trust, where people get their information, preferences for input into agency decision making, and stated choice of regulatory/management options.

The 2014-2017 deer management study was divided into five strata covering all but the southeastern and southwestern portions of the state. Deer hunter attitude surveys were previously conducted in southeastern (Pradhananga et al. 2013) and southwestern (D'Angelo & Grund 2014) Minnesota. In combination, MN DNR conducted attitude surveys of Minnesota hunters, statewide, between the 2012 and 2016 deer seasons.

Specific survey objectives were to:

1) Evaluate the use of a mixed-mode (i.e. combination of online and written surveys) approach to hunter surveys (Walberg 2016),
2) Continue to assess hunter perspectives on regional deer population trends and management,
3) Evaluate support for potential regulatory changes commonly raised by stakeholders, as well as the influence of deer population management decisions on regulatory preferences, and,

4) Better understand stakeholder relationships with MN DNR and preferences for communication/input in agency decisions to improve engagement processes and hunter satisfaction.

Methods

Sampling

Surveys were sent to 25,319 hunters in five different regions of the state (Table I-1) between fall 2014 and spring 2017, reflecting hunters' experiences and opinions after the 2014, 2015, or 2016 deer seasons. Survey blocks H1, H3 and H4 were further stratified by sub-regions in order to inform upcoming deer population goal setting discussions; the goal setting process in H2 and H5 was already complete. The target response size for each sub-region was 900. Because survey blocks H2 and H5 represented two former goal setting regions, the target response size for each of these regions was 1,200.

For each survey block, random samples were drawn from the DNR electronic licensing system (ELS), selecting for adult hunters that declared intent to hunt a deer permit area (DPA) within that region during the most recent deer season[2]. Within each survey block, hunters were randomly assigned to ten subsample groups. Each subsample group received one of ten survey versions; all surveys were identical except for the order and set of regulatory choice options which were unique to each of the ten survey versions. This design provided the ability to conduct a discrete choice experiment within each of the survey blocks (Louviere, Hensher & Swait 2000).

Table I-1. Overall sample size, returns, adjusted response rates, and survey timing for deer hunter surveys, 2014 - 2017. Youth respondents (reported ages <18 years) removed from analysis.

Survey Block	Region	N	Undeliverable	Returned	Response	Survey Timing
H1	Northwestern MN	7,801	333	3,095	41.4%	Spring 2015
H2	East Central MN	3,616	138	1,553	44.7%	Spring 2015
H3	Northeastern MN	5,202	222	2,544	51.1%	Fall/Winter 2015-16
H4	South Central MN	5,201	152	2,313	45.8%	Fall/Winter 2015-16
H5	North Central MN	3,499	128	1,389	41.2%	Fall/Winter 2016-17
Total		25,319	973	10,894	44.8%	

[2] At the time of license purchase, hunters 'declare' an area they intend to hunt. However, they are not legally required to stay in that area and although there is high site fidelity, some movement across the state occurs.

Survey Instrument

Surveys were presented online or as a 12-page paper booklet, including a cover page with photo (Appendix A). Online and paper surveys presented the same series of questions, tailored to the survey block of interest.

Each survey contained two sections; a section focused on deer population observations and preferences and a section focused more broadly on hunting regulations, involvement with hunting, hunter satisfaction, hunter relationships with DNR, preferences related to DNR management and decision-making, and hunter demographics.

Of note, the second section included a discrete choice experiment designed to help DNR better understand individuals' preferences for regulatory alternatives. Discrete choice surveys present hypothetical scenarios and force respondents to choose an alternative among a suite of options. In Minnesota, discrete choice surveys have been used for deer, turkey, and pike. The methods are rooted in the marketing literature and the methods are increasingly applied to natural resources problems. The experiment in this survey focused on a combination of (1) management strategies that are often suggested by hunting stakeholders and (2) management designations that reflect both hunter opportunity and management toward a specific population goal.

Data Collection

Data were collected using a web-first, mixed mode design that included a combination of online and mail surveys following the process outlined by Dillman and others (Dillman, Smyth, & Christian, 2014). The first two waves of letters requested survey completion online through the internet survey platform (Qualtrics, Provo, UT); each online survey code was unique and could be used only once. The third and fourth waves included a cover letter, a self-administered mail back survey booklet, and a business reply envelope. Because the fourth wave only increased the overall response rate by a small percent for surveys H1 – H4 (range = 8.0% - 9.0%), we opted to employ a three-wave survey (i.e., two letters requesting online survey response followed by one mail-back paper survey packet) for the H5 study area.

Contact letters were sent approximately 2 weeks apart; potential survey respondents were contacted up to four times between February and May of 2015 (H1 and H2), November 2015 and April 2016 (H3 and H4), or January and February 2017 (H5). Personalized cover letters explained the purpose of the study and made an appeal for respondents to complete the survey online; however, for survey recipients that did not have internet access, letters indicated that a paper survey would be mailed at a later date. Data were collected through July, 2015 for the H1 and H2 surveys; through June, 2016 for the H3 and H4 surveys; and through April, 2017 for the H5 survey.

Data Entry and Analysis

Online survey data were downloaded as .csv files using Qualtrics software (Qualtrics, 2015), converted to Excel 2013 spreadsheets, and provided the basic data entry template for hard-copy mail surveys. Data from mail surveys were manually entered in Excel 2013 by University of Minnesota students. A subsample of paper surveys (50 per survey) were double-entered (i.e. the

initial survey data were entered by one individual and then entered a second time by another individual) to assess data entry error rates. Data entry error rates ranged from 0.39% to 1.44%.

Basic descriptive summaries and statistical analyses were conducted using the Statistical Program for the Social Sciences (SPSS Statistics for Windows, version 24). Responses across survey blocks were compared using chi-squared tests and one-way analysis of variance (ANOVA). Independent samples t-tests or Mann-Whitney U tests were used to test differences in responses between groups. We measured effect size for chi-squared tests, ANOVA, and independent samples t-tests using Cramer's V, eta, and Cohen's *d* respectively. Commonly accepted values (Cohen 1988, Vaske 2008) were used to interpret effect sizes as small, medium, and large (Cramer's $V \geq 0.1, 0.3, 0.5$; eta $\geq 0.1, 0.24, 0.37$; $d \geq 0.2, 0.5, 0.8$). The discrete choice portion of the survey was analyzed using Lighthouse Studio and hierarchical Bayes' analysis.

Survey Response Rates, Nonresponse and Error

Overall, there were 973 undeliverable surveys; 10,894 completed hunter surveys were returned, yielding a 45% adjusted response rate.

Age and gender of non-responding survey recipients, from the DNR electronic licensing system, was compared with that of survey respondents to assess potential nonresponse bias. Median age of respondents was greater than that of non-respondents (52 versus 41) and Mann-Whitney U tests between these groups in each survey area indicate a substantial age difference (U = 922997.5 – 4874450.0, Z = 14.388 – 20.450, $p < 0.001$, effect size r = 0.237 – 0.281). No gender differences were detected.

Differences in attitudes and demographics between early respondents (mailing waves 1-3) and late respondents (mailing wave 4) were also explored to assess potential nonresponse bias. In general, no practical significance (effect size) was evident for most attitude responses. However, smaller proportions of late respondents in east central (survey area 2) and northeastern (survey area 3) Minnesota indicated preferences for population increases than did early respondents (V = 0.112 and 0.129, respectively). Median age of wave 4 respondents did not differ from earlier survey respondents.

For all surveys, our error rate at the survey block level was approximately +/-3%. State-level data were analyzed for all respondents, weighted by DPA to account for the proportion of hunters within the H1-H5 that purchased a 2014 license (Appendix B). In Minnesota, hunters are required to designate the DPA they are most likely to hunt within during the hunting season; this information is used to estimate hunting pressure and can be assumed to reflect distribution of the hunting population. Region-level analyses were conducted by comparing responses across surveys and responses were similarly weighted by DPA to reflect the hunting population.

Section 1. Experience, Background, and Hunter Participation

Hunter Background and Demographics

Nearly all respondents (98.7%) indicated they hunted during the previous[3] deer season and less than 1% indicated they hadn't hunted during the three previous years (Table 1-1). Overall, over 98% of hunters in all survey areas indicated they hunted during the firearm season; far fewer hunters participated in the archery (17.3%) or muzzleloader (12.5%) seasons (Table 1-2). Firearm and muzzleloader hunters estimated spending an average of 6 days afield each season, compared to an average of more than 16 days for archery hunters (Table 1-3). Hunters estimated spending an average of 18 days (archery), 11 days (firearm season), and 13 days (muzzleloader) scouting. Of the estimated days spent scouting and hunting, only days spent afield during the firearm season substantially differed across survey areas, likely a result of the 16-day firearm season in the 100-series zone (northeastern, north central, and east central Minnesota; survey area 3 and portions of areas 2 and 5). A small difference in archery hunting days was also noted, with bowhunters spending less time afield in northeastern and north central Minnesota.

Overall, 89% of respondents were male (Table 1-4) and, on average, were approximately 52 years old (median age = 49 - 54 across all survey areas; Table 1-5). Individuals reported living in Minnesota for over 45 years (Table 1-6), had hunted an average of 29 years in Minnesota, and 20 years in the deer area they indicated they hunted most often (Table 1-7). Over 75% of hunters reported post-secondary education, with nearly a third holding an advanced degree (Table 1-8). Almost all individuals (>90%) had access to the internet (Table 1-9).

Hunting Patterns

Most respondents (>90%) reported hunting the same area every year and only 2% indicated they never hunted the same area (Table 1-10). Appendix C provides a breakdown of the actual DPA hunted, if reported on the survey; the high percent of responses coming from within a survey area reflects high annual hunter fidelity to deer permit areas. The average reported parcel size of private land hunted ranged from 135 to 231 acres ($\bar{x}$ = 162.1; range = 0 – 15,000) depending on survey area, with the largest average parcel sizes reported in northwestern Minnesota and the smallest in east central Minnesota. Average parcel sizes by region ($\bar{x}$ = 131 to 206; Table 1-11) didn't change substantially when exceptionally large reported values (values > 5000 acres, *n* = 22) were removed from the analysis.

The percentage of time spent hunting private vs. public land varied considerably by public land availability (Table 1-12). As expected, in areas with a lower percentage of public lands, we observed a higher proportion of hunters on private lands. Overall, slightly more than half of hunters did at least some of their hunting on their own private land (range = 57% - 64%) or other private land that they do not own or lease (range = 51% - 80%). With the exception of survey areas 3 and 5 (northeastern and north central Minnesota), slightly less than half of hunters indicated they did at least some of their hunting on public land (range = 41% - 46%). Most (range = 72-77%) hunters in northeastern and north central Minnesota indicated they did at least some of their hunting on public land. Less than 11% (range = 5.4% - 10.5%) of hunters reported

[3] H1 and H2 surveys were conducted after the 2014 season; H3 and H4 surveys were conducted after the 2015 season; H5 was conducted after the 2016 season.

that they leased land for hunting, with 1 - 4% hunting exclusively on lands they leased for hunting.

Hunting Involvement

Respondents were asked to indicate agreement, on a scale of 1 to 5, with 16 statements regarding their involvement with deer hunting in Minnesota (Tables 1-13 to 1-29). Statements associated with personal hunting involvement (Kyle et al. 2007) that received the greatest agreement from hunters were 'the opportunity to be with friends' ($\bar{x}$ = 4.3; Table 1-14), 'deer hunting is one of the most enjoyable things I do' ($\bar{x}$ = 4.3; Table 1-15), 'I enjoy discussing deer hunting with friends' ($\bar{x}$ = 4.3; Table 1-16) , 'I contribute to deer management through hunting' ($\bar{x}$ = 4.2; Table 1-17), and 'deer hunting is very important to me' ($\bar{x}$ = 4.2; Table 1-18). Notably, items associated with external perceptions (e.g., 'You can tell a lot about a person when you see them hunting' and 'I don't have to be concerned about what other people think of me') had some of the lowest levels of agreement (Table 1-26 and 1-27). Across the areas, hunters differed to the greatest extent in agreement with statements suggesting that 'deer hunting has a central role' in their life (Table 1-28) and that a lot of their 'life is organized around deer hunting' (Table 1-29), with hunters in northern Minnesota expressing greater levels of agreement than hunters in southern Minnesota.

Respondents were also asked to rate, on a scale of 1 to 5, the importance of 21 experiences to their deer hunting satisfaction during the previous deer season (Tables 1-30 to 1-51). Hunters indicated that the most important experiences for satisfaction were 'enjoying nature and the outdoors' ($\bar{x}$ = 4.5; Table 1-31), 'hunting with family' ($\bar{x}$ = 4.2; Table 1-32), 'enjoying a preferred pastime' ($\bar{x}$ = 4.1; Table 1-33), 'being with hunting companions' ($\bar{x}$ = 3.9; Table 1-34), and 'hunting with friends' ($\bar{x}$ = 3.9; Table 1-35). Items lowest on the list included 'harvesting a large buck', 'harvesting any buck', 'selectively harvesting a large buck even if it means not killing a deer', and 'getting a buck every year' (Tables 1-48 to 1-51). Roughly 90% of hunters in all areas indicated that enjoying nature and the outdoors was very or extremely important to their deer hunting satisfaction. In contrast, only 8.5% of respondents statewide indicated that harvesting a buck every year was very or extremely important to their deer hunting satisfaction.

With respect to the activity of deer hunting, most respondents identified themselves as 'recreational' deer hunters (34.8%), followed by 'social' (22.9%), 'meat' (22.7%), 'trophy' (11.5%), 'skills-oriented' (3.8%), 'casual' (2.2%) and 'science-oriented' (2.1%) (Table 1-52).

The majority of respondents (>60%) are not affiliated with a hunting or conservation organization (Table 1-53). Reported membership was highest for local sporting clubs (range = 13.6%), followed by the Minnesota Deer Hunters Association (10.7%), Quality Deer Management Association (1.9%), Minnesota Bowhunters, Inc. (1.1%), and Minnesota Whitetails Alliance (0.6%). Roughly ten percent of respondents reported membership in some other hunting or conservation association (e.g., Ducks Unlimited, Pheasants Forever).

Hunting Methods

Hunting techniques differed regionally (Table 1-54). Most (range = 70.8% – 85.3%) respondents used an elevated stand for hunting during the recent deer season. Smaller percentages of respondents indicated they used a ground stand or blind (range = 34.2% – 51.1%), moved slowly or stalked deer (range = 25.5% – 35.9%), or participated in deer drives as a member of a party (range = 10.5% – 30.1%). Respondents from east central Minnesota reported the highest percentage of elevated stand usage while respondents from south central Minnesota reported the greatest use of ground stands and deer drives.

The majority of respondents (53.5%) reported that they cooperate with other deer hunters on nearby properties with respect to deer harvest restrictions so that there are similar strategies in place in the area they hunt (Table 1-55). Implementation of additional deer harvest restrictions (besides DNR regulations) on the property hunted varied, with small differences evident across areas. Most commonly, respondents (range = 33.1% – 57.8%) reported no restrictions on the type of deer that may be hunted (Table 1-56). Similar proportions of hunters (range = 31.5% – 58.5%) reported that antlerless harvest is restricted but hunters can take any legal buck. Of note, nearly 20% more hunters in northeastern Minnesota, as compared to other regions, reported that antlerless harvest was restricted. The regional difference is not surprising given the impact of recent severe winters within the region; however, this may also reflect some respondent confusion regarding the intent of the question (i.e., hunter- or landowner-imposed harvest restrictions in addition to DNR regulations). Small percentages of respondents reported restrictions on buck harvest (range = 2.4% – 4.1%) or buck and antlerless harvest (range = 2.3% – 3.3%). Various other restrictions were reported by similar percentages of respondents (range = 3.0% – 3.8%).

Most (83.3%) hunters would shoot an antlerless deer if given the opportunity (Table 1-57). In addition to hunting techniques and harvest restrictions, approaches to hunting also differed by area. When asked to describe how they hunted deer during the most recent firearm deer season, the greatest proportion (range = 37.3% - 49.9%) of respondents reported that they would focus on large bucks, with 17.9% – 27.8% hunting for large antlered bucks early in the season and any legal deer later and 17.9% – 24.8% hunting for large antlered bucks during the entire season. Roughly one third of respondents (range = 26.2% to 38.9%) would shoot the first legal deer that offered a good shot (Table 1-58). Small numbers of respondents chose not to harvest a deer due to low population levels (range = 1.8% to 4.7%) and even fewer (range = 0.2% to 1.4%) indicated they would shoot only antlerless deer.

Knowledge of the Deer Program

Over 95% of hunters indicated a working knowledge of DNR's deer management program, with 21.0% reporting they know a great deal about the program and 3.3% reporting they know nothing about the program (Table 1-59).

Table 1-1: Proportion of respondents who hunted deer during recent deer seasons

Area	n	Survey Year	Hunted this year %	Hunted last year %	Hunted 2 years ago %	Did not hunt %
1 (NW)	3091	2014	98.5%	93.2%	91.7%	0.0%
2 (EC)	1553	2014	98.1%	92.8%	90.0%	0.1%
3 (NE)	2536	2015	98.7%	93.4%	92.5%	0.0%
4 (SC)	2311	2015	99.4%	92.6%	90.3%	0.0%
5 (NW)	1389	2016	99.3%	94.0%	92.7%	0.1%
TOTAL	**10879**		**98.7%**	**93.2%**	**91.5%**	**0.1%**
			χ^2=18.422, *** *V* = 0.041	χ^2=3.062, n.s. *V* = 0.017	χ^2=14.933, *** *V*= 0.037	χ^2=1.959, n.s. *V* = 0.013

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-2: Season Hunted

Area	n	Archery	Firearm	Muzzleloader
1 (NW)	3090	17.1%	98.1%	16.4%
2 (EC)	1553	18.9%	98.1%	11.5%
3 (NE)	2535	13.7%	98.7%	8.2%
4 (SC)	2311	18.2%	97.8%	18.0%
5 (NC)	1390	17.8%	98.3%	10.9%
TOTAL	**10877**	**17.3%**	**98.3%**	**12.5%**
		χ^2=112.892, *** *V* = 0.072	χ^2=8.500, n.s. *V* = 0.020	χ^2=259.298, *** *V* = 0.109

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-3: Average number of days spent scouting or hunting, by season

		Area								
Days Scouting	**n**	**1 (NW)**	**2 (EC)**	**3 (NE)**	**4 (SC)**	**5 (NC)**	**TOTAL**	***F***	***P***	**η^2**
Archery	653	10.4	10.6	9.7	12.7	9.4	10.0	1.658	0.0158	0.010
Firearm	3649	3.4	4.0	5.1	3.5	4.1	4.1	15.263	<0.001	0.016
Muzzleloader	479	3.0	3.5	3.6	3.3	3.1	3.2	0.311	0.871	0.003
Days Hunting										
Archery	1763	16.8	18.4	14.6	16.8	13.2	16.1	5.726	<0.000	0.013
Firearm	9629	4.9	6.1	7.5	4.6	5.7	5.7	336.512	<0.001	0.123
Muzzleloader	1368	5.8	6.2	5.8	6.3	6.1	6.0	1.301	0.268	0.004

Note: Extreme values (scouting days >60 for archery, n = 28;scouting days >20 for firearm, n = 271; and scouting days > 20 muzzleloader; n = 46) excluded

Table 1-4: Reported gender

Area	**n**	**% Female**	**% Male**
1 (NW)	2948	12.4%	87.6%
2 (EC)	1471	12.2%	87.8%
3 (NE)	2435	8.3%	91.7%
4 (SC)	2231	8.8%	91.2%
5 (NC)	1318	10.6%	89.4%
TOTAL	**10369**	**10.7%**	**89.3%**
		$\chi 2$=35.663***; *V* = 0.059	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-5: Reported age

Area	**n**	**Mean age**	**Median age**
1 (NW)	2918	48.8	50
2 (EC)	1461	49.9	51
3 (NE)	2425	51.8	53
4 (SC)	2214	48.4	49
5 (NC)	1317	52.3	54
TOTAL	10311	50.4	52
		F=27.051***, η^2 = 0.010	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-6: Years lived in MN

Area	n	Mean years	% of life
1 (NW)	2919	45.6	93.4
2 (EC)	1463	46.9	94.1
3 (NE)	2422	48.3	93.3
4 (SC)	2209	46.1	95.3
5 (NC)	1311	48.6	93.2
TOTAL	10302	47.2	93.7
		F=14.326*** η^2 = 0.006	F=6.017*** η^2 = 0.002

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-7: Mean number of years hunting deer in Minnesota and in deer permit area (DPA)

Area	n	In Minnesota	In the DPA hunted most often
1 (NW)	3056	26.8	19.8
2 (EC)	1533	27.1	18.2
3 (NE)	2509	30.9	22.9
4 (SC)	2302	25.9	19.4
5 (NC)	1375	30.4	21.1
TOTAL	10763	28.5	20.2
		F=48.368*** η^2 = 0.018	F=34.083*** η^2 = 0.013

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-8: Reported education

Area	n	GS	Some HS	HS degree	Some Vo-tech	Vo-tech degree	Some college	4 yr. degree	Some grad.	Grad. degree
1 (NW)	2946	0.7%	1.3%	19.9%	10.2%	20.5%	14.7%	22.5%	3.1%	7.1%
2 (EC)	1469	0.7%	2.8%	21.2%	11.4%	21.5%	16.1%	18.3%	2.3%	5.7%
3 (NE)	2432	0.4%	1.2%	15.6%	11.3%	19.1%	18.1%	22.9%	3.2%	8.2%
4 (SC)	2224	0.2%	1.4%	20.8%	10.0%	25.4%	14.3%	19.6%	2.3%	5.8%
5 (NC)	1317	0.4%	1.2%	20.0%	9.7%	19.7%	13.1%	23.6%	3.3%	8.8%
TOTAL	10356	0.5%	1.6%	19.3%	10.8%	20.7%	15.3%	21.6%	2.9%	7.3%
					$\chi 2$=142.059***; V = 0.058					

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-9: Internet access at home or another location

Area	n	No	Yes
1 (NW)	3075	7.5%	92.5%
2 (EC)	1545	6.8%	93.2%
3 (NE)	2519	9.1%	90.9%
4 (SC)	2294	6.6%	93.4%
5 (NC)	1381	7.1%	92.9%
TOTAL	10814	7.4%	92.6%
		$\chi 2$=12.638*; *V* = 0.034	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-10: Statement that best characterizes where you hunt

Area	n	Almost never hunt the same area	Change every 1 to 2 years	Change every 3 to 5 years	Typically hunt the same area every year
1 (NW)	3013	1.9%	1.7%	2.0%	94.4%
2 (EC)	1499	1.9%	2.8%	2.9%	92.4%
3 (NE)	2488	2.2%	2.5%	3.5%	91.8%
4 (SC)	2282	1.8%	2.7%	2.6%	92.9%
5 (NC)	1348	1.5%	2.8%	4.0%	91.7%
TOTAL	10594	1.9%	2.5%	3.1%	92.6%
			$\chi 2$=30.810***; *V* = 0.031		

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-11: If hunt private land, size of land hunted

Area	n	Mean parcel size (acres)	Median parcel size (acres)
1 (NW)	2776	205.7	120.0
2 (EC)	1328	130.6	80.0
3 (NE)	1789	149.7	80.0
4 (SC)	2108	151.5	80.0
5 (NC)	1007	162.2	98.8
TOTAL	8796	162.1	85.0
		F=31.417***; η^2 = 0.014	

*Outliers (response >5000) excluded. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-12: Type of land hunted during most recent deer hunting season

Type of land hunted		Area						Significance
		1 (NW)	2 (EC)	3 (NE)	4 (SC)	5 (NC)	TOTAL	
Private land that I own	None	36.0%	38.6%	40.8%	43.2%	40.7%	39.5%	$\chi2$=157.957*** *V* = 0.077
	Some	10.0%	10.5%	18.0%	10.7%	15.2%	13.0%	
	Most	18.8%	15.7%	17.2%	16.2%	15.7%	16.8%	
	All	35.1%	35.2%	24.0%	29.8%	28.4%	30.7%	
Private land that I lease for hunting	None	92.0%	94.6%	89.5%	91.1%	92.2%	92.0%	$\chi2$=26.472** *V* = 0.035
	Some	3.4%	2.7%	4.1%	3.8%	2.8%	3.4%	
	Most	2.2%	1.6%	2.8%	2.5%	2.6%	2.3%	
	All	2.4%	1.1%	3.6%	2.7%	2.3%	2.3%	
Private land that I do not own or lease	None	32.1%	35.9%	49.4%	20.2%	41.8%	37.0%	$\chi2$=541.189*** *V* = 0.143
	Some	18.4%	15.5%	21.5%	17.0%	19.1%	18.4%	
	Most	18.8%	14.7%	12.8%	22.1%	13.6%	16.0%	
	All	30.8%	33.9%	16.4%	40.7%	25.4%	28.6%	
Public land	None	59.0%	57.3%	22.8%	54.0%	28.5%	42.9%	$\chi2$=1398.245*** *V* = 0.235
	Some	29.2%	22.7%	27.5%	31.7%	25.3%	26.7%	
	Most	6.8%	9.0%	22.2%	7.9%	18.3%	13.7%	
	All	5.0%	11.0%	27.4%	6.4%	27.9%	16.6%	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-13: Involvement in deer hunting in Minnesota… Level of agreement

Statement	n	Mean[1]
Deer hunting provides me with the opportunity to be with friends	10415	4.3
Deer hunting is one of the most enjoyable things I do	10441	4.3
I enjoy discussing deer hunting with my friends	10395	4.3
I contribute to deer management through hunting	10405	4.2
Deer hunting is very important to me	10413	4.1
To change my preference from deer hunting to another activity would require major thinking	10419	4.0
Deer hunting is one of the most satisfying thing I do	10421	3.9
I can really be by myself	10413	3.8
I identify with people and images associated with deer hunting	10409	3.8
When I am deer hunting, others see me the way I want them to see me	10411	3.8
Most of my friends are in some way connected with deer hunting	10425	3.7
Participating in deer hunting says a lot about who I am	10405	3.6
You can tell a lot about a person when you see them deer hunting	10392	3.5
When I am deer hunting, I don't have to be concerned about what other people think of me	10409	3.4
Deer hunting has a central role in my life	10392	3.4
A lot of my life is organized around deer hunting	10436	3.4

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.
Note: Means reflect weighted averages for a statewide response.

Table 1-14: Involvement in deer hunting in Minnesota... Opportunity to be with friends

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2952	0.4%	1.9%	10.0%	40.3%	47.3%	4.3
2 (EC)	1477	0.5%	2.9%	11.2%	39.9%	45.5%	4.3
3 (NE)	2444	0.5%	2.0%	8.0%	38.4%	51.1%	4.4
4 (SC)	2244	0.7%	2.3%	14.3%	43.0%	39.7%	4.2
5 (NC)	1328	0.7%	1.4%	7.6%	35.0%	55.3%	4.4
TOTAL	10415	0.5%	2.1%	9.8%	39.1%	48.5%	4.3
				$\chi 2$=137.575***			*F*=27.131***
				V = 0.057			η^2 = 0.010

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-15: Involvement in deer hunting in Minnesota... Deer hunting is one of the most enjoyable things I do

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2959	0.6%	1.5%	12.4%	38.2%	47.2%	4.3
2 (EC)	1480	0.3%	1.8%	11.1%	40.4%	46.3%	4.3
3 (NE)	2448	0.7%	1.6%	10.0%	36.3%	51.3%	4.4
4 (SC)	2254	0.4%	2.0%	13.2%	39.3%	45.2%	4.3
5 (NC)	1333	0.5%	2.0%	9.1%	36.2%	52.3%	4.4
TOTAL	10441	0.6%	1.7%	10.9%	38.2%	48.6%	4.3
				$\chi 2$=48.407***			*F*=6.343***
				V = 0.034			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-16: Involvement in deer hunting in Minnesota... I enjoy discussing deer hunting with my friends

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2933	0.5%	1.4%	8.4%	54.2%	35.5%	4.2
2 (EC)	1476	0.3%	1.4%	9.6%	51.9%	36.9%	4.2
3 (NE)	2441	0.3%	0.7%	7.6%	53.7%	37.7%	4.3
4 (SC)	2249	0.4%	1.5%	9.2%	55.4%	33.6%	4.2
5 (NC)	1326	0.5%	1.4%	6.9%	51.0%	40.2%	4.3
TOTAL	10395	0.4%	1.2%	8.3%	52.9%	37.2%	4.3
				$\chi 2$=35.659**			*F*=5.337***
				V = 0.029			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-17: Involvement in deer hunting in Minnesota... Contribute to deer management through hunting

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2946	0.8%	1.7%	13.0%	50.1%	34.5%	4.2
2 (EC)	1475	0.5%	1.1%	12.9%	51.1%	34.5%	4.2
3 (NE)	2434	0.6%	0.9%	12.9%	50.3%	35.3%	4.2
4 (SC)	2249	0.4%	1.0%	15.0%	50.0%	33.7%	4.2
5 (NC)	1332	0.5%	1.2%	11.6%	49.0%	37.8%	4.2
TOTAL	10405	0.5%	1.2%	12.7%	50.2%	35.4%	4.2
				$\chi 2$=27.109*			F=2.466*
				V = 0.026			η^2 = 0.001

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-18: Involvement in deer hunting in Minnesota... Deer hunting is very important to me

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2947	0.9%	3.7%	17.1%	40.3%	37.9%	4.1
2 (EC)	1476	0.6%	3.5%	15.1%	43.3%	37.5%	4.1
3 (NE)	2437	0.8%	2.7%	14.1%	41.0%	41.4%	4.2
4 (SC)	2251	0.7%	4.0%	20.2%	41.7%	33.3%	4.0
5 (NC)	1332	0.8%	3.0%	12.4%	41.4%	42.4%	4.2
TOTAL	10413	0.8%	3.3%	15.2%	41.7%	39.1%	4.2
				$\chi 2$=82.563***			F=15.283***
				V = 0.045			η^2 = 0.006

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-19: Involvement in deer hunting in Minnesota... To change to another activity would require major thinking

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2950	2.5%	8.3%	19.3%	32.5%	37.3%	3.9
2 (EC)	1478	2.4%	9.3%	19.8%	30.6%	37.9%	3.9
3 (NE)	2441	2.4%	6.1%	16.4%	31.3%	43.8%	4.1
4 (SC)	2248	2.3%	9.3%	21.9%	31.9%	34.6%	3.9
5 (NC)	1331	2.8%	7.9%	16.6%	30.2%	42.5%	4.0
TOTAL	10419	2.5%	8.1%	18.4%	31.5%	39.6%	4.0
				$\chi 2$=77.396***			F=13.496***
				V = 0.043			η^2 = 0.005

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-20: Involvement in deer hunting in Minnesota... One of the most satisfying things I do

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2952	1.7%	7.6%	23.4%	37.2%	30.1%	3.9
2 (EC)	1478	1.4%	6.9%	24.2%	39.8%	27.7%	3.9
3 (NE)	2442	1.8%	7.4%	20.7%	38.8%	31.2%	3.9
4 (SC)	2248	2.1%	7.6%	23.7%	39.9%	26.6%	3.8
5 (NC)	1331	1.1%	6.2%	20.8%	39.2%	32.7%	4.0
TOTAL	10421	1.6%	7.2%	22.3%	39.1%	29.9%	3.9
				$\chi 2$=37.518**			F=5.644***
				V = 0.030			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-21: Involvement in deer hunting in Minnesota... When deer hunting, I can really be myself

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2944	1.7%	4.0%	27.9%	43.6%	22.8%	3.8
2 (EC)	1480	1.4%	4.3%	29.5%	41.9%	22.9%	3.8
3 (NE)	2439	1.1%	3.5%	29.4%	40.8%	25.2%	3.9
4 (SC)	2247	1.5%	4.4%	28.4%	44.7%	21.0%	3.8
5 (NC)	1330	1.4%	3.1%	26.5%	42.6%	26.4%	3.9
TOTAL	10413	1.4%	3.7%	28.4%	42.6%	23.9%	3.8
				$\chi 2$=32.106*			F=3.865**
				V = 0.028			η^2 = 0.002

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-22: Involvement in deer hunting in Minnesota... I identify with people and images associated with deer hunting

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2948	1.8%	5.4%	24.3%	47.6%	21.0%	3.8
2 (EC)	1477	2.0%	5.5%	24.9%	46.4%	21.2%	3.8
3 (NE)	2439	1.6%	5.8%	23.1%	46.8%	22.7%	3.8
4 (SC)	2248	2.3%	6.7%	25.7%	46.8%	18.5%	3.7
5 (NC)	1328	1.6%	6.3%	23.6%	44.9%	23.6%	3.8
TOTAL	10409	1.8%	5.8%	24.2%	46.6%	21.6%	3.8
				$\chi 2$=27.648*			F=4.805**
				V = 0.026			η^2 = 0.002

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-23: Involvement in deer hunting in Minnesota... When hunting, others see me as I want them to see me

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2951	2.1%	4.9%	27.1%	42.0%	23.9%	3.8
2 (EC)	1477	2.8%	5.8%	29.6%	39.4%	22.4%	3.7
3 (NE)	2439	1.9%	4.5%	31.6%	39.0%	23.0%	3.8
4 (SC)	2249	2.0%	5.2%	29.6%	42.2%	21.0%	3.7
5 (NC)	1328	1.9%	4.5%	26.9%	40.9%	25.8%	3.8
TOTAL	10411	2.1%	4.9%	29.0%	40.6%	23.4%	3.8
				$\chi 2$=34.389**			F=3.893**
				V = 0.029			η^2 = 0.002

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-24: Involvement in deer hunting in Minnesota... Most of my friends are connected with hunting

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2952	2.8%	10.4%	19.9%	43.1%	23.8%	3.7
2 (EC)	1481	3.2%	14.7%	20.5%	39.7%	21.9%	3.6
3 (NE)	2444	2.3%	10.5%	18.1%	43.0%	26.2%	3.8
4 (SC)	2246	2.9%	12.9%	23.4%	42.7%	18.0%	3.6
5 (NC)	1330	2.8%	10.6%	18.2%	42.1%	26.3%	3.8
TOTAL	10425	2.7%	11.8%	19.6%	42.1%	23.8%	3.7
				$\chi 2$=91.899***			F=16.818***
				V = 0.047			η^2 = 0.006

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-25: Involvement in deer hunting in Minnesota... Says a lot about who I am

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2948	3.0%	11.1%	29.4%	34.5%	22.0%	3.6
2 (EC)	1474	2.4%	9.9%	30.1%	36.5%	21.1%	3.6
3 (NE)	2440	2.3%	9.5%	29.3%	36.6%	22.3%	3.7
4 (SC)	2250	2.8%	11.5%	32.2%	34.2%	19.2%	3.6
5 (NC)	1328	2.0%	9.0%	30.7%	34.8%	23.6%	3.7
TOTAL	10405	2.4%	10.0%	30.1%	35.6%	21.9%	3.6
				$\chi2$=31.296*			F=5.611***
				V = 0.027			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-26: Involvement in deer hunting in Minnesota... You can tell a lot about a person when you see them deer hunting

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2943	3.3%	12.4%	29.7%	35.6%	19.1%	3.5
2 (EC)	1475	3.7%	12.7%	34.1%	32.4%	17.0%	3.5
3 (NE)	2434	4.5%	10.6%	35.0%	33.1%	16.9%	3.5
4 (SC)	2249	4.7%	12.4%	32.3%	34.8%	15.8%	3.4
5 (NC)	1325	3.6%	9.9%	31.4%	34.5%	20.6%	3.6
TOTAL	10392	3.8%	11.7%	32.5%	33.9%	18.2%	3.5
				$\chi2$=51.027***			F=6.074***
				V = 0.035			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-27: Involvement in deer hunting in Minnesota... When deer hunting, I don't have to be concerned about what other people think of me

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2947	8.9%	17.0%	23.5%	32.3%	18.4%	3.3
2 (EC)	1477	7.0%	15.6%	25.9%	30.9%	20.6%	3.4
3 (NE)	2441	6.5%	13.8%	26.4%	32.0%	21.3%	3.5
4 (SC)	2249	7.7%	15.4%	24.6%	32.6%	19.6%	3.4
5 (NC)	1328	7.3%	13.6%	23.2%	31.8%	24.0%	3.5
TOTAL	10409	7.5%	14.8%	24.8%	31.9%	21.0%	3.4
				$\chi 2$=46.419***			F=6.697***
				V = 0.033			η^2 = 0.003

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-28: Involvement in deer hunting in Minnesota... Deer hunting has a central role in my life

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2941	5.7%	17.8%	27.4%	29.7%	19.4%	3.4
2 (EC)	1472	5.4%	17.4%	28.2%	29.4%	19.6%	3.4
3 (NE)	2437	5.0%	14.4%	29.3%	29.5%	21.9%	3.5
4 (SC)	2239	7.1%	20.1%	31.1%	26.8%	15.0%	3.2
5 (NC)	1331	4.9%	14.4%	29.6%	29.5%	21.6%	3.5
TOTAL	10392	5.5%	16.4%	28.7%	29.5%	19.9%	3.4
				$\chi 2$=84.968***			F=18.600***
				V = 0.045			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-29: Involvement in deer hunting in Minnesota... A lot of my life is organized around deer hunting

Area	n	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean[1]
1 (NW)	2957	6.3%	20.1%	27.9%	27.1%	18.6%	3.3
2 (EC)	1481	5.4%	18.8%	29.5%	27.4%	18.9%	3.4
3 (NE)	2445	4.3%	16.2%	28.4%	29.0%	22.0%	3.5
4 (SC)	2250	6.7%	22.4%	32.8%	23.3%	14.7%	3.2
5 (NC)	1332	4.2%	17.9%	28.2%	28.4%	21.3%	3.4
TOTAL	10436	5.2%	18.7%	28.9%	27.5%	19.7%	3.4
				χ^2=110.944***			*F*=25.053***
				V = 0.052			η^2 = 0.010

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-30: Average importance rating of experiences to deer hunting satisfaction during the recent hunting season

Experience	n	Mean[1]
Enjoying nature and the outdoors	10308	4.5
Hunting with family	10307	4.2
Enjoying a preferred pastime	10300	4.1
Being with hunting companions	10353	3.9
Hunting with friends	10326	3.9
Seeing a lot of deer	10309	3.6
Becoming a better deer hunter	10340	3.5
Improving my knowledge	10309	3.4
Helping manage deer populations	10291	3.4
Developing skills and abilities	10341	3.3
Harvesting at least one deer	10287	3.2
Getting food for my family	10331	3.1
Proving my hunting skills and knowledge	10272	3.0
Challenges of harvesting a trophy	10296	3.0
Seeing a lot bucks	10298	3.0
Harvesting any deer for meat	10305	2.9
Influencing deer sex ratios or age structure	10265	2.9
Harvesting a large buck	10277	2.7
Harvesting any buck	10295	2.5
Selectively harvesting a large buck	10300	2.5
Getting a buck every year	10305	1.9

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. Note: Means reflect weighted averages for a statewide response.*

Table 1-31: Importance of experiences to deer hunting satisfaction during the recent hunting season... Enjoying nature and the outdoors

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2914	0.5%	1.3%	7.7%	34.7%	55.8%	4.4
2 (EC)	1455	0.4%	1.0%	7.1%	34.5%	56.9%	4.5
3 (NE)	2426	0.5%	1.6%	7.0%	31.9%	59.1%	4.5
4 (SC)	2227	0.4%	1.7%	7.9%	33.7%	56.3%	4.4
5 (NC)	1320	0.2%	1.0%	5.1%	30.0%	63.7%	4.6
TOTAL	10308	0.4%	1.3%	6.8%	32.9%	58.7%	4.5
				$\chi 2$=37.976**			F=7.518***
				V = 0.030			η^2 = 0.003

*[1] Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-32: Importance of experiences to deer hunting satisfaction during the recent hunting season... Hunting with family

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2900	2.2%	4.4%	12.2%	30.0%	51.2%	4.2
2 (EC)	1453	4.3%	5.8%	10.4%	31.5%	48.0%	4.1
3 (NE)	2429	4.7%	4.8%	9.5%	31.8%	49.2%	4.2
4 (SC)	2229	4.0%	6.3%	14.6%	30.4%	44.8%	4.1
5 (NC)	1325	4.0%	4.5%	9.1%	28.5%	54.0%	4.2
TOTAL	10307	3.8%	5.0%	10.8%	30.4%	50.1%	4.2
				$\chi 2$=95.341***			F=11.048***
				V = 0.048			η^2 = 0.004

*[1] Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-33: Importance of experiences to deer hunting satisfaction during the recent hunting season... Enjoying a preferred pastime

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2912	1.2%	4.8%	17.8%	43.1%	33.1%	4.0
2 (EC)	1454	1.0%	3.4%	17.7%	44.1%	33.8%	4.1
3 (NE)	2425	1.5%	4.8%	16.2%	42.8%	34.7%	4.0
4 (SC)	2225	1.8%	6.1%	18.7%	41.8%	31.6%	4.0
5 (NC)	1318	1.1%	3.6%	15.7%	41.8%	37.8%	4.1
TOTAL	10300	1.3%	4.4%	17.0%	42.9%	34.5%	4.1
				$\chi 2$=42.749***			F=7.861***
				V = 0.032			η^2 = 0.003

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-34: Importance of experiences to deer hunting satisfaction during the recent hunting season... Being with hunting companions

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2923	3.0%	4.1%	18.8%	42.8%	31.3%	4.0
2 (EC)	1459	5.4%	5.6%	18.1%	41.3%	29.5%	3.8
3 (NE)	2442	4.3%	5.5%	15.0%	40.7%	34.5%	4.0
4 (SC)	2236	6.6%	7.5%	20.7%	37.5%	27.7%	3.7
5 (NC)	1327	2.9%	3.5%	15.0%	42.0%	36.6%	4.1
TOTAL	10353	4.1%	5.0%	17.1%	41.4%	32.4%	3.9
				$\chi 2$=152.522***			F=29.091***
				V = 0.061			η^2 = 0.011

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-35: Importance of experiences to deer hunting satisfaction during the recent hunting season... Hunting with friends

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2916	3.8%	6.1%	18.7%	40.6%	30.9%	3.9
2 (EC)	1458	6.2%	7.1%	17.4%	38.4%	30.9%	3.8
3 (NE)	2437	4.7%	5.7%	16.5%	39.9%	33.1%	3.9
4 (SC)	2225	6.8%	8.9%	20.6%	36.0%	27.7%	3.7
5 (NC)	1322	3.4%	5.4%	14.1%	39.0%	38.1%	4.0
TOTAL	10326	4.7%	6.3%	17.1%	39.2%	32.7%	3.9
				$\chi 2$=120.178***			*F*=24.241***
				V = 0.054			η^2 = 0.009

*[1] Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-36: Importance of experiences to deer hunting satisfaction during the recent hunting season... Seeing a lot of deer

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2906	2.4%	9.8%	30.5%	37.7%	19.4%	3.6
2 (EC)	1455	1.9%	10.5%	31.1%	35.6%	20.9%	3.6
3 (NE)	2432	2.6%	9.4%	28.2%	37.0%	22.8%	3.7
4 (SC)	2222	2.1%	8.0%	29.2%	39.6%	21.2%	3.7
5 (NC)	1323	2.9%	10.6%	32.4%	34.7%	19.4%	3.6
TOTAL	10309	2.4%	9.9%	30.4%	36.7%	20.6%	3.6
				$\chi 2$=35.275**			*F*=4.753***
				V = 0.029			η^2 = 0.002

*[1] Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-37: Importance of experiences to deer hunting satisfaction during the recent hunting season... Becoming a better deer hunter

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2917	4.9%	11.1%	26.4%	38.7%	18.9%	3.6
2 (EC)	1460	4.7%	10.8%	27.5%	39.1%	17.9%	3.5
3 (NE)	2438	6.2%	10.2%	29.3%	37.9%	16.4%	3.5
4 (SC)	2237	5.1%	9.2%	27.8%	39.4%	18.6%	3.6
5 (NC)	1326	6.0%	9.0%	26.4%	38.7%	19.9%	3.6
TOTAL	10340	5.4%	10.1%	27.5%	38.7%	18.3%	3.5
				$\chi 2$=27.402*			F=2.939*
				V = 0.026			η^2 = 0.001

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-38: Importance of experiences to deer hunting satisfaction during the recent hunting season... Improving my knowledge

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2907	4.4%	12.8%	32.9%	34.2%	15.8%	3.4
2 (EC)	1455	3.8%	12.6%	33.5%	35.9%	14.2%	3.4
3 (NE)	2424	4.3%	12.6%	34.2%	35.0%	13.9%	3.4
4 (SC)	2234	4.8%	13.1%	33.1%	35.3%	13.7%	3.4
5 (NC)	1324	3.9%	12.1%	34.4%	35.2%	14.5%	3.4
TOTAL	10309	4.1%	12.7%	33.6%	35.2%	14.5%	3.4
				$\chi 2$=10.663 n.s.			F=0.827 n.s.
				V = 0.016			η^2 = 0.000

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-39: Importance of experiences to deer hunting satisfaction during the most recent hunting season... Helping manage deer populations

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2902	3.8%	14.1%	32.0%	34.4%	15.7%	3.4
2 (EC)	1454	3.9%	13.6%	33.4%	34.4%	14.6%	3.4
3 (NE)	2422	4.7%	13.0%	33.7%	34.3%	14.3%	3.4
4 (SC)	2227	4.7%	13.1%	33.4%	33.5%	15.3%	3.4
5 (NC)	1318	4.1%	13.6%	31.8%	34.9%	15.6%	3.4
TOTAL	10291	4.2%	13.5%	32.8%	34.4%	15.1%	3.4
				$\chi 2$=9.763 n.s. V = 0.015			F=0.504 n.s. η^2 = 0.000

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-40: Importance of experiences to deer hunting satisfaction during the most recent hunting season... Developing skills and abilities

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2917	7.9%	13.8%	30.9%	33.3%	14.1%	3.3
2 (EC)	1461	7.7%	13.5%	30.2%	35.3%	13.3%	3.3
3 (NE)	2435	9.1%	15.2%	32.2%	31.4%	12.1%	3.2
4 (SC)	2237	7.6%	13.1%	31.2%	33.1%	14.8%	3.3
5 (NC)	1324	8.5%	12.5%	31.5%	34.0%	13.5%	3.3
TOTAL	10341	8.1%	13.8%	31.2%	33.5%	13.4%	3.3
				$\chi 2$=23.839 n.s. V = 0.024			F=4.478** η^2 = 0.002

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-41: Importance of experiences to deer hunting satisfaction during the recent hunting season... Harvesting at least one deer

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2902	15.4%	18.0%	26.9%	23.9%	15.7%	3.1
2 (EC)	1455	12.2%	16.3%	26.2%	27.0%	18.4%	3.2
3 (NE)	2427	12.9%	18.4%	25.3%	23.8%	19.5%	3.2
4 (SC)	2222	17.1%	18.0%	28.9%	23.6%	12.4%	3.0
5 (NC)	1317	12.5%	16.5%	27.8%	25.2%	18.1%	3.2
TOTAL	10287	13.5%	17.4%	26.9%	24.8%	17.4%	3.2
				$\chi 2$=82.381***			*F*=15.244***
				V = 0.045			η^2 = 0.006

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-42: Importance of experiences to deer hunting satisfaction during the recent hunting season... Getting food for my family

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2921	17.0%	16.4%	26.8%	22.8%	17.0%	3.1
2 (EC)	1457	16.1%	16.9%	22.9%	25.0%	19.1%	3.1
3 (NE)	2434	18.1%	15.6%	24.9%	22.8%	18.7%	3.1
4 (SC)	2231	19.7%	17.3%	25.8%	21.1%	16.1%	3.0
5 (NC)	1323	16.4%	15.7%	25.2%	23.8%	18.8%	3.1
TOTAL	10331	17.1%	16.2%	25.0%	23.4%	18.3%	3.1
				$\chi 2$=32.843**			*F*=4.977**
				V = 0.028			η^2 = 0.002

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-43: Importance of experiences to deer hunting satisfaction during the recent hunting season... Proving my hunting skills and knowledge

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2898	15.3%	15.8%	27.8%	27.3%	13.8%	3.1
2 (EC)	1453	16.4%	14.2%	31.1%	23.9%	14.3%	3.1
3 (NE)	2412	16.5%	16.8%	30.8%	25.1%	10.9%	3.0
4 (SC)	2232	14.6%	15.4%	30.6%	24.7%	14.7%	3.1
5 (NC)	1316	16.9%	14.5%	29.0%	26.2%	13.4%	3.0
TOTAL	10272	16.2%	15.3%	29.7%	25.5%	13.4%	3.0
				$\chi2$=37.065**			F=3.684**
				V = 0.030			η^2 = 0.001

*[1] Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-44: Importance of experiences to deer hunting satisfaction during the recent hunting season... Challenges of harvesting a trophy

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2912	15.8%	15.6%	27.9%	23.9%	16.8%	3.1
2 (EC)	1454	19.4%	16.9%	28.1%	20.8%	14.8%	2.9
3 (NE)	2429	19.0%	15.3%	29.5%	21.6%	14.7%	3.0
4 (SC)	2225	15.2%	14.7%	29.0%	24.5%	16.7%	3.1
5 (NC)	1316	20.1%	16.6%	27.2%	22.2%	13.8%	2.9
TOTAL	10296	18.2%	15.9%	28.3%	22.4%	15.2%	3.0
				$\chi2$=46.614***			F=9.853***
				V = 0.034			η^2 = 0.004

*[1] Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-45: Importance of experiences to deer hunting satisfaction during the recent hunting season... Seeing a lot of bucks

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2897	10.6%	20.2%	36.3%	23.3%	9.6%	3.0
2 (EC)	1451	13.2%	21.1%	36.0%	21.4%	8.3%	2.9
3 (NE)	2427	9.4%	20.3%	36.2%	23.9%	10.1%	3.1
4 (SC)	2230	8.4%	16.5%	38.5%	24.9%	11.8%	3.2
5 (NC)	1324	12.2%	20.5%	37.5%	19.9%	9.8%	2.9
TOTAL	10298	11.1%	20.2%	36.5%	22.5%	9.6%	3.0
				$\chi 2$=66.593***			F=13.518***
				V = 0.040			η^2 = 0.005

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-46: Importance of experience to deer hunting satisfaction during the recent hunting season... Harvesting any deer for meat

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2905	21.8%	19.1%	25.6%	20.7%	12.8%	2.8
2 (EC)	1453	19.9%	17.7%	25.0%	22.6%	14.9%	2.9
3 (NE)	2425	21.9%	17.9%	23.0%	21.0%	16.3%	2.9
4 (SC)	2228	25.6%	19.4%	23.5%	19.3%	12.1%	2.7
5 (NC)	1324	20.5%	18.1%	25.7%	20.6%	15.1%	2.9
TOTAL	10305	21.3%	18.3%	24.7%	21.2%	14.5%	2.9
				$\chi 2$=50.201***			F=8.834***
				V = 0.035			η^2 = 0.003

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-47: Importance of experiences to deer hunting satisfaction during the recent hunting season... Influencing deer sex ratios or age structure

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2903	16.6%	18.1%	32.7%	22.1%	10.5%	2.9
2 (EC)	1452	17.4%	18.1%	34.0%	22.4%	8.1%	2.9
3 (NE)	2410	17.8%	18.5%	36.6%	18.5%	8.5%	2.8
4 (SC)	2228	16.6%	17.6%	33.1%	21.6%	11.0%	2.9
5 (NC)	1312	18.5%	18.1%	34.1%	20.5%	8.8%	2.8
TOTAL	10265	17.5%	18.3%	34.0%	21.2%	9.1%	2.9
				$\chi 2$=35.645**			F=4.245**
				V = 0.029			η^2 = 0.002

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-48: Importance of experiences to deer hunting satisfaction during the recent hunting season... Harvesting a large buck

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2897	22.6%	22.4%	28.0%	15.3%	11.7%	2.7
2 (EC)	1457	25.3%	22.0%	28.4%	14.2%	10.0%	2.6
3 (NE)	2420	23.8%	22.5%	29.0%	15.9%	9.0%	2.6
4 (SC)	2213	21.3%	18.1%	29.0%	17.3%	14.3%	2.9
5 (NC)	1314	25.4%	22.5%	26.6%	14.5%	11.0%	2.6
TOTAL	10277	24.0%	21.9%	28.2%	15.2%	10.8%	2.7
				$\chi 2$=66.439***			F=11.703***
				V = 0.040			η^2 = 0.005

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-49: Importance of experiences to deer hunting satisfaction during the recent hunting season... Harvesting any buck

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2909	34.0%	21.6%	27.8%	12.2%	4.4%	2.3
2 (EC)	1449	29.1%	21.9%	29.3%	13.5%	6.1%	2.5
3 (NE)	2429	20.9%	22.4%	30.6%	15.9%	10.2%	2.7
4 (SC)	2222	30.8%	22.2%	28.2%	13.7%	5.1%	2.4
5 (NC)	1320	29.6%	20.8%	29.5%	15.2%	4.9%	2.4
TOTAL	10295	28.7%	21.7%	29.2%	14.2%	6.2%	2.5
				$\chi2$=188.405***			F=40.45***
				V = 0.068			η^2 = 0.015

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-50: Importance of experiences to deer hunting satisfaction during the recent hunting season... Selectively harvesting a large buck

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2903	33.6%	17.4%	20.4%	16.8%	11.7%	2.6
2 (EC)	1454	38.3%	16.6%	21.9%	13.5%	9.6%	2.4
3 (NE)	2426	37.1%	18.6%	21.3%	13.6%	9.4%	2.4
4 (SC)	2226	32.5%	16.4%	22.2%	15.4%	13.5%	2.6
5 (NC)	1322	38.4%	18.2%	20.8%	11.9%	10.8%	2.4
TOTAL	10300	36.4%	17.4%	21.3%	14.2%	10.6%	2.5
				$\chi2$=65.242***			F=12.216***
				V = 0.040			η^2 = 0.005

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-51: Importance of experiences to deer hunting satisfaction during the recent hunting season... Getting a buck every year

Area	n	Not at all important	Slightly important	Somewhat important	Very important	Extremely important	Mean[1]
1 (NW)	2905	52.9%	23.2%	17.0%	5.2%	1.6%	1.8
2 (EC)	1456	50.3%	22.6%	18.7%	5.0%	3.3%	1.9
3 (NE)	2421	42.1%	23.2%	22.9%	8.4%	3.3%	2.1
4 (SC)	2232	49.7%	22.5%	20.9%	4.9%	1.9%	1.9
5 (NC)	1323	50.5%	23.0%	18.3%	5.3%	2.9%	1.9
TOTAL	10305	49.2%	23.0%	19.4%	5.8%	2.7%	1.9
				$\chi2$=119.541***			F=24.900***
				V = 0.054			η^2 = 0.010

[1] *Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-52: Self-identification with the activity of deer hunting

Area	n	Recreational	Meat	Trophy	Social	Science-oriented	Skill-oriented	Casual
1 (NW)	2843	34.0%	21.1%	13.6%	23.2%	2.2%	3.2%	2.6%
2 (EC)	1400	35.2%	24.0%	9.7%	21.2%	2.4%	4.4%	3.1%
3 (NE)	2348	34.9%	23.6%	11.1%	23.4%	1.7%	4.0%	1.2%
4 (SC)	2141	38.3%	17.8%	14.2%	21.4%	2.0%	3.6%	2.7%
5 (NC)	1316	34.1%	23.7%	10.3%	25.1%	1.5%	3.6%	1.7%
TOTAL	10046	34.8%	22.7%	11.5%	22.9%	2.1%	3.8%	2.2%
				$\chi2$=95.582***; V = 0.048				

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-53: Membership

Area	n	MDHA	QDMA	Local Club	MWA	MBI	Not Affiliated	Other
1 (NW)	3090	10.7%	3.1%	17.8%	0.4%	1.2%	*61.1%*	9.4%
2 (EC)	1553	11.1%	2.0%	11.8%	0.7%	0.9%	*62.3%*	10.2%
3 (NE)	2535	11.7%	0.7%	11.8%	0.5%	0.7%	66.3%	8.5%
4 (SC)	2310	7.1%	1.3%	17.6%	0.7%	0.6%	64.7%	11.6%
5 (NC)	1389	11.0%	1.5%	11.5%	0.5%	1.6%	65.8%	9.9%
TOTAL	10877	10.7%	1.9%	13.6%	0.6%	1.1%	64.7%	9.8%
		$\chi2$=33.689 ***	$\chi2$=49.129 ***	$\chi2$=78.171 ***	$\chi2$=2.625 *n.s.*	$\chi2$=12.594 *		$\chi2$=13.943 **
		V = 0.056	V = 0.067	V =0.085	V = 0.016	V = 0.034	NA	V =0.036

*Note: Percentages for "Not Affiliated" in areas 1 and 2 only include results from online surveys. The option was accidentally excluded from H1 and H2 paper surveys. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-54: Hunting techniques used during most recent year hunted

Area	n	Ground stand	Stalking	Elevated stand	Deer drive
1 (NW)	3090	46.3%	25.5%	74.1%	27.7%
2 (EC)	1553	34.2%	27.6%	85.3%	15.4%
3 (NE)	2535	38.9%	35.9%	83.0%	10.5%
4 (SC)	2310	51.1%	25.9%	70.8%	30.1%
5 (NC)	1389	34.2%	30.7%	82.7%	12.5%
TOTAL	10877	39.6%	29.5%	80.4%	17.8%
		$\chi2$=185.258*** V = 0.131	$\chi2$=91.321*** V = 0.092	$\chi2$=200.535*** V = 0.136	$\chi2$=466.223*** V = 0.207

Note: Cumulative values for areas exceed 100% because more than one technique could be selected
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-55: Cooperation with deer hunters on nearby properties with respect to harvest restrictions

Area	n	No	Yes
1 (NW)	2999	43.6%	56.4%
2 (EC)	1488	46.0%	54.0%
3 (NE)	2443	48.0%	52.0%
4 (SC)	2267	45.6%	54.4%
5 (NC)	1325	48.5%	51.5%
TOTAL	10475	46.5%	53.5%
		$\chi2$=14.210**; V = 0.037	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-56: Deer harvest restrictions followed on property hunted most often (in addition to DNR regulations)

Area	n	Antlerless harvest is restricted, but hunters can take any legal buck	Buck harvest is restricted to only large antlered bucks, but hunters can take any antlerless deer	Buck harvest restricted to only large antlered bucks, and antlerless harvest is also restricted	No restrictions on the type of deer that can be harvested	Other
1 (NW)	3049	40.0%	4.1%	2.7%	50.2%	3.0%
2 (EC)	1522	36.1%	3.1%	2.4%	55.0%	3.5%
3 (NE)	2398	58.5%	2.4%	2.3%	33.1%	3.7%
4 (SC)	2237	31.5%	3.8%	3.3%	57.8%	3.6%
5 (NC)	1341	39.4%	3.6%	2.8%	50.4%	3.8%
TOTAL	10545	41.8%	3.3%	2.6%	48.7%	3.5%
			$\chi 2$=427.627***; *V* = 0.101			

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-57: Willingness to shoot antlerless deer if given the opportunity

Area	n	No	Yes
1 (NW)	3064	14.5%	85.5%
2 (EC)	1532	15.0%	85.0%
3 (NE)	2498	22.8%	77.2%
4 (SC)	2277	18.3%	81.7%
5 (NC)	1366	14.5%	85.5%
TOTAL	10728	16.7%	83.3%
		$\chi 2$=83.602***; *V* = 0.088	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-58: Approach to deer hunting during the recent firearms season

Area	n	Large bucks entire season	Large bucks early, any deer later	Any antlered buck	First legal deer	Only antlerless deer	Chose not to harvest due to low population
1 (NW)	2997	22.1%	27.8%	10.3%	34.8%	1.0%	4.0%
2 (EC)	1497	17.9%	24.6%	13.0%	38.9%	1.4%	4.1%
3 (NE)	2465	19.4%	17.9%	31.5%	26.2%	0.2%	4.7%
4 (SC)	2277	24.8%	24.1%	14.2%	34.1%	1.1%	1.8%
5 (NC)	1351	18.4%	24.9%	14.6%	38.0%	1.3%	3.0%
TOTAL	10563	19.9%	23.9%	16.8%	34.6%	1.0%	3.8%
				$\chi 2$=614.161***; *V* = 0.120			

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 1-59: Knowledge about DNR's deer management program: I know a ...

Area	n	A great deal	A moderate amount	A little	Nothing
1 (NW)	3025	19.8%	52.2%	23.9%	4.1%
2 (EC)	1514	20.1%	53.5%	23.3%	3.0%
3 (NE)	2492	22.8%	53.9%	20.9%	2.4%
4 (SC)	2287	18.4%	50.1%	27.6%	3.9%
5 (NC)	1359	22.0%	51.6%	23.0%	3.4%
TOTAL	10655	21.0%	52.4%	23.3%	3.3%
			$\chi 2$=53.924***; *V* = 0.041		

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Section 2. Population Trends and Perceptions about Deer Populations

Recent Population Trends

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years (i.e. 2010-2014, 2011-2015, or 2012-2016, depending on survey area). Overall, most (66.9%) respondents statewide indicated there were fewer deer than 5 years ago, 11.4% indicated more, and 21.6% believed populations were about the same (Table 2-1). We noted significant differences among survey areas, where 81.9% of hunters indicated deer populations had declined in northeastern Minnesota and only 51.7% reported a decline in south central Minnesota.

Respondents were also asked for their perceptions of total deer population size, as rated on a scale of 1 to 5, with 1 = 'much too low' and 5 = 'much too high'. Statewide, a majority (range = 61.8%) believed the population was 'too low', 34.1% thought it was 'about right', and 4.0% indicated the population was 'too high' (Table 2-2). Again, differences were across areas were observed. Respondents in northeastern Minnesota were most likely to indicate that populations were too low (79.6%) whereas nearly half of the respondents in south central and north central Minnesota reported that they felt deer the deer population was about right (44.1% and 44.4%, respectively) or was too high (5.3% and 4.3%, respectively).

Population Management Desires

Respondents were also asked to indicate their desires for future deer population densities; more than two-thirds of respondents (71.4%) wanted to see an increase in deer densities at some level (Table 2-3). Even though most desired an increase in deer numbers, recall results from Section 1 in which most hunters also indicated they would also shoot an antlerless deer if given the opportunity. Interestingly, while 91.8% of individuals who indicated deer densities should be reduced also said they would take an antlerless deer; a large majority, 81.1%, of people who wanted to see deer populations increase would also take an antlerless deer. This finding is important because restrictions on antlerless harvest are the primary regulatory tool used to increase deer populations. This finding is also consistent with findings in prior goal setting surveys and indicates that the interest in taking an antlerless deer is largely independent of population desires.

Across all areas, preferences for future deer population management also varied depending on the type of land hunted, with greater proportions of hunters who primarily hunt public land supporting deer population increases than those who primarily hunt private land (Tables 2-4 to 2-9).

Table 2-1: Over the past 5 years, what trend have you seen in the deer population in the deer area you hunt most often?

Area	Most recent hunt	n	Much fewer	Slightly fewer	About the same	Slightly more	Many more	Mean[1]
1 (NW)	2014	3069	38.8%	25.3%	22.2%	9.9%	3.7%	2.1
2 (EC)	2014	1532	49.9%	25.3%	18.7%	4.6%	1.6%	1.8
3 (NE)	2015	2512	62.9%	18.7%	11.9%	5.3%	1.2%	1.6
4 (SC)	2015	2289	24.7%	27.0%	32.2%	12.3%	3.8%	2.4
5 (NC)	2016	1375	28.1%	25.0%	28.8%	14.5%	3.6%	2.4
TOTAL		10761	42.9%	24.0%	21.6%	8.8%	2.6%	2.0%
					$\chi 2$=1019.217***			*F*=227.42***
					V = 0.154			η^2 = 0.078

[1] *Mean is based on the scale: 1 = much fewer deer, 2 = slightly fewer deer, 3 = about the same number of deer, 4= slightly more deer, 5 = many more deer.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-2: In thinking about the deer permit area you hunt, would you say the deer population is...

Area	Most recent hunt	n	Much too low	Too low	About right	Too high	Much too high	Mean[1]
1 (NW)	2014	3031	14.1%	41.6%	38.4%	4.7%	1.2%	2.4
2 (EC)	2014	1520	19.3%	46.7%	31.1%	2.0%	1.0%	2.2
3 (NE)	2015	2495	34.1%	45.5%	17.8%	2.1%	0.5%	1.9
4 (SC)	2015	2288	9.2%	41.3%	44.1%	4.6%	0.7%	2.5
5 (NC)	2016	1363	11.3%	40.0%	44.4%	3.5%	0.8%	2.4
TOTAL		10679	18.5%	43.3%	34.1%	3.2%	0.8%	2.2
					$\chi 2$=905.684***			F=204.563***
					V = 0.146			η^2 = 0.071

[1] *Mean is based on the scale: 1 = much too low, 2 = too low, 3 = about right, 4= too high, 5 = much too high.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-3: In thinking about the property you hunt and the surrounding area, at what level do you think the deer population should be managed?

Area	Year	n	Decr. 50%	Decr. 25%	Decr. 10%	No Change	Incr. 10%	Incr. 25%	Incr. 50%	Mean[1]
1 (NW)	2014	3042	1.4%	3.8%	5.9%	23.4%	23.4%	28.4%	13.6%	5.0
2 (EC)	2014	1517	1.6%	3.2%	2.6%	20.3%	20.8%	32.6%	19.0%	5.3
3 (NE)	2015	2489	1.3%	2.4%	3.1%	9.5%	16.1%	32.7%	35.0%	5.7
4 (SC)	2015	2285	1.1%	3.1%	4.5%	25.0%	30.1%	26.0%	10.3%	5.0
5 (NC)	2016	1362	0.9%	4.6%	4.2%	24.3%	27.2%	25.6%	13.3%	5.0
TOTAL		10672	1.2%	3.4%	3.9%	20.0%	22.8%	29.5%	19.1%	5.2
						$\chi 2$=905.358***				F=139.233***
						V = 0.146				η^2 = 0.050

[1] *Mean is based on the scale: 1 = decrease population 50% (significant), 2 = decrease population 25% (moderate), 3 = decrease population 10% (slight), 4= no change, 5 = increase population 10% (slight), 6 = increase population 25% (moderate), 7 = increase population 50% (significant).*

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-4: Desired population trend by type of land hunted (NW)

Type of land hunted	n		Decrease	No Change	Increase	Mean[1]
Private land that I own	931	None	8.4%	23.1%	68.5%	2.6
	262	Some	17.2%	20.6%	62.2%	2.5
	488	Most	13.5%	19.4%	67.1%	2.5
	906	All	13.5%	27.7%	58.8%	2.5
				$\chi 2$=37.171***		F=7.895***
				V = 0.085		η^2 = 0.009
Private land that I lease for hunting	2009	None	11.5%	24.9%	63.5%	2.5
	75	Some	6.7%	29.3%	64.0%	2.6
	48	Most	6.3%	6.3%	87.5%	2.8
	54	All	3.8%	28.3%	67.9%	2.6
				$\chi 2$=17.159*		F=3.488*
				V = 0.063		η^2 = 0.005
Private land that I do not own or lease	842	None	11.4%	29.2%	59.4%	2.5
	488	Some	11.1%	17.6%	71.3%	2.6
	497	Most	11.7%	18.8%	69.6%	2.6
	816	All	9.3%	25.6%	65.0%	2.6
				$\chi 2$=35.169***		F=4.038**
				V = 0.082		η^2 = 0.005
Public land	1415	None	12.3%	29.5%	58.2%	2.5
	701	Some	9.3%	18.5%	72.2%	2.6
	162	Most	4.9%	9.3%	85.8%	2.8
	120	All	5.0%	16.7%	78.3%	2.7
				$\chi 2$=86.151***		F=22.703***
				V = 0.134		η^2 = 0.028

[1] *Mean is based on the scale: 1 = fewer deer, 2 = about the same number of deer, 3 = more deer.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-5: Desired population trend by type of land hunted: Area 2 (EC)

Type of land hunted	n		Decrease	No Change	Increase	Mean[1]
Private land that I own	493	None	7.1%	21.7%	71.3%	2.6
	131	Some	4.6%	17.7%	77.7%	2.7
	201	Most	8.5%	18.0%	73.5%	2.6
	447	All	8.1%	21.7%	70.2%	2.6
				$\chi 2$=4.600, n.s. V = 0.043		F=0.923, n.s. η^2 = 0.002
Private land that I lease for hunting	934	None	7.7%	20.7%	71.6%	2.6
	27	Some	0.0%	11.1%	88.9%	2.9
	16	Most	12.5%	6.3%	81.3%	2.7
	11	All	9.1%	36.4%	54.5%	2.5
				$\chi 2$=8.476, n.s. V = 0.066		F=1.638, n.s. η^2 = 0.005
Private land that I do not own or lease	450	None	8.5%	17.1%	74.4%	2.7
	195	Some	8.7%	15.4%	75.9%	2.7
	182	Most	4.4%	23.0%	72.7%	2.7
	425	All	8.0%	23.9%	68.1%	2.6
				$\chi 2$=12.932* V = 0.072		F=1.166, n.s. η^2 = 0.003
Public land	664	None	8.1%	24.1%	67.7%	2.6
	268	Some	3.7%	18.7%	77.6%	2.7
	105	Most	7.6%	8.6%	83.8%	2.8
	128	All	7.0%	11.6%	81.4%	2.7
				$\chi 2$=28.865*** V = 0.111		F=6.000*** η^2 = 0.015

[1] *Mean is based on the scale: 1 = fewer deer, 2 = about the same number of deer, 3 = more deer.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-6: Desired population trend by type of land hunted: Area 3 (NE)

Type of land hunted	n		Decrease	No Change	Increase	Mean[1]
Private land that I own	812	None	5.4%	9.1%	85.5%	2.8
	364	Some	4.1%	8.3%	87.6%	2.8
	344	Most	7.6%	9.0%	83.4%	2.8
	478	All	10.3%	13.2%	76.6%	2.7
				$\chi 2$=25.720***		F=8.333***
				V = 0.080		η^2 = 0.012
Private land that I lease for hunting	1422	None	6.4%	9.9%	83.7%	2.8
	66	Some	10.4%	9.0%	80.6%	2.7
	44	Most	0.0%	6.8%	93.2%	2.9
	58	All	6.9%	8.6%	84.5%	2.8
				$\chi 2$=5.643, n.s.		F=1.455, n.s.
				V = 0.042		η^2 = 0.003
Private land that I do not own or lease	900	None	6.3%	9.1%	84.6%	2.8
	393	Some	6.6%	7.9%	85.5%	2.8
	234	Most	6.8%	10.7%	82.5%	2.8
	296	All	11.5%	11.8%	76.7%	2.7
				$\chi 2$=13.862*		F=4.445**
				V = 0.062		η^2 = 0.007
Public land	470	None	9.8%	11.1%	79.1%	2.7
	576	Some	6.1%	11.1%	82.8%	2.8
	466	Most	4.7%	5.8%	89.5%	2.8
	572	All	3.0%	7.5%	89.5%	2.9
				$\chi 2$=38.315***		F=11.457***
				V = 0.096		η^2 = 0.016

[1] Mean is based on the scale: 1 = fewer deer, 2 = about the same number of deer, 3 = more deer.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-7: Desired population trend by type of land hunted: Area 4 (SC)

Type of land hunted	n		Decrease	No Change	Increase	Mean
Private land that I own	794	None	6.4%	24.4%	69.2%	2.6
	198	Some	8.5%	21.1%	70.4%	2.6
	294	Most	9.9%	21.4%	68.7%	2.6
	549	All	12.2%	27.9%	59.9%	2.5
				$\chi2$=22.219***		F=6.375***
				V = 0.078		η^2 = 0.010
Private land that I lease for hunting	1351	None	8.1%	24.7%	67.2%	2.6
	55	Some	18.2%	12.7%	69.1%	2.5
	37	Most	8.1%	16.2%	75.7%	2.7
	40	All	10.0%	35.0%	55.0%	2.5
				$\chi2$=13.787*		F=0.975, n.s.
				V = 0.068		η^2 = 0.002
Private land that I do not own or lease	390	None	11.0%	24.4%	64.6%	2.5
	327	Some	8.8%	20.1%	71.0%	2.6
	430	Most	9.1%	18.8%	72.1%	2.6
	791	All	6.7%	29.7%	63.6%	2.6
				$\chi2$=27.226***		F=2.091, n.s.
				V = 0.084		η^2 = 0.003
Public land	893	None	10.3%	26.3%	63.4%	2.5
	522	Some	6.9%	18.4%	74.7%	2.7
	132	Most	6.0%	17.3%	76.7%	2.7
	106	All	3.8%	15.1%	81.1%	2.8
				$\chi2$=32.654***		F=10.134***
				V = 0.099		η^2 = 0.018

[1] *Mean is based on the scale: 1 = fewer deer, 2 = about the same number of deer, 3 = more deer.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-8: Desired population trend by type of land hunted: Area 5 (NC)

Type of land hunted	n		Decrease	No Change	Increase	Mean
Private land that I own	427	None	7.7%	20.0%	72.3%	2.6
	158	Some	11.5%	19.7%	68.8%	2.6
	164	Most	8.5%	28.7%	62.8%	2.5
	297	All	13.5%	30.6%	55.9%	2.4
				$\chi 2$=24.837*** V = 0.109		F=6.341*** η^2 = 0.018
Private land that I lease for hunting	734	None	9.5%	22.5%	68.0%	2.6
	23	Some	9.1%	27.3%	63.6%	2.5
	21	Most	9.5%	28.6%	61.9%	2.5
	19	All	5.3%	26.3%	68.4%	2.6
				$\chi 2$=1.162, n.s. V = 0.027		F=0.118, n.s. η^2 < 0.001
Private land that I do not own or lease	416	None	9.6%	21.0%	69.4%	2.6
	193	Some	9.3%	18.1%	72.5%	2.6
	135	Most	10.3%	31.6%	58.1%	2.5
	255	All	8.6%	31.3%	60.2%	2.5
				$\chi 2$=17.784** V = 0.095		F=2.237, n.s. η^2 = 0.007
Public land	306	None	10.8%	30.7%	58.5%	2.5
	269	Some	8.6%	25.3%	66.2%	2.6
	190	Most	9.5%	16.3%	74.2%	2.6
	297	All	6.4%	13.9%	79.7%	2.7
				$\chi 2$=37.815*** V = 0.134		F=8.477*** η^2 = 0.023

[1] *Mean is based on the scale: 1 = fewer deer, 2 = about the same number of deer, 3 = more deer.*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 2-9: Desired population trend by type of land hunted: STATE

Type of land hunted	n		Decrease	No Change	Increase	Mean
Private land that I own	3437	None	6.9%	19.6%	73.6%	2.7
	1129	Some	8.5%	16.0%	75.5%	2.7
	1457	Most	9.7%	18.5%	71.9%	2.6
	2661	All	11.1%	24.2%	64.8%	2.5
				$\chi 2$=85.848*** V = 0.070		F=23.567*** η^2 = 0.008
Private land that I lease for hunting	6369	None	8.6%	20.4%	71.0%	2.6
	236	Some	7.7%	17.4%	74.9%	2.7
	159	Most	5.7%	13.2%	81.1%	2.8
	164	All	6.7%	22.0%	71.3%	2.6
				$\chi 2$=10.141, n.s. V = 0.027		F=2.521, n.s. η^2 = 0.001
Private land that I do not own or lease	3145	None	8.9%	18.8%	72.4%	2.6
	1574	Some	8.6%	15.3%	76.2%	2.7
	1363	Most	8.2%	20.7%	71.0%	2.6
	2439	All	8.4%	25.3%	66.2%	2.6
				$\chi 2$=69.257*** V = 0.064		F=8.142*** η^2 = 0.003
Public land	3604	None	10.0%	25.4%	64.5%	2.5
	2257	Some	6.7%	18.2%	75.1%	2.7
	1147	Most	6.6%	10.4%	83.0%	2.8
	1400	All	5.1%	11.4%	83.5%	2.8
				$\chi 2$=280.797*** V = 0.129		F=72.800*** η^2 = 0.025

[1] Mean is based on the scale: 1 = fewer deer, 2 = about the same number of deer, 3 = more deer.
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Section 3: Population Management Considerations

Important Considerations for Setting Deer Population Goals

Respondents were asked to rate the importance of 12 deer population management considerations when setting deer population goals (Table 3-1 to 3-13). Statements were expressed on a scale of 1 to 5 as factors that respondents could consider relatively important when setting deer population goals. The response scale ranged from 'not at all important' to 'very important' and covered an array of considerations that would lead to management for either higher or lower deer populations. Overall, respondents indicated 'severe winter mortality' ($\bar{x}$ = 4.1; Table 3-2), 'deer hunting heritage' ($\bar{x}$ = 3.9; Table 3-3), and 'hunter satisfaction ($\bar{x}$ = 3.8; Table 3-4) as the three most important items. Concern about winter deer mortality would suggest management for relatively lower populations whereas concerns about deer hunting heritage and hunter satisfaction might suggest management for relatively higher populations. 'Deer over-browsing' of forests ($\bar{x}$ = 2.7; Table 3-11), 'impacts of deer on other wildlife species' ($\bar{x}$ = 2.6; Table 3-12), and the 'amount of crop damage' ($\bar{x}$ = 2.6; Table 3-13) were the three lowest variables. Not surprisingly, hunters in southern Minnesota rated winter mortality as less important than did those in more northern portions of the state (Tables 3-2 and 3-6) and hunters in northeastern Minnesota rated crop damage less important that did those in more agricultural areas of the state (Table 3-13).

Input and Information Used in Setting Deer Population Goals

Respondents were asked about their level of agreement with steps in setting deer population goals, using the scale 1 (strongly disagree) to 5 (strongly agree) (Tables 3-14 to 3-21). Strongest agreement was with the importance of having decision makers 'explain the different options considered when deer population goals are set and why the final option was selected' ($\bar{x}$ = 4.4; Table 3-15) and opportunities for hunters ($\bar{x}$ = 4.3; Table 3-16) and landowners to provide input ($\bar{x}$ = 4.2; Table 3-17). With respect to input opportunities, more hunters felt it was important that hunters (92.8%) and landowners (91.1%) have opportunities to provide input regarding deer population goals than did those that felt it was important for Minnesotans (66.6%; Table 3-20) to have input opportunities.

A majority of respondents also agreed that it is important to use the best available science (77.3%; Table 3-18) and follow consistent decision-making procedures (73.1%; Table 3-19). Less than half of hunters (48.3%; Table 3-21) agreed that it is important to consider diverse interests in setting deer population goals. This finding is counter to the recommendation made by the Minnesota Office of the Legislative Auditor for MN DNR to enhance human dimension surveys in order to consider more diverse perspectives (Minnesota OLA, 2016).

Table 3-1: Importance of considerations when setting deer population goals

Consideration	n	Mean[1]
Amount of deer mortality during a severe winter	10670	4.1
Deer hunting heritage and tradition	10643	3.9
Hunter satisfaction with deer numbers	10636	3.8
Potential health risks to the deer herd such as chronic wasting disease	10619	3.8
Amount of deer mortality during an average winter	10654	3.6
Impact of deer hunting on the local economy	10632	3.5
Public health (such as human-deer diseases from ticks)	10608	3.3
Public satisfaction with deer numbers	10636	3.0
The number of deer-vehicle collisions	10644	3.0
Deer over-browsing of forests	10623	2.7
Impacts of deer on other wildlife species	10607	2.6
Amount of crop damage from deer	10624	2.6

[1] Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. Means reflect weighted averages across all deer permit areas to account for unequal sampling effort.

Table 3-2: Importance of considerations when setting deer population goals... Amount of deer mortality during a severe winter

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3037	0.9%	5.8%	18.1%	39.5%	35.8%	4.0
2 (EC)	1522	0.6%	5.6%	14.2%	39.9%	39.6%	4.1
3 (NE)	2488	1.1%	4.1%	12.7%	37.0%	45.1%	4.2
4 (SC)	2280	1.2%	7.9%	20.1%	40.2%	30.6%	3.9
5 (NC)	1358	1.0%	5.1%	16.1%	39.0%	38.8%	4.1
TOTAL	10670	0.9%	5.4%	15.7%	39.0%	39.0%	4.1
				χ^2=161.052***			*F*=33.864***
				V = 0.061			η^2 = 0.013

*[1] Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-3: Importance of consideration when setting deer population goals... Deer hunting heritage and tradition

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3032	5.0%	7.8%	18.0%	34.5%	34.6%	3.9
2 (EC)	1514	3.8%	8.3%	18.6%	31.3%	38.0%	3.9
3 (NE)	2486	4.4%	9.2%	18.8%	30.3%	37.3%	3.9
4 (SC)	2275	5.2%	10.9%	21.3%	31.7%	30.9%	3.7
5 (NC)	1355	4.4%	9.2%	18.1%	28.6%	39.7%	3.9
TOTAL	10643	4.4%	8.8%	18.7%	31.2%	36.8%	3.9
				$\chi 2$=67.843***			F=9.348***
				V = 0.040			η^2 = 0.003

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-4: Importance of consideration when setting deer population goals... Hunter satisfaction with deer numbers

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3025	2.6%	7.9%	22.7%	42.9%	23.9%	3.8
2 (EC)	1516	2.7%	8.3%	24.3%	38.8%	26.0%	3.8
3 (NE)	2476	3.9%	7.5%	22.4%	38.8%	27.3%	3.8
4 (SC)	2274	3.2%	6.9%	26.2%	40.9%	22.8%	3.7
5 (NC)	1358	2.7%	8.1%	26.9%	39.1%	23.3%	3.7
TOTAL	10636	2.9%	8.0%	24.3%	39.8%	25.0%	3.8
				$\chi 2$=47.296***			F=1.355, n.s.
				V = 0.033			η^2 = 0.001

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-5: Importance of considerations when setting deer population goals... Potential health risks to the deer herd

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3035	2.0%	10.5%	22.1%	43.5%	21.8%	3.7
2 (EC)	1510	2.0%	8.3%	22.1%	42.6%	25.0%	3.8
3 (NE)	2473	2.9%	11.4%	26.5%	36.7%	22.4%	3.6
4 (SC)	2272	2.8%	10.3%	23.2%	41.8%	21.9%	3.7
5 (NC)	1350	2.1%	8.5%	19.1%	42.0%	28.3%	3.9
TOTAL	10619	2.3%	9.8%	22.4%	41.3%	24.2%	3.8
				$\chi 2$=83.184***			F=12.825***
				V = 0.044			η^2 = 0.005

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-6: Importance of considerations when setting deer population goals... Amount of deer mortality during an average winter

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3030	3.5%	11.7%	26.0%	43.1%	15.7%	3.6
2 (EC)	1515	2.8%	10.4%	28.1%	42.0%	16.8%	3.6
3 (NE)	2486	3.7%	9.7%	25.8%	42.2%	18.7%	3.6
4 (SC)	2279	4.5%	13.9%	28.3%	41.2%	12.1%	3.4
5 (NC)	1359	3.5%	10.9%	29.6%	41.7%	14.3%	3.5
TOTAL	10654	3.4%	11.1%	27.5%	42.0%	15.9%	3.6
				$\chi 2$=75.172***			F=13.475***
				V = 0.042			η^2 = 0.005

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-7: Importance of considerations when setting deer population goals... Impact of deer hunting on the local economy

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3025	8.0%	13.4%	23.9%	33.6%	21.1%	3.5
2 (EC)	1511	6.2%	11.4%	26.1%	33.0%	23.2%	3.6
3 (NE)	2484	5.3%	12.4%	23.9%	31.0%	27.4%	3.6
4 (SC)	2281	9.3%	15.0%	27.8%	30.8%	17.1%	3.3
5 (NC)	1356	7.1%	9.4%	24.9%	33.9%	24.6%	3.6
TOTAL	10632	6.8%	11.9%	25.0%	32.8%	23.5%	3.5
				$\chi 2$=133.841***			*F*=25.486***
				V = 0.056			η^2 = 0.010

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-8: Importance of considerations when setting deer population goals... Public health (such as human-deer diseases from ticks)

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3018	11.9%	18.1%	20.7%	26.5%	22.8%	3.3
2 (EC)	1508	10.5%	19.5%	18.0%	29.8%	22.2%	3.3
3 (NE)	2474	12.8%	22.1%	22.3%	24.4%	18.4%	3.1
4 (SC)	2272	12.8%	19.4%	21.0%	26.1%	20.8%	3.2
5 (NC)	1354	9.2%	16.1%	20.3%	26.8%	27.6%	3.5
TOTAL	10608	11.2%	19.0%	20.4%	26.8%	22.6%	3.3
				$\chi 2$=89.289***			*F*=16.938***
				V = 0.046			η^2 = 0.006

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-9: Importance of considerations when setting deer population goals... Public satisfaction with deer numbers

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3022	11.2%	21.1%	29.3%	28.0%	10.4%	3.1
2 (EC)	1515	11.8%	21.9%	29.9%	24.7%	11.6%	3.0
3 (NE)	2481	12.2%	19.7%	31.5%	24.3%	12.2%	3.0
4 (SC)	2271	12.6%	19.9%	32.9%	25.7%	8.8%	3.0
5 (NC)	1358	12.5%	19.6%	32.6%	25.4%	9.9%	3.0
TOTAL	10636	11.8%	20.6%	31.0%	25.7%	10.9%	3.0
				$\chi 2$=37.901**			F=1.492, n.s.
				V = 0.030			η^2 = 0.001

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-10: Importance of considerations when setting deer population goals... Number of deer-vehicle collisions

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3030	9.9%	23.8%	27.1%	27.5%	11.7%	3.1
2 (EC)	1513	9.7%	23.3%	28.9%	26.2%	11.8%	3.1
3 (NE)	2480	12.6%	27.4%	29.1%	21.3%	9.6%	2.9
4 (SC)	2276	9.1%	20.7%	27.4%	26.6%	16.2%	3.2
5 (NC)	1360	11.8%	24.0%	28.1%	24.9%	11.2%	3.0
TOTAL	10644	10.7%	24.3%	28.2%	25.1%	11.7%	3.0
				$\chi 2$=114.034***			F=23.706***
				V = 0.052			η^2 = 0.009

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-11: Importance of considerations when setting deer population goals... Deer over-browsing of forests

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3029	19.0%	24.9%	28.5%	21.7%	5.9%	2.7
2 (EC)	1514	15.9%	23.7%	30.1%	23.0%	7.3%	2.8
3 (NE)	2476	21.2%	26.0%	28.0%	19.1%	5.7%	2.6
4 (SC)	2261	21.0%	26.0%	28.6%	18.4%	6.0%	2.6
5 (NC)	1353	16.5%	23.5%	30.5%	21.9%	7.7%	2.8
TOTAL	10623	18.3%	24.6%	29.3%	21.2%	6.6%	2.7
				$\chi 2$=53.976***			F=12.118***
				V = 0.036			η^2 = 0.005

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-12: Importance of considerations when setting deer population goals... Impacts of deer on other wildlife species

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3019	20.3%	27.4%	28.0%	19.9%	4.4%	2.6
2 (EC)	1512	17.6%	26.5%	30.1%	21.0%	4.8%	2.7
3 (NE)	2470	20.9%	26.1%	29.6%	17.3%	6.0%	2.6
4 (SC)	2271	23.2%	26.0%	28.5%	18.0%	4.3%	2.5
5 (NC)	1351	19.4%	25.7%	30.4%	18.5%	6.0%	2.7
TOTAL	10607	19.8%	26.4%	29.3%	19.3%	5.2%	2.6
				$\chi 2$=41.114***			F=4.347**
				V = 0.031			η^2 = 0.002

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-13: Importance of considerations when setting deer population goals...Amount of crop damage from deer

Area	n	Not at all Important	A little Important	Moderately Important	Important	Very Important	Mean[1]
1 (NW)	3025	16.8%	28.5%	29.2%	18.9%	6.7%	2.7
2 (EC)	1513	17.5%	27.2%	30.1%	19.4%	5.8%	2.7
3 (NE)	2479	28.1%	32.0%	24.3%	12.3%	3.3%	2.3
4 (SC)	2275	21.0%	29.3%	26.0%	17.2%	6.5%	2.6
5 (NC)	1352	21.0%	29.0%	28.8%	16.0%	5.2%	2.6
TOTAL	10624	20.7%	29.2%	28.1%	16.7%	5.4%	2.6
				χ^2=199.639***			*F*=46.791***
				V = 0.069			η^2 = 0.017

[1] *Mean is based on the scale: 1 = not at all important, 2 = a little important, 3 = moderately important, 4 = important, 5 = very important. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-14: Agreement with statements about steps in setting deer population goals

Statement	n	Mean[1]
Important that decision makers explain different options	10615	4.4
Important for hunters to have opportunities to provide input	10625	4.3
Important for landowners to have opportunities to provide input	10620	4.2
Important to use the best available science	10603	4.0
Important to follow consistent decision making procedures	10588	3.8
Important for Minnesotans to have opportunities to provide input	10599	3.7
Important to consider diverse interests	10599	3.3

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
Note: Means reflect weighted averages across all survey areas to account for unequal sampling effort.

Table 3-15: Steps in setting deer population goals... Important that decision makers explain different options and why the final option was selected

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3018	0.7%	1.0%	6.5%	46.8%	45.0%	4.3
2 (EC)	1510	0.6%	1.3%	5.6%	44.8%	47.8%	4.4
3 (NE)	2474	0.8%	1.5%	5.2%	43.5%	49.1%	4.4
4 (SC)	2282	0.5%	1.4%	7.5%	48.4%	42.3%	4.3
5 (NC)	1357	0.5%	.4%	6.0%	45.8%	47.3%	4.4
TOTAL	10615	0.6%	1.1%	5.9%	45.6%	46.8%	4.4
				$\chi 2$=45.688***			F=5.420***
				V = 0.033			η^2 = 0.002

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-16: Steps in setting deer population goals... Important that hunters have opportunities to provide input

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3019	0.6%	1.8%	4.6%	52.2%	40.8%	4.3
2 (EC)	1510	0.7%	1.6%	5.4%	52.5%	39.9%	4.3
3 (NE)	2484	0.6%	1.6%	4.6%	48.8%	44.4%	4.3
4 (SC)	2281	0.7%	1.5%	6.3%	55.3%	36.3%	4.2
5 (NC)	1355	0.4%	1.2%	5.2%	54.1%	39.1%	4.3
TOTAL	10625	0.6%	1.5%	5.1%	52.3%	40.5%	4.3
				$\chi 2$=43.204***			F=5.929***
				V = 0.032			η^2 = 0.002

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-17: Steps in setting deer population goals... Important that landowners have opportunities to provide input

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3017	0.8%	1.8%	5.7%	54.2%	37.6%	4.3
2 (EC)	1509	0.7%	2.4%	5.4%	53.6%	37.9%	4.3
3 (NE)	2482	0.9%	2.6%	6.4%	51.9%	38.2%	4.2
4 (SC)	2282	0.7%	2.5%	7.4%	57.2%	32.2%	4.2
5 (NC)	1355	0.7%	1.5%	6.7%	55.0%	36.2%	4.2
TOTAL	10620	0.7%	2.1%	6.1%	54.1%	37.0%	4.2
				$\chi 2$=40.128***			F=5.037***
				V = 0.031			η^2 = 0.002

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-18: Steps in setting deer population goals... Important to use the best available science

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3018	1.1%	4.7%	19.4%	47.1%	27.8%	4.0
2 (EC)	1510	1.4%	3.3%	18.5%	46.8%	30.0%	4.0
3 (NE)	2471	.9%	3.6%	16.0%	46.8%	32.8%	4.1
4 (SC)	2275	1.2%	4.0%	19.5%	50.5%	24.7%	3.9
5 (NC)	1353	1.3%	2.9%	17.0%	48.1%	30.8%	4.0
TOTAL	10603	1.1%	3.7%	17.9%	47.4%	29.9%	4.0
				$\chi 2$=60.706***			F=10.132***
				V = 0.038			η^2 = 0.004

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-19: Steps in setting deer population goals...Important follow consistent decision-making procedures

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3016	1.6%	5.4%	18.9%	55.1%	19.0%	3.8
2 (EC)	1506	2.0%	6.3%	19.8%	52.8%	19.1%	3.8
3 (NE)	2472	1.3%	6.7%	19.1%	53.6%	19.4%	3.8
4 (SC)	2276	1.2%	4.9%	19.4%	58.9%	15.6%	3.8
5 (NC)	1348	1.6%	6.9%	18.6%	53.0%	19.9%	3.8
TOTAL	10588	1.6%	6.2%	19.1%	54.0%	19.1%	3.8
				$\chi 2$=39.194**			F=0.534***
				V = 0.030			η^2 < 0.001

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-20: Steps in setting deer population goals... Important that Minnesotans have opportunities to provide input

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3020	2.8%	10.9%	20.9%	46.9%	18.4%	3.7
2 (EC)	1507	2.6%	10.4%	20.7%	47.6%	18.8%	3.7
3 (NE)	2473	2.9%	10.2%	17.5%	47.9%	21.5%	3.7
4 (SC)	2277	2.7%	10.7%	21.6%	49.8%	15.3%	3.6
5 (NC)	1350	3.0%	9.5%	21.9%	46.3%	19.4%	3.7
TOTAL	10599	2.7%	10.4%	20.3%	47.5%	19.1%	3.7
				$\chi 2$=45.006***			F=3.693**
				V = 0.033			η^2 = 0.001

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 3-21: Steps in setting deer population goals... Important to consider diverse interests

Area	n	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3012	4.8%	13.5%	31.9%	39.8%	10.0%	3.4
2 (EC)	1508	4.7%	16.2%	32.4%	36.1%	10.6%	3.3
3 (NE)	2471	5.0%	15.6%	31.3%	36.3%	11.8%	3.3
4 (SC)	2278	4.6%	13.6%	33.4%	40.2%	8.3%	3.3
5 (NC)	1354	4.5%	13.8%	33.0%	37.4%	11.2%	3.4
TOTAL	10599	4.7%	14.7%	32.3%	37.6%	10.7%	3.3
				$\chi 2$=35.896**			*F*=0.815, n.s.
				V = 0.029			$\eta^2 < 0.001$

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Section 4: Hunter Satisfaction and Success

Satisfaction with Deer Numbers and Quality

Hunters were asked to indicate their overall satisfaction with deer numbers, whether they heard about or saw legal bucks, their satisfaction with the number of legal bucks, quality of bucks, total number of deer, and total number of antlerless deer during their most recent deer hunt. Agreement with satisfaction statements relative to their most recent hunt were rated on a scale from 1 (strongly disagree) to 5 (strongly agree).

Total Populations

Low percentages (range = 12.3% - 35.8%) of respondents in all survey areas were satisfied with current deer numbers in the deer permit area they hunt (Table 4-1). Using a scale of 1 (very dissatisfied) to 5 (very satisfied), most respondents in east central, northwestern, and northeastern Minnesota (range = 53.1% - 76.4%) reported they were slightly dissatisfied or very dissatisfied with current (2014, 2015, or 2016) deer numbers in the deer permit area they hunt; less than half of hunters in south central (46.1%) and north central Minnesota (49.3%) reported dissatisfaction with deer numbers in 2015 and 2016, respectively. Notably, hunters in areas with the lowest estimated deer densities (D'Angelo and Giudice 2015) reported both the lowest (northeastern Minnesota: $\bar{x}$ = 1.9) and highest (south central Minnesota: $\bar{x}$ = 2.8) levels of satisfaction with deer numbers.

Similar to reports of satisfaction about deer numbers within individual deer permit areas, most hunters in east central (59.7%) and northeastern (69.4%) Minnesota indicated dissatisfaction with the number of deer seen while hunting (Table 4-2). Smaller proportions of hunters in northwestern (47.8%), south central (46.1%), and north central (49.3%) Minnesota indicated dissatisfaction with the number of deer seen. Of note, larger proportions of hunters in each survey area reported satisfaction with the number of deer seen while hunting (range = 21.4% - 45.1%; Table 4-2) than reported satisfaction with deer numbers in the deer permit area they hunt most often (range = 12.3% - 35.8%; Table 4-1), suggesting greater satisfaction with deer numbers observed at more local levels.

Mature Bucks

Across the state, hunters differed in reports of hearing about or seeing legal bucks while hunting (range = 40.5% to 63.9%; Table 4-3), with majorities in northwestern (62.0%), south central (63.9%), and north central (59.3%) Minnesota reporting observations of legal bucks. Smaller proportions of hunters in east central (48.7%) and northeastern Minnesota (40.5%) reported observations of legal bucks while hunting.

Hunters in most survey areas reported dissatisfaction with the number of legal bucks (range = 46.1% to 70.9%; Table 4-4). Just under half of respondents in south central and north central Minnesota reported dissatisfaction with the number of legal bucks. As reported in Section 1 of this report, the importance of seeing a lot of bucks received only moderate ratings relative to influencing personal deer hunting satisfaction during the recent season (Table 1-45); however, satisfaction with the number of legal bucks during the recent season was negatively correlated

with the relative importance individual hunters placed on seeing bucks (r = -0.157, $p < .05$) and the strength of this relationship varied by survey area (Table 4-5).

Across all survey areas, more hunters reported dissatisfaction (52.8%) than satisfaction (28.9%) with the quality of legal bucks (Table 4-6); reported satisfaction with buck quality was lowest among hunters in northeastern Minnesota (18.5).

Antlerless Deer

Reported satisfaction with number of antlerless deer varied across the state (Table 4-7), with hunters indicating greater satisfaction in northwestern ($\bar{x}$ = 3.2), and south central ($\bar{x}$ = 3.4), and north central ($\bar{x}$ = 3.3) Minnesota than those in northeastern ($\bar{x}$ = 2.5) or east central Minnesota ($\bar{x}$ = 2.8).

Satisfaction with Deer Hunting Experience

Contrary to responses regarding deer numbers and quality, most hunters (70.5%) indicated satisfaction with their general deer hunting experience during the recent season (Table 4-8), reinforcing results reported in Section 1 of this report that suggest non-consumptive motivations (Table 1-30) have a greater influence on overall satisfaction with the deer hunting experience than do consumptive motivations. Although smaller proportions of hunters indicated satisfaction with the deer hunting harvest (range = 25.4% - 52.9%; Table 4-9), deer hunting regulations (range = 39.5% - 53.7%; Table 4-10), and the number of other deer hunters seen (range = 39.7% - 57.5%; Table 4-11), reported dissatisfaction was lower for all factors, with the exception of hunting harvest (Table 4-9) in northeastern and east central Minnesota.

Success

Deer season regulations from 2014 to 2016 were conservative, or designed to limit harvest, in most deer permit areas statewide; as a result, harvest was more limited. In general, harvest opportunity was biased toward legal bucks and antlerless permits were unavailable or limited in many areas. Harvest success varied by area (Table 4-12), likely due to a combination of factors including season regulations, local deer densities, and harvest pressure. Roughly twice as many hunters reported they killed and tagged a legal buck (22.1%) as compared to those who reported killing an antlerless deer (11.9%). Not surprisingly, given the particularly conservative season regulations in portions of the state, the proportion of hunters killing an antlerless deer differed across the survey areas. Across all areas, a greater proportion of respondents reported killing a deer for another hunter (range = 6.1% - 10.4%) than using their own tag on a deer killed by another hunter (range = 3.4% - 7.6%). Overall, 26.8% to 44.3% of hunters reported harvesting a deer for themselves or another hunter, depending on the survey area (Table 4-13).

Overall Satisfaction

Finally, respondents were asked to rate their overall satisfaction with their most recent deer hunt; a rating that likely included aspects of the deer population (numbers and quality) and the individual experience. Overall satisfaction, rated on a scale of 1 (very dissatisfied) to 5 (very satisfied), varied across survey areas (Table 4-14), with higher levels reported in northwestern

($\bar{x}$ = 3.2), south central ($\bar{x}$ = 3.3), and north central ($\bar{x}$ = 3.4) Minnesota than in northeastern ($\bar{x}$ = 2.8) or east central ($\bar{x}$ = 2.9) Minnesota. Of the hunters reporting overall satisfaction with their deer season, satisfaction ratings were significantly higher for those who reported killing a deer than for those who did not, and this trend was evident within all survey areas (Table 4-15).

Table 4-1: Overall satisfaction with current deer numbers in the deer permit area you hunt

Area	n	Year	Very Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Very Satisfied	Mean[1]
1 (NW)	3067	2014	22.7%	30.4%	15.0%	19.4%	12.5%	2.7
2 (EC)	1535	2014	31.9%	30.9%	16.5%	12.7%	8.0%	2.3
3 (NE)	2521	2015	47.4%	29.0%	11.2%	8.2%	4.1%	1.9
4 (SC)	2298	2015	17.0%	29.1%	18.1%	24.5%	11.3%	2.8
5 (NC)	1380	2016	20.1%	29.2%	16.7%	22.8%	11.2%	2.8
TOTAL	10789		29.1%	29.9%	15.2%	16.6%	9.2%	2.5
					$\chi 2$=910.244 ***			*F*=207.681 ***
					V = 0.140			η^2 = 0.072

*Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-2: Agreement with statement regarding most recent deer hunt... I was satisfied with the number of deer I saw while hunting

Area	n	Year	Strongly disagree	Slightly disagree	Neither	Slightly agree	Strongly agree	Mean[1]
1 (NW)	3063	2014	26.3%	20.7%	11.3%	21.5%	20.1%	2.9
2 (EC)	1529	2014	39.0%	20.7%	10.5%	16.1%	13.7%	2.5
3 (NE)	2510	2015	48.5%	20.9%	9.2%	13.1%	8.3%	2.1
4 (SC)	2285	2015	20.1%	21.5%	13.5%	24.7%	20.1%	3.0
5 (NC)	1368	2016	23.8%	18.3%	12.7%	25.2%	19.9%	3.0
TOTAL	10735		33.1%	20.2%	11.1%	19.5%	16.0%	2.7
					$\chi 2$=709.802 ***			*F*=168.350 ***
					V = 0.129			η^2 = 0.059

*Mean is based on the scale: 1 = strongly disagree, 2 = slightly disagree, 3 = neither, 4 = slightly agree, 5 = strongly agree. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-3: Agreement with statement regarding most recent deer hunt... I heard about or saw legal bucks while hunting

Area	n	Year	Strongly disagree	Slightly disagree	Neither	Slightly agree	Strongly agree	Mean[1]
1 (NW)	3027	2014	14.6%	10.2%	13.2%	32.3%	29.7%	3.5
2 (EC)	1516	2014	25.7%	12.3%	12.3%	27.5%	22.2%	3.1
3 (NE)	2487	2015	35.1%	14.4%	10.0%	23.4%	17.1%	2.7
4 (SC)	2272	2015	12.7%	10.6%	12.9%	30.8%	33.1%	3.6
5 (NC)	1358	2016	18.4%	10.0%	12.4%	28.5%	30.8%	3.4
TOTAL	10642		22.5%	11.6%	12.0%	28.1%	25.7%	3.2
					$\chi 2$=624.674 ***			F=150.713 ***
					V = 0.121			η^2 = 0.054

*Mean is based on the scale: 1 = strongly disagree, 2 = slightly disagree, 3 = neither, 4 = slightly agree, 5 = strongly agree. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-4: Agreement with statement regarding most recent deer hunt... I was satisfied with the number of legal bucks

Area	n	Year	Strongly disagree	Slightly disagree	Neither	Slightly agree	Strongly agree	Mean[1]
1 (NW)	3045	2014	26.5%	22.5%	16.1%	21.2%	13.7%	2.7
2 (EC)	1527	2014	34.4%	20.6%	18.5%	15.0%	11.5%	2.5
3 (NE)	2509	2015	50.4%	20.5%	12.2%	11.4%	5.5%	2.0
4 (SC)	2278	2015	24.5%	21.6%	17.1%	23.3%	13.5%	2.8
5 (NC)	1362	2016	25.8%	21.1%	17.2%	22.2%	13.7%	2.8
TOTAL	10704		33.2%	21.4%	16.1%	17.9%	11.4%	2.5
					$\chi 2$=611.908 ***			F=139.191 ***
					V = 0.120			η^2 = 0.049

*Mean is based on the scale: 1 = strongly disagree, 2 = slightly disagree, 3 = neither, 4 = slightly agree, 5 = strongly agree. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-5 Satisfaction with number of legal bucks based on reported relative importance of seeing a lot of bucks on season satisfaction

	Mean satisfaction with number of legal bucks						
Importance of seeing a lot of bucks	**NW**	**EC**	**NE**	**SC**	**NC**	**TOTAL**	**Significance**
Not at all important	3.2	3.1	2.2	3.0	3.3	3.0	F=26.216***; η^2 = 0.091
Slightly important	2.8	2.6	2.1	3.0	3.0	2.6	F=34.034***; η^2 = 0.064
Somewhat important	2.8	2.4	2.1	2.8	2.7	2.6	F=43.606***; η^2 = 0.044
Very important	2.5	2.2	1.8	2.7	2.5	2.3	F=31.927***; η^2 = 0.051
Extremely important	2.5	2.1	1.7	2.4	2.3	2.2	F=10.661***; η^2 = 0.040
	F=20.189 *** η^2 = 0.027	F=15.876 *** η^2 = 0.042	F=9.191 *** η^2 = 0.015	F=12.248 *** η^2 = 0.022	F=14.018 *** η^2 = 0.041	F=67.439 *** η^2 = 0.026	

*[1] Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-6: Agreement with statement regarding most recent deer hunt... I was satisfied with the quality of legal bucks

Area	**n**	**Year**	**Strongly disagree**	**Slightly disagree**	**Neither**	**Slightly agree**	**Strongly agree**	**Mean[1]**
1 (NW)	3037	2014	25.8%	22.3%	18.1%	22.4%	11.5%	2.7
2 (EC)	1524	2014	32.9%	19.5%	19.2%	19.0%	9.3%	2.5
3 (NE)	2495	2015	44.6%	20.9%	16.1%	13.3%	5.2%	2.1
4 (SC)	2274	2015	25.9%	23.4%	17.2%	22.2%	11.3%	2.7
5 (NC)	1360	2016	25.3%	21.6%	20.1%	22.5%	10.5%	2.7
TOTAL	10674		31.6%	21.2%	18.3%	19.5%	9.4%	2.5
					$\chi 2$=372.237 *** V = 0.093			F=83.081* ** η^2 = 0.030

*Mean is based on the scale: 1 = strongly disagree, 2 = slightly disagree, 3 = neither, 4 = slightly agree, 5 = strongly agree. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-7: Agreement with statement regarding most recent deer hunt... I was satisfied with the number of antlerless deer

Area	n	Year	Strongly disagree	Slightly disagree	Neither	Slightly agree	Strongly agree	Mean[1]
1 (NW)	3033	2014	19.0%	17.5%	14.8%	24.0%	24.7%	3.2
2 (EC)	1522	2014	26.9%	20.7%	12.7%	22.1%	17.5%	2.8
3 (NE)	2497	2015	35.3%	21.3%	13.1%	16.1%	14.2%	2.5
4 (SC)	2278	2015	13.4%	16.7%	14.4%	27.2%	28.3%	3.4
5 (NC)	1363	2016	16.4%	16.2%	13.9%	27.3%	26.2%	3.3
TOTAL	10680		23.4%	18.6%	13.6%	23.0%	21.4%	3.0
				$\chi 2$=572.652 ***				F=141.982 ***
				V = 0.116				η^2 = 0.050

*Mean is based on the scale: 1 = strongly disagree, 2 = slightly disagree, 3 = neither, 4 = slightly agree, 5 = strongly agree. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-8: Recent Minnesota deer hunting season... Satisfaction with general deer hunting experience

Area	n	Year	Very Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Very Satisfied	Mean[1]
1 (NW)	2955	2014	5.5%	13.3%	8.6%	41.4%	31.3%	3.8
2 (EC)	1478	2014	9.5%	17.0%	10.1%	36.2%	27.2%	3.5
3 (NE)	2437	2015	9.5%	16.3%	11.9%	36.8%	25.6%	3.5
4 (SC)	2251	2015	3.4%	11.6%	9.3%	43.0%	32.7%	3.9
5 (NC)	1331	2016	3.4%	8.3%	7.2%	40.9%	40.1%	4.1
TOTAL	10418		6.6%	13.6%	9.3%	39.4%	31.1%	3.7
				$\chi 2$=287.957 ***				F=65.688* **
				V = 0.083				η^2 = 0.025

*Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-9: Recent Minnesota deer hunting season... Satisfaction with deer hunting harvest

Area	n	Year	Very Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Very Satisfied	Mean[1]
1 (NW)	2944	2014	16.1%	23.0%	14.3%	28.4%	18.2%	3.1
2 (EC)	1481	2014	26.1%	27.1%	12.0%	21.7%	13.2%	2.7
3 (NE)	2445	2015	36.6%	25.2%	12.8%	17.1%	8.3%	2.4
4 (SC)	2255	2015	11.4%	23.0%	16.1%	30.2%	19.4%	3.2
5 (NC)	1329	2016	13.2%	19.3%	14.5%	29.9%	23.0%	3.3
TOTAL	10420		21.8%	23.7%	13.5%	24.9%	16.0%	2.9
				$\chi 2$=789.753 ***				F=186.955 ***
				V = 0.137				η^2 = 0.067

*Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-10: Recent Minnesota deer hunting season... Satisfaction with deer hunting regulations

Area	n	Year	Very Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Very Satisfied	Mean[1]
1 (NW)	2946	2014	6.7%	18.7%	28.1%	34.2%	12.3%	3.3
2 (EC)	1478	2014	6.8%	18.2%	32.9%	30.5%	11.6%	3.2
3 (NE)	2440	2015	7.0%	19.4%	34.3%	27.8%	11.4%	3.2
4 (SC)	2252	2015	5.4%	12.6%	30.6%	35.3%	16.1%	3.4
5 (NC)	1328	2016	3.8%	12.8%	29.6%	35.3%	18.4%	3.5
TOTAL	10410		6.1%	16.8%	31.2%	32.3%	13.7%	3.3
				$\chi 2$=172.482 ***				F=33.838 ***
				V = 0.064				η^2 = 0.013

*Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-11: Recent Minnesota deer hunting season... Satisfaction with number of other deer hunters seen

Area	n	Year	Very Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Very Satisfied	Mean[1]
1 (NW)	2948	2014	6.1%	15.1%	37.1%	27.2%	14.5%	3.3
2 (EC)	1479	2014	7.0%	12.3%	40.0%	25.8%	14.9%	3.3
3 (NE)	2443	2015	12.9%	14.7%	32.8%	24.3%	15.4%	3.1
4 (SC)	2254	2015	8.2%	17.9%	33.1%	27.6%	13.2%	3.2
5 (NC)	1329	2016	6.8%	13.1%	32.7%	29.6%	17.9%	3.4
TOTAL	10419		8.1%	14.3%	35.3%	26.9%	15.4%	3.3
				$\chi 2$=153.981 *** V = 0.061				F=12.683 *** η^2 = 0.005

*Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-12: During the recent deer season, proportion of deer hunters who...

Area	Year	n	Killed and tagged an antlerless deer	Killed and tagged a legal buck	Killed a deer for another hunter	Used tag on a deer killed by another hunter
1 (NW)	2014	2817	14.3%	24.9%	8.8%	6.1%
2 (EC)	2014	1387	12.2%	18.2%	6.1%	5.0%
3 (NE)	2015	2404	3.2%	20.4%	5.7%	3.4%
4 (SC)	2015	2129	11.5%	24.6%	8.0%	4.6%
5 (NC)	2016	1229	17.7%	24.6%	10.4%	7.6%
TOTAL		9896	11.9%	22.1%	7.8%	5.5%
			$\chi 2$=290.873*** V = 0.116	$\chi 2$=111.489*** V = 0.072	$\chi 2$=100.413*** V = 0.070	$\chi 2$=105.268*** V = 0.070

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-13: During the recent deer season, proportion of hunters who killed a deer for themselves or another hunter

Area	n	% Harvest Success	Adj. % Harvest Success
1 (NW)	2948	44.1%	42.1%
2 (EC)	1475	34.0%	32.3%
3 (NE)	2458	27.7%	26.8%
4 (SC)	2256	40.9%	39.9%
5 (NC)	1330	46.3%	44.3%
TOTAL	10430	38.3%	36.7%
		$\chi 2$=213.523***	$\chi 2$=244.048***
		V = 0.143	V = 0.106

*Note: Harvest success is likely inflated because it includes only responses from hunters who replied to the question. Adjusted harvest includes those surveys missing responses to this question. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-14: Overall satisfaction with most recent deer hunt

Area	n	Year	Very Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Very Satisfied	Mean[1]
1 (NW)	2919	2014	13.2%	23.3%	14.9%	28.4%	20.3%	3.2
2 (EC)	1455	2014	18.9%	28.0%	13.5%	26.6%	12.9%	2.9
3 (NE)	2416	2015	20.8%	28.1%	13.7%	25.3%	12.1%	2.8
4 (SC)	2222	2015	10.1%	21.8%	13.3%	33.4%	21.3%	3.3
5 (NC)	1322	2016	10.0%	19.6%	13.8%	32.7%	23.9%	3.4
TOTAL	10302		15.2%	24.5%	13.9%	28.8%	17.7%	3.1
				$\chi 2$=330.621 ***				F=81.621 ***
				V = 0.089				η^2 = 0.031

*Mean is based on the scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = slightly satisfied, 5 = very satisfied. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 4-15: Overall satisfaction based on harvest success

Area	Killed a deer for myself or other	n	Very dis-satisfied	Slightly dis-satisfied	Neither	Slightly satisfied	Very satisfied	Significance
1 (NW)	Yes	1261	3.6%	6.3%	3.8%	15.7%	14.7%	χ^2=400.447 ***
	No	1599	9.4%	17.0%	11.0%	12.7%	5.7%	*V* = 0.374
2 (EC)	Yes	483	3.9%	5.4%	2.8%	12.9%	8.8%	χ^2=208.785 ***
	No	943	14.7%	22.9%	10.8%	13.7%	4.1%	*V* = 0.383
3 (NE)	Yes	656	3.4%	4.6%	2.7%	9.5%	7.2%	χ^2=265.413 ***
	No	1734	14.7%	22.9%	10.8%	13.7%	4.1%	*V* = 0333
4 (SC)	Yes	904	3.6%	4.7%	2.0%	15.5%	15.3%	χ^2=352.669 ***
	No	1292	6.5%	17.2%	11.2%	18.0%	5.9%	*V* = 0.401
5 (NC)	Yes	603	4.0%	5.6%	4.3%	16.4%	16.0%	χ^2=107.607 ***
	No	698	6.1%	14.0%	9.6%	16.1%	7.9%	*V* = 0.288
TOTAL	Yes	3875	3.7%	5.4%	3.3%	13.9%	12.0%	χ^2=1312.027 ***
	No	6256	11.4%	19.2%	10.7%	14.9%	5.7%	*V* = 0.360

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Section 5: Regulatory Preferences for Deer Management

Scale of Regulation

When considering potential changes to deer management regulations, respondents were asked to indicate their preference regarding the level at which new regulations should be applied. Options listed include implementation statewide, by zone (e.g., 100-series), or by deer permit area. Across all surveys areas, a preference for more local (DPA) or regional (zone) application was evident (Table 5-1). Roughly equal proportions for hunters indicated preference for regulations to be implemented at the deer DPA- (43.8%) or zone- (39.9%) levels.

Season Options

Minnesota currently holds a mid-October youth deer season in portions of northwestern and southeastern Minnesota, with additional special local hunts for youth held during the same period throughout the state. Regardless of survey area, a majority (range = 51.2% - 53.2%) of hunters supported the establishment of a statewide youth season, with only 20.9% to 25.1% indicating opposition (Table 5-2).

In contrast, Minnesota currently employs different firearm season lengths statewide, with a 16-day season in the 100-series zone and a 9-day season in the 200-series zone. Hunter preference regarding season length varied across survey areas, with the majority of hunters in northwestern (60.1%) and south central (57.5%) Minnesota indicating a preference for a 9-day season and hunters in east central (65.5%), northeastern (72.9%), and north central (57.9%) Minnesota indicating a preference for a 16-day season, consistent with the prevalent season length offered in their respective areas (Table 5-3).

Alternative Regulations

Respondents were asked to indicate their level of support, on a scale of 1 (strongly oppose) to 5 (strongly support), for a variety of commonly suggested regulatory changes that could increase the proportion of antlered bucks in the population, including delaying the firearm season, institution of antler point restrictions, and elimination of cross-tagging (also known as party hunting). Across all areas, hunters indicated support ($\bar{x}$ = 3.6) for a regulation that would increase the proportion of antlered bucks in the deer permit area they hunted most often (Table 5-4). Consistent with previous surveys, support for specific regulatory changes was lower than that expressed for regulations that, in general, would increase the proportion of antlered bucks (Tables 5-5 to 5-8).

Support for delays in the deer season timing were neutral to negative, with neutral support on average for a one-week delay ($\bar{x}$ = 3.0; Table 5-5) and fairly substantial opposition to a start date in a late November ($\bar{x}$ = 2.1; Table 5-6). Similarly, support for the institution of an antler point restriction was, on average, neutral to negative ($\bar{x}$ = 2.7; Table 5-7).

When asked about the potential to eliminate cross-tagging, most respondents indicated opposition to the elimination of buck cross-tagging (56.5%; Table 5-8) or cross-tagging for bucks and antlerless deer (67.9%; Table 5-9).

Stated Choice Experiment

This study included a stated choice experiment examining the preferences of deer hunters concerning different potential combinations of deer seasons and regulations in Minnesota. Stated choice models present hypothetical scenarios to respondents to derive individuals' preferences for alternatives composed of multiple resource and management attributes (Adamowicz et al. 1994; Oh et al. 2005). The approach depends on the imperfect relationship between behavioral intention and behavior (Ajzen & Fishbein 1980), yet allows estimation of the effects of all parameters of interest independently. Individuals are assumed to be utility maximizers, and respondents' choices reflect the perceived utility of the alternatives presented (McFadden 1981). Individual respondent choices reflect the personal utility of attributes and attribute levels, and are aggregated to estimate the utility of attributes and attribute levels in a population (McFadden 1981). In an economic sense, utility is simply a measure of the perceived usefulness of something to an individual. The degree to which someone chooses one circumstance over another provides the ability to measure its perceived usefulness, or utility, to that person. In general, the utility of an attribute level may be considered a reflection of relative desirability (Orme 2014).

Alternatives presented in this season choice experiment consisted of five attributes: (a) cross-tagging of harvested deer, (b) whether or not antler point restrictions are in place, (c) timing of the firearm opener during or out of the rut, (d) the population level or number of deer, and (e) deer harvest limit (Table 5-10). There were three possible levels for cross-tagging, deer numbers, and harvest limits, and two levels for antler point restrictions and timing of the opener. In order to have adequate power to conduct this experiment, we developed 10 survey versions. In each, respondents were presented with 8 deer season choice scenarios and asked to choose one option. Each scenario included two season structure choices plus a "none" (i.e., I would not hunt deer in Minnesota with these options).

Results for the hierarchical Bayes model (Tables 5-11 to 5-22), including average utilities, or usefulness, for each attribute level, summarize the preference among deer hunters in each survey area as well as statewide. The attribute importances reported in Tables 5-11 through 5-16 provide a summary of how important each of the 5 attributes were in respondents' choices. Across all survey areas, timing of the opener had the most influence on choice followed closely by deer numbers. The third most important attribute was cross-tagging in the majority of survey areas. The least important attribute in survey northwestern and east central Minnesota were antler point restrictions, whereas harvest limit was least important in northeastern, south central, and east central Minnesota.

The utilities of each level for each attribute are summarized in Tables 5-17 through 5-22. The larger the range in the part-worth utilities (i.e. the difference in average utilities across levels) for an attribute, the more influential that attribute is on respondents' choices and the greater the importance of that attribute. For example, the timing of the opener was the most influential

attribute in the area 1 experiment, as indicated by the largest range in part-worth utilities (range in timing of opener utilities = 111.6; Table 5-17). The set of part-worth utilities for each attribute is scaled to sum to zero, so some part-worth utilities are necessarily negative numbers for some levels. A negative part-worth utility does not mean that the level has a negative utility; but the larger the number, the higher the utility. This means that a large positive number has higher utility than a large negative number.

Across all survey areas, and statewide, a hunting opener in early November was preferred over a late-November opener. Legal cross-tagging for either sex was preferred over antlerless-only cross-tagging or no cross-tagging and no antler point restriction was preferred over an antler point restriction regulation. Deer numbers higher than 2014-2016 levels were preferred over levels experienced during that time period or lower population levels. The preferred seasonal harvest (bag) limit was a one-deer, either sex regulation (Hunter Choice) rather than a one-deer limit with an antlerless lottery (Lottery) or a two-deer limit (Managed).

Results of the stated choice experiment allow comparison of various regulatory packages via market simulation to estimate the proportion of respondents that would choose a particular scenario. For example, statewide part-worth utilities and attribute importances were used to simulate hunter preferences for regulatory packages representing (A) a likely 2014-2016 scenario with "current" population levels, an early November opener, legal cross-tagging, no antler point restriction, and a one-deer Hunter Choice limit; (B) the same package but with a higher deer population; (C) the same package but with a higher population and a two-deer Managed harvest limit; or (D) "I wouldn't hunt" (Table 5-23). Simulation results suggest that hunters would prefer scenarios with higher deer populations (67.7%), and of those most would prefer scenario B with a one-deer limit (40.1%). This finding suggests bag limit preferences are somewhat insensitive to population levels, i.e., the preference for a higher population is not driven by a desire to harvest more than deer based on current statewide hunter preferences.

A second choice simulation was conducted to examine preferences related to regulatory packages that could increase the proportion of antlered bucks in the population. Specifically, we compared predicted preferences for five scenarios: (A) a likely 2014-2016 scenario with "current" population levels, an early November opener, legal cross-tagging, no antler point restriction, and a one-deer Hunter Choice limit; (E) package A but with cross-tagging illegal only for antlerless deer; (F) package A but with APR; (G) package A but with a late-November opener; and (H) "I wouldn't hunt" (Table 5-24). In this simulation, package A was preferred (31.1%), with other packages predicted to be chosen by lower percentages of hunters. Notably, not hunting (12.6%; scenario H) was predicted to be preferred over the package including a late-November hunt (10.4%; scenario G). If the same package were offered but with higher deer population levels, package A was predicted to receive an even greater share of hunter preference (32.7%) and a smaller proportion of hunters (8.9%) were predicted to indicate they would not hunt given the options provided. Results from these simulations suggest that, statewide, commonly proposed DNR regulatory packages that could increase the proportion of antlered bucks in the population are currently less attractive than existing DNR regulations even at higher population levels.

Table 5-1: If the MN DNR were to adopt new deer regulations, preference for scale of application

Area	n	Statewide	Zone	Deer permit area
1 (NW)	2913	18.0%	39.9%	42.1%
2 (EC)	1457	16.2%	39.9%	43.9%
3 (NE)	2437	13.1%	42.1%	44.7%
4 (SC)	2227	20.3%	41.4%	38.4%
5(NC)	1314	16.1%	37.5%	46.3%
TOTAL	10312	16.4%	39.9%	43.8%
			$\chi 2$=60.399*** V = 0.054	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-2: Support for a statewide youth season

Area	n	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	Mean[1]
1 (NW)	2932	11.4%	13.5%	22.6%	32.9%	19.6%	3.4
2 (EC)	1462	10.9%	14.2%	23.7%	30.9%	20.3%	3.4
3 (NE)	2438	9.8%	11.1%	26.0%	32.5%	20.7%	3.4
4 (SC)	2236	10.2%	13.3%	23.6%	33.6%	19.3%	3.4
5 (NC)	1323	10.8%	11.6%	25.0%	32.3%	20.3%	3.4
TOTAL	10355	10.7%	12.7%	24.2%	32.3%	20.1%	3.4
				$\chi 2$=25.999*** V = 0.025			F=1.529, n.s. $\eta^2 < 0.001$

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = oppose, 3 = neutral, 4 = support, 5 = strongly support*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-3: If a consistent, statewide regular firearm season were implemented, which length would you prefer?

Area	n	9 days	16 days
1 (NW)	2932	60.1%	39.9%
2 (EC)	1464	34.5%	65.5%
3 (NE)	2441	24.8%	75.2%
4 (SC)	2227	57.5%	42.5%
5 (NC)	1322	42.1%	57.9%
TOTAL	10351	42.0%	58.0%
		$\chi 2$=878.222***	
		V = 0.291	

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-4: Support for a regulation that would increase the proportion of antlered bucks in the DPA hunted most often

Area	n	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support	Mean[1]
1 (NW)	3036	8.3%	8.8%	29.1%	25.7%	28.0%	3.6
2 (EC)	1517	9.9%	8.9%	29.4%	25.5%	26.3%	3.5
3 (NE)	2487	8.6%	7.9%	26.1%	25.5%	31.8%	3.6
4 (SC)	2288	8.3%	9.6%	25.9%	25.2%	31.0%	3.6
5 (NC)	1362	8.7%	9.5%	27.7%	26.1%	28.0%	3.6
TOTAL	10667	8.9%	8.8%	28.0%	25.6%	28.8%	3.6
				$\chi 2$=31.846**			*F*=3.898**
				V = 0.027			η^2 = 0.001

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-5: Support for potential changes to deer hunting regulations... Delay the firearm season one week

Area	n	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support	Mean[1]
1 (NW)	2990	23.0%	17.7%	16.3%	23.8%	19.1%	3.0
2 (EC)	1492	25.9%	18.0%	17.9%	21.2%	16.9%	2.9
3 (NE)	2474	29.2%	16.4%	14.2%	21.6%	18.6%	2.8
4 (SC)	2266	17.6%	18.8%	17.5%	28.7%	17.3%	3.1
5 (NC)	1344	23.1%	16.8%	13.2%	23.7%	23.1%	3.1
TOTAL	10535	24.6%	17.4%	15.6%	23.3%	19.2%	3.0
				$\chi2$=144.843***			F=13.235***
				V = 0.059			η^2 = 0.005

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-6: Support for potential changes to deer hunting regulations... Delay the firearm season until late November

Area	n	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support	Mean[1]
1 (NW)	2981	46.7%	22.2%	13.1%	10.7%	7.3%	2.1
2 (EC)	1482	50.5%	19.7%	13.6%	9.7%	6.4%	2.0
3 (NE)	2467	51.4%	20.9%	11.9%	10.1%	5.7%	2.0
4 (SC)	2262	38.6%	22.4%	16.0%	11.5%	11.4%	2.3
5 (NC)	1336	46.7%	22.5%	11.8%	11.2%	7.9%	2.1
TOTAL	10487	47.8%	21.4%	13.0%	10.5%	7.3%	2.1
				$\chi2$=131.223***			F=26.852***
				V = 0.56			η^2 = 0.010

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-7: Support for potential changes to deer hunting regulations... Institute an antler point restriction

Area	n	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support	Mean[1]
1 (NW)	2972	31.5%	17.6%	13.5%	18.3%	19.1%	2.8
2 (EC)	1486	33.8%	16.5%	14.9%	17.7%	17.1%	2.7
3 (NE)	2465	37.9%	18.6%	13.0%	16.7%	13.7%	2.5
4 (SC)	2266	27.1%	17.2%	11.8%	19.7%	24.3%	3.0
5 (NC)	1340	37.9%	16.9%	12.8%	16.4%	16.1%	2.6
TOTAL	10498	34.5%	17.3%	13.2%	17.6%	17.4%	2.7
				$\chi2$=150.132***			*F*=32.816***
				V = 0.060			η^2 = 0.012

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-8: Support for potential changes to deer hunting regulations... Eliminate buck cross-tagging

Area	n	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support	Mean[1]
1 (NW)	2957	35.6%	18.9%	13.9%	14.9%	16.5%	2.6
2 (EC)	1467	36.5%	19.0%	13.5%	17.1%	13.9%	2.5
3 (NE)	2468	40.3%	19.2%	15.3%	13.6%	11.6%	2.4
4 (SC)	2261	33.5%	20.1%	15.7%	14.8%	15.9%	2.6
5 (NC)	1335	39.9%	17.8%	14.1%	13.1%	15.1%	2.5
TOTAL	10443	37.8%	18.7%	14.2%	14.7%	14.6%	2.5
				$\chi2$=63.040***			*F*=9.567***
				V = 0.039			η^2 = 0.004

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-9: Support for potential changes to deer hunting regulations... Eliminate cross-tagging for bucks and antlerless deer

Area	n	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support	Mean[1]
1 (NW)	2980	48.8%	17.2%	16.7%	6.3%	11.0%	2.1
2 (EC)	1485	50.0%	16.0%	17.4%	8.4%	8.4%	2.1
3 (NE)	2465	51.2%	17.5%	15.5%	7.1%	8.7%	2.0
4 (SC)	2262	44.6%	18.0%	16.7%	8.8%	11.9%	2.3
5 (NC)	1334	55.7%	17.2%	15.1%	5.0%	7.0%	1.9
TOTAL	10489	50.8%	17.1%	16.2%	6.9%	9.1%	2.1
				$\chi 2$=83.826***			F=16.028***
				V = 0.045			η^2 = 0.006

[1] *Mean is based on the scale: 1 = strongly oppose, 2 = slightly oppose, 3 = neither, 4 = slightly support, 5 = strongly support. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 5-10: Possible season choice characteristics in stated choice experiment

Regulatory Attribute	Possible values
Cross-tagging	- Cross-tagging illegal for both sexes. - Cross-tagging legal for antlerless only - Cross-tagging legal for either sex
Antler Point Restrictions	- Antler point restrictions - No antler point restrictions
Timing of opener	- Early November opener (during the rut). - Late November opener (out of the rut).
Deer numbers	- Deer numbers lower than current levels - Deer numbers at current levels - Deer numbers higher than current levels
Harvest limit	- One deer limit, antlerless by permit only (Lottery). - One deer limit, either sex (Hunter Choice). - Two deer limit (Managed).

Table 5-11: Area 1 (NW) - Relative attribute importance derived from hierarchical Bayes estimation of utilities

Season choice attribute	Importances	SD
Cross-tagging	18.7	9.4
Antler Point Restrictions	15.7	10.9
Timing of opener	26.5	14.9
Deer numbers	22.0	12.3
Harvest limit	17.1	10.9

Notes: n=1,234

Table 5-12: Area 2 (EC) - Relative attribute importance derived from hierarchical Bayes estimation of utilities

Season choice attribute	Importances	SD
Cross-tagging	19.0	9.7
Antler Point Restrictions	15.1	10.3
Timing of opener	26.5	14.5
Deer numbers	23.2	11.9
Harvest limit	16.3	9.9

Notes: n=958

Table 5-13: Area 3 (NE) - Relative attribute importance derived from hierarchical Bayes estimation of utilities

Season choice attribute	Importances	SD
Cross-tagging	15.1	8.4
Antler Point Restrictions	15.8	11.0
Timing of opener	30.2	15.4
Deer numbers	25.0	14.1
Harvest limit	13.9	9.0

Notes: n=1,098

Table 5-14: Area 4 (SC) - Relative attribute importance derived from hierarchical Bayes estimation of utilities

Season choice attribute	Importances	SD
Cross-tagging	19.1	11.1
Antler Point Restrictions	18.6	13.0
Timing of opener	25.0	15.5
Deer numbers	22.1	12.5
Harvest limit	15.2	9.4

Notes: n=1,597

Table 5-15: Area 5 (NC) - Relative attribute importance derived from hierarchical Bayes estimation of utilities

Season choice attribute	Importances	SD
Cross-tagging	21.9	10.6
Antler Point Restrictions	15.6	11.2
Timing of opener	27.8	15.1
Deer numbers	21.0	13.2
Harvest limit	13.6	9.4

Notes: n=869

Table 5-16: Statewide - Relative attribute importance derived from hierarchical Bayes estimation of utilities

Season choice attribute	Importances	SD
Cross-tagging	18.5	9.8
Antler Point Restrictions	15.9	11.1
Timing of opener	28.0	15.6
Deer numbers	22.0	13.1
Harvest limit	15.5	10.3

Notes: n=2,757

Table 5-17: Area 1 (NW) - Results of the hierarchical Bayes model for regulatory choice for Minnesota deer hunters showing utilities of different levels of season attributes

Choice attribute - level	**Average utilities**	**SD**
Cross-tagging		
- Cross-tagging legal for antlerless only	9.9	21.6
- Cross-tagging illegal for both sexes	-40.0	41.4
- *Cross-tagging legal for either sex*	30.1	34.2
Antler Point Restrictions		
- *No antler point restrictions*	14.1	45.8
- Antler point restrictions	-14.1	45.8
Timing of opener		
- *Early November (during rut)*	55.8	51.8
- Late November (out of rut)	-55.8	51.8
Deer numbers		
- Deer numbers lower than current levels	-57.6	40.1
- Deer numbers at current levels	14.5	18.8
- *Deer numbers higher than current levels*	43.1	34.1
Harvest limits		
- One deer limit, antlerless by permit only (lottery)	-18.1	37.9
- *One deer limit, either sex (hunter choice)*	25.4	32.4
- Two deer limit (managed)	-7.3	45.8
None	-128.5	236.8

Notes: n=1,234, attribute levels with highest utility in italics.

Table 5-18: Area 2 (EC) - Results of the hierarchical Bayes mode for regulatory choice for Minnesota deer hunters showing utilities of different levels of season attributes

Choice attribute - level	**Average utilities**	**SD**
Cross-tagging		
- Cross-tagging legal for antlerless only	9.1	24.9
- Cross-tagging illegal for both sexes	-38.7	42.7
- *Cross-tagging legal for either sex*	29.6	36.1
Antler Point Restrictions		
- *No antler point restrictions*	16.4	42.7
- Antler point restrictions	-16.4	42.7
Timing of opener		
- *Early November*	57.0	49.6
- Late November	-57.0	49.6
Deer numbers		
- Deer numbers lower than current levels	-55.1	34.5
- Deer numbers at current levels	4.9	17.7
- *Deer numbers higher than current levels*	50.2	41.3
Harvest limits		
- One deer limit, antlerless by permit only (lottery)	-25.9	36.4
- *One deer limit, either sex (hunter choice)*	26.2	25.9
- Two deer limit (managed)	-0.3	40.2
None	-95.8	227.9

Notes: n=1,472, attribute levels with highest utility in italics.

Table 5-19: Area 3 (NE) - Results of the hierarchical Bayes model for regulatory choice for Minnesota deer hunters showing utilities of different levels of season attributes

Choice attribute - level	**Average utilities**	**SD**
Cross-tagging		
- Cross-tagging legal for antlerless only	3.8	18.4
- Cross-tagging illegal for both sexes	-30.7	33.5
- *Cross-tagging legal for either sex*	26.9	33.5
Antler Point Restrictions		
- *No antler point restrictions*	25.5	40.8
- Antler point restrictions	-25.5	40.8
Timing of opener		
- *Early November*	66.2	53.1
- Late November	-66.2	53.1
Deer numbers		
- Deer numbers lower than current levels	-61.9	43.1
- Deer numbers at current levels	6.8	15.7
- *Deer numbers higher than current levels*	55.1	40.1
Harvest limits		
- One deer limit, antlerless by permit only (lottery)	-0.9	27.8
- *One deer limit, either sex (hunter choice)*	23.9	23.3
- Two deer limit (managed)	-22.9	36.7
None	-76.8	200.0

Notes: n=1,098, attribute level with highest utility in italics.

Table 5-20: Area 4 (SC) - Results of the hierarchical Bayes model for regulatory choice for Minnesota deer hunters showing utilities of different levels of season attributes

Choice attribute - level	**Average utilities**	**SD**
Cross-tagging		
- Cross-tagging legal for antlerless only	8.3	17.9
- Cross-tagging illegal for both sexes	-37.2	47.4
- *Cross-tagging legal for either sex*	28.8	40.7
Antler Point Restrictions		
- *No antler point restrictions*	8.2	56.1
- Antler point restrictions	-8.2	56.1
Timing of opener		
- *Early November*	44.7	58.5
- Late November	-44.7	58.5
Deer numbers		
- Deer numbers lower than current levels	-57.8	38.2
- Deer numbers at current levels	10.9	11.9
- *Deer numbers higher than current levels*	46.9	33.7
Harvest limits		
- One deer limit, antlerless by permit only (lottery)	-2.1	32.5
- *One deer limit, either sex (hunter choice)*	25.1	23.1
- Two deer limit (managed)	-22.9	40.8
None	-112.3	219.4

Notes: n=1,597, attribute level with highest utility in italic

Table 5-21: Area 5 (NC) - Results of the hierarchical Bayes model for regulatory choice for Minnesota deer hunters showing utilities of different levels of season attributes

Choice attribute - level	**Average utilities**	**SD**
Cross-tagging		
- Cross-tagging legal for antlerless only	11.4	17.1
- Cross-tagging illegal for both sexes	-50.3	43.0
- *Cross-tagging legal for either sex*	38.9	39.4
Antler Point Restrictions		
- *No antler point restrictions*	22.3	42.7
- Antler point restrictions	-22.3	42.7
Timing of opener		
- *Early November*	22.3	42.7
- Late November	-22.3	42.7
Deer numbers		
- Deer numbers lower than current levels	-52.1	43.3
- Deer numbers at current levels	18.8	15.5
- *Deer numbers higher than current levels*	33.3	43.1
Harvest limits		
- One deer limit, antlerless by permit only (lottery)	-10.3	35.3
- *One deer limit, either sex (hunter choice)*	17.5	25.5
- Two deer limit (managed)	-7.1	37.1
None	-120.6	225.5

Notes: n=869, attribute level with highest utility in italic

Table 5-22: Statewide - Results of the hierarchical Bayes model for regulatory choice for Minnesota deer hunters showing utilities of different levels of season attributes

Choice attribute - level	**Average utilities**	**SD**
Cross-tagging		
- Cross-tagging legal for antlerless only	8.4	21.1
- Cross-tagging illegal for both sexes	-40.8	39.8
- *Cross-tagging legal for either sex*	32.3	33.9
Antler Point Restrictions		
- *No antler point restrictions*	17.4	45.3
- Antler point restrictions	-17.4	45.3
Timing of opener		
- *Early November*	59.2	54.1
- Late November	-59.2	54.1
Deer numbers		
- Deer numbers lower than current levels	-55.7	40.2
- Deer numbers at current levels	11.3	14.1
- *Deer numbers higher than current levels*	44.5	39.1
Harvest limits		
- One deer limit, antlerless by permit only (lottery)	-14.0	35.9
- *One deer limit, either sex (hunter choice)*	23.8	26.3
- Two deer limit (managed)	-9.8	43.5
None	-99.9	219.3

Notes: n=2,757, attribute level with highest utility in italic

Table 5-23: Simulated preference shares comparing existing and hypothetical deer season regulatory packages with varying population levels

	Scenario			
Regulatory or Population Attribute	**A**	**B**	**C**	**D**
Cross-tagging	Legal either sex	Legal either sex	Legal either sex	None – I would not hunt deer in MN with these options
Antler Point Restrictions	No	No	No	
Timing of opener	Early November	Early November	Early November	
Deer numbers	Current*	Higher	Higher	
Harvest limit	1 deer (HC)	1 deer (HC)	2 deer (M)	
Share of Preference	**25.47% (+/- 0.29%)**	**40.08% (+/- 0.26%)**	**27.57% (+/- 0.35%)**	**6.88% (+/- 0.31%)**

** Current deer numbers relative to 2014-2016 deer seasons. HC = 1-deer limit, either sex; M = 2-deer limit.*

Table 5-24: Simulated preference shares comparing hypothetical deer season regulatory packages with varying regulations to increase the proportion of antlered bucks

Regulatory or Population Attribute	Scenario				
	A	**E**	**F**	**G**	**H**
	2014-2016 Population Levels				
Cross-tagging	Legal - either sex	Buck cross-tagging illegal	Legal - either sex	Legal - either sex	
Antler Point Restrictions	No	No	Yes	No	None – I would not hunt deer in MN with these options
Timing of opener	Early November	Early November	Early November	Late November	
Deer numbers	Current	Current	Current	Current	
Harvest limit	1 deer (HC)	1 deer (HC)	1 deer (HC)	1 deer (HC)	
Share of Preference	**31.06% (+/- 0.46%)**	**22.35% (+/- 0.33%)**	**23.61% (+/- 0.49%)**	**10.42% (+/- 0.39%)**	**12.55% (+/- 0.41%)**
	Higher Population Levels				
Cross-tagging	Legal - either sex	Buck cross-tagging illegal	Legal - either sex	Legal - either sex	
Antler Point Restrictions	No	No	Yes	No	None – I would not hunt deer in MN with these options
Timing of opener	Early November	Early November	Early November	Late November	
Deer numbers	Higher	Higher	Higher	Higher	
Harvest limit	1 deer (HC)	1 deer (HC)	1 deer (HC)	1 deer (HC)	
Share of Preference	**32.69% (+/- 0.47%)**	**22.98% (+/- 0.32%)**	**24.52% (+/- 0.50%)**	**10.88% (+/- 0.40%)**	**8.93% (+/- 0.33%)**

** Current deer numbers relative to 2014-2016 deer seasons. HC = 1-deer limit, either sex; M = 2-deer limit.*

Section 6: Public Participation in Deer Management

Decision-Making Process

Respondents were asked to indicate their agreement with several statements pertaining to steps in agency decision-making regarding deer population goals, including opportunities to provide input on deer population goals and deer hunting regulations.

With respect to statements about the approach MN DNR uses to set deer population goals, responses indicated neutral to slight disagreement across all areas. The greatest proportion of respondents disagreed that MN DNR provides enough opportunities for hunters to provide input (40.2%; Table 6-1) and do not trust MN DNR to establish appropriate deer goals (37.6%; Table 6-2). In general, the greatest proportion of respondents reported that they were 'not sure' whether MN DNR provides enough opportunities for landowners to provide input (45.4%; Table 6-3), provides enough opportunities for Minnesotans to provide input (47.1%; Table 6-4), provides adequate information for the public to provide input (41.2%; Table 6-5), considers the best available science (52.9%; Table 6-6), follows consistent decision-making processes (51.0%; Table 6-7), or explains different options considered and why the final option was selected (42.3%; Table 6-8).

Hunters were similarly undecided regarding their agreement with statements about the MN DNR approach to setting deer hunting rules (Tables 6-9 to 6-13). In general, the greatest proportion of hunters were 'not sure' that MN DNR provides enough opportunities for hunters to provide input (46.0%; Table 6-9), considers the best available science (54.3%; Table 6-10), follows consistent decision-making procedures (51.8%; Table 6-11), or explains different options considered (46.6%; Table 6-12). Fairly equal proportions of hunters agreed with (36.3%), were undecided about (32.7%), or disagreed with (30.9%) a statement indicating trust in the MN DNR to establish appropriate deer hunting regulations (Table 6-13). There were small differences in trust reported by region, with higher trust levels reported in south central and north central Minnesota.

Preferred Communication

Respondents were asked to identify, from a list of 7 options, a preferred means to provide input to MN DNR. Options included input via general public meetings, issue-based public meetings, a representative organization, online questionnaires, written questionnaires, advisory teams, and information communication. Because the written questionnaire did not limit responses to the selection of one preferred means of input, roughly 6% of all survey respondents selected more than one option. The top ways in which hunters wanted to provide input were through online questionnaires (39.6%; Table 6-14), written questionnaires (15.8%), and general public meetings (13.1%), and this relationship held whether or not the 'multiple' response answers were excluded (Table 6-14a) or by evaluating only online survey responses (Table 6-14b). The least preferred option to provide input was via advisory teams (2.4%; Table 6-14), followed by informal communication (3.9%) and input through a representative organization (4.1%). Notably, providing no input rated higher than all but the top three options and input via a representative (e.g., 'through an organization' or via 'advisory teams') was not well supported.

Relationship with DNR

To better understand hunter attitudes about agency decision making and deer management, respondents were asked to rate, on a scale of 1 (strongly disagree) to 5 (strongly agree), their agreement with several statements about their relationship with MN DNR as it relates to deer management. Overall, fewer respondents were neutral about their relationship and communication with DNR than they were with statements about agency decision-making procedures. Across all areas, hunter agreement was neutral to negative regarding having adequate opportunities to communicate with DNR staff ($\bar{x}$ = 2.9; Table 6-15) and there were no significant differences among areas. In contrast, hunter agreement was neutral to positive regarding knowing who to contact if they have questions or comments about deer management ($\bar{x}$ = 3.1; Table 6-16).

When asked about familiarity and communication with DNR staff, responses indicated greater ties to local conservation officers (Tables 6-17 to 6-18) than with local wildlife managers (Tables 6-19 to 6-20) or deer management staff (Table 6-21 to 6-22). In all cases, the greatest proportion of respondents disagreed that they had communicated with or knew MN DNR staff. A large majority of hunters reported that they have not communicated with (74.9%; Table 6-21) or did not know (76.3%; Table 6-22) deer management staff. Similarly, high proportions of hunters reported that they have not communicated with (68.9%; Table 6-19) or did not know (71.1%; Table 6-20) local wildlife managers. While not as high, the greatest proportion of hunters also reported that they have not communicated with (49.0%; Table 6-17) or did not know (51.9%; Table 6-18) local conservation officers. Across all areas, a majority (61.4%) of those familiar with their local area manager felt that they had adequate opportunities to communicate with MN DNR whereas only about a quarter (26.2%) of those who did not know their local area manager felt they had adequate opportunities to communicate with MN DNR (Table 6-23).

Feelings about DNR

Respondents were asked to rate their agreement with six items addressing their feelings about the Minnesota Department of Natural Resources using the scale 1 (strongly disagree) to 5 (strongly agree). On average, hunter agreement was neutral to negative with statements that MN DNR does a good job of managing deer in Minnesota ($\bar{x}$ = 2.9; Table 6-24), will be open and honest in the things they do and say ($\bar{x}$ = 2.9; Table 6-25), can be trusted to make decisions that are good for the resource ($\bar{x}$ = 3.0; Table 6-26), or will listen to the concerns of hunters ($\bar{x}$ = 2.9; Table 6-27). In contrast, hunter agreement was neutral to positive with statements that MN DNR will make decisions about deer management in a way that is fair ($\bar{x}$ = 3.1; Table 6-28) and that MN DNR has deer managers and biologists who are well trained for their jobs ($\bar{x}$ = 3.3; Table 6-29).

Across all areas, age was negatively correlated with trust that DNR will establish appropriate deer population goals, suggesting that older deer hunters are less trusting of MN DNR (Table 6-30) but this relationship was weak. The same relationship was expressed in trust responses regarding establishment of deer hunting rules although results were only significant for responses from hunters in the east central (r = -0.072, $p < 0.05$), northeastern (r = -0.043, $p < 0.05$), and south central (r = -0.046, $p < 0.05$) Minnesota survey areas.

It is important to note that education is negatively correlated with age (i.e. younger hunters tend to have received higher levels of education than older hunters) and this is reflected in a similarly weak but positive relationship between education and hunter trust in the agency (Table 6-31). On average, and across all areas, members of organized deer groups (MDHA, QDMA, MBI, and MWA) reported significantly lower levels of trust that the agency would establish appropriate deer population goals ($\bar{x}$ = 2.6; Table 6-32) or deer hunting rules ($\bar{x}$ = 2.7; Table 6-33) than those who were not members of an organized deer group ($\bar{x}$ = 2.9 and $\bar{x}$ = 3.0, respectively).

Weak, negative relationships between hunter age and desire to provide input were only observed northwestern (r = -0.057, $p < 0.05$) and south central Minnesota (r = -0.082, $p < 0.05$). Across all areas, greater proportions of hunters over the age of 50 indicated a preference to provide input via public meetings and written questionnaires than younger hunters, whereas a greater proportion of younger hunters reported a preference to provide input via online questionnaires (Table 6-34).

Table 6-1: Approach to setting deer population goals... MN DNR provides enough opportunities for hunters to provide input

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3006	10.3%	32.8%	35.9%	18.6%	2.4%	2.7
2 (EC)	1500	10.7%	31.2%	36.7%	19.1%	2.3%	2.7
3 (NE)	2464	10.3%	33.3%	37.4%	16.4%	2.6%	2.7
4 (SC)	2272	7.8%	28.7%	40.1%	20.6%	2.9%	2.8
5 (NC	1348	7.5%	25.5%	41.5%	21.7%	3.7%	2.9
TOTAL	10563	9.5%	30.7%	38.0%	19.1%	2.7%	2.7
				$\chi2$=79.679***			*F*=16.304***
				V = 0.043			η^2 = 0.006

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-2: Approach to setting deer population goals... I trust DNR to establish appropriate deer population goals

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3006	16.0%	23.1%	30.9%	26.6%	3.3%	2.8
2 (EC)	1499	14.5%	22.6%	31.8%	25.8%	5.3%	2.8
3 (NE)	2467	18.0%	24.8%	28.8%	24.6%	3.8%	2.7
4 (SC)	2269	11.8%	19.6%	31.5%	31.2%	5.9%	3.0
5 (NC	1341	12.8%	21.4%	28.0%	30.9%	6.9%	3.0
TOTAL	10546	14.9%	22.7%	30.2%	27.3%	4.9%	2.8
				$\chi2$=124.602***			*F*=26.164***
				V = 0.054			η^2 = 0.010

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-3: Approach to setting deer population goals... MN DNR provides enough opportunities for landowners to provide input

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3005	10.3%	29.5%	41.3%	16.2%	2.6%	2.7
2 (EC)	1500	9.3%	27.5%	42.9%	17.3%	2.9%	2.8
3 (NE)	2460	9.3%	24.5%	47.9%	15.8%	2.5%	2.8
4 (SC)	2271	7.4%	22.6%	49.0%	18.4%	2.6%	2.9
5 (NC	1346	7.3%	21.4%	48.1%	19.9%	3.3%	2.9
TOTAL	10555	8.9%	25.6%	45.4%	17.4%	2.8%	2.8
				$\chi 2$=95.393***			F=14.531***
				V = 0.047			η^2 = 0.005

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-4: Approach to setting deer population goals... MN DNR provides enough opportunities for Minnesotans to provide input

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3008	7.2%	25.4%	45.9%	18.6%	2.9%	2.8
2 (EC)	1500	8.1%	23.2%	45.6%	20.4%	2.7%	2.9
3 (NE)	2458	7.3%	24.9%	47.2%	17.9%	2.7%	2.8
4 (SC)	2266	5.9%	21.6%	50.3%	19.5%	2.8%	2.9
5 (NC	1344	6.3%	20.5%	48.7%	20.5%	3.9%	3.0
TOTAL	10547	7.1%	23.4%	47.1%	19.4%	2.9%	2.9
				$\chi 2$=40.855**			F=5.624***
				V = 0.031			η^2 = 0.002

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-5: Approach to setting deer population goals... MN DNR provides adequate information for the public to provide input

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2994	7.6%	29.9%	41.5%	19.0%	1.9%	2.8
2 (EC)	1497	9.6%	29.5%	40.3%	18.6%	2.1%	2.7
3 (NE)	2460	9.8%	30.9%	38.5%	18.4%	2.4%	2.7
4 (SC)	2269	7.0%	25.9%	45.4%	19.6%	2.2%	2.8
5 (NC)	1346	7.4%	23.9%	43.2%	22.8%	2.7%	2.9
TOTAL	10538	8.4%	28.4%	41.2%	19.7%	2.3%	2.8
				$\chi 2$=67.894***			F=10.010***
				V = 0.040			η^2 = 0.004

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-6: Approach to setting deer population goals... MN DNR considers the best available science

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3004	6.5%	17.0%	52.6%	21.4%	2.5%	3.0
2 (EC)	1500	7.3%	14.0%	54.0%	21.2%	3.5%	3.0
3 (NE)	2457	7.2%	17.0%	52.5%	20.8%	2.4%	2.9
4 (SC)	2264	4.7%	12.8%	56.3%	22.3%	3.9%	3.1
5 (NC)	1345	5.1%	13.2%	51.2%	25.4%	5.1%	3.1
TOTAL	10545	6.4%	15.2%	52.9%	22.2%	3.3%	3.0
				$\chi 2$=85.382***			F=14.955***
				V = 0.045			η^2 = 0.006

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-7: Approach to setting deer population goals... MN DNR follows consistent decision-making procedures

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3000	9.4%	23.4%	48.5%	17.0%	1.8%	2.8
2 (EC)	1495	9.2%	19.6%	51.8%	17.5%	2.0%	2.8
3 (NE)	2457	8.8%	23.3%	50.9%	14.8%	2.2%	2.8
4 (SC)	2265	6.2%	18.3%	53.5%	19.8%	2.2%	2.9
5 (NC)	1344	6.6%	18.5%	51.6%	20.4%	2.9%	2.9
TOTAL	10531	8.2%	21.0%	51.0%	17.6%	2.2%	2.8
				$\chi 2$=86.663***			F=16.798***
				V = 0.045			η^2 = 0.006

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-8: Approach to setting deer population goals... MN DNR explains different options considered and why the final option was selected

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	3001	9.9%	30.7%	41.0%	16.6%	1.9%	2.7
2 (EC)	1501	11.0%	28.6%	42.0%	16.2%	2.2%	2.7
3 (NE)	2461	10.3%	29.9%	41.8%	15.8%	2.2%	2.7
4 (SC)	2258	7.9%	25.6%	44.5%	19.6%	2.4%	2.8
5 (NC)	1344	8.7%	24.1%	43.5%	20.0%	3.7%	2.9
TOTAL	10539	9.7%	28.2%	42.3%	17.3%	2.4%	2.7
				$\chi 2$=70.211***			F=14.025***
				V = 0.041			η^2 = 0.005

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-9: Approach to setting deer hunting rules... MN DNR provides enough opportunities for hunters to have input

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2919	9.8%	26.8%	43.8%	18.1%	1.4%	2.7
2 (EC)	1452	10.1%	24.7%	45.9%	17.3%	2.1%	2.8
3 (NE)	2424	9.8%	27.7%	43.9%	17.4%	1.2%	2.7
4 (SC)	2211	7.7%	22.5%	47.9%	19.5%	2.4%	2.9
5 (NC)	1312	6.7%	20.4%	49.1%	21.0%	2.8%	2.9
TOTAL	10283	9.0%	24.7%	46.0%	18.4%	1.9%	2.8
				$\chi 2$=81.712***			F=16.218***
				V = 0.044			η^2 = 0.006

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-10: Approach to setting deer hunting rules... MN DNR considers the best available science

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2917	6.5%	14.4%	54.4%	22.9%	1.8%	3.0
2 (EC)	1451	6.8%	12.6%	54.7%	23.1%	2.9%	3.0
3 (NE)	2424	6.3%	15.5%	53.6%	22.8%	1.8%	3.0
4 (SC)	2208	4.8%	11.5%	54.3%	25.7%	3.7%	3.1
5 (NC)	1309	4.6%	9.9%	54.4%	27.0%	4.1%	3.2
TOTAL	10277	5.9%	13.0%	54.3%	24.1%	2.7%	3.0
				$\chi 2$=86.779***			F=17.087***
				V = 0.046			η^2 = 0.007

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-11: Approach to setting deer hunting rules... MN DNR follows consistent decision-making procedures

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2914	7.5%	21.1%	50.1%	19.7%	1.6%	2.9
2 (EC)	1448	7.7%	18.2%	52.7%	19.0%	2.4%	2.9
3 (NE)	2418	7.1%	20.8%	51.8%	19.3%	1.1%	2.9
4 (SC)	2205	5.6%	15.4%	53.9%	22.5%	2.5%	3.0
5 (NC)	1311	5.9%	15.6%	52.5%	24.3%	1.7%	3.0
TOTAL	10264	6.9%	18.7%	51.8%	20.8%	1.8%	2.9
				$\chi 2$=82.279***			F=14.105***
				V = 0.045			η^2 = 0.005

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-12: Approach to setting deer hunting rules... MN DNR explains different options considered and why the final option was selected

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2915	9.2%	27.2%	44.5%	17.7%	1.3%	2.7
2 (EC)	1450	9.8%	25.2%	47.1%	15.9%	1.9%	2.7
3 (NE)	2423	8.4%	27.0%	46.8%	16.8%	1.1%	2.8
4 (SC)	2204	6.8%	21.6%	48.9%	20.4%	2.3%	2.9
5 (NC)	1307	8.5%	20.4%	47.7%	21.2%	2.3%	2.9
TOTAL	10265	8.8%	24.9%	46.6%	18.0%	1.7%	2.8
				$\chi 2$=85.385***			F=15.454***
				V = 0.046			η^2 = 0.006

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-13: Approach to setting deer hunting rules... I trust MN DNR to establish appropriate deer hunting rules

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2918	13.6%	19.0%	34.8%	29.6%	3.1%	2.9
2 (EC)	1451	12.3%	19.6%	33.4%	30.5%	4.3%	2.9
3 (NE)	2426	13.1%	22.3%	30.6%	30.8%	3.3%	2.9
4 (SC)	2206	9.1%	16.4%	33.0%	35.5%	6.0%	3.1
5 (NC)	1310	9.0%	16.9%	32.4%	35.6%	6.0%	3.1
TOTAL	10275	11.7%	19.2%	32.7%	31.9%	4.4%	3.0
				$\chi2$=128.238***			F=26.371***
				V = 0.056			η^2 = 0.010

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-14: Preferred methods to provide input (responses include those who selected more than one option)

	Area					
Input	**1 (NW)**	**2 (EC)**	**3 (NE)**	**4 (SC)**	**5 (NC)**	**TOTAL**
General public meetings	15.3%	11.1%	13.1%	14.0%	13.1%	13.1%
Issue-based public meetings	6.4%	4.7%	6.3%	6.1%	6.8%	6.1%
Through an organization	4.1%	4.5%	4.0%	4.1%	4.2%	4.1%
Online questionnaires	37.0%	41.5%	39.7%	36.3%	41.5%	39.6%
Written questionnaires	16.1%	15.8%	16.4%	15.6%	15.4%	15.8%
Advisory teams	2.7%	2.0%	2.3%	3.1%	2.4%	2.4%
Informal communication	4.0%	4.9%	2.9%	3.8%	3.4%	3.9%
None	7.3%	7.8%	6.4%	7.9%	5.9%	7.0%
Other	1.1%	2.1%	2.5%	2.0%	2.1%	2.0%
Selected multiple means	6.1%	5.7%	6.5%	7.0%	5.2%	5.9%
	$\chi2$=76.937***; V = 0.043					

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-14a: Preferred methods to provide input (those who selected more than one option removed)

	Area					
Input	**1 (NW)**	**2 (EC)**	**3 (NE)**	**4 (SC)**	**5 (NC)**	**TOTAL**
General public meetings	16.3%	11.7%	14.0%	15.0%	13.8%	13.9%
Issue-based public meetings	6.8%	5.0%	6.7%	6.6%	7.2%	6.5%
Through an organization	4.3%	4.8%	4.2%	4.4%	4.4%	4.4%
Online questionnaires	39.4%	44.0%	42.4%	39.1%	43.8%	42.1%
Written questionnaires	17.1%	16.7%	17.5%	16.8%	16.2%	16.8%
Advisory teams	2.9%	2.1%	2.4%	3.4%	2.5%	2.5%
Informal communication	4.2%	5.2%	3.1%	4.1%	3.6%	4.1%
None	7.7%	8.2%	6.9%	8.5%	6.2%	7.5%
Other	1.2%	2.2%	2.7%	2.1%	2.3%	2.1%
	$\chi 2$=71.149***; V = 0.043					

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-14b: Preferred methods to provide input (only online respondents)

	Area					
Input	**1 (NW)**	**2 (EC)**	**3 (NE)**	**4 (SC)**	**5 (NC)**	**TOTAL**
General public meetings	14.0%	9.9%	10.7%	12.8%	12.0%	11.7%
Issue-based public meetings	7.6%	5.1%	6.8%	7.1%	6.7%	6.7%
Through an organization	4.1%	4.4%	3.7%	3.7%	4.2%	4.1%
Online questionnaires	50.6%	57.3%	56.1%	52.5%	55.6%	54.6%
Written questionnaires	8.9%	9.4%	8.6%	7.4%	8.7%	8.7%
Advisory teams	3.2%	2.3%	2.7%	3.0%	2.3%	2.6%
Informal communication	3.6%	4.1%	2.7%	4.2%	3.1%	3.6%
None	6.9%	5.4%	5.7%	6.9%	5.1%	5.9%
Other	1.1%	2.1%	3.1%	2.3%	2.2%	2.2%
	$\chi 2$=62.590**; V = 0.049					

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-15: I have adequate opportunities to communicate with DNR staff

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2916	7.9%	28.8%	35.0%	26.0%	2.3%	2.9
2 (EC)	1453	8.3%	25.0%	36.7%	28.1%	1.9%	2.9
3 (NE)	2409	8.1%	26.9%	36.9%	26.4%	1.7%	2.9
4 (SC)	2204	7.8%	24.3%	38.2%	27.3%	2.5%	2.9
5 (NC)	1310	6.1%	23.2%	38.5%	29.2%	3.0%	3.0
TOTAL	10266	7.7%	25.9%	36.8%	27.4%	2.2%	2.9
				$\chi 2$=39.315***			F=5.550***
				V = 0.031			η^2 = 0.002

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-16: I know who to contact if I have questions or comments

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2916	9.6%	22.1%	24.9%	38.8%	4.7%	3.1
2 (EC)	1454	8.4%	22.2%	26.0%	38.9%	4.5%	3.1
3 (NE)	2415	9.0%	21.8%	26.9%	38.4%	3.9%	3.1
4 (SC)	2207	8.8%	20.0%	28.0%	38.7%	4.4%	3.1
5 (NC)	1311	8.9%	21.1%	25.4%	39.1%	5.6%	3.1
TOTAL	10273	8.8%	21.7%	26.0%	38.9%	4.6%	3.1
				$\chi 2$=16.311, n.s			F=0.750, n.s.
				V = 0.020			η^2 < 0.001

[1] Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-17: I have communicated with my local conservation officer

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2899	15.9%	32.0%	15.1%	31.8%	5.2%	2.8
2 (EC)	1449	16.6%	34.6%	15.8%	28.4%	4.6%	2.7
3 (NE)	2410	15.7%	33.8%	14.4%	31.0%	5.0%	2.8
4 (SC)	2202	17.2%	33.4%	18.5%	26.7%	4.1%	2.7
5 (NC)	1307	16.4%	30.9%	15.5%	31.9%	5.4%	2.8
TOTAL	10236	16.1%	32.9%	15.6%	30.3%	5.0%	2.8
				$\chi 2$=39.137**			F=3.934**
				V = 0.031			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-18: I know my local conservation officer

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2900	17.4%	31.0%	15.9%	29.3%	6.5%	2.8
2 (EC)	1453	19.2%	37.6%	17.1%	21.2%	4.9%	2.5
3 (NE)	2408	18.9%	31.9%	16.6%	26.9%	5.7%	2.7
4 (SC)	2207	22.0%	33.7%	20.5%	19.6%	4.2%	2.5
5 (NC)	1308	19.7%	30.7%	16.2%	26.7%	6.7%	2.7
TOTAL	10245	18.9%	33.0%	16.9%	25.3%	5.8%	2.7
				$\chi 2$=124.289***			F=18.668***
				V = 0.055			η^2 = 0.007

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-19: I have communicated with my local wildlife manager

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2903	22.3%	44.6%	21.2%	10.0%	1.9%	2.2
2 (EC)	1448	24.6%	46.5%	18.5%	8.6%	1.8%	2.2
3 (NE)	2406	24.9%	45.8%	18.7%	8.8%	1.8%	2.2
4 (SC)	2203	25.4%	42.7%	21.8%	8.0%	2.0%	2.2
5 (NC)	1305	25.9%	42.0%	19.2%	11.0%	1.9%	2.2
TOTAL	10228	24.3%	44.6%	19.8%	9.5%	1.9%	2.2
				$\chi 2$=33.723**			F=2.755**
				V = 0.029			η^2 = 0.001

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-20: I know my local wildlife manager

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2904	23.9%	45.0%	20.2%	9.2%	1.7%	2.2
2 (EC)	1445	26.1%	47.1%	18.2%	6.8%	1.9%	2.1
3 (NE)	2414	27.4%	44.7%	19.3%	6.6%	2.0%	2.1
4 (SC)	2202	27.2%	42.4%	21.4%	6.9%	2.0%	2.1
5 (NC)	1304	28.1%	42.9%	18.8%	8.1%	2.1%	2.1
TOTAL	10231	26.3%	44.8%	19.4%	7.6%	1.9%	2.1
				$\chi 2$=37.673**			F=3.443**
				V = 0.030			η^2 = 0.001

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-21: I have communicated with deer management staff

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2904	25.3%	47.8%	20.1%	5.7%	1.1%	2.1
2 (EC)	1447	28.0%	48.2%	17.4%	5.8%	0.6%	2.0
3 (NE)	2414	28.2%	48.0%	17.6%	5.3%	1.0%	2.0
4 (SC)	2206	29.0%	45.1%	20.5%	4.8%	0.6%	2.0
5 (NC)	1307	29.8%	45.1%	18.0%	6.4%	0.8%	2.0
TOTAL	10240	27.8%	47.1%	18.5%	5.7%	0.8%	2.0
				$\chi 2$=32.585**			F=2.957***
				V = 0.028			η^2 = 0.001

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-22: I know deer management staff

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2892	27.1%	46.9%	20.2%	5.0%	0.7%	2.1
2 (EC)	1448	29.8%	48.4%	17.1%	4.0%	0.7%	2.0
3 (NE)	2406	30.3%	46.7%	18.2%	3.7%	1.0%	2.0
4 (SC)	2205	30.8%	45.2%	20.3%	3.0%	0.7%	2.0
5 (NC)	1304	31.1%	45.1%	17.9%	5.2%	0.7%	2.0
TOTAL	10222	29.5%	46.8%	18.6%	4.3%	0.8%	2.0
				$\chi 2$=38.741**			F=3.852**
				V = 0.031			η^2 = 0.002

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-23 Agreement with statement... I have adequate opportunities to communicate with MN DNR, based on reported familiarity with area wildlife manager

Know Area Manager	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Significance	Effect Size
Area 1 (NW)								
No	2585	8.5%	30.3%	36.6%	22.9%	1.7%	$\chi 2$=170.144***	*V* = 0.242
Yes	317	2.5%	17.4%	22.1%	50.5%	7.6%		
Area 2 (EC)								
No	1319	8.3%	26.2%	38.4%	25.6%	1.4%	$\chi 2$=73.278***	*V* = 0.225
Yes	124	8.9%	11.3%	19.4%	53.2%	7.3%		
Area 3 (NE)								
No	2196	8.5%	27.6%	38.9%	24.2%	0.8%	$\chi 2$=203.866***	*V* = 0.291
Yes	208	3.4%	19.7%	16.3%	49.5%	11.1%		
Area 4 (SC)								
No	1994	8.2%	25.7%	40.1%	24.4%	1.5%	$\chi 2$=176.833***	*V* = 0.284
Yes	198	3.0%	11.1%	19.2%	55.6%	11.1%		
Area 5 (NC)								
No	1168	6.4%	24.7%	40.8%	25.9%	2.1%	$\chi 2$=90.438***	*V* = 0.264
Yes	132	3.8%	10.6%	20.5%	53.8%	11.4%		
STATE								
No	9237	8.0%	27.1%	38.7%	24.7%	1.5%	$\chi 2$=638.559***	*V* = 0.250
Yes	973	4.3%	14.5%	19.8%	52.0%	9.4%		

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-24: MN DNR does a good job of managing deer in Minnesota

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2937	14.6%	23.5%	30.1%	27.3%	4.5%	2.8
2 (EC)	1463	13.9%	24.1%	28.8%	28.0%	5.2%	2.9
3 (NE)	2411	16.2%	28.5%	26.7%	24.6%	3.9%	2.7
4 (SC)	2210	9.7%	19.6%	32.0%	32.7%	5.9%	3.1
5 (NC)	1316	9.4%	20.0%	29.8%	33.5%	7.3%	3.1
TOTAL	10311	13.2%	23.8%	29.0%	28.8%	5.3%	2.9
				$\chi2$=178.054***			*F*=40.089***
				V = 0.066			η^2 = 0.015

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-25: MN DNR will be open and honest in the things they do and say

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2933	11.1%	22.6%	39.2%	21.3%	5.9%	2.9
2 (EC)	1461	11.3%	20.7%	39.3%	22.7%	6.0%	2.9
3 (NE)	2406	12.5%	23.3%	37.5%	22.2%	4.5%	2.8
4 (SC)	2204	7.8%	18.2%	41.3%	26.7%	5.9%	3.0
5 (NC)	1317	7.9%	16.4%	41.5%	26.5%	7.7%	3.1
TOTAL	10297	10.4%	20.6%	39.4%	23.6%	6.0%	2.9
				$\chi2$=110.016***			*F*=22.786***
				V = 0.052			η^2 = 0.009

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-26: MN DNR can be trusted to make decisions about deer management that are good for the resource

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2931	12.4%	21.9%	34.3%	26.0%	5.5%	2.9
2 (EC)	1464	12.3%	19.6%	33.9%	27.4%	6.8%	3.0
3 (NE)	2407	12.9%	24.6%	30.7%	26.5%	5.3%	2.9
4 (SC)	2206	8.9%	18.3%	32.1%	33.4%	7.3%	3.1
5 (NC)	1315	8.5%	17.6%	34.8%	31.0%	8.0%	3.1
TOTAL	10304	11.2%	20.8%	33.4%	28.1%	6.5%	3.0
				$\chi2$=117.353***			*F*=24.488***
				V = 0.053			η^2 = 0.009

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-27: MN DNR listens to the concerns of deer hunters

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2920	13.5%	20.8%	40.7%	21.0%	4.0%	2.8
2 (EC)	1458	12.1%	18.9%	41.2%	23.0%	4.7%	2.9
3 (NE)	2398	13.9%	22.1%	37.4%	22.8%	3.8%	2.8
4 (SC)	2205	9.1%	18.4%	43.4%	24.1%	5.0%	3.0
5 (NC)	1313	9.2%	16.1%	41.9%	26.9%	5.9%	3.0
TOTAL	10272	11.8%	19.6%	40.6%	23.4%	4.7%	2.9
				$\chi2$=93.628***			*F*=18.997***
				V = 0.048			η^2 = 0.007

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-28: MN DNR will make decisions about deer management in a way that is fair

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2927	8.5%	20.2%	39.1%	26.6%	5.6%	3.0
2 (EC)	1465	9.2%	17.3%	39.2%	28.2%	6.1%	3.0
3 (NE)	2399	9.8%	19.9%	37.4%	27.6%	5.3%	3.0
4 (SC)	2205	6.4%	14.5%	38.4%	34.4%	6.3%	3.2
5 (NC)	1316	6.5%	15.0%	39.1%	31.4%	8.0%	3.2
TOTAL	10291	8.3%	17.9%	38.7%	28.9%	6.2%	3.1
				$\chi 2$=103.091***			F=20.915***
				V = 0.050			η^2 = 0.008

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-29: MN DNR has deer managers that are well trained for their jobs

Area	n	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean[1]
1 (NW)	2924	6.2%	8.5%	48.9%	27.8%	8.7%	3.2
2 (EC)	1461	5.9%	8.4%	50.2%	27.0%	8.5%	3.2
3 (NE)	2401	6.2%	8.6%	52.4%	24.7%	8.1%	3.2
4 (SC)	2206	4.6%	7.6%	50.2%	28.1%	9.5%	3.3
5 (NC)	1315	3.8%	7.0%	48.4%	28.4%	12.3%	3.4
TOTAL	10286	5.4%	8.2%	50.0%	27.0%	9.4%	3.3
				$\chi 2$=49.878***			F=10.219***
				V = 0.035			η^2 = 0.004

[1] *Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree*
*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

Table 6-30: Relationship of hunter age and trust in MN DNR to establish appropriate deer population goals

Area	n	Correlation of age and trust	*P*
1 (NW)	2898	-0.042	0.023
2 (EC)	1450	-0.099	< 0.001
3 (NE)	2401	-0.051	0.012
4 (SC)	2200	-0.088	< 0.001
5 (NC)	1305	-0.004	0.887
TOTAL	10228	-0.052	< 0.001

Table 6-31: Relationship of hunter education level and trust in DNR to establish appropriate deer population goals

Area	n	Correlation of education and trust	*P*
1 (NW)	2925	0.078	< 0.001
2 (EC)	1455	0.018	0.504
3 (NE)	2407	0.087	< 0.001
4 (SC)	2209	0.031	0.145
5 (NC)	1306	0.136	< 0.001
TOTAL	10268	0.073	< 0.001

Table 6-32: Trust in MN DNR to establish appropriate deer population goals based on membership in an organized deer group (MDHA, QDMA, MBI, MWA)

		Mean agreement				
Area	n	Member	Non-member	*t*	*P*	Cohen's *d*
1 (NW)	3005	2.45	2.83	6.160	0.000	.539
2 (EC)	1498	2.56	2.89	3.791	0.000	.466
3 (NE)	2466	2.57	2.74	2.370	0.018	.235
4 (SC)	2268	2.85	3.01	1.990	0.048	.258
5 (NC)	1341	2.69	3.02	3.550	0.000	.466
TOTAL	10546	2.58	2.88	9.004	0.000	.429

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree

Table 6-33: Trust in MN DNR to establish appropriate deer hunting rules based on membership in an organized deer group (MDHA, QDMA, MBI, MWA)

		Mean agreement				
Area	**n**	**Member**	**Non-member**	***t***	***P***	**Cohen's *d***
1 (NW)	2917	2.57	2.95	6.268	0.000	.550
2 (EC)	1450	2.64	3.00	4.152	0.000	.517
3 (NE)	2425	2.69	2.92	3.497	0.001	.343
4 (SC)	2206	3.02	3.14	1.527	0.128	.197
5 (NC)	1309	2.87	3.17	3.440	0.001	.450
TOTAL	10275	2.71	3.02	9.585	0.000	.458

Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree

Table 6-34: Preferred means to provide input, by age

Age	General public meetings	Issue-based public meetings	Through an organization	Online questionnaires	Written questionnaires	Advisory teams	Informal communication	None	Other	Selected multiple means
Area 1										
<50	13.9%	5.1%	3.5%	44.6%	13.3%	3.1%	3.6%	6.8%	1.4%	4.6%
50+	16.4%	7.7%	4.7%	30.1%	18.4%	2.4%	4.4%	7.9%	0.8%	7.3%
$\chi 2$=79.287***; *V* = 0.167										
Area 2										
<50	8.6%	4.4%	3.8%	51.0%	11.1%	2.7%	4.5%	7.2%	2.0%	4.7%
50+	13.0%	5.1%	5.2%	34.4%	19.5%	1.5%	5.3%	7.8%	2.0%	6.2%
$\chi 2$=51.559***; *V* = 0.190										
Area 3										
<50	10.4%	4.2%	3.0%	50.9%	11.6%	1.8%	2.7%	6.8%	1.9%	6.6%
50+	14.8%	7.6%	4.6%	32.8%	19.7%	2.5%	2.8%	5.8%	3.0%	6.3%
$\chi 2$=96.964***; *V* = 0.202										
Area 4										
<50	11.5%	5.8%	3.1%	44.1%	12.7%	3.2%	4.0%	7.8%	1.9%	5.9%
50+	16.3%	6.5%	5.0%	29.1%	18.6%	3.2%	3.6%	7.5%	2.0%	8.1%
$\chi 2$=63.846***; *V* = 0.171										
Area 5										
<50	9.1%	6.2%	2.6%	52.5%	9.3%	1.6%	5.4%	6.2%	3.4%	3.8%
50+	12.9%	6.8%	4.2%	41.7%	15.4%	2.5%	3.5%	5.8%	2.2%	5.1%
$\chi 2$=76.033***; *V* = 0.242										
State										
<50	10.6%	5.1%	3.1%	48.8%	11.7%	2.4%	4.1%	7.2%	2.0%	5.0%
50+	14.9%	6.9%	5.0%	32.9%	19.0%	2.4%	3.7%	6.8%	1.9%	6.5%
$\chi 2$=321.886***; *V* = 0.178										

*n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001*

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Appendix A. Example Hunter Survey

2015 Survey of Minnesota Deer Hunters (H3): Hunters Opinions and Activities

A cooperative study conducted by the University of Minnesota for the Minnesota Department of Natural Resources

Your help on this study is greatly appreciated!

Please return your completed questionnaire in the enclosed envelope. The envelope is self-addressed and no postage is required. Thanks!

Minnesota Cooperative Fish & Wildlife Research Unit,
1980 Folwell Ave., 200 Hodson Hall
Department of Fisheries, Wildlife and Conservation Biology
University of Minnesota
St. Paul, MN 55108

Part I. Goal-Setting Survey

1. Please check the boxes below to report if you hunted deer in Minnesota during the 2013, 2014 or 2015 Minnesota deer season. (*Please check all that apply*).

   ❑ 2013 | ❒ 2014 | ❒ 2015

   ❑ I did not hunt deer any of these years → **PLEASE SKIP TO QUESTION 13**

2. Minnesota allows people to hunt deer during all 3 seasons. For the most recent year you hunted, which seasons did you participate? Please mark 'Yes' if you hunted a season and also estimate the number of days you scouted and hunted.

Season	Yes	No	If Yes, Number of Days Scouting	If Yes, Number of Days Hunting
Archery	❒	❒	_____	_____
Firearm	❒	❒	_____	_____
Muzzleloader	❒	❒	_____	_____

3. Which **ONE** deer permit area did you hunt most often during the <u>most recent</u> deer season you hunted?

   ❑ 101 | ❑ 103 | ❑ 105 | ❑ 108 | ❑110 | ❑ 111 | ❑ 114 | ❑ 117 | ❑ 118 | ❑ 119 | ❑ 122 |

   ❑ 126 | ❑ 127 | ❑ 171 | ❑ 173 | ❑ 176 | ❑ 177 | ❑ 178 | ❑ 179 | ❑ 180 | ❑ 181 | ❑ 199 |

   ❑ I hunted a permit area not listed

4. If you <u>did not hunt one of the permit areas</u> listed above, please tell us which one you hunted most often:

   _____Area Number

5. Including 2015, how many years have you hunted deer in the permit area you hunt most often? _____ Years

6. Including 2015, how many years have you been hunting deer in Minnesota? _____ Years

7. How much of your deer hunting did you do on each of the following types of land during your most recent deer hunting season? *(Please circle one item from each row.)*

	None	**Some**	**Most**	**All**
Private land that I own	1	2	3	4
Private land that I lease for hunting	1	2	3	4
Private land that I do **<u>not</u>** own or lease	1	2	3	4
Public land	1	2	3	4

8. Besides DNR regulations, please indicate if there are any deer harvest restrictions on the property you hunt most often.

- ❑ Antlerless harvest is restricted, but hunters can take any legal buck
- ❑ Buck harvest restricted to large antlered bucks, but hunters can take any antlerless deer
- ❑ Buck harvest restricted to large antlered bucks, and antlerless harvest is also restricted
- ❑ No restrictions on the type of deer that can be harvested
- ❑ Other (please explain): _____

9. Please indicate whether you agree or disagree with the following statements regarding your most recent deer hunt. (*Please circle one number for each statement below*).

	Strongly Disagree	**Slightly Disagree**	**Neither Agree nor Disagree**	**Slightly Agree**	**Strongly Agree**
I was satisfied with the number of legal bucks	1	2	3	4	5
I was satisfied with the quality of bucks	1	2	3	4	5
I heard about or saw legal bucks while hunting	1	2	3	4	5
I was satisfied with the number of antlerless deer	1	2	3	4	5
I was satisfied with the number of deer I saw while hunting	1	2	3	4	5

10. Will you shoot an antlerless deer if given the opportunity?
    - ❑ Yes ❑ No

11. Over the past 5 years, what trend have you seen in the deer population in the permit area you hunt most often?
    - ❑ Much fewer deer now than 5 years ago
    - ❑ Slightly fewer deer now than 5 years ago
    - ❑ About the same number of deer as 5 years ago
    - ❑ Slightly more deer now than 5 years ago
    - ❑ Many more deer now than 5 years ago

12. In thinking about the deer permit area you hunt, please indicate your overall satisfaction with current deer numbers.
    - ❑ Very Dissatisfied
    - ❑ Slightly Dissatisfied
    - ❑ Neither Dissatisfied nor Satisfied
    - ❑ Slightly Satisfied
    - ❑ Very Satisfied

13. How much importance should we assign to each of the following considerations when setting deer population goals? (*Please circle one number for each statement below*).

	Not at all Important	A little Important	Moderately Important	Important	Very Important
Amount of deer mortality during an **average** winter	1	2	3	4	5
Amount of deer mortality during a **severe** winter	1	2	3	4	5
Potential health risks to the deer herd	1	2	3	4	5
Public health (human-deer diseases)	1	2	3	4	5
Amount of crop damage from deer	1	2	3	4	5
Number of deer-vehicle collisions	1	2	3	4	5
Deer over-browsing of forests	1	2	3	4	5
Impacts of deer on other wildlife species	1	2	3	4	5
Deer hunting heritage and tradition	1	2	3	4	5
Hunter satisfaction with deer numbers	1	2	3	4	5
Public satisfaction with deer numbers	1	2	3	4	5
Impact of deer hunting on the local economy	1	2	3	4	5

14. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.
    1) _____
    2) _____
    3) _____

15. In thinking about the deer permit area you hunt, would you say the deer population is,

    ❑ Much too Low ❑ Too Low ❑ About Right ❑ Too High ❑ Much too High

16. In thinking about the property you hunt and the surrounding area, at what level do you think the deer population should be managed? (*Please circle one*).

1	2	3	4	5	6	7
Decrease Population 50% (Significant)	Decrease Population 25% (Moderate)	Decrease Population 10% (Slight)	No Change	Increase Population 10% (Slight)	Increase Population 25% (Moderate)	Increase Population 50% (Significant)

17. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the deer area you hunt most often?
    ❑ Strongly Oppose
    ❑ Slightly Oppose
    ❑ Neither Oppose nor Support
    ❑ Slightly Support
    ❑ Strongly Support

Part II. Extended Survey

18. Would you say you know a great deal, a moderate amount, a little, or nothing about DNR's deer management program? (*Check one*).

- ❑ **A great deal** – For example, I read most of the hunting handbook, DNR news releases, and/or follow the outdoor media
- ❑ **A moderate amount** – For example, I read parts of the handbook and/or occasionally follow the outdoor media
- ❑ **A little** – For example, I only read the parts of the handbook that pertain to me and don't follow the outdoor media
- ❑ **Nothing** – For example, I buy my license just before the season and follow the advice of my friends

19. Indicate how strongly you disagree or agree with the following statements about steps in setting deer population goals. *(Please choose only one response for each statement.)*

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
It is important for hunters to have opportunities to provide input regarding population goals	1	2	3	4	5
It is important for landowners to have opportunities to provide input regarding population goals	1	2	3	4	5
It is important for Minnesotans to have opportunities to provide input regarding population goals	1	2	3	4	5
It is important to use the best available science when setting population goals	1	2	3	4	5
It is important to consider diverse interests when setting population goals	1	2	3	4	5
It is important to follow consistent decision-making procedures when setting population goals	1	2	3	4	5
It is important that decision-makers explain different options considered when deer population goals are set, and why the final option was selected	1	2	3	4	5

20. Indicate how strongly you disagree or agree with the following statements about the approach used by the Minnesota Department of Natural Resources to set deer population goals. *(Please choose only one response for each statement.)*

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
DNR provides enough opportunities for hunters to have input regarding population goals	1	2	3	4	5
DNR provides enough opportunities for landowners to have input regarding population goals	1	2	3	4	5
DNR provides enough opportunities for Minnesotans to have input regarding population goals	1	2	3	4	5
DNR provides adequate information for the public to provide input regarding population goals	1	2	3	4	5
DNR considers the best available science when setting population goals	1	2	3	4	5
DNR follows consistent decision-making procedures when setting population goals	1	2	3	4	5
DNR explains different options considered when deer population goals are set, and why the final option was selected	1	2	3	4	5
I trust the DNR to establish appropriate deer population goals	1	2	3	4	5

21. Which one of the following best describes how you deer hunted deer during the 2015 regular firearms deer hunting season in Minnesota? Would you say you (*Check only one*):
    - ❑ Hunted for large antlered bucks during the entire season
    - ❑ Hunted for large antlered bucks early season and any legal deer later
    - ❑ Would shoot any antlered buck
    - ❑ Would shoot the first legal deer (either antlered or antlerless) that offered a good shot
    - ❑ Would shoot only antlerless deer
    - ❑ Chose not to harvest a deer due to population concern

22. Which statement best characterizes where you hunt?
    - ❑ I almost never hunt the same area every year
    - ❑ I change my hunting location every 1 to 2 years
    - ❑ I change my hunting location every 3 to 5 years
    - ❑ I typically hunt the same area every year

23. If you hunt private land, what size is the parcel you typically hunt? _____ acres

24. Do you cooperate with other deer hunters on nearby properties with respect to deer harvest restrictions, so that there are similar strategies in place in the area you hunt?
    - ❑ Yes ❑ No

25. Which techniques did you use to hunt during the most recent year you hunted? Check each item that applies.
    - ❑ Stand hunting from ground stand/blind
    - ❑ Stalking or moving slowly
    - ❑ Hunting from elevated tree stand
    - ❑ Participated in deer drives as member of a party

26. During the 2015 Minnesota deer season, did you:

	Yes	No
Kill and tag an antlerless deer	❑	❑
Kill and tag a legal buck	❑	❑
Kill a deer for another hunter (a member of your party tagged the deer you killed)	❑	❑
Use your tag on a deer that another hunter killed?	❑	❑

27. Please indicate how much you support or oppose the following potential changes to deer hunting regulations in Minnesota.

	Strongly Oppose	Slightly Oppose	Neither	Slightly Support	Strongly Support
Delay the firearm deer season one week. The deer season would open the Saturday closest to November 13th. Currently, the season opens the Saturday closest to November 6th, which is about one week prior to peak rut.	1	2	3	4	5
Delay the firearm deer season until late November. The deer season would open the Saturday closest to November 20th.	1	2	3	4	5
Institute an antler point restriction. This would be for adult hunters only. Youth hunters could still take any deer.	1	2	3	4	5
Eliminate buck cross-tagging. People would still be allowed to hunt as a party but hunters would be required to shoot and tag their own buck. Hunters would still be allowed to shoot and tag antlerless deer for each other.	1	2	3	4	5
Eliminate cross-tagging for bucks and antlerless deer.	1	2	3	4	5

28. Below is a series of 8 hypothetical scenarios for potential combinations for deer seasons and regulations. We are interested in your preferences for potential deer hunting regulations in Minnesota. Some of these scenarios may seem unlikely, and there are no specific changes planned at this time. (*For each scenario, select the one choice with the characteristics you would prefer.)*

	Option 1	**Option 2**	**NONE**: I would not hunt deer in MN with these options.
Scenario 1.	➢ Cross-tagging illegal for both sexes ➢ Antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers higher than current levels ➢ Two deer limit (Managed)	➢ Cross-tagging legal for either sex ➢ No antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers lower than current levels ➢ One deer limit, either sex (Hunter Choice)	
Check <u>one</u> box ▶	❑	❑	❑

	Option 1	**Option 2**	**NONE**: I would not hunt deer in MN with these options.
Scenario 2.	➢ Cross-tagging legal for either sex ➢ No antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers higher than current levels ➢ Two deer limit (Managed)	➢ Cross-tagging legal for antlerless only ➢ Antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers at current levels ➢ One deer limit, antlerless by permit only (Lottery)	
Check <u>one</u> box ▶	❑	❑	❑

	Option 1	**Option 2**	**NONE**: I would not hunt deer in MN with these options.
Scenario 3.	➢ Cross-tagging legal for antlerless only ➢ Antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers at current levels ➢ One deer limit, antlerless by permit only (Lottery)	➢ Cross-tagging illegal for both sexes ➢ No antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers lower than current levels ➢ One deer limit, either sex (Hunter Choice)	
Check <u>one</u> box ▶	❑	❑	❑

28. Continued (*For each scenario, select the one choice with the characteristics you would prefer.)*

Scenario 4.	**Option 1** ➢ Cross-tagging legal for either sex ➢ No antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers higher than current levels ➢ One deer limit, antlerless by permit only (Lottery)	**Option 2** ➢ Cross-tagging illegal for both sexes ➢ Antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers higher than current levels ➢ One deer limit, either sex (Hunter Choice)	**NONE**: I would not hunt deer in MN with these options.
Check <u>one</u> box ►	❑	❑	❑

Scenario 5.	**Option 1** ➢ Cross-tagging legal for antlerless only ➢ No antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers lower than current levels ➢ Two deer limit (Managed)	**Option 2** ➢ Cross-tagging legal for antlerless only ➢ Antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers at current levels ➢ One deer limit, either sex (Hunter Choice)	**NONE**: I would not hunt deer in MN with these options.
Check <u>one</u> box ►	❑	❑	❑

Scenario 6.	**Option 1** ➢ Cross-tagging illegal for both sexes ➢ No antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers at current levels ➢ Two deer limit (Managed)	**Option 2** ➢ Cross-tagging legal for either sex ➢ Antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers lower than current levels ➢ Two deer limit (Managed)	**NONE**: I would not hunt deer in MN with these options.
Check <u>one</u> box ►	❑	❑	❑

Scenario 7.	**Option 1** ➢ Cross-tagging legal for antlerless only ➢ Antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers higher than current levels ➢ One deer limit, antlerless by permit only (Lottery)	**Option 2** ➢ Cross-tagging illegal for both sexes ➢ No antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers lower than current levels ➢ One deer limit, antlerless by permit only (Lottery)	**NONE**: I would not hunt deer in MN with these options.
Check <u>one</u> box ►	❑	❑	❑

Scenario 8.	**Option 1** ➢ Cross-tagging legal for antlerless only ➢ Antler point restrictions ➢ Early November opener (during rut) ➢ Deer numbers at current levels ➢ One deer limit, either sex (Hunter Choice)	**Option 2** ➢ Cross-tagging illegal for both sexes ➢ No antler point restrictions ➢ Late November opener (out of the rut) ➢ Deer numbers at current levels ➢ Two deer limit (Managed)	**NONE**: I would not hunt deer in MN with these options.
Check <u>one</u> box ►	❑	❑	❑

29. Please indicate how much you disagree or agree with the following statements about your involvement in deer hunting in Minnesota. (*Please circle <u>one</u> response <u>for each</u>):*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Deer hunting is one of the most enjoyable things I do.	1	2	3	4	5
Deer hunting provides me with the opportunity to be with friends.	1	2	3	4	5
To change my preference from deer hunting to another recreation activity would require major rethinking.	1	2	3	4	5
A lot of my life is organized around deer hunting.	1	2	3	4	5
Deer hunting has a central role in my life.	1	2	3	4	5
Most of my friends are in some way connected with deer hunting.	1	2	3	4	5
When I am deer hunting, others see me the way I want them to see me.	1	2	3	4	5
I identify with the people and images associated with deer hunting.	1	2	3	4	5
Deer hunting is one of the most satisfying things I do.	1	2	3	4	5
Participating in deer hunting says a lot about who I am.	1	2	3	4	5
Deer hunting is very important to me.	1	2	3	4	5
You can tell a lot about a person when you see them deer hunting.	1	2	3	4	5
When I am deer hunting I can really be myself.	1	2	3	4	5
I enjoy discussing deer hunting with my friends.	1	2	3	4	5
When I am deer hunting, I don't have to be concerned about what other people think of me.	1	2	3	4	5
I contribute to deer management through hunting.	1	2	3	4	5

30. During the 2015 Minnesota deer hunting season, how satisfied or dissatisfied were you with the following?

	Very dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Very satisfied
General deer hunting experience	1	2	3	4	5
Deer hunting harvest	1	2	3	4	5
Deer hunting regulations	1	2	3	4	5
Number of other deer hunters seen	1	2	3	4	5

31. Overall, how satisfied were you with your 2015 deer hunt?

- ❑ Very dissatisfied
- ❑ Slightly dissatisfied
- ❑ Neither satisfied or dissatisfied
- ❑ Slightly satisfied
- ❑ Very satisfied

32. Please tell us how important each of the following experiences was to your deer hunting satisfaction during the 2015 season.

	Not at all important	Slightly important	Somewhat important	Very important	Extremely important
Being with hunting companions	1	2	3	4	5
The challenge of harvesting a trophy buck	1	2	3	4	5
Developing my skills and abilities with hunting equipment	1	2	3	4	5
Becoming a better deer hunter	1	2	3	4	5
Influencing deer sex ratios or age structures	1	2	3	4	5
Hunting with friends	1	2	3	4	5
Improving my knowledge about deer and deer management	1	2	3	4	5
Getting food for my family	1	2	3	4	5
Harvesting any deer for meat	1	2	3	4	5
Enjoying a preferred pastime	1	2	3	4	5
Harvesting any buck	1	2	3	4	5
Enjoying nature and the outdoors	1	2	3	4	5
Helping manage deer populations	1	2	3	4	5
Getting a buck every year	1	2	3	4	5
Hunting with family	1	2	3	4	5
Seeing a lot of bucks	1	2	3	4	5
Harvesting a large buck	1	2	3	4	5
Proving my hunting skills and knowledge	1	2	3	4	5
Harvesting at least one deer	1	2	3	4	5
Selectively harvesting a large buck even if it means not killing a deer	1	2	3	4	5
Seeing a lot of deer	1	2	3	4	5

33. How would you best describe your identification with the activity of deer hunting (*While more than one option may apply to you, please select one choice*)

- ❑ **I am a recreational deer hunter** – I hunt to get away from my regular routine, enjoy nature and an outdoor recreation experience.
- ❑ **I am a meat hunter** – I hunt to provide food for my family and friends. Venison is an important part of our annual diet.
- ❑ **I am a trophy hunter** – I hunt for the challenge of harvesting a large buck. The opportunity to see or harvest a trophy animal is more important to me than tagging a deer every year.
- ❑ **I am a social deer hunter** – The companionship of the hunt is most important to me. Hunting gives me an opportunity to spend time with family and friends.
- ❑ **I am a science-oriented hunter** – I spend a significant amount of time reading about deer behavior and deer management. I look for the most up-to-date research and expertise to inform my hunt. I make hunting decisions based on deer management objectives.
- ❑ **I am a skills-oriented hunter** – Hunting is a way to test and improve my skills. I enjoy the challenge of using new equipment and spend considerable time practicing to become more proficient.
- ❑ **I am a casual/occasional deer hunter** – I enjoy deer hunting but don't go every year. I don't spend a lot of time preparing for my season.

34. Currently, Minnesota holds a youth deer season mid-October in portions of northwestern and southeastern Minnesota with additional special youth hunts held during the same period throughout the state. Would you support or oppose a statewide youth season in mid-October? *(Please circle one.)*

1	**2**	**3**	**4**	**5**
Strongly oppose	Oppose	Neutral	Support	Strongly support

35. Currently, Minnesota employs different firearm season lengths statewide (e.g. 100-series season is 16 days while the 200-series is 9 days). If a consistent, statewide season were implemented, which length would you prefer?

❑ 9 days ❑ 16 days

36. If the MnDNR were to adopt new deer management regulations, would you prefer to see them applied (*Check one*).
- ❑ Statewide
- ❑ By Zone (e.g., 100-series, 200-series, 300-series)
- ❑ By Deer Permit Area

37. Indicate how strongly you disagree or agree with the following statements about the approach used by the Minnesota Department of Natural Resources to set deer hunting rules. *(Please choose only one response for each statement.)*

	Strongly Disagree	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**
DNR provides enough opportunities for hunters to have input regarding hunting rules	1	2	3	4	5
DNR considers the best available science when setting hunting rules	1	2	3	4	5
DNR follows consistent decision-making procedures when setting hunting rules	1	2	3	4	5
DNR explains different options considered when deer hunting rules are set, and why the final option was selected	1	2	3	4	5
I trust the DNR to establish appropriate deer hunting rules	1	2	3	4	5

38. Indicate how strongly you disagree or agree with the following statements about your relationship with Minnesota DNR as it relates to deer management. *(Please choose only one response for each statement.)*

	Strongly Disagree	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**
I have adequate opportunities to communicate with DNR staff	1	2	3	4	5
I know who to contact if I have questions or comments	1	2	3	4	5
I have communicated with my local conservation officer	1	2	3	4	5
I know my local conservation officer	1	2	3	4	5
I have communicated with my local wildlife manager	1	2	3	4	5
I know my local wildlife manager	1	2	3	4	5
I have communicated with deer management staff	1	2	3	4	5
I know deer management staff	1	2	3	4	5

39. What is your preferred means to provide input on deer management decisions?

- ❑ General public meetings
- ❑ Issue-based public meetings
- ❑ Through a representative organization
- ❑ Online questionnaires
- ❑ Other _____
- ❑ Written questionnaires
- ❑ Advisory teams
- ❑ Informal communication (e.g., telephone)
- ❑ None

40. Are you currently a member of: (*Check <u>all</u> that apply*.)

- ❑ Minnesota Deer Hunters Association
- ❑ Quality Deer Management Association
- ❑ Local sporting club
- ❑ Other national/statewide conservation/hunting organization(s)
- ❑ Minnesota Whitetail Alliance
- ❑ Minnesota Bowhunters, Inc
- ❑ None

Please specify: _____

41. Please let us know how you feel about the Minnesota Department of Natural Resources. (*Please circle one response for each of the following statements.)*

	Strongly Disagree	**Slightly Disagree**	**Neither Agree nor Disagree**	**Slightly Agree**	**Strongly Agree**
The MnDNR does a good job of managing deer in Minnesota.	1	2	3	4	5
When deciding about deer management in Minnesota, the MnDNR will be open and honest in the things they do and say.	1	2	3	4	5
The MnDNR can be trusted to make decisions about deer management that are good for the resource.	1	2	3	4	5
The MnDNR will make decisions about deer management in a way that is fair.	1	2	3	4	5
The MnDNR has deer managers and biologists who are well-trained for their jobs.	1	2	3	4	5
The MnDNR listens to the concerns of deer hunters.	1	2	3	4	5

42. How many years have you lived in Minnesota? _____ Years

43. What is your gender?

❑ Male ❑ Female

44. What is your age? _____

45. What is the highest level of education you have completed? *(Check one.)*

- ❑ Grade school
- ❑ Some high school
- ❑ High school diploma or GED
- ❑ Some vocational or technical school
- ❑ Vocational or technical school (associate's) degree
- ❑ Some college
- ❑ Four-year college (bachelor's) degree
- ❑ Some graduate school
- ❑ Graduate (master's or doctoral) degree

46. Do you have access to the internet at home or another location?

❑ Yes ❑ No

If you would be willing to respond to additional questions about deer management and hunting in Minnesota and are willing to provide your email address, please write it below. We will only use your email address for research related to deer management and will not share it with anyone.

E-mail address: _____

❑ I do not have an e-mail address

Appendix B: Weights assigned by proportions of deer hunters based on deer permit area they hunted and survey response rate

DPA	Attitude Area	Surveys Returned (Youth excluded)	Proportion in Sample	Total Number Firearm Hunters (2014)	Proportion in population	Survey Weight	% margin of error
101	H3	102	0.0094	1484	0.0047	0.4969	9.37%
103	H3	205	0.0188	2492	0.0078	0.4151	6.56%
105	H3	192	0.0177	3066	0.0096	0.5453	6.85%
108	H3	258	0.0237	3462	0.0109	0.4583	5.87%
110	H3	251	0.0231	3501	0.0110	0.4763	5.96%
111	H3	162	0.0149	1989	0.0062	0.4193	7.38%
114	H3	10	0.0009	190	0.0006	0.6489	30.24%
117	H3	6	0.0006	129	0.0004	0.7342	39.22%
118	H3	71	0.0065	2484	0.0078	1.1948	11.47%
119	H3	77	0.0071	2343	0.0074	1.0392	10.99%
122	H3	36	0.0033	1458	0.0046	1.3831	16.14%
126	H3	35	0.0032	1438	0.0045	1.4031	16.37%
127	H3	12	0.0011	377	0.0012	1.0729	27.87%
152	H2	25	0.0023	715	0.0022	0.9767	19.27%
155	H2	124	0.0114	6352	0.0199	1.7494	8.72%
156	H2	162	0.0149	7267	0.0228	1.5319	7.61%
157	H2	198	0.0182	11434	0.0359	1.9721	6.90%
159	H2	127	0.0117	5506	0.0173	1.4806	8.60%
169	H5	139	0.0128	5870	0.0184	1.4422	8.21%
171	H3	140	0.0129	5468	0.0172	1.3338	8.18%
172	H5	189	0.0174	8907	0.0280	1.6094	7.05%
173	H3	103	0.0095	4180	0.0131	1.3859	9.54%
176	H3	137	0.0126	5489	0.0172	1.3683	8.27%
177	H3	70	0.0064	2840	0.0089	1.3855	11.57%
178	H3	159	0.0146	7064	0.0222	1.5172	7.68%
179	H3	143	0.0131	8085	0.0254	1.9308	8.12%
180	H3	93	0.0086	3804	0.0119	1.3969	10.04%
181	H3	130	0.0120	4512	0.0142	1.1853	8.47%
183	H2	134	0.0123	6133	0.0193	1.5630	8.37%
184	H5	150	0.0138	11802	0.0371	2.6870	7.95%
197	H5	109	0.0100	4767	0.0150	1.4935	9.28%
199	H3	12	0.0011	416	0.0013	1.1839	27.91%
201	H1	43	0.0040	511	0.0016	0.4058	14.32%
203	H1	26	0.0024	231	0.0007	0.3034	18.14%
208	H1	61	0.0056	888	0.0028	0.4971	12.12%
209	H1	134	0.0123	2130	0.0067	0.5428	8.20%
210	H5	77	0.0071	3540	0.0111	1.5700	11.05%

213	**H1**	**163**	**0.0150**	**7996**	**0.0251**	**1.6753**	**7.60%**
214	H1	181	0.0166	6099	0.0191	1.1507	7.18%
215	H1	109	0.0100	5632	0.0177	1.7645	9.30%
218	H1	109	0.0100	4543	0.0143	1.4234	9.27%
219	H2	38	0.0035	2884	0.0091	2.5918	15.80%
221	H2	78	0.0072	4511	0.0142	1.9750	11.00%
222	H2	90	0.0083	4194	0.0132	1.5914	10.22%
223	H2	59	0.0054	2791	0.0088	1.6155	12.63%
224	H2	23	0.0021	628	0.0020	0.9325	20.07%
225	H2	96	0.0088	6041	0.0190	2.1490	9.92%
227	H2	73	0.0067	4269	0.0134	1.9971	11.37%
229	H2	17	0.0016	1210	0.0038	2.4307	23.61%
230	H4	68	0.0063	1192	0.0037	0.5986	11.55%
232	H4	95	0.0087	1096	0.0034	0.3940	9.61%
233	H4	57	0.0052	823	0.0026	0.4931	12.53%
235	H2	13	0.0012	547	0.0017	1.4369	26.88%
236	H2	50	0.0046	2530	0.0079	1.7280	13.72%
239	H1	161	0.0148	6390	0.0201	1.3554	7.63%
240	H1	133	0.0122	6347	0.0199	1.6297	8.41%
241	H5	213	0.0196	12080	0.0379	1.9368	6.66%
242	H5	61	0.0056	2225	0.0070	1.2457	12.38%
246	H5	165	0.0152	9422	0.0296	1.9501	7.56%
247	H2	57	0.0052	3007	0.0094	1.8016	12.86%
248	H5	35	0.0032	1822	0.0057	1.7778	16.41
249	H2	74	0.0068	5274	0.0166	2.4339	11.31
251	H5	10	0.0009	459	0.0014	1.5675	30.68
253	H4	94	0.0086	1651	0.0052	0.5998	9.82
254	H4	133	0.0122	2181	0.0068	0.5600	8.24
255	H4	83	0.0076	1499	0.0047	0.6168	10.46
256	H1	109	0.0100	1905	0.0060	0.5969	9.12
257	H1	89	0.0082	1531	0.0048	0.5875	10.08
258	H5	62	0.0057	3501	0.0110	1.9284	12.34
259	H5	115	0.0106	6247	0.0196	1.8551	9.05
260	H1	92	0.0085	1452	0.0046	0.5390	9.89
261	H1	35	0.0032	648	0.0020	0.6323	16.12
262	H1	71	0.0065	799	0.0025	0.3843	11.11
263	H1	81	0.0074	1359	0.0043	0.5730	10.56
264	H1	145	0.0133	2737	0.0086	0.6446	7.92
265	H1	168	0.0154	1680	0.0053	0.3415	7.18
266	H1	144	0.0132	1571	0.0049	0.3726	7.79
267	H1	40	0.0037	790	0.0025	0.6745	15.11

268	**H1**	**60**	**0.0055**	**1030**	**0.0032**	**0.5863**	**12.28**
269	H1	107	0.0098	1062	0.0033	0.3390	8.99
270	H1	81	0.0074	811	0.0025	0.3419	10.34
271	H1	81	0.0074	869	0.0027	0.3664	10.37
272	H1	94	0.0086	913	0.0029	0.3317	9.58
273	H1	42	0.0039	2360	0.0074	1.9189	14.99
274	H4	78	0.0072	926	0.0029	0.4054	10.62
275	H4	108	0.0099	1578	0.0050	0.4990	9.10
276	H1	63	0.0058	2560	0.0080	1.3877	12.20
277	H1	127	0.0117	5333	0.0167	1.4341	8.59
278	H4	147	0.0135	1609	0.0051	0.3738	7.71
280	H4	90	0.0083	1166	0.0037	0.4424	9.93
281	H4	174	0.0160	1959	0.0062	0.3845	7.09
282	H4	45	0.0041	689	0.0022	0.5229	14.13
283	H4	97	0.0089	1276	0.0040	0.4492	9.57
284	H4	110	0.0101	1393	0.0044	0.4325	8.97
285	H2	41	0.0038	1963	0.0062	1.6351	15.15
287	H5	12	0.0011	543	0.0017	1.5453	28.00
290	H4	160	0.0147	1835	0.0058	0.3917	7.40
291	H4	205	0.0188	3225	0.0101	0.5372	6.62
292	H4	140	0.0129	2500	0.0078	0.6098	8.05
293	H4	125	0.0115	2151	0.0068	0.5877	8.51
297	H1	73	0.0067	873	0.0027	0.4084	10.99
298	H5	55	0.0051	2731	0.0086	1.6957	13.08
299	H4	75	0.0069	1260	0.0040	0.5737	10.98
TOTAL		10877		318502			0.22

[1] *Youth (<18 years old) responses excluded from Total*

Appendix C: Actual DPA hunted during most recent hunting year (Unweighted)

		Area				
DPA	**n**	**NW**	**EC**	**NE**	**SC**	**NW**
No response	*615*	*39.7%*	*11.9%*	*15.3%*	*27.6%*	*5.5%*
101	102	2.0%	0.0%	98.0%	0.0%	0.0%
103	205	0.5%	0.0%	98.5%	0.0%	1.0%
105	192	0.5%	0.0%	99.5%	0.0%	0.0%
108	258	0.8%	0.0%	98.8%	0.0%	0.4%
110	251	0.8%	0.0%	98.8%	0.0%	0.4%
111	162	1.2%	0.0%	98.1%	0.6%	0.0%
114	10	0.0%	0.0%	100.0%	0.0%	0.0%
117	6	0.0%	0.0%	100.0%	0.0%	0.0%
118	71	0.0%	0.0%	100.0%	0.0%	0.0%
119	77	1.3%	1.3%	96.1%	0.0%	1.3%
122	36	0.0%	0.0%	100.0%	0.0%	0.0%
126	35	0.0%	0.0%	100.0%	0.0%	0.0%
127	12	0.0%	0.0%	100.0%	0.0%	0.0%
152	25	0.0%	100.0%	0.0%	0.0%	0.0%
155	124	0.0%	98.4%	1.6%	0.0%	0.0%
156	162	0.0%	99.4%	0.6%	0.0%	0.0%
157	198	0.5%	99.0%	0.0%	0.5%	0.0%
159	127	0.0%	99.2%	0.0%	0.0%	0.8%
169	139	0.0%	2.2%	16.5%	2.9%	78.4%
171	140	0.0%	0.0%	97.1%	0.0%	2.9%
172	189	0.5%	1.6%	0.0%	0.5%	97.4%
173	103	0.0%	1.0%	98.1%	0.0%	1.0%
176	137	0.0%	0.0%	100.0%	0.0%	0.0%
177	70	0.0%	0.0%	98.6%	1.4%	0.0%
178	159	0.0%	0.0%	99.4%	0.0%	0.6%
179	143	0.0%	0.7%	97.2%	0.0%	2.1%
180	93	1.1%	2.2%	96.8%	0.0%	0.0%
181	130	0.0%	2.3%	96.9%	0.0%	0.8%
182	9	0.0%	55.6%	33.3%	0.0%	11.1%
183	134	0.7%	97.0%	2.2%	0.0%	0.0%
184	150	0.7%	0.7%	1.3%	0.0%	97.3%
197	109	0.9%	0.0%	0.9%	0.9%	97.2%
199	12	0.0%	0.0%	91.7%	8.3%	0.0%
201	43	100.0%	0.0%	0.0%	0.0%	0.0%
203	26	92.3%	3.8%	3.8%	0.0%	0.0%
208	61	100.0%	0.0%	0.0%	0.0%	0.0%
209	134	99.3%	0.0%	0.0%	0.0%	0.7%
210	77	9.1%	0.0%	2.6%	0.0%	88.3%
213	163	96.9%	0.0%	0.0%	1.8%	1.2%
214	181	96.7%	1.1%	1.7%	0.0%	0.6%
215	109	99.1%	0.0%	0.9%	0.0%	0.0%

DPA	n	NW	EC	NE	SC	NW
218	109	96.3%	0.0%	0.9%	0.9%	1.8%
219	38	0.0%	100.0%	0.0%	0.0%	0.0%
221	78	0.0%	100.0%	0.0%	0.0%	0.0%
222	90	1.1%	98.9%	0.0%	0.0%	0.0%
223	59	1.7%	89.8%	5.1%	1.7%	1.7%
224	23	4.3%	91.3%	0.0%	0.0%	4.3%
225	96	3.1%	94.8%	0.0%	1.0%	1.0%
227	73	1.4%	97.3%	1.4%	0.0%	0.0%
229	17	0.0%	88.2%	0.0%	0.0%	11.8%
230	68	0.0%	0.0%	1.5%	98.5%	0.0%
232	95	0.0%	0.0%	0.0%	100.0%	0.0%
233	57	0.0%	1.8%	0.0%	98.2%	0.0%
235	13	0.0%	100.0%	0.0%	0.0%	0.0%
236	50	2.0%	96.0%	2.0%	0.0%	0.0%
239	161	98.1%	0.0%	0.0%	0.6%	1.2%
240	133	97.7%	0.0%	0.0%	0.8%	1.5%
241	213	3.8%	0.0%	0.5%	0.0%	95.8%
242	61	1.6%	1.6%	0.0%	1.6%	95.1%
246	165	2.4%	0.6%	0.6%	0.6%	95.8%
247	57	0.0%	96.5%	0.0%	0.0%	3.5%
248	35	0.0%	2.9%	0.0%	0.0%	97.1%
249	74	0.0%	98.6%	0.0%	0.0%	1.4%
250	2	0.0%	0.0%	0.0%	100.0%	0.0%
251	10	10.0%	0.0%	0.0%	0.0%	90.0%
252	4	0.0%	0.0%	0.0%	100.0%	0.0%
253	94	0.0%	0.0%	0.0%	100.0%	0.0%
254	133	0.0%	0.8%	0.0%	99.2%	0.0%
255	83	0.0%	0.0%	0.0%	100.0%	0.0%
256	109	98.2%	0.9%	0.9%	0.0%	0.0%
257	89	98.9%	0.0%	0.0%	1.1%	0.0%
258	62	0.0%	0.0%	0.0%	0.0%	100.0%
259	115	3.5%	0.0%	0.0%	0.9%	95.7%
260	92	100.0%	0.0%	0.0%	0.0%	0.0%
261	35	100.0%	0.0%	0.0%	0.0%	0.0%
262	71	100.0%	0.0%	0.0%	0.0%	0.0%
263	81	100.0%	0.0%	0.0%	0.0%	0.0%
264	145	98.6%	0.0%	1.4%	0.0%	0.0%
265	168	100.0%	0.0%	0.0%	0.0%	0.0%
266	144	100.0%	0.0%	0.0%	0.0%	0.0%
267	40	97.5%	0.0%	2.5%	0.0%	0.0%
268	60	98.3%	0.0%	1.7%	0.0%	0.0%
269	107	100.0%	0.0%	0.0%	0.0%	0.0%
270	81	98.8%	0.0%	1.2%	0.0%	0.0%
271	81	97.5%	0.0%	0.0%	2.5%	0.0%
272	94	97.9%	0.0%	0.0%	1.1%	1.1%
273	42	100.0%	0.0%	0.0%	0.0%	0.0%

DPA	n	NW	EC	NE	SC	NW
274	78	3.8%	0.0%	1.3%	94.9%	0.0%
275	108	0.9%	0.0%	0.0%	99.1%	0.0%
276	63	92.1%	0.0%	0.0%	6.3%	1.6%
277	127	92.1%	0.8%	0.0%	7.1%	0.0%
278	147	0.0%	0.0%	0.0%	100.0%	0.0%
279	1	0.0%	0.0%	0.0%	100.0%	0.0%
280	90	0.0%	0.0%	0.0%	100.0%	0.0%
281	174	0.0%	0.0%	0.0%	100.0%	0.0%
282	45	0.0%	0.0%	0.0%	100.0%	0.0%
283	97	0.0%	0.0%	0.0%	100.0%	0.0%
284	110	0.0%	1.8%	0.0%	97.3%	0.9%
285	41	2.4%	82.9%	0.0%	12.2%	2.4%
286	7	14.3%	0.0%	28.6%	57.1%	0.0%
287	12	8.3%	0.0%	0.0%	0.0%	91.7%
288	8	12.5%	0.0%	50.0%	37.5%	0.0%
289	3	0.0%	0.0%	33.3%	66.7%	0.0%
290	160	1.3%	0.0%	0.0%	98.8%	0.0%
291	205	0.5%	0.0%	0.5%	98.5%	0.5%
292	140	0.0%	0.0%	0.7%	98.6%	0.7%
293	125	0.8%	0.8%	0.8%	97.6%	0.0%
294	1	0.0%	0.0%	0.0%	100.0%	0.0%
295	4	0.0%	25.0%	0.0%	25.0%	50.0%
296	4	25.0%	0.0%	0.0%	75.0%	0.0%
297	73	98.6%	0.0%	0.0%	0.0%	1.4%
298	55	7.3%	1.8%	0.0%	3.6%	87.3%
299	75	0.0%	0.0%	0.0%	100.0%	0.0%
338	5	40.0%	0.0%	0.0%	40.0%	20.0%
339	2	50.0%	0.0%	0.0%	50.0%	0.0%
341	1	0.0%	0.0%	0.0%	0.0%	100.0%
342	4	25.0%	25.0%	0.0%	25.0%	25.0%
343	3	0.0%	0.0%	66.7%	33.3%	0.0%
344	1	0.0%	0.0%	0.0%	100.0%	0.0%
345	1	0.0%	0.0%	0.0%	100.0%	0.0%
346	1	0.0%	0.0%	0.0%	100.0%	0.0%
347	1	0.0%	0.0%	100.0%	0.0%	0.0%
601	18	27.8%	27.8%	22.2%	16.7%	5.6%
602	1	100.0%	0.0%	0.0%	0.0%	0.0%
Total	**10262**	**27.7%**	**14.4%**	**23.8%**	**20.9%**	**13.2%**