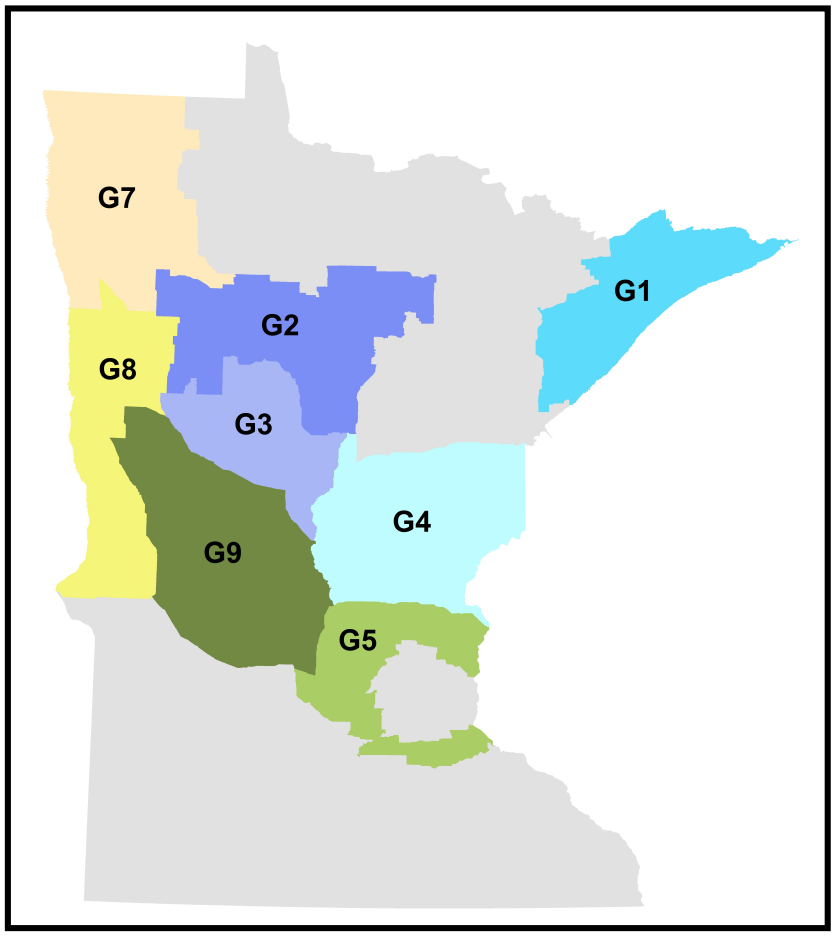
MINNESOTA DEER GOAL SETTING REPORT

A study of hunter and landowner opinions about deer populations and management
Blocks G1 – G9



Final Report

A cooperative study conducted by:

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

MINNESOTA DEER GOAL SETTING REPORT

A study of hunter and landowner opinions about deer populations and management
Blocks G1 – G9

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Goal Setting Blocks[1]

Survey Timing

These surveys were conducted as part of an ongoing statewide deer goal setting project. The timing of surveys varied and was dependent on when the block was scheduled for the public goal setting project. Surveys of specific blocks were administered during the time periods below.

G3 –Summer 2014

G1, G2, G4, G5 – Fall-Winter 2014-2015

G7, G8, G9 – Fall-Winter 2015-2016

[1] This report represents data collected as part of the Minnesota DNR deer goal setting project, which began in spring 2014. Goal blocks G6, G10, and G11 are scheduled for fall 2016 and will be appended to this report as they are completed. Questions specifically related to harvest management and DNR trust were not analyzed for this report. Those questions pertain to larger hunter/landowner attitude surveys and will be included in those reports.

Superior Uplands Arrowhead (Block G1)
Deer Goal Setting

Landowner and Hunter Survey Results

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Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2014, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block G1, Superior Uplands Arrowhead.

Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting survey completion online; the third wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,600 adult 2013 deer license holders who indicated they intended to hunt in deer areas 117, 122, 126, 127, or 180. A total of 60 were undeliverable and we received 1,094 completed responses, which yielded an adjusted response rate of 43%. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1 and 2 (n = 922) and surveyed all landowners in strata 3 (N = 669) and 4 (N = 86). Overall, there were 93 undeliverable surveys; 1,049 completed landowner surveys were returned, yielding a 42% adjusted response rate. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (97%) indicated they hunted during the 2013 firearm deer season. Overall 15% indicated they hunted deer during the archery season and 7% hunted muzzleloader. Firearm hunters spent an average of 7.4 days afield, compared to 3.9 for muzzleloader and 16.5 for archery hunters. Overall, individuals had hunted an average of 32 years in Minnesota and 23 years in the deer area they indicated they hunted most often. Overall, 93% of respondents were male and the average age was 52.1 (range = 18 – 87).

Given the amount of public land in this goal setting block, most hunters indicated they did at least some of their hunting on public land (82%). Only 46% hunted their own land, 44% hunted other people's private land, and 6.7% leased land for hunting. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 86% of respondents indicated there were fewer deer than 5 years ago, 2% indicated more, and 12% believed populations were the same. We noted differences in responses only for deer area 126, where 76% indicated deer populations had declined (Table 2). Respondents were also asked for their perceptions of total deer population size as rated by 'too low', 'about right', or 'too high'. Over three-quarters (78%) believed the population was 'too low', 19% thought it was 'about right', and 3% indicated the population was 'too high'. Respondents in deer area 126 were most likely to indicate that populations were about right (26%) (Table 3). Respondents were also asked to indicate their desires for future deer population densities and most (83%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). Interestingly, a majority of respondents (71%) would shoot an antlerless deer if given the opportunity.

Table 1. Condensed table of desired deer population trends of hunters, by land type hunted.

		Desired Population Trend		
Type of land hunted		Decrease	No Change	Increase
Private land that I own	None	6%	14%	81%
	Some	3%	11%	86%
	Most	6%	12%	82%
	All	13%	17%	70%
Private land that I lease for hunting	None	6%	13%	81%
	Some	21%	0%	79%
	Most	0%	12%	88%
	All	10%	20%	70%
Private land that I do not own or lease	None	5%	12%	82%
	Some	6%	14%	80%
	Most	9%	14%	77%
	All	6%	13%	82%
Public land	None	10%	16%	74%
	Some	9%	13%	78%
	Most	3%	9%	88%
	All	4%	11%	84%

Table 2. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
117	16	89%	2	11%	0	0%
122	170	87%	23	12%	2	1%
126	139	76%	33	18%	10	6%
127	47	89%	5	9%	1	2%
180	459	89%	49	10%	10	2%
Total	831	86%	112	12%	23	2%

Table 3. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
117	15	88%	2	12%	0	0%
122	165	85%	27	14%	2	1%
126	126	69%	48	26%	8	4%
127	44	82%	8	15%	2	4%
180	401	79%	96	19%	14	3%
Total	751	78%	181	19%	26	3%

Table 4. Deer population trend preferences for hunters, by deer permit area.

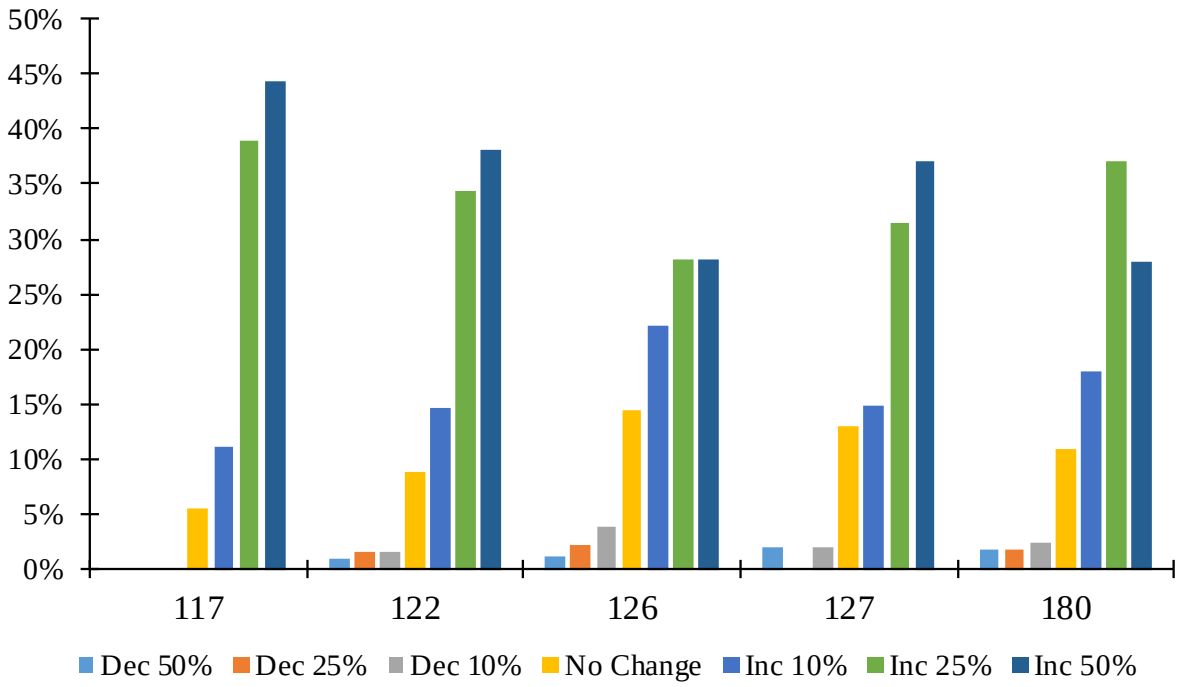
(a) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
117	0%	0%	0%	6%	11%	39%	44%
122	1%	2%	2%	9%	15%	34%	38%
126	1%	2%	4%	14%	22%	28%	28%
127	2%	0%	2%	13%	15%	32%	37%
180	2%	2%	2%	11%	18%	37%	28%
Total	2%	2%	2%	11%	18%	35%	31%

(b) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
117	0%	6%	94%
122	4%	9%	87%
126	7%	14%	79%
127	4%	13%	83%
180	6%	11%	83%
Total	6%	11%	83%

Figure 1. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. A low percentage (15%) were satisfied with current deer numbers; a majority (73%) indicated dissatisfaction (Table 5). Similarly, 19% of respondents indicated they were satisfied with the total number of deer they saw while hunting (78% were not satisfied and 9% were neutral). Only 27% were satisfied with the total number of antlerless deer they observed. A similar percentage were satisfied with the number of legal bucks observed (23%); most were dissatisfied (65%). Slightly less than half (44%) indicated they saw heard about or saw legal bucks while hunting. More hunters (56%) were dissatisfied than satisfied (27%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer numbers; most expressed low levels of overall satisfaction with deer numbers (Figure 2).

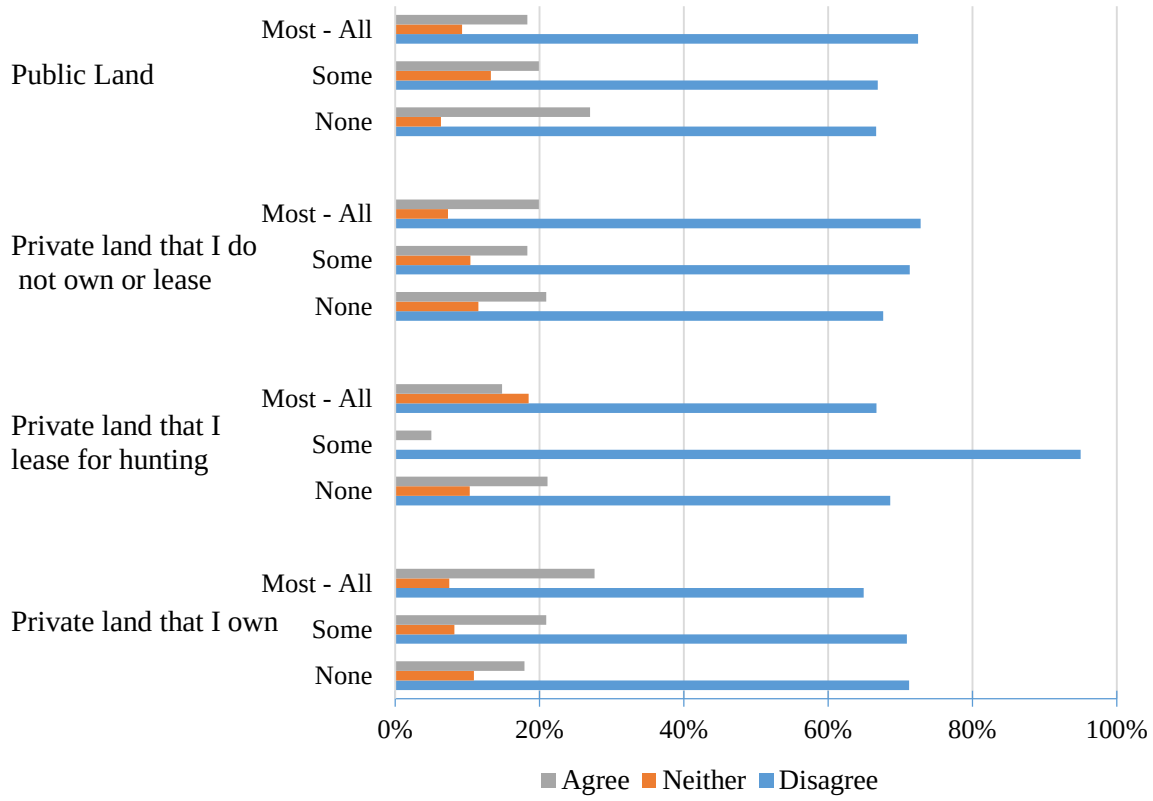
Table 5. Overall hunter satisfaction with total deer numbers, by deer area.

	Dissatisfied		Neither		Satisfied	
DPA	N	Percent	N	Percent	N	Percent
117	15	83%	2	11%	1	6%
122	155	80%	18	9%	22	11%
126	117	64%	16	9%	49	27%
127	41	76%	5	9%	8	15%
180	374	72%	79	15%	65	13%
Total	702	73%	120	12%	145	15%

Table 6. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area					
		117	122	126	127	180	Total
I was satisfied with the number of legal bucks	Disagree	94%	70%	54%	70%	65%	65%
	Neither	0%	9%	14%	15%	13%	13%
	Agree	6%	21%	32%	15%	22%	23%
I was satisfied with the quality of bucks	Disagree	78%	58%	44%	68%	58%	56%
	Neither	11%	18%	17%	13%	17%	17%
	Agree	11%	24%	39%	19%	25%	27%
I heard about or saw legal bucks while hunting	Disagree	56%	48%	36%	59%	47%	46%
	Neither	11%	12%	11%	14%	10%	11%
	Agree	33%	40%	54%	28%	44%	44%
I was satisfied with the total number of antlerless deer	Disagree	72%	65%	49%	62%	61%	60%
	Neither	6%	10%	17%	15%	13%	13%
	Agree	22%	25%	35%	23%	26%	27%
I was satisfied with the total number of deer I saw while hunting	Disagree	83%	82%	60%	74%	72%	72%
	Neither	0%	5%	13%	13%	9%	9%
	Agree	17%	13%	28%	13%	19%	19%

Figure 2. Hunter satisfaction with total number of deer seen, based on land type hunted.



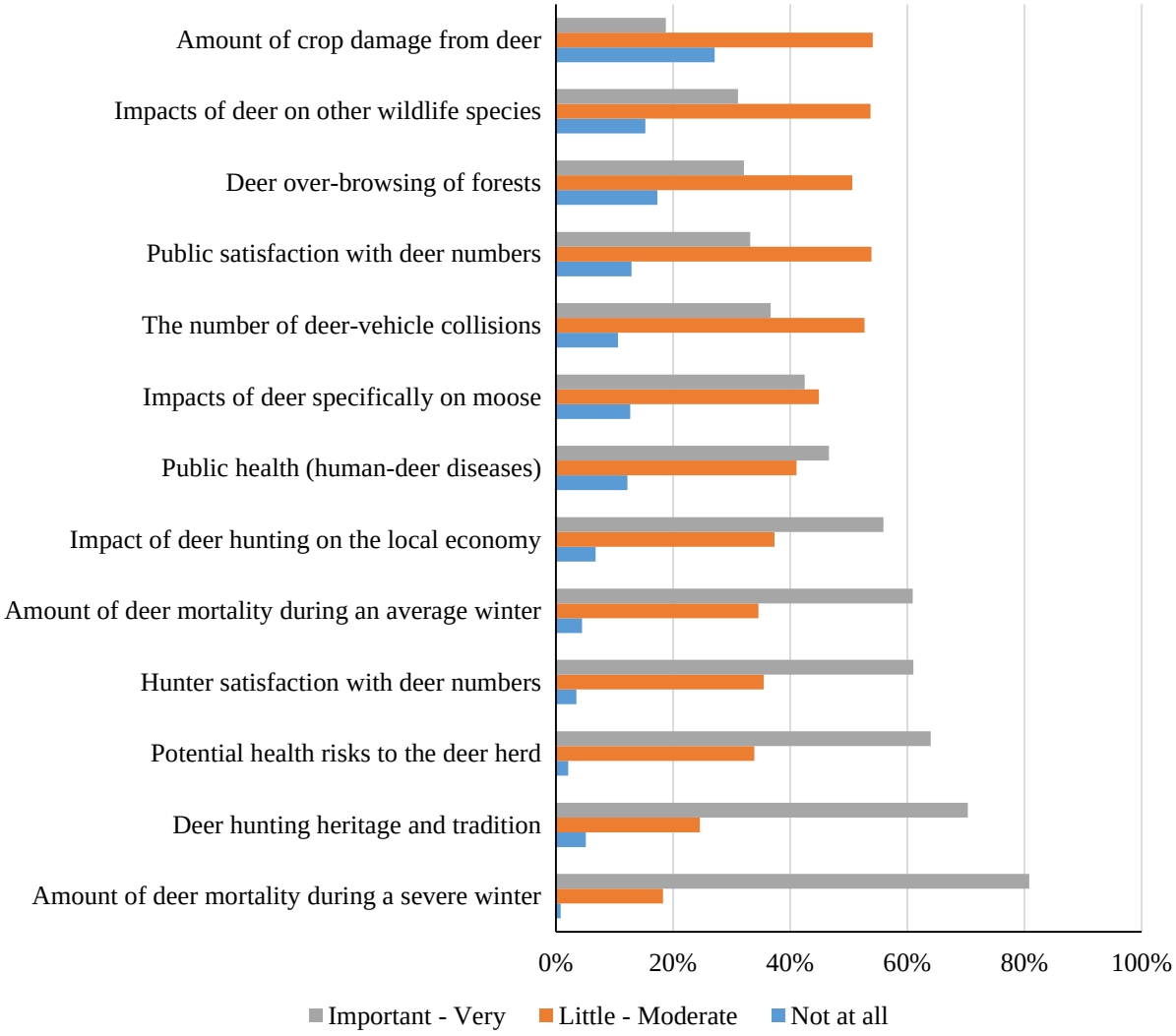
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 13 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents were mixed in that they viewed severe winter mortality, deer hunting heritage, and deer health risks as the 3 most important items. The amount of crop damage, impacts on other species, and deer over-browsing of forests were the 3 lowest variables. Interestingly, impacts of deer on moose ranked 8th in relative importance with 45% indicating little-moderate and 43% noting important to very important. Impacts of deer on moose was considered not at all important by 13% of respondents (Table 7; Figure 3).

Table 7. Items that hunters believed should be important when considering setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	4%	9%	26%	41%	20%
Amount of deer mortality during a severe winter	1%	5%	14%	31%	50%
Deer over-browsing of forests	17%	25%	26%	22%	10%
Public satisfaction with deer numbers	13%	23%	31%	23%	10%
Hunter satisfaction with deer numbers	4%	13%	23%	36%	25%
The number of deer-vehicle collisions	11%	25%	28%	26%	11%
Amount of crop damage from deer	27%	31%	23%	14%	5%
Impacts of deer on other wildlife species	15%	25%	28%	23%	8%
Potential health risks to the deer herd	2%	10%	24%	40%	24%
Public health (human-deer diseases)	12%	22%	19%	26%	20%
Deer hunting heritage and tradition	5%	9%	16%	31%	39%
Impact of deer hunting on the local economy	7%	13%	24%	32%	24%
Impacts of deer specifically on moose	13%	20%	25%	25%	17%

Figure 3. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Items were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 354, 387, 271, and 32 responses from the 4 strata, respectively. Because undeliverable surveys were not tracked, we did not calculate survey response by stratum. In total, 37% of respondents indicated they hunted deer in Minnesota during the 2013 deer season; similar percentages were reported for 2011 (38%) and 2012 (39%). There were no statistical differences between the online or mail survey responses for the percentage of landowners who hunted deer. Since those percentages did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2013 only. By stratum, a lower proportion of respondents who

owned 2 – 20 acres indicated they hunted (44%), as compared to other landowners (20-79.9: 68%; 80-319.9: 74%; 320+: 73%). Overall, individuals had hunted an average of 38 years. In total, 77% of respondents were male and the average age was 61.3 (range = 26 – 94).

Hunting patterns

A majority of landowners did most (24%) or all (43%) of their hunting on their own private land. More than half of all landowners did at least some hunting on public land (63%), while less than half hunted private land they didn't own (36%). Very few indicated they leased land for deer hunting (6.1%). Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

Slightly more than half (53%) indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (31%) then landowners with at least 20 acres (60% – 83%). Overall, only 2% (n = 11) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 74% indicated family members, 54% indicated friends or neighbors, and 7.4% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops was low, regardless of stratum (e.g., row crops, small grains, orchards, vegetables). The percentage of respondents who owned woodlands or residential properties was consistent among stratum (Figure 4). As only 6.1% of respondents indicated they had crops, the percentage of individuals reporting damage should be approached with caution. A minority of respondents indicated they had woodlot (20%) or residential (33%) damage from deer. With respect to residential damage, landowners who owned <20 acres were slightly more inclined to indicate damage from deer (Figure 5).

We observed no clear patterns of severity of damage based on land type (crop, woods, residential) or strata by deer permit area. Essentially, damage due to deer was typically categorized as 'negligible' or 'minor', regardless of parcel size (Table 9). We also observed no statistical differences among deer permit areas for landowners who reported damage to crops, woods, or residential acreage (Figure 6).

Table 8. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

		Desired Population Trend		
Type of land hunted		Decrease	No Change	Increase
Private land that I own	None	17%	36%	48%
	Some	13%	17%	71%
	Most	10%	16%	74%
	All	14%	22%	64%
Private land that I lease for hunting	None	16%	24%	61%
	Some	0%	22%	78%
	Most	0%	0%	100%
	All	25%	0%	75%
Private land that I do not own or lease	None	15%	24%	61%
	Some	13%	15%	72%
	Most	8%	28%	64%
	All	26%	22%	52%
Public land	None	16%	29%	55%
	Some	10%	16%	74%
	Most	7%	15%	78%
	All	14%	23%	63%

Figure 4. Percent of landowners who owned crops, woods, and residential acreage.

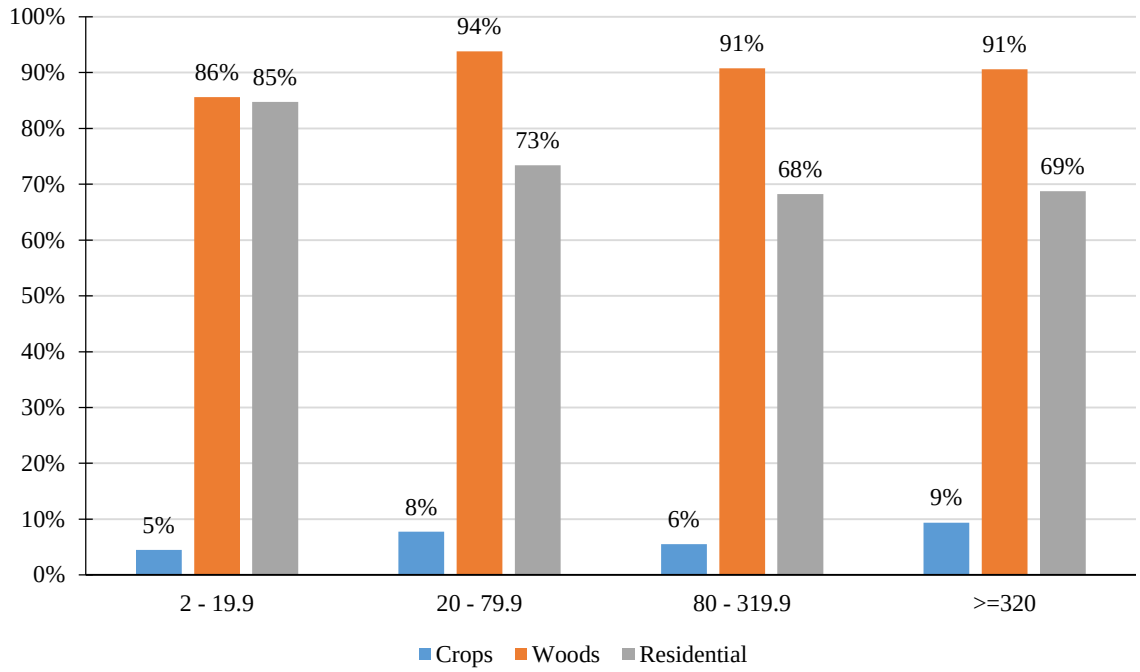


Figure 5. Percent of landowners who indicated they had damage from deer. Reported crop damage should be approached with caution because of small sample sizes.

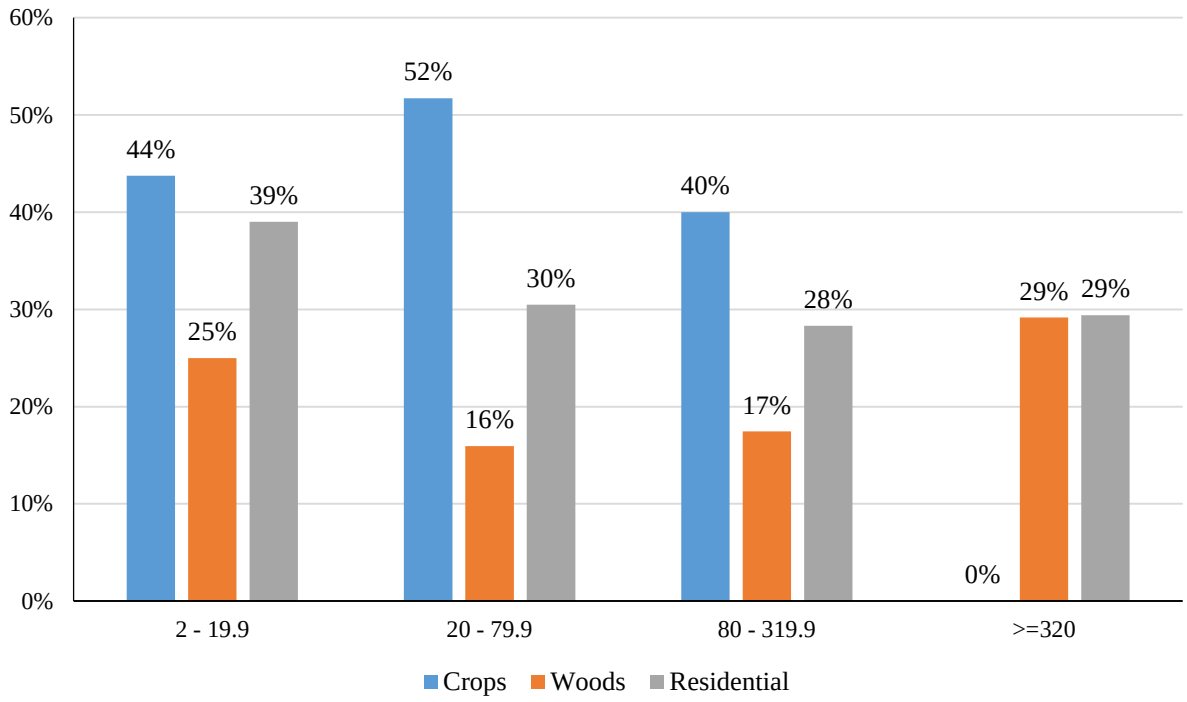
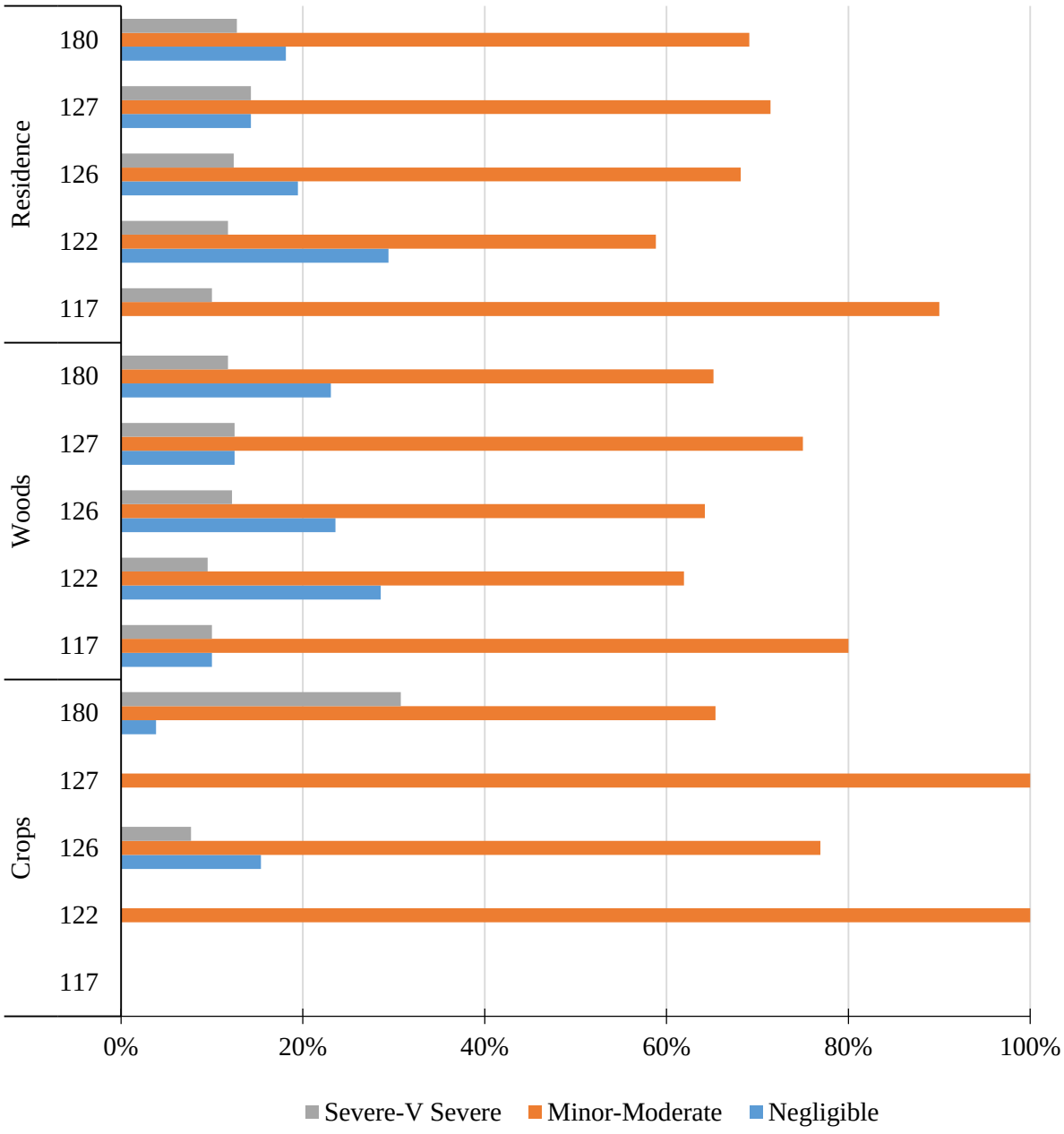


Table 9. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2 - 19.9	20 - 79.9	80 - 319.9	>=320	Total
Crops	Negligible	0%	15%	0%	0%	7%
	Minor	70%	20%	33%	100%	39%
	Moderate	20%	40%	33%	0%	32%
	Severe	0%	25%	33%	0%	20%
	Very Severe	10%	0%	0%	0%	2%
Woods	Negligible	20%	29%	20%	17%	23%
	Minor	39%	40%	35%	67%	39%
	Moderate	25%	24%	32%	17%	26%
	Severe	13%	6%	11%	0%	9%
	Very Severe	3%	1%	2%	0%	2%
Residential	Negligible	17%	23%	15%	11%	19%
	Minor	38%	44%	36%	67%	40%
	Moderate	30%	25%	33%	22%	28%
	Severe	13%	7%	14%	0%	11%
	Very Severe	2%	2%	3%	0%	2%

Figure 6. Reported damage to crops, woods, and residential acreage, by deer permit area.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 53% (43% non-hunters, 71% hunters) of respondents indicated there were fewer deer than 5 years ago, 17% (22% non-hunters, 8.9% hunters) indicated more, and 30% (35% non-hunters, 20% hunters) believed populations were the same. Comparable to the hunter survey, respondents who lived in deer area 126 had the lowest percentage of people who thought the population was lower (Table 10). Respondents were also asked for their perceptions of total deer population size as rated by 'too low', 'about right', or 'too high'. Non-hunting landowners

were far more likely to indicate the deer population was ‘about right (53% vs. 25%), while hunters were far more likely to indicate populations were ‘too low’ (65% vs 20%). Non-hunters were much more likely to indicate the population was ‘too high’ (9.7% hunters, 27% non-hunters). Similar patterns were detected by deer area in that hunting landowners were much more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 43% wanted to see an increase in deer densities at some level (Table 12, Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 10. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
117	5	25%	9	45%	6	30%
122	39	77%	5	10%	7	14%
126	90	45%	75	37%	36	18%
127	7	41%	6	35%	4	24%
180	212	57%	103	28%	60	16%
Total	353	53%	198	30%	113	17%

Table 11. Landowner beliefs about current deer population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (62%)	117	5	18%	14	50%	9	32%
	122	13	33%	22	56%	4	10%
	126	39	18%	107	50%	69	32%
	127	7	37%	8	42%	4	21%
	180	61	20%	169	55%	78	25%
	Sum	125	21%	320	53%	164	27%
Yes (38%)	117	1	100%	0	0%	0	0%
	122	52	88%	4	7%	3	5%
	126	38	48%	31	39%	11	14%
	127	8	62%	3	23%	2	15%
	180	154	65%	61	26%	22	9%
	Sum	253	65%	99	25%	38	10%
Total	117	6	21%	14	48%	9	31%
	122	65	66%	26	27%	7	7%
	126	77	26%	138	47%	80	27%
	127	15	47%	11	34%	6	19%
	180	215	39%	230	42%	100	18%
	Total	378	38%	419	42%	202	20%

Table 12. Preferred landowner population trends, by deer area.

(a) by individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
117	18%	7%	4%	36%	21%	4%	11%
122	3%	3%	2%	22%	11%	28%	31%
126	12%	12%	12%	33%	11%	12%	9%
127	13%	10%	6%	32%	10%	6%	23%
180	6%	8%	8%	31%	17%	16%	14%
Total	8%	9%	8%	31%	14%	15%	14%

(b) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
117	29%	36%	36%
122	8%	22%	70%
126	36%	33%	32%
127	29%	32%	39%
180	22%	31%	47%
Total	25%	31%	43%

Figure 7. Graphical representation of desired deer population trends for landowners.

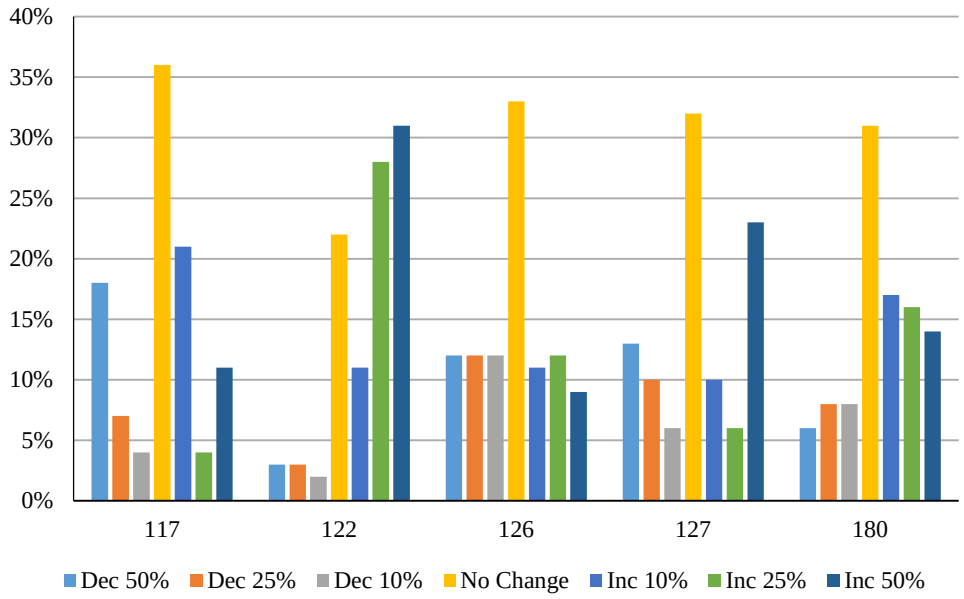
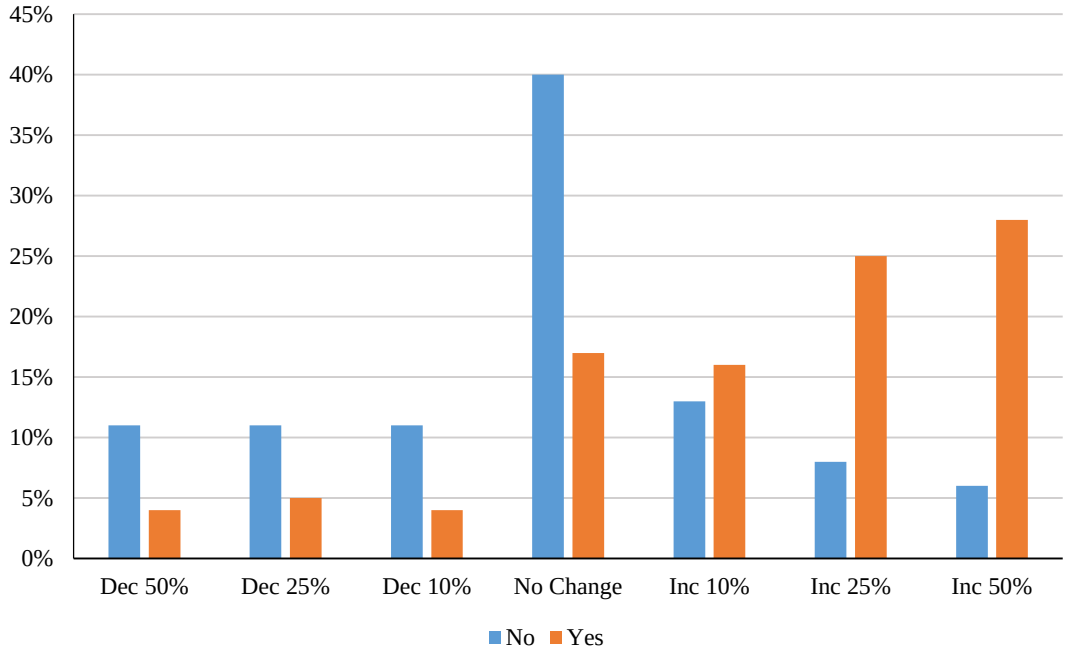


Table 13. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No	117	19%	7%	4%	37%	22%	4%	7%
	122	5%	3%	5%	49%	10%	15%	13%
	126	13%	14%	14%	35%	11%	7%	5%
	127	16%	11%	11%	42%	16%	0%	5%
	180	10%	11%	10%	42%	14%	9%	5%
	Total	11%	11%	11%	40%	13%	8%	6%
Yes	117	0%	0%	0%	0%	0%	0%	100%
	122	2%	3%	0%	5%	12%	36%	42%
	126	9%	4%	9%	28%	10%	23%	19%
	127	8%	8%	0%	17%	0%	17%	50%
	180	3%	5%	4%	17%	21%	25%	25%
	Total	4%	5%	4%	18%	16%	26%	28%

Figure 8. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



Consideration when setting deer population goals

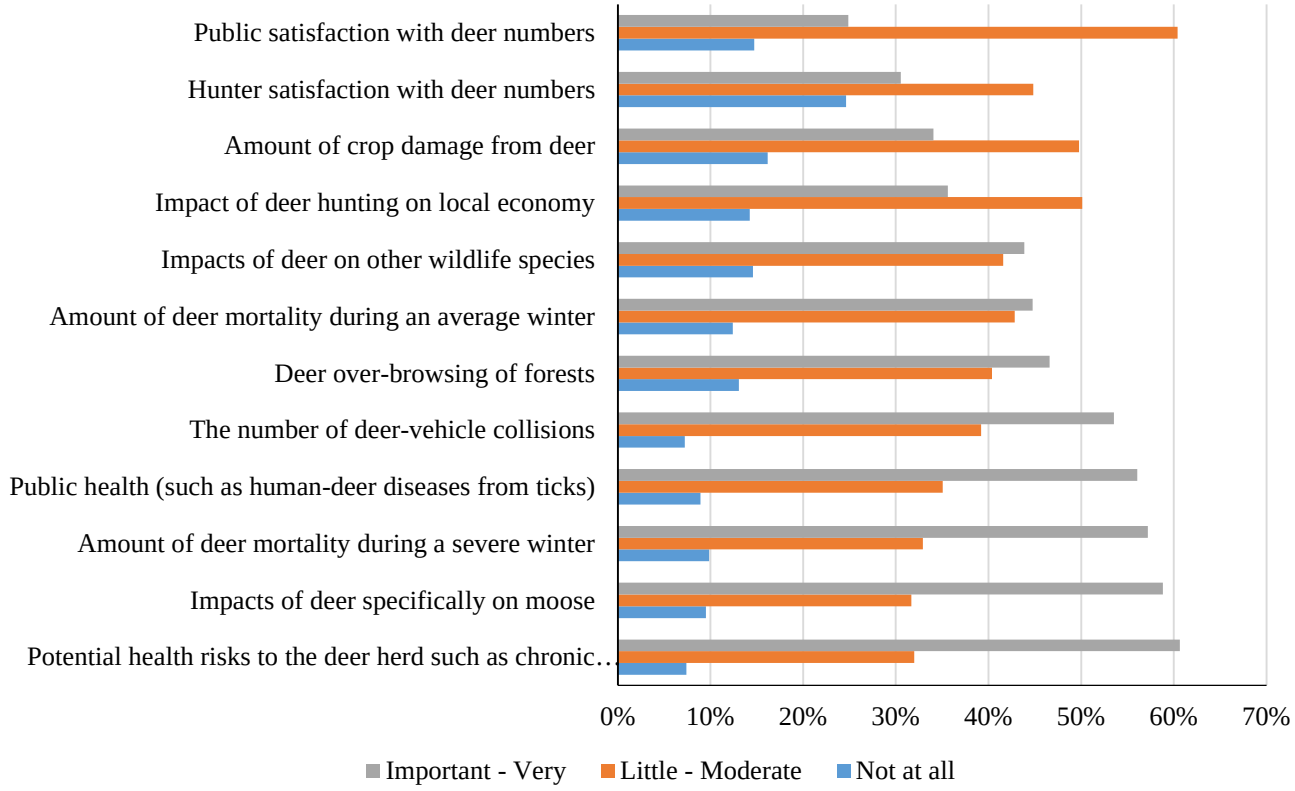
Respondents were also asked to rate the importance of 12 items when setting deer population goals[2]. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. There were some similarities and some differences between the hunter and landowner surveys. While landowners believed health risks and severe winters were important (as did hunters), they viewed impacts to moose high as well (note – this item was #2 on the landowner list and #8 on the hunter list). Landowners viewed crop damage, hunter satisfaction, and public satisfaction as least important (Table 14; Figure 9).

Table 14. Importance of items landowners indicated should be considered when setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	12%	17%	26%	31%	13%
Amount of deer mortality during a severe winter	10%	13%	20%	31%	26%
Deer over-browsing of forests	13%	17%	24%	26%	20%
Public satisfaction with deer numbers	15%	28%	33%	20%	5%
Hunter satisfaction with deer numbers	25%	21%	24%	20%	11%
The number of deer-vehicle collisions	7%	16%	23%	29%	25%
Amount of crop damage from deer	16%	21%	29%	22%	12%
Impacts of deer on other wildlife species	15%	17%	25%	27%	17%
Potential health risks to the deer herd	7%	13%	19%	31%	29%
Public health (such as human-deer diseases from ticks)	9%	15%	20%	30%	26%
Impacts of deer specifically on moose	10%	14%	17%	25%	34%
Impact of deer hunting on local economy	14%	22%	28%	22%	13%

[2] The question about hunting heritage was inadvertently omitted.

Figure 9. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Items were consolidated into 3 groups and ranked from low to high by highest importance.



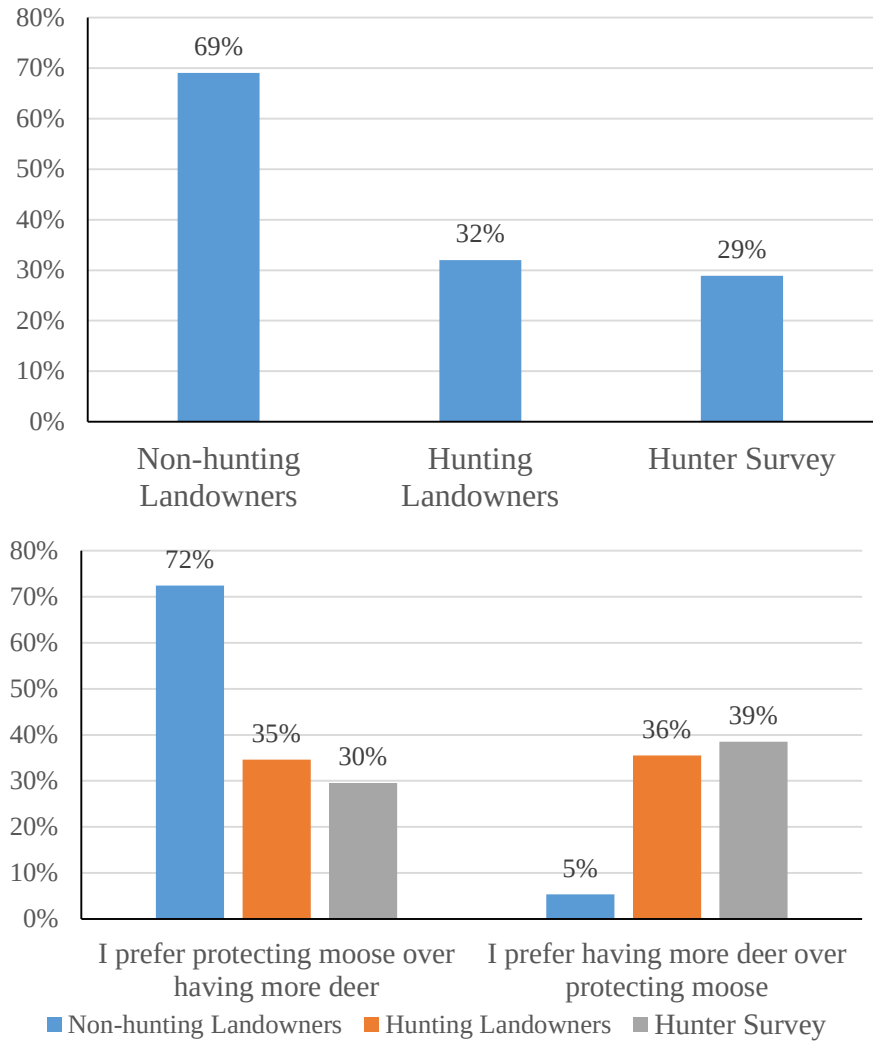
Moose specific questions (Hunter and Landowner combined)

For this goal block, we were specifically interested in hunter and landowner attitudes of the potential implications of deer on the declining moose population. Specifically, we wanted to know if, 1) respondents supported significant reductions in deer populations if it benefited moose, 2) whether they preferred protecting moose over having more deer, and 3) would prefer having more deer over protecting moose. We also broke out the respondents into 3 categories, 1) non-hunting landowners (landowner survey), 2) hunting landowners (landowner survey), and 3) hunters (hunter survey). Overall, 41% of respondents supported significantly lower deer densities if it benefited moose. However, there were differences between non-hunting landowners and hunting landowners and hunters. For non-hunting landowners, 69% supported significantly lower deer populations, whereas only 31% of hunting landowners and 29% of hunters supported significantly lower deer populations. Similar trends were observed for protecting moose over having more deer and preferring deer over moose. Essentially, non-hunting landowners were much more likely to choose moose over deer than people who hunted deer (Table 15, Figure 10 a,b).

Table 15. Percent of respondents who agreed with the questions regarding lowering deer densities to benefit moose, protecting moose over deer, and preferring deer over moose.

Question	Percent who agree with question		
	Non-hunting Landowners	Hunting Landowners	Hunter Survey
I would support significantly lower deer populations if it would benefit moose	69%	32%	29%
I prefer protecting moose over having more deer	72%	35%	30%
I prefer having more deer over protecting moose	5%	36%	39%

Figure 10. Graphical representation of respondents who agreed with the question regarding (a) significantly lowering deer densities to benefit moose and (b) preference for moose or deer.



Appendix A. Superior Uplands Arrowhead (Block G1) hunter survey

2014 Survey of Area G1 Minnesota Deer Hunters: Population Management

The Minnesota DNR will be evaluating deer population goals in northeastern Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt. This survey should take less than ten minutes to complete.

1. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season. (*Please check all that apply*).

   ❑ 2011 | ❒ 2012 | ❒ 2013

   ❑ 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 hunted.

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

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

   ❑ 117 | ❑ 122 | ❑ 126 | ❑ 127 | ❑ 180 | ❑ 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 2013, how many years have you hunted deer in the permit area you hunt most often? _____ Years

6. Including 2013, 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. 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 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 (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 total number of antlerless deer	1	2	3	4	5
I was satisfied with the total 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 deer 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
    - ❑ Neutral Dissatisfied or 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
The 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
Impacts of deer specifically on moose	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.

A. _____

B. _____

C. _____

16. In thinking about your property and the surrounding area, would you say the deer population is, (*Check one*)

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

17. In thinking about your property 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 ❒ Slightly Support ❒ Strongly Support

18. Moose are known to die from diseases that white-tailed deer carry. Although researchers have not yet determined that a significant proportion of the moose population dies from deer diseases, please tell us how you feel about deer populations as they relate to moose.

	Strongly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Strongly Agree
I would support significantly lower deer populations if it would benefit moose.	1	2	3	4	5
I prefer protecting moose over having more deer.	1	2	3	4	5
I prefer having more deer over protecting moose.	1	2	3	4	5

19. 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 deer hunters' concerns.	1	2	3	4	5

20. What is your gender?

❑ Male | ❑ Female

21. What year were you born? _____ (*Please use the 4 digit year*).

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: _____

Appendix B. Superior Uplands Arrowhead (Block G1) landowner survey.

2014 Survey of Area G1 Minnesota Landowners: Deer Management

The Minnesota Department of Natural Resources (DNR) will be evaluating deer population goals in northeastern Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you own land.

1. How many total acres did you own and/or lease at the end of 2013?
   _____Acres Owned _____Acres Leased

2. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

3. Did you experience deer damage to land that you own or leased in 2013?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE
Landscaping	❑ Yes	❑ No	SKIP TO QUESTION 6

4. How would you describe the total amount of deer damage you experienced in 2013? (*Check one*).

   ❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

5. How would you compare the amount of deer damage you experienced in 2013 to what you experienced 5 years ago? (*Check one*).

   ❑ Much less damage than 5 years ago
   ❑ Slightly less damage than 5 years ago
   ❑ About the same damage as 5 years ago
   ❑ Slightly more damage than 5years ago
   ❑ Much more damage than 5 years ago
   ❑ I was not farming/managing lands 5 years ago

6. Over the past 5 years, what trend have you seen in the deer population in the area of your property? (*Check one*).
   - ❑ Much fewer deer now than 5 years ago
   - ❑ Slightly fewer deer now than 5 years ago
   - ❑ About the same number of deer now as 5 years ago
   - ❑ Slightly more deer now than 5 years ago
   - ❑ Many more deer now than 5 years ago

7. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers. (*Please check one below*).
   ❑ Very Dissatisfied ❑ Slightly Dissatisfied ❑ Neutral ❑ Slightly Satisfied ❑ Very Satisfied

8. 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 such as chronic wasting disease	1	2	3	4	5
Public health (such as human-deer diseases from ticks)	1	2	3	4	5
Amount of crop damage from deer	1	2	3	4	5
The 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
Impacts of deer specifically on moose	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

9. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.
   A. _____
   B. _____
   C. _____

11. In thinking about your property and the surrounding area, would you say the deer population is, (*Check one*)
    ❑ Much too Low ❑ Too Low ❑ About Right ❑ Too High ❑ Much too High

12. In thinking about your property 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)

13. Did you allow hunting on your property during the 2013 deer season? (*Check only one*)

- ❑ Yes
- ❑ No→PLEASE SKIP TO QUESTION 16

14. Do you lease any of your property for deer hunting?

- ❑ Yes
- ❑ No

15. Who did you allow to hunt deer on your property? (*Check mark all that apply*). Please also estimate the number of people who hunted your property in 2013.

❑ Myself or family members	_____ people	❑ Strangers who ask permission	_____ people
❑ Friends or neighbors	_____ people	❑ People who lease my property	_____ people

❑ Other (please list: _____) _____ people

16. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*).

- ❑ 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 (please list: _____)

17. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season? (*Please check all that apply*).

- ❑ 2011 | ❒ 2012 | ❒ 2013
- ❑ I hunt deer but did not hunt any of these years → Please skip to Question 21
- ❑ I do not hunt deer at all → Please skip to Question 22

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

❑ 117 | ❑ 122 | ❑ 126 | ❑ 127 | ❑ 180 | ❑ I hunted a permit area not listed

19. 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

20. How much of your deer hunting did you do on each of the following types of land during your <u>most recent</u> deer hunting season? (*Circle one number for each item*).

	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

21. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years.

22. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check <u>one</u>.*)

❑ Strongly Oppose ❒ Slightly Oppose ❒ Neither ❒ Slightly Support ❒ Strongly Support

22. Moose are known to die from diseases that white-tailed deer carry. Although researchers have not yet determined that a significant proportion of the moose population dies from deer diseases, please tell us how you feel about deer populations as they relate to moose.

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
I would support significantly lower deer populations if it would benefit moose.	1	2	3	4	5
I prefer protecting moose over having more deer.	1	2	3	4	5
I prefer having more deer over protecting moose.	1	2	3	4	5

23. 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	**Disagree**	**Neither Agree nor Disagree**	**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 landowners.	1	2	3	4	5

24. What is your gender?

❑ Male ❒ Female

25. What year were you born? _____ (*Please use the 4 digit year*)

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: _____

North Central Plains Moraines (Block G2)
Deer Goal Setting
Landowner and Hunter Survey Results

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Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2014, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block G2, North Central Plains Moraines.

Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting survey completion online; the third wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,600 adult 2013 deer license holders who indicated they intended to hunt in deer areas 169, 172, 184, 197, 210, or 298. A total of 172 were undeliverable and we received 939 completed responses, which yielded an adjusted response rate of 39%. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1 - 3 (n = 635) and surveyed all landowners in strata 4 (N = 696). Overall, there were 162 undeliverable surveys; 952 completed landowner surveys were returned, yielding a 43% adjusted response rate. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (96%) indicated they hunted during the 2013 firearm deer season. Overall 16% indicated they hunted deer during the archery season and 11% hunted muzzleloader. Firearm hunters spent an average of 6.3 days afield, compared to 5.2 for muzzleloader and 11.5 for archery hunters. Overall, individuals had hunted an average of 32 years in Minnesota and 21 years in the deer area they indicated they hunted most often. Overall, 90% of respondents were male and the average age was 51.1 (range = 19 – 88).

A slight majority of hunters did at least some of their hunting on their own private land (56%) or other private land (56%). A majority also did at least some of their hunting on public land (87%). Another 6.1% indicated they did at least some hunting on lands that they leased for deer hunting. Only 1.4% of respondents hunted exclusively on land they leased. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 84% of respondents indicated there were fewer deer than 5 years ago, 4% indicated more, and 11% believed populations were the same. We noted no statistical differences in responses for any of the deer permit areas (Table 2). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Over three-quarters (79%) believed the population was ‘too low’, 19% thought it was ‘about right’, and 2% indicated the population was ‘too high’. We again observed no statistical differences among deer permit areas (Table 3). Respondents were also asked to indicate their desires for future deer population densities and most (85%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). Interestingly, a majority of respondents (82%) would shoot an antlerless deer if given the opportunity.

Table 16. Condensed table of desired deer population trends of hunters, by land type hunted.

		Desired Population Trend		
Type of land hunted		Decrease	No Change	Increase
Private land that I own	None	5%	9%	86%
	Some	3%	10%	87%
	Most	5%	11%	84%
	All	5%	18%	77%
Private land that I lease for hunting	None	5%	12%	83%
	Some	0%	0%	100%
	Most	0%	0%	100%
	All	0%	0%	100%
Private land that I do not own or lease	None	5%	11%	84%
	Some	5%	10%	85%
	Most	1%	8%	91%
	All	9%	13%	79%
Public land	None	9%	19%	72%
	Some	2%	10%	88%
	Most	7%	7%	87%
	All	5%	9%	86%

Table 17. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
169	158	87%	16	9%	7	4%
172	174	81%	26	12%	14	7%
184	192	81%	33	14%	12	5%
197	71	88%	10	12%	0	0%
210	55	92%	4	7%	1	2%
298	65	88%	8	11%	1	1%
Total	715	84%	97	11%	35	4%

Table 18. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
169	159	88%	19	11%	3	2%
172	164	77%	47	22%	3	1%
184	171	73%	59	25%	6	3%
197	68	83%	13	16%	1	1%
210	46	77%	13	22%	1	2%
298	61	82%	12	16%	1	1%
Total	669	79%	163	19%	15	2%

Table 19. Deer population trend preferences for hunters, by deer permit area.

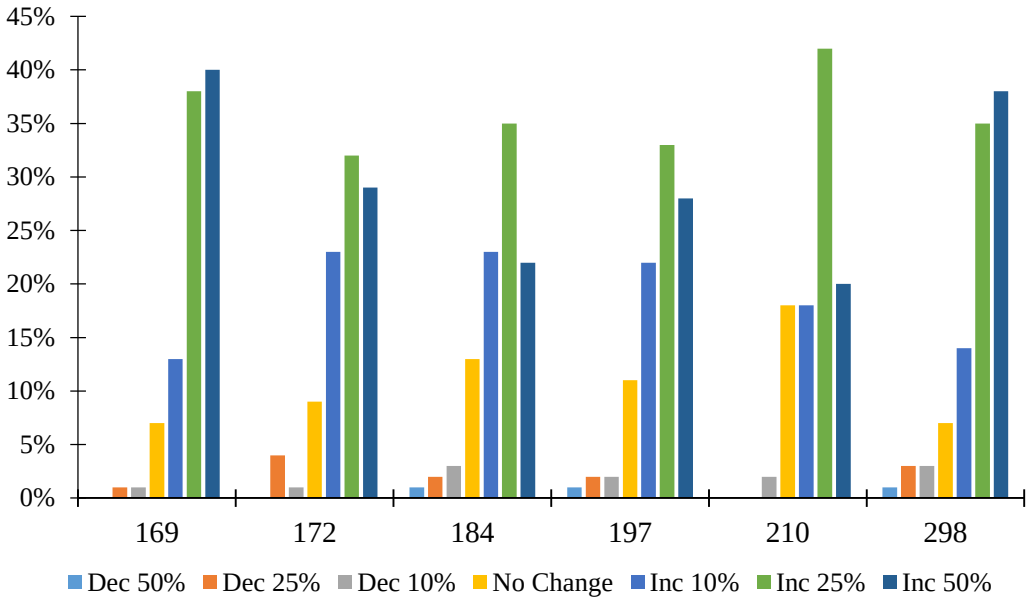
(c) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
169	0%	1%	1%	7%	13%	38%	40%
172	0%	4%	1%	9%	23%	32%	29%
184	1%	2%	3%	13%	23%	35%	22%
197	1%	2%	2%	11%	22%	33%	28%
210	0%	0%	2%	18%	18%	42%	20%
298	1%	3%	3%	7%	14%	35%	38%
Total	1%	2%	2%	11%	20%	35%	30%

(d) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
169	2%	7%	91%
172	5%	9%	84%
184	6%	13%	80%
197	5%	11%	83%
210	2%	18%	80%
298	7%	7%	87%
Total	5%	11%	85%

Figure 11. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. A low percentage (14%) were satisfied with current deer numbers; a majority (75%) indicated dissatisfaction (Table 5). Similarly, 22% of respondents indicated they were satisfied with the total number of deer they saw while hunting (67% were not satisfied and 11% were neutral). Almost one-third (32%) were satisfied with the total number of antlerless deer they observed. A low percentage (20%) were satisfied with the number of legal bucks observed; most were dissatisfied (66%). Slightly less than half (46%) indicated they saw heard about or saw legal bucks while hunting. More hunters (61%) were dissatisfied than satisfied (21%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer numbers; most expressed low levels of overall satisfaction with deer numbers (Figure 2).

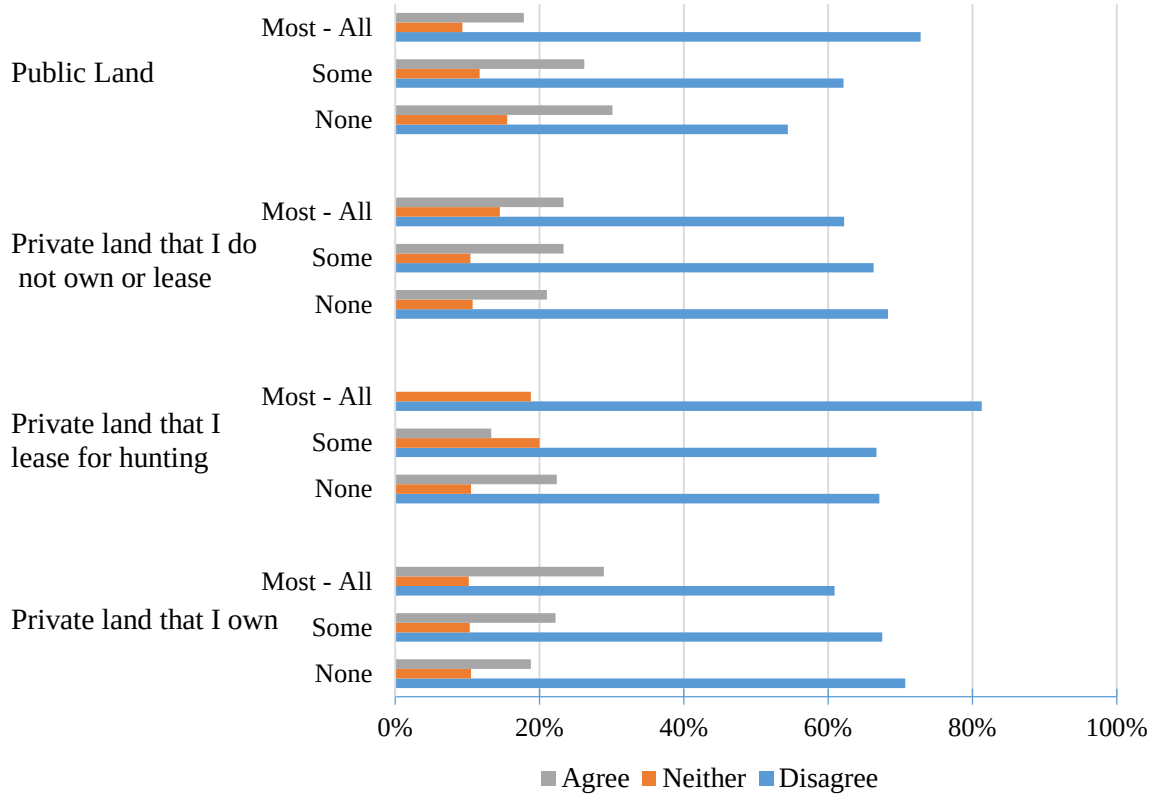
Table 20. Overall hunter satisfaction with total deer numbers, by deer area.

	Dissatisfied		Neither		Satisfied	
DPA	N	Percent	N	Percent	N	Percent
169	155	86%	13	7%	13	7%
172	159	74%	23	11%	32	15%
184	160	67%	27	11%	52	22%
197	63	77%	12	15%	7	9%
210	44	73%	8	13%	8	13%
298	56	76%	15	20%	3	4%
Total	637	75%	98	12%	115	14%

Table 21. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area						
		169	172	184	197	210	298	Total
I was satisfied with the number of legal bucks	Disagree	73%	70%	62%	70%	48%	66%	66%
	Neither	12%	11%	15%	17%	15%	11%	13%
	Agree	15%	19%	23%	13%	37%	23%	20%
I was satisfied with the quality of bucks	Disagree	60%	65%	55%	62%	58%	68%	61%
	Neither	24%	16%	17%	18%	15%	15%	18%
	Agree	15%	19%	28%	20%	27%	18%	21%
I heard about or saw legal bucks while hunting	Disagree	48%	50%	33%	48%	32%	42%	43%
	Neither	12%	6%	13%	13%	10%	18%	11%
	Agree	40%	44%	53%	39%	58%	41%	46%
I was satisfied with the total number of antlerless deer	Disagree	63%	53%	46%	60%	43%	60%	54%
	Neither	12%	10%	16%	17%	20%	18%	14%
	Agree	25%	36%	39%	23%	37%	22%	32%
I was satisfied with the total number of deer I saw while hunting	Disagree	74%	66%	62%	76%	55%	72%	67%
	Neither	10%	9%	12%	12%	15%	11%	11%
	Agree	16%	26%	27%	12%	30%	18%	22%

Figure 12. Hunter satisfaction with total number of deer seen, based on land type hunted.



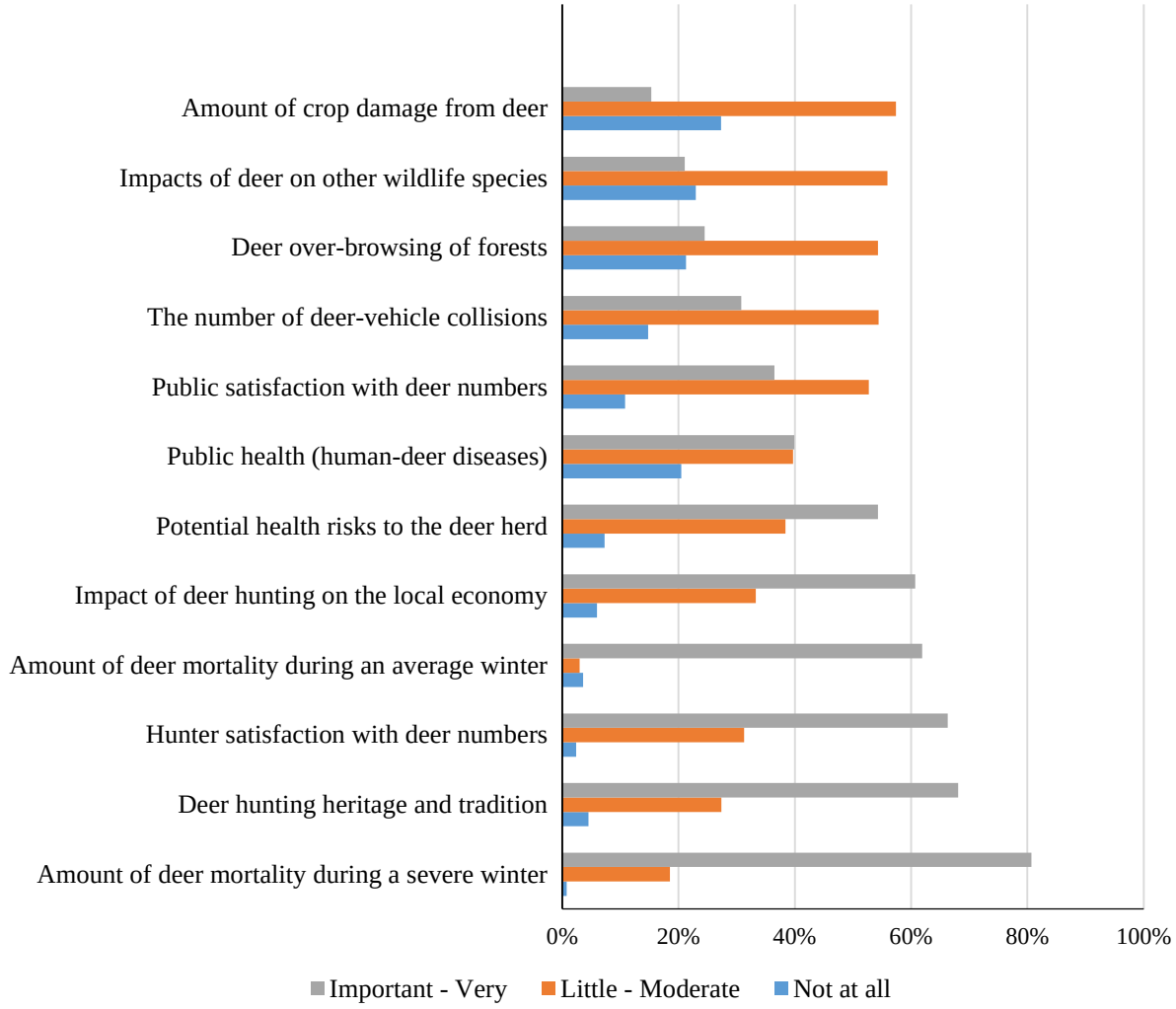
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents were mixed in that they viewed severe winter mortality, hunter satisfaction, and deer hunting heritage as the 3 most important items. The amount of crop damage, impacts on other species, and deer over-browsing of forests were the 3 lowest variables (Table 7; Figure 3).

Table 22. Items that hunters believed should be important when considering setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very Important
Amount of deer mortality during an average winter	4%	11%	24%	44%	18%
Amount of deer mortality during a severe winter	1%	5%	13%	37%	43%
Deer over-browsing of forests	21%	26%	29%	19%	5%
Public satisfaction with deer numbers	11%	20%	33%	25%	12%
Hunter satisfaction with deer numbers	2%	8%	23%	39%	27%
The number of deer-vehicle collisions	15%	27%	27%	21%	10%
Amount of crop damage from deer	27%	32%	25%	12%	4%
Impacts of deer on other wildlife species	23%	27%	29%	16%	5%
Potential health risks to the deer herd	7%	17%	22%	29%	25%
Public health (human-deer diseases)	21%	22%	18%	22%	18%
Impact of deer hunting on the local economy	6%	11%	23%	31%	29%
Deer hunting heritage and tradition	5%	9%	19%	30%	39%

Figure 13. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Items were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 204, 231, 252, and 265 responses from the 4 strata, respectively. In total, 62% of respondents indicated they hunted deer in Minnesota during the 2013 deer season; similar percentages were reported for 2011 (64%) and 2012 (63%). Since those percentages did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2013 only. By stratum, a lower proportion of respondents who owned 2 – 20 acres indicated they hunted (48%), as compared to other landowners (20-79.9: 61%; 80-319.9: 66%; 320+: 69%). Overall, individuals had hunted an average of 39 years. In total, 91% of respondents were male and the average age was 62.0 (range = 24 – 94).

Hunting patterns

A majority of landowners did most (22%) or all (58%) of their hunting on their own private land. More than half (58%) did at least some hunting on public land and small percentage leased land for hunting (8.2%). In total, 31% hunted on private land they did not own. Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

In total, 73% indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (45%) then landowners with at least 20 acres (73% – 86%). Overall, only 3.4% (n = 24) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 83% indicated family members, 57% indicated friends or neighbors, and 9.4% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) increased by stratum. The percentage of respondents who owned woodlands or residential properties was consistent among stratum (Figure 4). Overall, 56% of landowners reported crop damage from deer and that percentage was not statistically different among stratum. Only 10% of woodlot owners indicated they had damage from deer; more landowners indicated residential damage (23%) (Figure 5).

We observed no clear patterns of severity of damage based on land type (crop, woods, residential) or strata by deer permit area. Landowners were most likely to describe their crop damage as ‘minor’ (52%) or ‘moderate’ (26%). Only 14% described damage as ‘negligible’ and smaller percentages indicated ‘severe’ or ‘very severe’ (8%) (Table 9). We observed a statistical difference among deer permit areas for landowners who reported damage to crops in that landowners in deer area 172 reported lower damage amounts. We found no differences in woods, or residential acreage damage (Figure 6).

Table 23. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	9%	12%	79%
	Some	10%	18%	72%
	Most	5%	12%	83%
	All	7%	14%	79%
Private land that I lease for hunting	None	6%	14%	80%
	Some	0%	0%	100%
	Most	25%	25%	50%
	All	0%	0%	100%
Private land that I do not own or lease	None	7%	14%	79%
	Some	10%	10%	79%
	Most	7%	27%	67%
	All	0%	25%	75%
Public land	None	7%	12%	81%
	Some	9%	16%	76%
	Most	6%	11%	83%
	All	5%	11%	84%

Figure 14. Percent of landowners who owned crops, woods, and residential acreage.

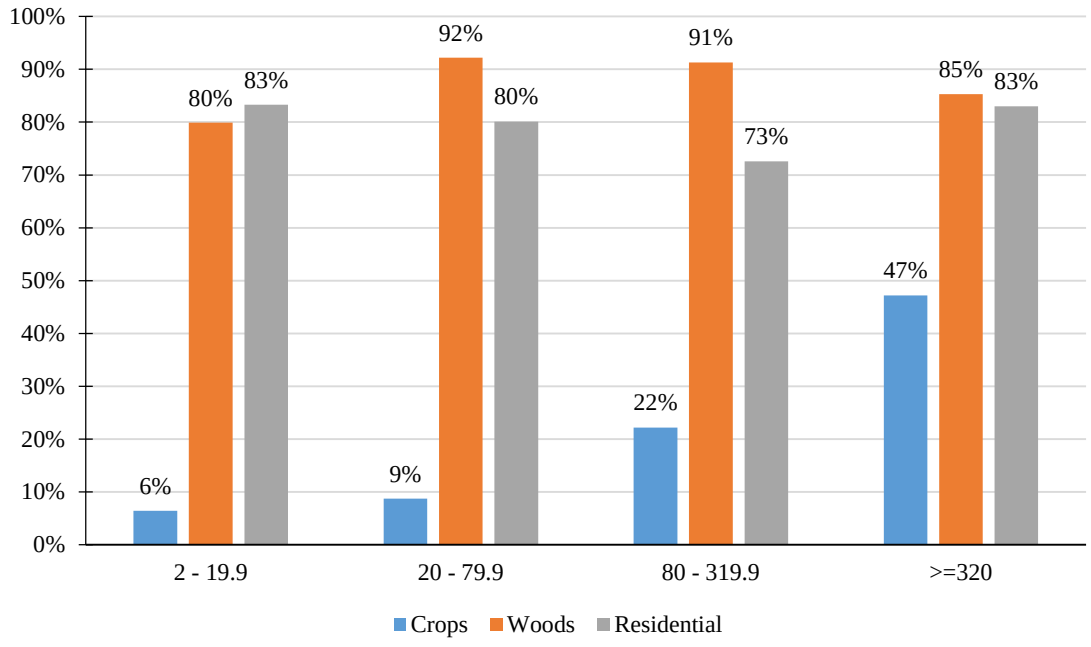


Figure 15. Percent of landowners who indicated they had damage from deer.

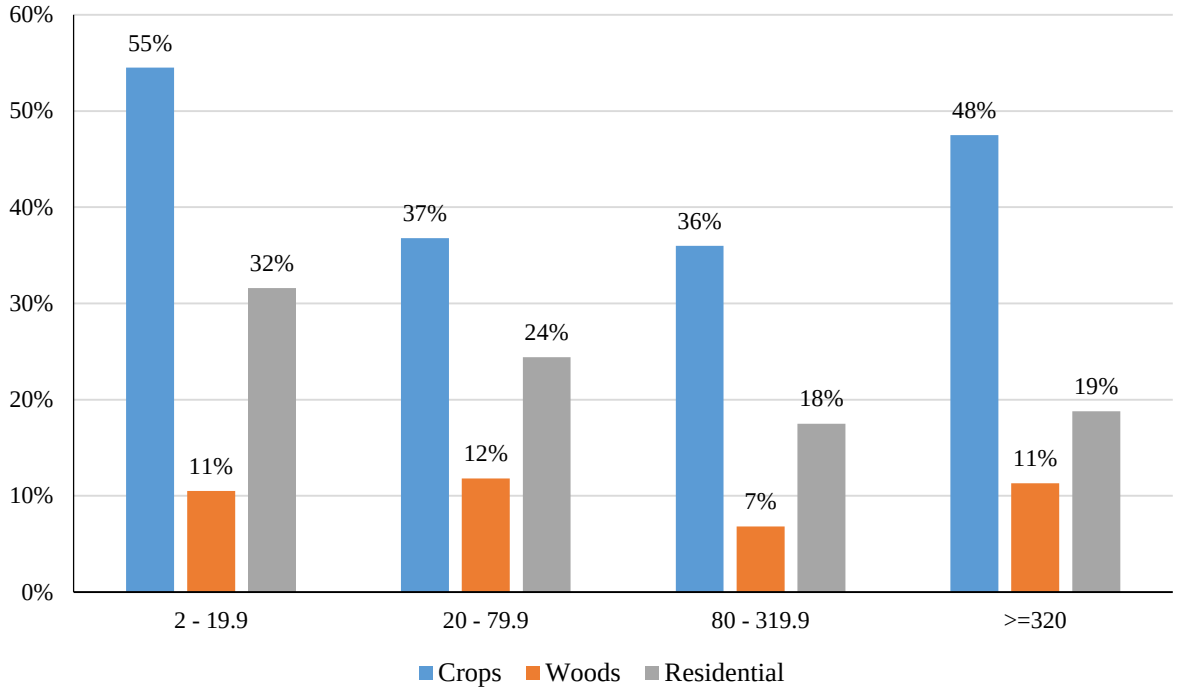
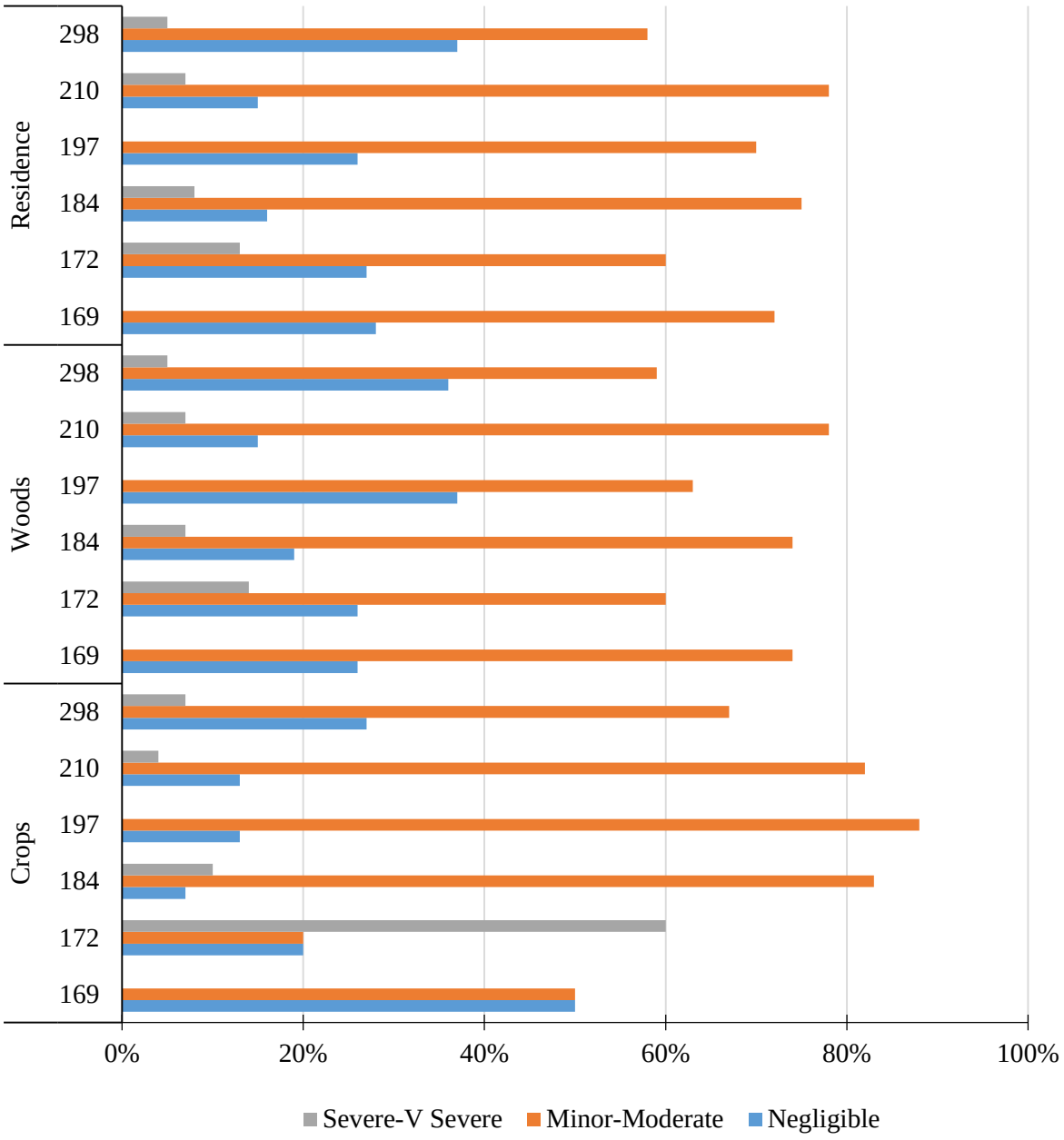


Table 24. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2 - 19.9	20 - 79.9	80 - 319.9	>=320	Total
Crops	Negligible	11%	10%	7%	17%	14%
	Minor	44%	30%	56%	54%	52%
	Moderate	33%	30%	30%	23%	26%
	Severe	11%	30%	7%	4%	8%
	Very Severe	0%	0%	0%	1%	1%
Woods	Negligible	25%	22%	32%	16%	23%
	Minor	48%	52%	45%	55%	51%
	Moderate	23%	18%	17%	23%	20%
	Severe	2%	9%	5%	6%	6%
	Very Severe	2%	0%	0%	1%	1%
Residential	Negligible	24%	21%	25%	16%	21%
	Minor	52%	49%	44%	54%	50%
	Moderate	21%	21%	22%	21%	21%
	Severe	2%	10%	8%	7%	7%
	Very Severe	2%	0%	0%	1%	1%

Figure 16. Reported damage to crops, woods, and residential acreage, by deer permit area.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 75% (63% non-hunters, 82% hunters) of respondents indicated there were fewer deer than 5 years ago, 7.1% (11% non-hunters, 4.9% hunters) indicated more, and 18% (26% non-hunters, 14% hunters) believed populations were the same. Respondents in deer area 172 were most likely to indicate populations were the same from 5 years ago (33%; Table 10). Respondents were also asked for their perceptions of total deer population size as rated by 'too low', 'about right', or 'too high'. Non-hunting landowners were far more likely to indicate the

deer population was ‘about right (53% vs. 25%), while hunters were far more likely to indicate populations were ‘too low’ (65% vs 20%). Non-hunters were much more likely to indicate the population was ‘too high’ (9.7% hunters, 27% non-hunters). Similar patterns were detected by deer area in that hunting landowners were much more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 68% wanted to see an increase in deer densities at some level (Table 12, Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 25. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
169	109	78%	26	19%	4	3%
172	67	55%	41	33%	15	12%
184	216	74%	49	17%	28	10%
197	71	75%	15	16%	9	10%
210	146	85%	19	11%	7	4%
298	78	83%	15	16%	1	1%
Total	687	75%	165	18%	64	7%

Table 26. Landowner beliefs about current deer population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (38%)	169	19	40%	28	58%	1	2%
	172	12	25%	25	52%	11	23%
	184	32	34%	46	48%	17	18%
	197	18	46%	21	54%	0	0%
	210	20	32%	36	58%	6	10%
	298	19	59%	11	34%	2	6%
	Sum	120	37%	167	52%	37	11%
Yes (62%)	169	73	82%	14	16%	2	2%
	172	42	57%	28	38%	4	5%
	184	134	68%	54	27%	10	5%
	197	38	68%	16	29%	2	4%
	210	74	68%	32	29%	3	3%
	298	51	84%	10	16%	0	0%
	Sum	412	70%	154	26%	21	4%
Total	169	92	67%	42	31%	3	2%
	172	54	44%	53	43%	15	12%
	184	166	57%	100	34%	27	9%
	197	56	59%	37	39%	2	2%
	210	94	55%	68	40%	9	5%
	298	70	75%	21	23%	2	2%
	Total	532	58%	321	35%	58	6%

Table 27. Preferred landowner population trends, by deer area.

(a) by individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
169	1%	2%	2%	20%	18%	26%	31%
172	2%	7%	5%	22%	25%	24%	14%
184	3%	6%	4%	22%	19%	31%	15%
197	0%	0%	3%	23%	27%	29%	17%
210	2%	2%	4%	26%	28%	25%	12%
298	3%	2%	1%	17%	18%	40%	18%
Total	2%	4%	4%	22%	22%	29%	17%

(b) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
169	5%	20%	75%
172	14%	22%	63%
184	13%	22%	65%
197	3%	23%	73%
210	8%	26%	65%
298	6%	17%	76%
Total	10%	22%	68%

Figure 17. Graphical representation of desired deer population trends for landowners.

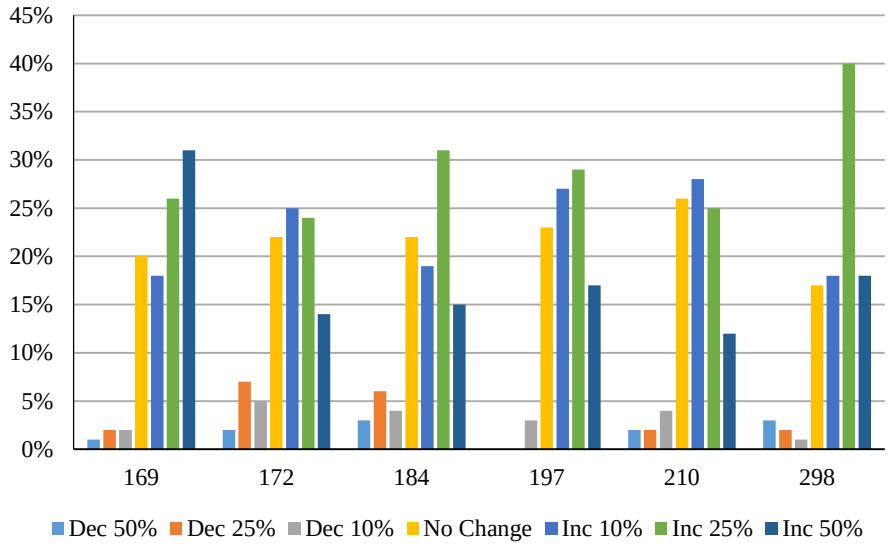
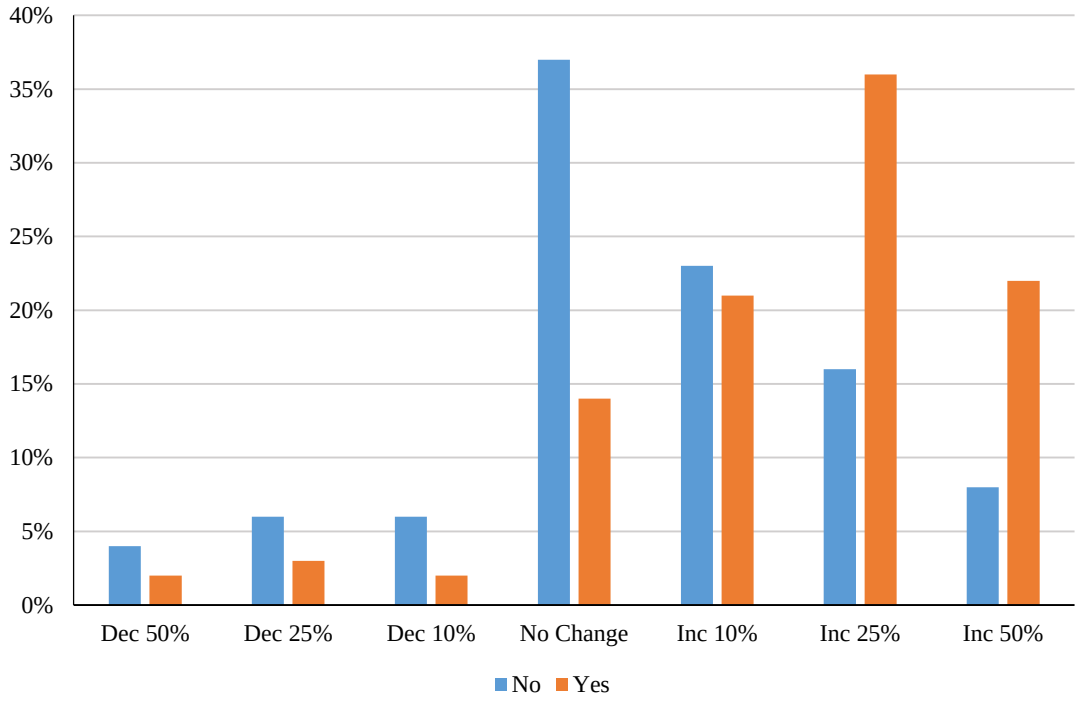


Table 28. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No (38%)	169	0%	2%	2%	49%	21%	13%	13%
	172	4%	15%	11%	30%	19%	19%	2%
	184	8%	11%	5%	34%	19%	13%	10%
	197	0%	0%	3%	33%	28%	23%	13%
	210	3%	2%	9%	47%	26%	10%	3%
	298	3%	3%	3%	25%	34%	22%	9%
	Total	4%	6%	6%	37%	23%	16%	8%
Yes (62%)	169	1%	2%	2%	5%	16%	33%	41%
	172	1%	3%	1%	18%	28%	27%	22%
	184	2%	4%	4%	16%	18%	39%	17%
	197	0%	0%	4%	16%	27%	34%	20%
	210	2%	3%	2%	16%	29%	32%	17%
	298	3%	2%	0%	13%	10%	49%	23%
	Total	2%	3%	2%	14%	21%	36%	22%

Figure 18. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



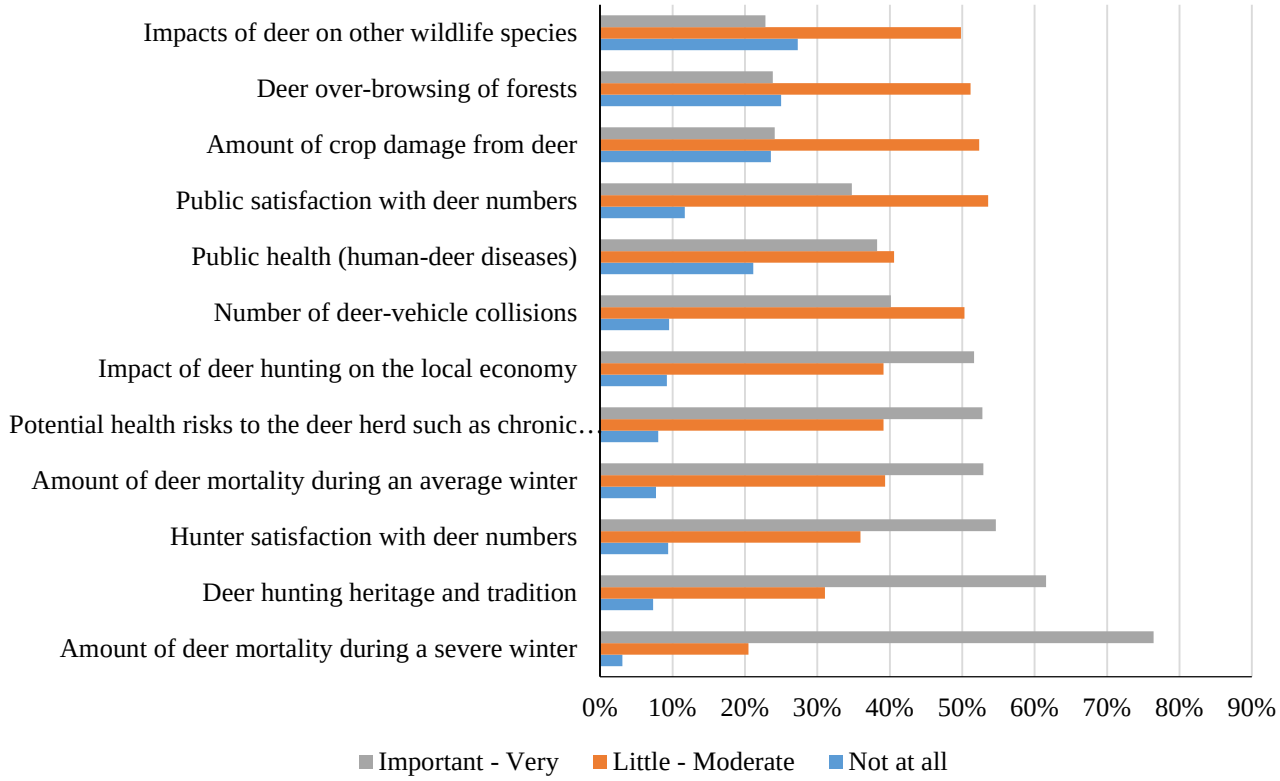
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. There were some similarities and some differences between the hunter and landowner surveys. Deer mortality during a severe winter, deer hunting tradition, and hunter satisfaction were the 3 most important considerations for landowner. Impacts of deer on other species, deer over-browsing, and crop damage had the lowest relative importance (Table 14; Figure 9).

Table 29. Importance of items landowners indicated should be considered when setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	7%	11%	28%	40%	13%
Amount of deer mortality during a severe winter	3%	7%	14%	33%	43%
Deer over-browsing of forests	25%	26%	25%	16%	8%
Public satisfaction with deer numbers	12%	19%	35%	25%	9%
Hunter satisfaction with deer numbers	9%	13%	24%	34%	21%
Number of deer-vehicle collisions	10%	23%	27%	24%	16%
Amount of crop damage from deer	23%	27%	25%	16%	8%
Impacts of deer on other wildlife species	28%	25%	25%	18%	6%
Potential health risks to the deer herd	8%	18%	21%	28%	25%
Public health (human-deer diseases)	21%	23%	18%	21%	18%
Impacts of deer specifically on moose	7%	12%	19%	30%	32%
Impact of deer hunting on local economy	9%	14%	25%	30%	21%

Figure 19. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Items were consolidated into 3 groups and ranked from low to high by highest importance.



Appendix A. North Central Plains Moraines (Block G2) hunter survey

2014 Survey of Minnesota Deer Hunters: Population Management

The Minnesota Department of Natural Resources will be evaluating deer population goals in northern Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt. This survey should take less than 10 minutes to complete.

15. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season. (*Please check all that apply*).

    ❑ 2011 | ❒ 2012 | ❒ 2013

    ❑ I did not hunt deer any of these years → Please skip to Question 13

16. 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 hunted.

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

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

    ❑ 169 | ❑ 172 | ❑ 184 | ❑ 197 | ❑ 210 | ❑ 298 | ❑ I hunted a permit area not listed

18. 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

19. Including 2013, how many years have you hunted deer in the permit area you hunt most often? _____ Years
20. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years

21. 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

22. 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): _____

23. 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

24. Will you shoot an antlerless deer if given the opportunity?

❑ Yes ❑ No

25. 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

26. 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

27. 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

28. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

A. _____

B. _____

C. _____

18. 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

19. 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)

20. 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? (*Check <u>one</u>*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

21. 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

22. What is your gender?

❑ Male ❑ Female

23. What year were you born? _____ (*Please use the 4 digit year*).

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: _____

Appendix B. North Central Plains Moraines (Block G2) landowner survey.

2014 Survey of Northern Minnesota Landowners: Deer Management

The Minnesota Department of Natural Resources will be evaluating deer population goals in northern Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. This survey should take less than ten minutes to complete. Your responses will help guide deer population goals in the area you own land.

1. How many total acres did you own and/or lease at the end of 2013?
   _____ Acres Owned _____ Acres Leased
2. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

3. Did you experience deer damage to land that you own or leased in 2013?

Crops	❑ Yes	❑ No	IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Woodlands	❑ Yes	❑ No	
Landscaping	❑ Yes	❑ No	

4. How would you describe the total amount of deer damage you experienced in 2013? (*Check one*)

   ❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

5. How would you compare the amount of deer damage you experienced in 2013 to what you experienced 5 years ago? (*Check one*)

   ❑ Much less damage than 5 years ago
   ❑ Slightly less damage than 5 years ago
   ❑ About the same damage as 5 years ago
   ❑ Slightly more damage than 5years ago
   ❑ Much more damage than 5 years ago
   ❑ I was not farming/managing lands 5 years ago

6. Over the past 5 years, what trend have you seen in the deer population in the area of your property? (*Check one*)
   - ❑ Much fewer deer now than 5 years ago
   - ❑ Slightly fewer deer now than 5 years ago
   - ❑ About the same number of deer now as 5 years ago
   - ❑ Slightly more deer now than 5 years ago
   - ❑ Many more deer now than 5 years ago

7. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers. (*Check one*)
   - ❑ Very Dissatisfied
   - ❑ Slightly Dissatisfied
   - ❑ Neither Dissatisfied nor Satisfied
   - ❑ Slightly Satisfied
   - ❑ Very Satisfied

8. 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 such as chronic wasting disease	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

10. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

    A. _____

    B. _____

    C. _____

23. In thinking about your property and the surrounding area, would you say the deer population is, (*Check one*)

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

24. In thinking about your property 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)

25. Did you allow hunting on your property during the 2013 deer season? (*Check only one*)

- ❑ Yes
- ❑ No→PLEASE SKIP TO QUESTION 16

26. Do you lease any of your property for deer hunting?

- ❑ Yes
- ❑ No

27. Who did you allow to hunt deer on your property? (*Check all that apply*). Please also estimate the number of people who hunted your property in 2013.

❑ Myself or family members	_____ people	❑ Strangers who ask permission	_____ people
❑ Friends or neighbors	_____ people	❑ People who lease my property	_____ people

❑ Other (please list: _____) _____ people

28. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*)

- ❑ 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 list: _____)

29. Please check the boxes below if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season? (*Please check all that apply*)

- ❑ 2011 | ❒ 2012 | ❒ 2013
- ❑ I hunt deer but did not hunt any of these years → Please skip to Question 20
- ❑ I do not hunt deer at all → Please skip to Question 21

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

❑ 169 | ❑ 172 | ❑ 184 | ❑ 197 | ❑ 210 | ❑ 298 | ❑ I hunted a permit area not listed

31. 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

32. How much of your deer hunting did you do on each of the following types of land during your most recent deer hunting season? (*Circle one number for 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 **not** own or lease	1	2	3	4
Public land	1	2	3	4

33. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years.

34. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check one*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

24. 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 landowners.	1	2	3	4	5

26. What is your gender?

❑ Male ❒ Female

27. What year were you born? _____ (*Please use the 4 digit year*)

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: _____

Pine Moraines (Block G3)
Deer Goal Setting
Landowner and Hunter Survey Results

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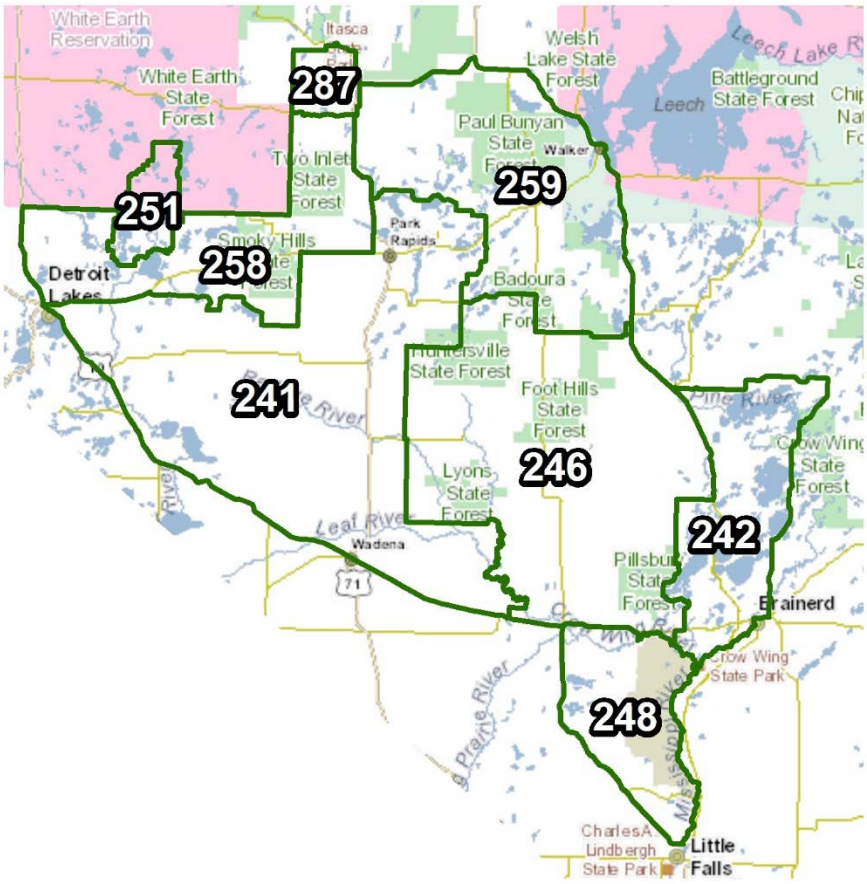
Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2014, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block G3, Pine Moraines.



Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting survey completion online; the third wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

We randomly selected 2,000 adult 2013 deer license holders who indicated they intended to hunt in deer areas 241, 242, 246, 248, 251, 258, 259, or 287. A total of 79 were undeliverable and we received 763 completed responses, which yielded an adjusted response rate of 39.7%.

Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1-3 (n = 640) and surveyed all landowners in stratum 4 (N = 383). Overall, we removed 79 landowners from the mailing due to already receiving a hunter survey and there were 193 undeliverable surveys; 867 completed landowner surveys were returned, yielding a 42.7% adjusted response rate. For both surveys, our error rate at the goal block level was 3.5%.

Hunter Survey

Demographics

Nearly all respondents (98%) indicated they hunted during the 2013 firearm deer season. Overall 21% indicated they hunted deer during the archery season and 19% hunted muzzleloader. Firearm hunters spent an average of 5.1 days afield, compared to 5.7 for muzzleloader and 15.0 for archery hunters. Overall, individuals had hunted an average of 28 years in Minnesota and 19 years in the deer area they indicated they hunted most often. Overall, 87% of respondents were male and the average age was 51.4 (range = 19 – 91).

Most hunters did at least some of their hunting on their own private land (64%), other private land (64%), or public land (65%). Another 14% indicated they did at least some hunting on lands that they leased for deer hunting. Only 4.2% of respondents hunted exclusively on land they leased. Also, we found no statistical differences among hunters, based on the lands they hunted. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 69% of respondents indicated there were fewer deer than 5 years ago, 10% indicated more, and 21% believed populations were the same. We noted differences in responses with 92% of 287 hunters (Itasca State Park) most likely to indicate deer populations had declined (Table 2). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Slightly more than half (54%) believed the population was ‘too low’, 40% thought it was ‘about right’, and 6% indicated the population was ‘too high’. Respondents in deer area 241 were most likely to indicate that populations were about right (50%) or too high (10%) (Table 3). Respondents were also asked to indicate their desires for future deer population densities and slightly more than two-thirds (68%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). Interestingly, most respondents (88%) would shoot an antlerless deer if given the opportunity.

Table 30. Condensed table of desired deer population trends of hunters, by land type hunted.

		Desired Population Trend		
Type of land hunted		Decrease	No Change	Increase
Private land that I own	None	6%	20%	73%
	Some	8%	15%	77%
	Most	12%	28%	59%
	All	11%	26%	63%
Private land that I lease for hunting	None	9%	21%	70%
	Some	4%	24%	72%
	Most	0%	29%	71%
	All	11%	22%	67%
Private land that I do not own or lease	None	8%	20%	72%
	Some	5%	21%	73%
	Most	13%	22%	65%
	All	11%	27%	62%
Public land	None	10%	23%	68%
	Some	8%	22%	69%
	Most	6%	21%	73%
	All	4%	13%	83%

Table 31. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
241	121	59%	50	25%	33	16%
242	51	73%	11	16%	8	11%
246	152	73%	44	21%	13	6%
248	23	59%	12	31%	4	10%
251	13	77%	2	12%	2	12%
258	34	79%	7	16%	2	5%
259	67	74%	15	17%	9	10%
287	12	92%	1	8%	0	0%
Total	473	69%	142	21%	71	10%

Table 32. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
241	79	39%	102	50%	22	11%
242	32	45%	35	49%	4	6%
246	124	59%	77	37%	8	4%
248	19	49%	19	49%	1	3%
251	15	88%	2	12%	0	0%
258	26	62%	15	36%	1	2%
259	62	68%	24	26%	5	5%
287	10	77%	3	23%	0	0%
Total	367	54%	277	40%	41	6%

Table 33. Deer population trend preferences for hunters, by deer permit area.

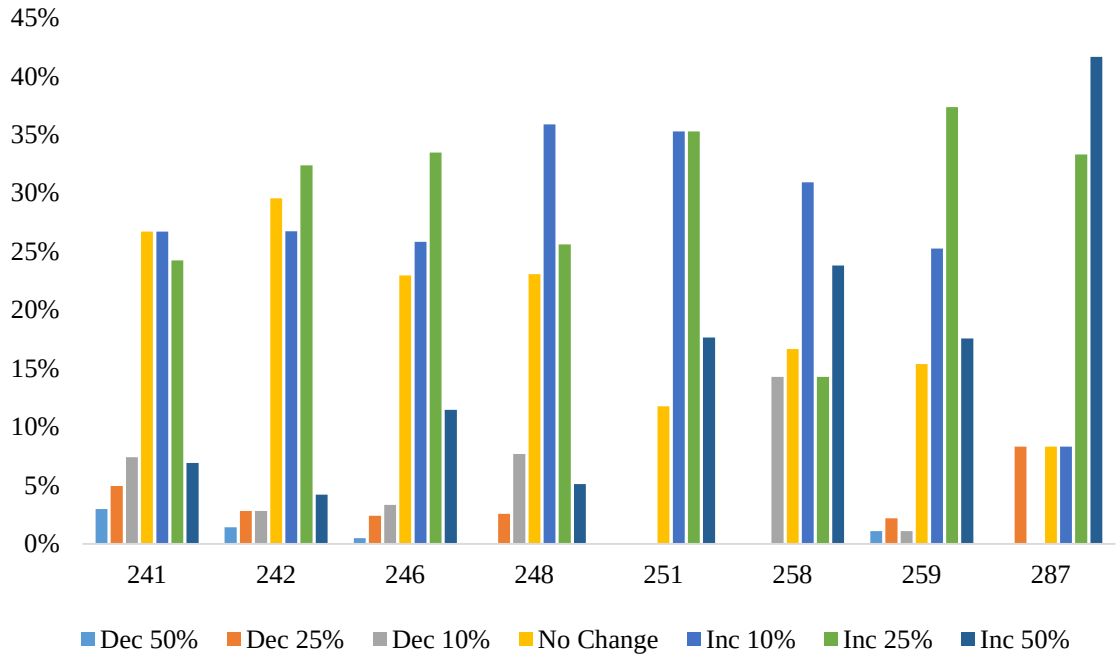
(e) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
241	3%	5%	7%	27%	27%	24%	7%
242	1%	3%	3%	30%	27%	32%	4%
246	0%	2%	3%	23%	26%	33%	11%
248	0%	3%	8%	23%	36%	26%	5%
251	0%	0%	0%	12%	35%	35%	18%
258	0%	0%	14%	17%	31%	14%	24%
259	1%	2%	1%	15%	25%	37%	18%
287	0%	8%	0%	8%	8%	33%	42%
Total	1%	3%	5%	23%	27%	30%	11%

(f) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
241	15%	27%	58%
242	7%	30%	63%
246	6%	23%	71%
248	10%	23%	67%
251	0%	12%	88%
258	14%	17%	69%
259	4%	15%	80%
287	8%	8%	83%
Total	9%	23%	68%

Figure 20. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. Less than half (31%) were satisfied with current deer numbers; a majority (55%) indicated dissatisfaction (Table 5). Similarly, 39% of respondents indicated they were satisfied with the total number of deer they saw while hunting (48% were not satisfied and 18% were neutral). Nearly half (47%) were satisfied with the total number of antlerless deer they observed. Fewer hunters (34%) were satisfied with the number of legal bucks observed; 48% of hunters indicated dissatisfaction with the number of legal bucks observed although a majority (59%) indicated they saw heard about or saw legal bucks while hunting. More hunters (49%) were dissatisfied than satisfied (34%) with the quality of bucks observed (Table 6). Finally, a higher percentage of people who did at least some of their hunting on their own property expressed satisfaction with total deer numbers, as compared to public land hunters, those who lease, and people who hunt private land they don't own (Figure 2).

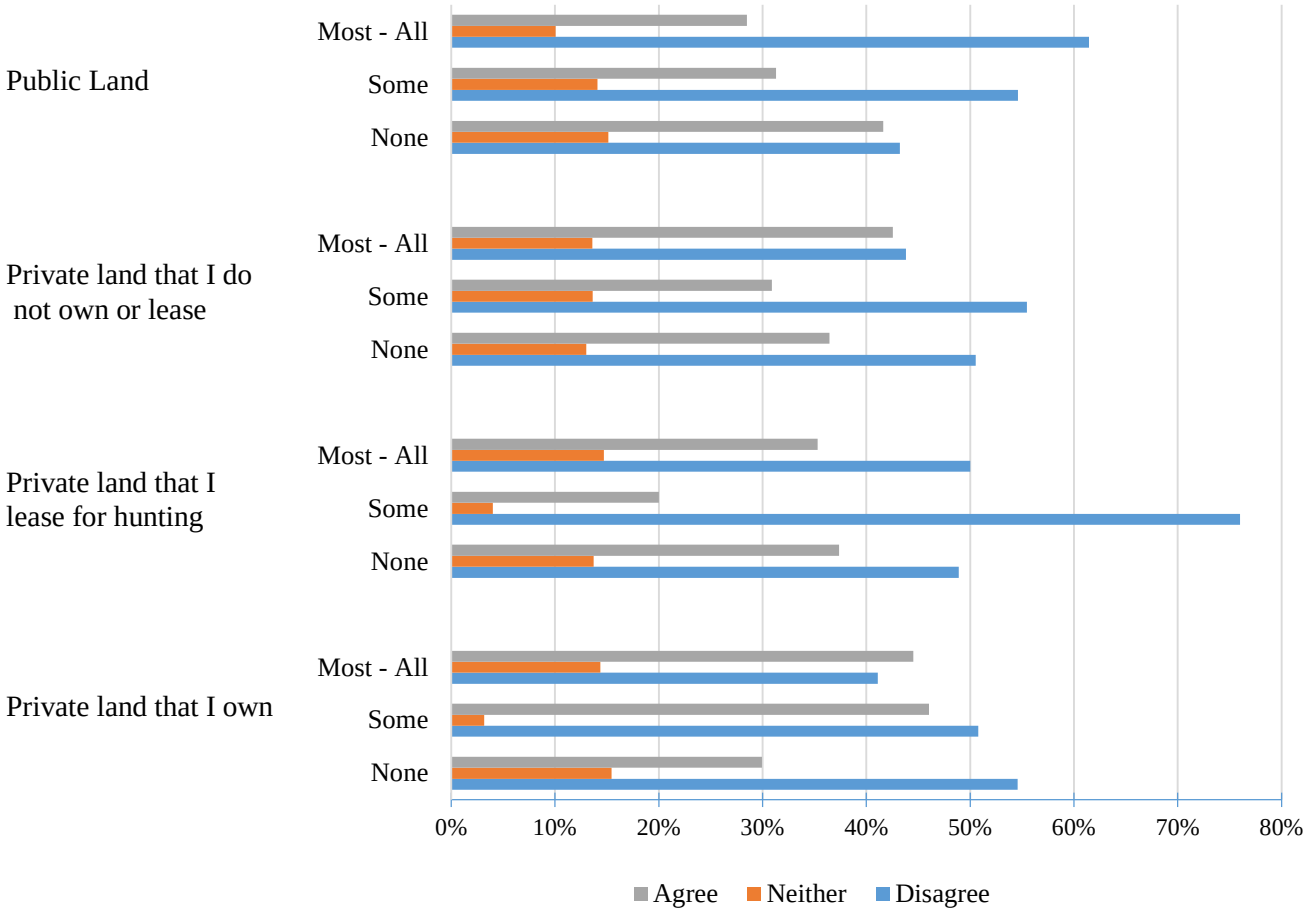
Table 34. Overall hunter satisfaction with total deer numbers, by deer area.

	Dissatisfied		Neither		Satisfied	
	N	Percent	N	Percent	N	Percent
241	91	45%	29	14%	83	41%
242	32	45%	14	20%	25	35%
246	122	58%	33	16%	54	26%
248	18	46%	5	13%	16	41%
251	14	82%	0	0%	3	18%
258	29	67%	7	16%	7	16%
259	58	64%	13	14%	20	22%
287	11	85%	0	0%	2	15%
Total	375	55%	101	15%	210	31%

Table 35. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area								
		241	242	246	248	251	258	259	287	Total
I was satisfied with the number of legal bucks	Disagree	44%	41%	51%	34%	59%	53%	54%	75%	48%
	Neither	14%	26%	18%	24%	24%	16%	20%	0%	18%
	Agree	41%	33%	31%	42%	18%	30%	26%	25%	34%
I was satisfied with the quality of bucks	Disagree	46%	51%	52%	42%	59%	47%	51%	54%	49%
	Neither	16%	16%	22%	24%	12%	14%	23%	8%	19%
	Agree	38%	33%	26%	34%	29%	40%	26%	38%	32%
I heard about or saw legal bucks while hunting	Disagree	21%	29%	31%	13%	35%	30%	33%	50%	28%
	Neither	14%	13%	13%	16%	6%	12%	18%	8%	14%
	Agree	65%	58%	56%	71%	59%	58%	49%	42%	59%
I was satisfied with the total number of antlerless deer	Disagree	32%	36%	41%	35%	41%	36%	54%	69%	39%
	Neither	12%	10%	15%	11%	24%	24%	14%	0%	14%
	Agree	57%	54%	44%	54%	35%	40%	32%	31%	47%
I was satisfied with the total number of deer I saw while hunting	Disagree	37%	44%	52%	43%	65%	45%	67%	69%	48%
	Neither	14%	8%	15%	8%	18%	24%	7%	8%	13%
	Agree	49%	48%	33%	49%	18%	31%	26%	23%	39%

Figure 21. Hunter satisfaction with total number of deer seen, based on land type hunted.



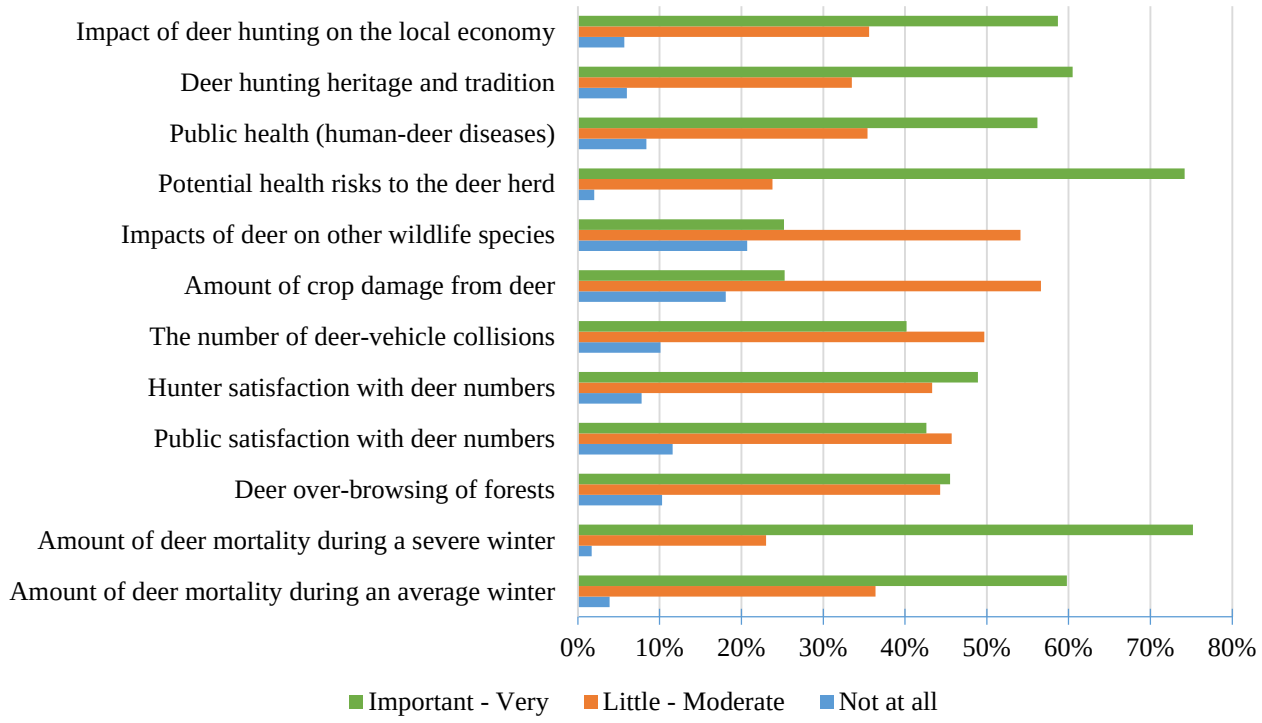
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents were mixed in that they viewed winter mortality and disease risks as important, yet the amount of crop damage from deer and impacts on other species had lower relative importance. Conversely, hunter satisfaction, hunting tradition, and economic considerations had high relative importance (Table 7, Figure 3).

Table 36. Items that hunters believed should be important when considering setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	4%	11%	26%	44%	16%
Amount of deer mortality during a severe winter	2%	8%	15%	37%	38%
Deer over-browsing of forests	10%	18%	26%	31%	14%
Public satisfaction with deer numbers	12%	20%	26%	27%	16%
Hunter satisfaction with deer numbers	8%	16%	27%	29%	19%
The number of deer-vehicle collisions	10%	19%	31%	27%	13%
Amount of crop damage from deer	18%	28%	29%	18%	7%
Impacts of deer on other wildlife species	21%	27%	27%	20%	6%
Potential health risks to the deer herd	2%	7%	17%	41%	33%
Public health (human-deer diseases)	8%	13%	22%	31%	25%
Deer hunting heritage and tradition	6%	12%	21%	28%	32%
Impact of deer hunting on the local economy	6%	11%	24%	32%	26%

Figure 22. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Items were consolidated into 3 groups.



Landowner Survey

Demographics

We received 199, 258, 253, and 157 responses from the 4 strata, respectively. Because the number of undeliverable surveys was high (n = 193), we could not calculate survey response by stratum. In total, 65% of respondents indicated they hunted deer in Minnesota during the 2013 deer season; similar percentages were reported for 2011 (68%) and 2012 (67%). There were no statistical differences between the online or mail survey responses for the percentage of landowners who hunted deer. Since those percentages did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2013 only. By stratum, a lower proportion of respondents who owned 2 – 20 acres indicated they hunted (44%), as compared to other landowners (20-79.9: 68%; 80-319.9: 74%; 320+: 73%). Overall, individuals had hunted an average of 38 years. In total, 72% of respondents were male and the average age was 61.5 (range = 18 – 94).

Hunting patterns

A majority of landowners did all of their hunting on their own private land (63%); conversely, a minority hunted public land (43%), land they didn't own (40%), or leased land (8.4%). Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

Most landowners (77%) indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (41%) then landowners with at least 20 acres (82% – 92%). In essence, the majority of parcels at least 20 acres in size are hunted in this goal setting block. Overall, only 2.8% of landowners indicated they leased their property for hunting with the highest percentage (7%; n = 18) of leasing occurring on parcels at least 320 acres in size. With respect to who is allowed to hunt, 66% indicated family members, 41% indicated friends or neighbors, and 4.7% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) varied greatly by stratum, as did the percentage who owned woodlots and residential acreage (Figure 4). With the exception of landscaping damage, we also observed similar patterns for landowners who reported damage from deer (Figure 5). A majority of landowners indicated they had deer-related damage, with individuals owning at least 20 acres indicating higher levels (Table 9). We also observed no statistical differences among deer permit areas for landowners who reported they had crops, woods, or residential acreage (Figure 6).

Table 37. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	17%	51%	32%
	Some	12%	23%	66%
	Most	14%	28%	58%
	All	18%	33%	50%
Private land that I lease for hunting	None	15%	36%	49%
	Some	29%	36%	36%
	Most	17%	17%	67%
	All	20%	20%	60%
Private land that I do not own or lease	None	17%	36%	47%
	Some	18%	34%	47%
	Most	17%	25%	58%
	All	5%	64%	32%
Public land	None	18%	38%	43%
	Some	11%	26%	64%
	Most	12%	24%	64%
	All	14%	33%	52%

Figure 23. Percent of landowners who owned crops, woods, and residential acreage.

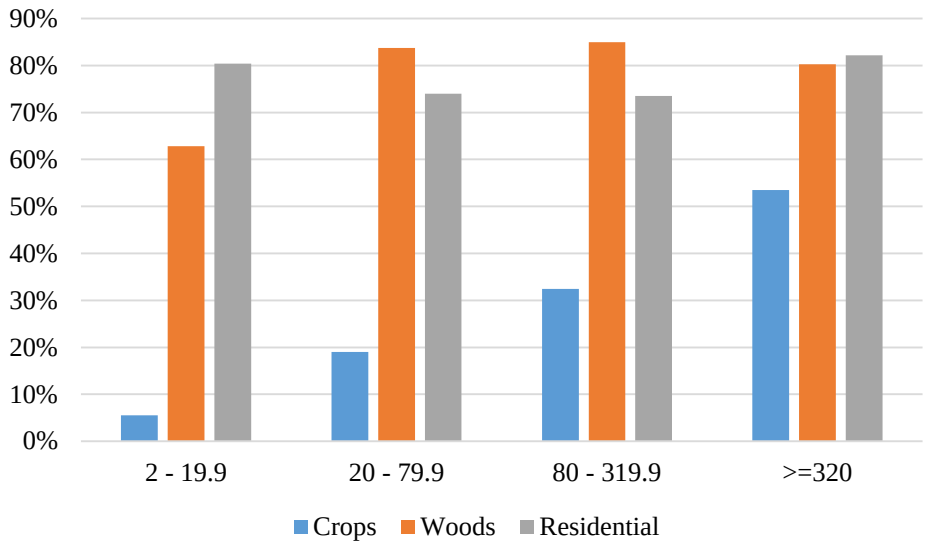


Figure 24. Percent of landowners who indicated they had damage from deer. Damage to crops reported by landowners with less than 20 acres has been omitted due to small sample size (n = 9).

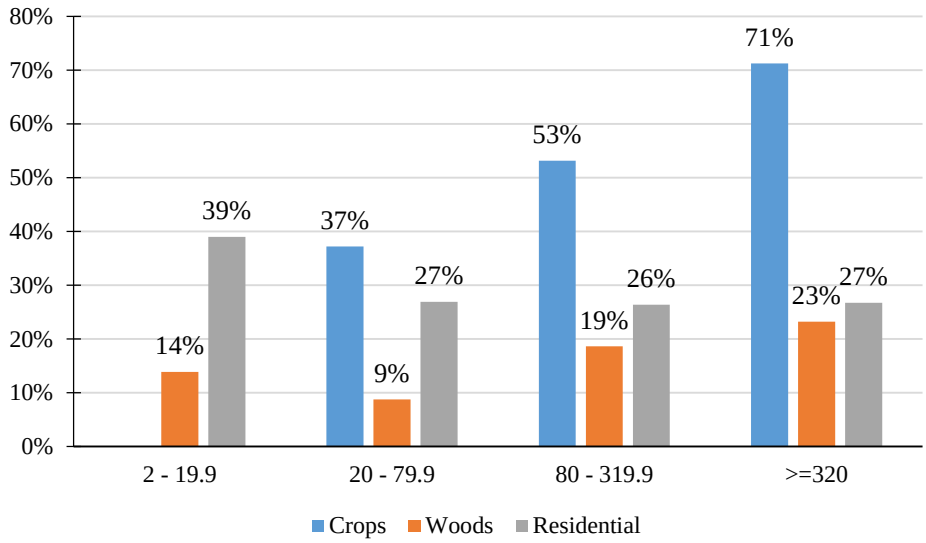


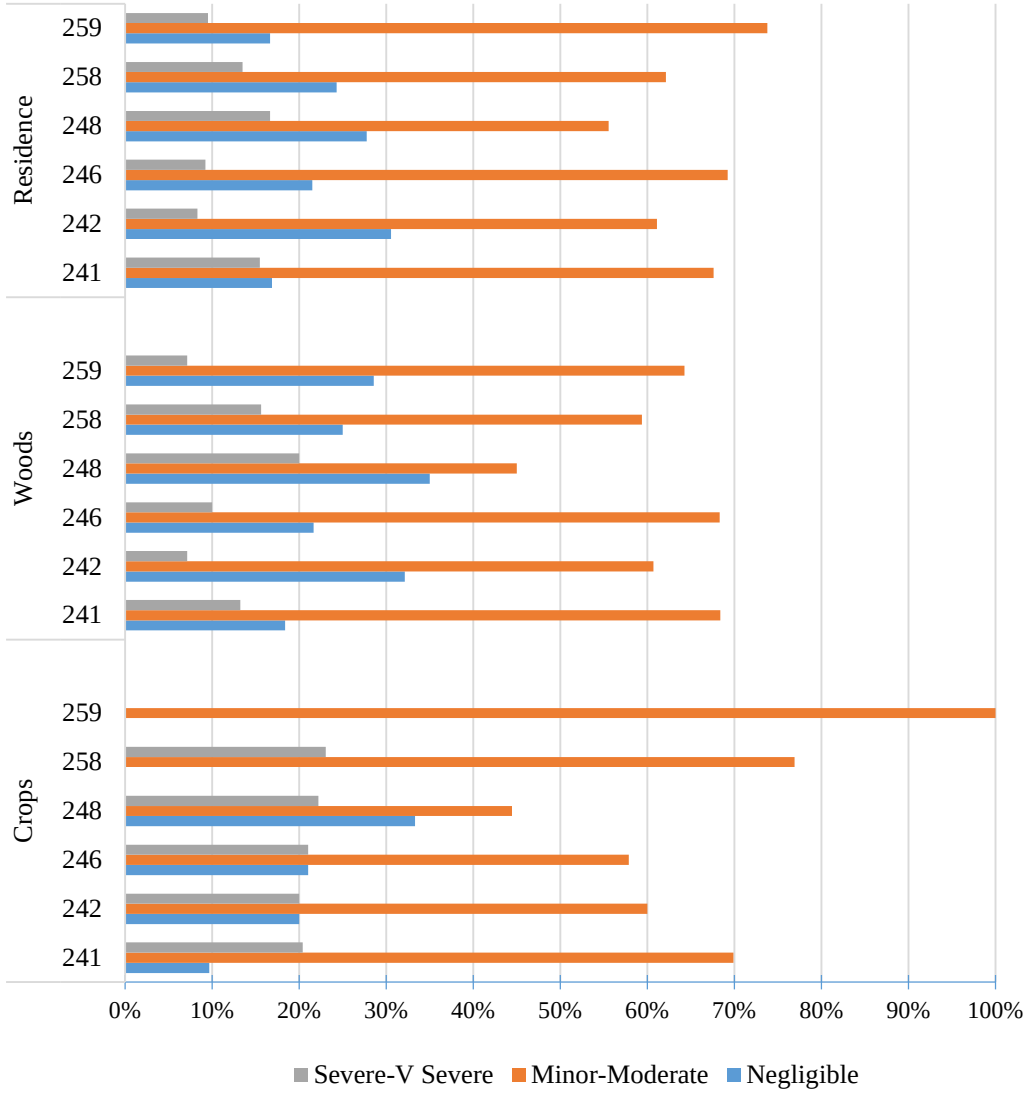
Table 38. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
Land Type	Damage	2 - 19.9[3]	20 - 79.9	80 - 319.9	>=320	Total
Crops	Negligible	13%	12%	9%	14%	12%
	Minor	50%	35%	35%	33%	35%
	Moderate	25%	38%	35%	31%	33%
	Severe	13%	15%	20%	13%	15%
	Very Severe	0%	0%	2%	9%	5%
Woods	Negligible	26%	31%	20%	17%	23%
	Minor	42%	26%	40%	33%	35%
	Moderate	24%	32%	29%	33%	30%
	Severe	5%	11%	10%	11%	9%
	Very Severe	3%	0%	1%	6%	3%
Residential	Negligible	27%	24%	15%	17%	21%
	Minor	38%	29%	44%	33%	36%
	Moderate	27%	35%	27%	32%	30%
	Severe	5%	11%	13%	12%	10%

[3] Very few landowners reported crop damage on ownerships <20 acres (n=9); caution should be applied when interpreting the reported values for those small acreages.

Very Severe	3%	0%	1%	6%	3%

Figure 25. Reported damage to crops, woods, and residential acreage, by deer permit area.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 45% (36% non-hunters, 49% hunters) of respondents indicated there were fewer deer than 5 years ago, 23% (26% non-hunters, 21% hunters) indicated more, and 32% (38% non-hunters, 23% hunters) believed populations were the same. Comparable to hunter survey, respondents who lived in deer area 241 had the highest percentage of people who thought the population was higher (Table 10). Respondents were also asked for their perceptions of total deer population size as rated by 'too low', 'about right', or 'too high'. Non-hunting landowners were far more likely to indicate the deer population was 'about right (63% vs. 47%), while hunters were far more likely to indicate populations were 'too low' (41% vs 20%). Roughly similar

percentages believed the population was too high (11% hunters, 18% non-hunters). Similar patterns were detected by deer area in that hunting landowners were much more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 45% wanted to see an increase in deer densities at some level (Table 12, Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 39. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
241	81	36%	70	31%	72	32%
242	24	45%	15	28%	14	26%
246	64	57%	33	29%	16	14%
248	17	46%	12	32%	8	22%
258	36	57%	19	30%	8	13%
259	31	41%	33	44%	11	15%
Total	253	45%	182	32%	129	23%

Table 40. Landowner beliefs about current deer population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (35%)	241	13	16%	43	52%	26	32%
	242	9	21%	28	65%	6	14%
	246	11	24%	32	70%	3	7%
	248	3	15%	12	60%	5	25%
	258	7	26%	19	70%	1	4%
	259	7	18%	28	72%	4	10%
	Sum	50	20%	162	63%	45	18%
Yes (65%)	241	66	29%	122	53%	43	19%
	242	12	44%	11	41%	4	15%
	246	64	57%	40	36%	8	7%
	248	22	56%	14	36%	3	8%
	258	43	52%	35	43%	4	5%
	259	25	35%	44	62%	2	3%
	Sum	232	41%	266	47%	64	11%
Total	241	79	25%	165	53%	69	22%
	242	21	30%	39	56%	10	14%
	246	75	48%	72	46%	11	7%
	248	25	42%	26	44%	8	14%
	258	50	46%	54	50%	5	5%
	259	32	29%	72	66%	6	6%
	Total	282	34%	428	52%	109	13%

Table 41. Preferred landowner population trends, by deer area.

(a) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
241	7%	11%	7%	39%	19%	12%	4%
242	7%	4%	6%	49%	16%	14%	4%
246	1%	4%	8%	26%	23%	24%	13%
248	8%	5%	3%	34%	15%	20%	14%
258	2%	3%	7%	34%	22%	18%	14%
259	2%	5%	6%	46%	21%	16%	5%
Total	5%	7%	7%	37%	20%	16%	8%

(b) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
241	25%	39%	35%
242	17%	49%	34%
246	13%	26%	60%
248	16%	34%	49%
258	12%	34%	54%
259	13%	46%	42%
Total	19%	37%	44%

Figure 26. Graphical representation of desired deer population trends for landowners.

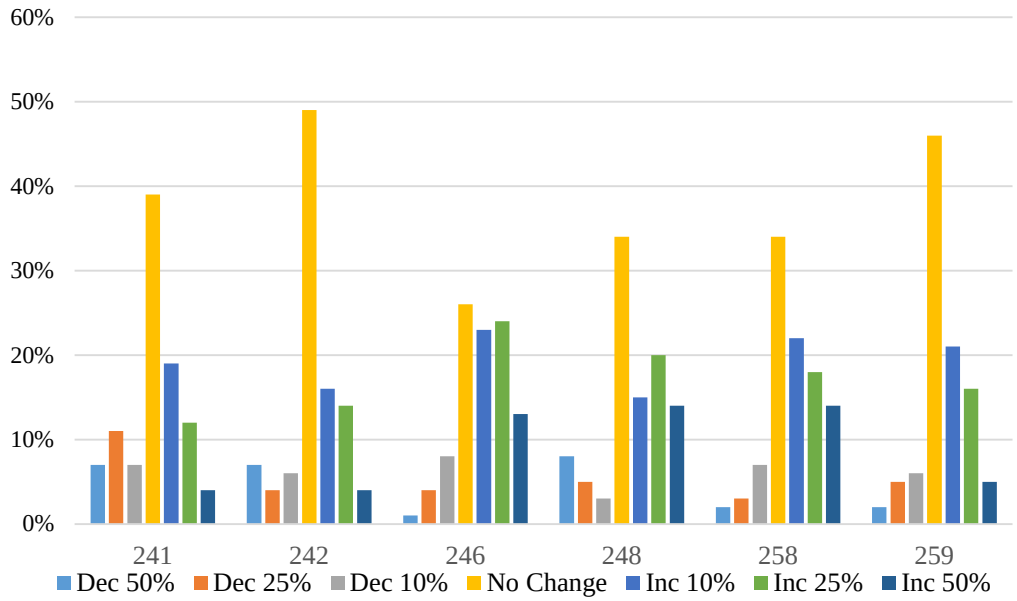
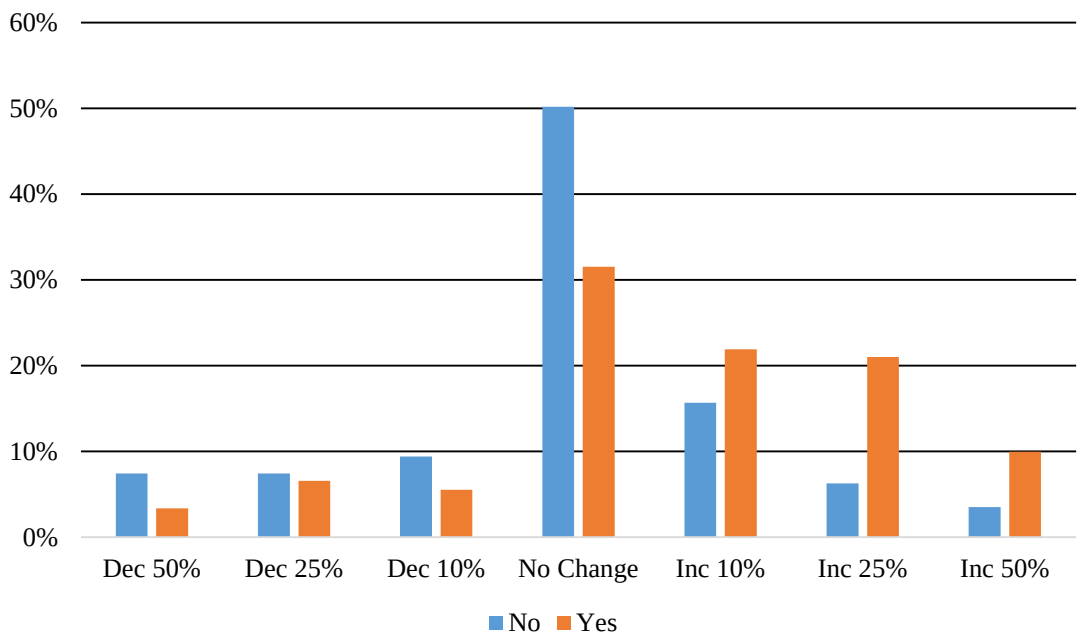


Table 42. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No	241	10%	16%	10%	46%	12%	6%	0%
	242	12%	2%	5%	58%	16%	5%	2%
	246	2%	2%	13%	43%	24%	11%	4%
	248	15%	5%	10%	55%	5%	5%	5%
	258	4%	0%	8%	58%	19%	0%	12%
	259	3%	8%	10%	51%	15%	8%	5%
	Total	7%	7%	9%	50%	16%	6%	4%
Yes	241	6%	10%	6%	37%	22%	14%	6%
	242	0%	7%	7%	33%	15%	30%	7%
	246	1%	5%	5%	19%	23%	30%	16%
	248	5%	5%	0%	23%	21%	28%	18%
	258	1%	4%	7%	27%	23%	23%	15%
	259	1%	3%	4%	43%	24%	21%	4%
	Total	3%	7%	6%	32%	22%	21%	10%

Figure 27. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



Consideration when setting deer population goals

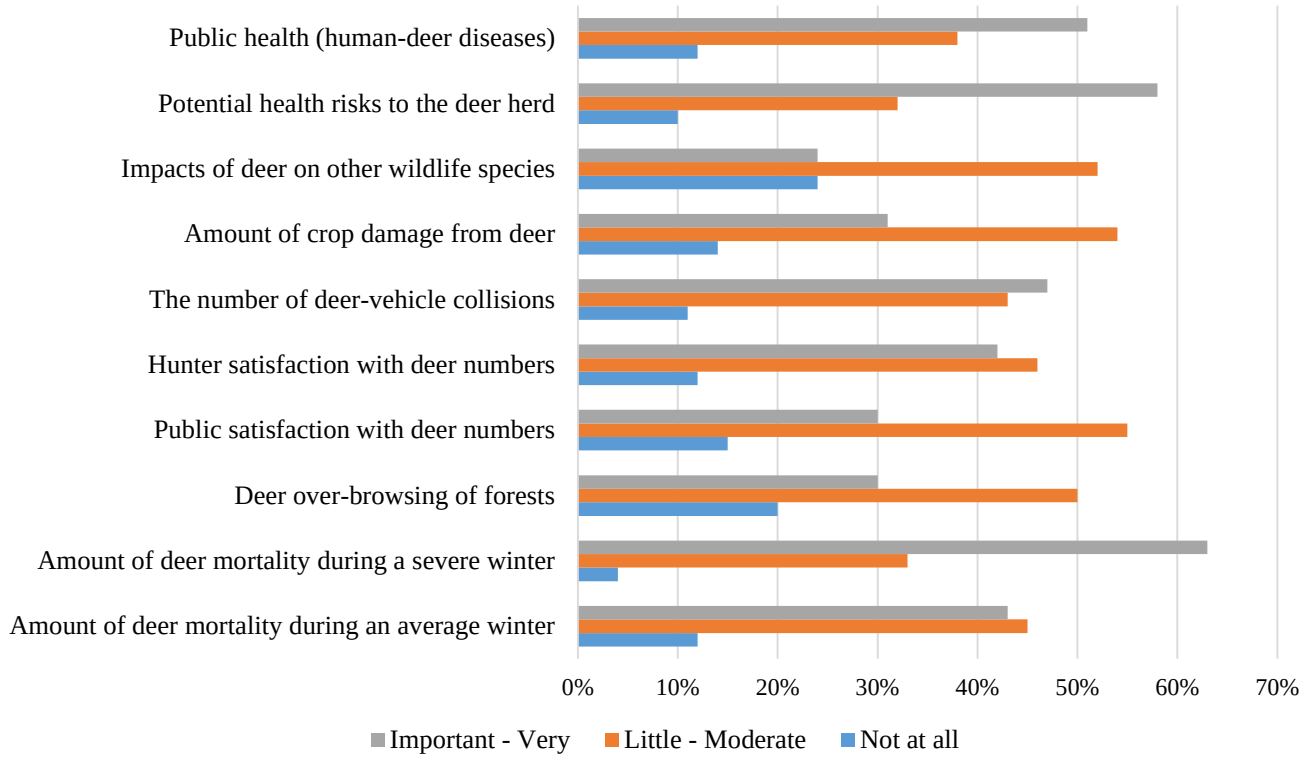
Respondents were also asked to rate the importance of 10 items when setting deer population goals[4]. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. Similar to the hunter survey, respondents were mixed in that they viewed winter mortality and disease risks as important, yet the amount of crop damage from deer and impacts on other species had lower relative importance. Conversely, hunter satisfaction, hunting tradition, and economic considerations had high relative importance (Table 14; Figure 9).

Table 43. Importance of items landowners indicated should be considered when setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	12%	14%	30%	32%	11%
Amount of deer mortality during a severe winter	4%	10%	23%	35%	28%
Deer over-browsing of forests	20%	23%	27%	23%	7%
Public satisfaction with deer numbers	15%	23%	31%	25%	6%
Hunter satisfaction with deer numbers	12%	16%	30%	29%	13%
The number of deer-vehicle collisions	11%	15%	27%	30%	16%
Amount of crop damage from deer	14%	25%	30%	21%	10%
Impacts of deer on other wildlife species	24%	24%	28%	19%	5%
Potential health risks to the deer herd	10%	11%	21%	31%	27%
Public health (human-deer diseases)	12%	19%	19%	26%	24%

[4] The questions about hunting heritage and impacts of deer hunting to the local economy were inadvertently omitted.

Figure 28. Graphical importance of items that landowners indicate should be considered when setting deer population goals. Items were consolidated into 3 groups.



Appendix A. Pine Moraines (Block G3) hunter survey

2014 Survey of Minnesota Deer Hunters: Population Management

The Minnesota DNR will be evaluating deer population goals in central Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt.

1. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season. (*Please check all that apply*).

   ❑ 2011 | ❒ 2012 | ❒ 2013

   ❑ 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 hunted.

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

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

   ❑ 241 | ❑ 242 | ❑ 246 | ❑ 248 | ❑ 251 | ❑ 258 | ❑ 259 | ❑ 287 | ❑ None of these

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 2013, how many years have you hunted deer in the permit area you hunt most often?
   _____ Years
6. Including 2013, how many total 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. 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 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 (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 total number of antlerless deer	1	2	3	4	5
I was satisfied with the total number of deer	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 deer 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 or 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
The 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.

A. _____

B. _____

C. _____

24. In thinking about your property and the surrounding area, would you say the deer population is,

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

25. In thinking about your property 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)

18. 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

19. 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 or 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 deer hunters' concerns.	1	2	3	4	5

20. What is your gender?

❑ Male | ❑ Female

21. What year were you born? _____ (*Please use the 4 digit year*)

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: _____

Appendix B. Pine Moraines (Block G3) landowner survey

2014 Survey of Minnesota Landowners: Deer Management

The Minnesota DNR will be evaluating deer population goals in central Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you own land.

9. How many total acres did you own and/or lease at the end of 2013?
   _____ Acres Owned _____ Acres Leased

10. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (Please list: _____)			%

11. Did you experience deer damage to land that you own or leased in 2013?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Landscaping	❑ Yes	❑ No	

12. How would you describe the total amount of deer damage you experienced in 2013? (*Check one*).

❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

13. How would you compare the amount of deer damage you experienced in 2013 to what you experienced 5 years ago? (*Check one*).
    - ❑ Much less damage than 5 years ago
    - ❑ Slightly less damage than 5 years ago
    - ❑ About the same damage as 5 years ago
    - ❑ Slightly more damage than 5years ago
    - ❑ Much more damage than 5 years ago
    - ❑ I was not farming/managing lands 5 years ago

14. Over the past 5 years, what trend have you seen in the deer population in the area of your property? (*Check one*).
    - ❑ Much fewer deer now than 5 years ago
    - ❑ Slightly fewer deer now than 5 years ago
    - ❑ About the same number of deer now as 5 years ago
    - ❑ Slightly more deer now than 5 years ago
    - ❑ Many more deer now than 5 years ago

15. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers. (*Please check one below*).
    ❑ Very Dissatisfied ❑ Slightly Dissatisfied ❑ Neutral ❑ Slightly Satisfied ❑ Very Satisfied

16. 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 such as chronic wasting disease	1	2	3	4	5
Public health (such human-deer disease from ticks)	1	2	3	4	5
Amount of crop damage from deer	1	2	3	4	5
The 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
Hunter satisfaction with deer numbers	1	2	3	4	5
Public satisfaction with deer numbers	1	2	3	4	5

9. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.
   A. _____
   B. _____
   C. _____

10. In thinking about your property and the surrounding area, would you say the deer population is, (*Check one*)

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

11. In thinking about your property 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)

12. Did you allow hunting on your property during the 2013 deer season? (*Check only one*)

❑ Yes
❑ No→PLEASE SKIP TO QUESTION 17

13. Do you lease any of your property for deer hunting?

❑ Yes
❑ No

14. Who did you allow to hunt deer on your property? (*Check mark all that apply*). Please also estimate the number of people who hunted your property in 2013.

❑ Myself or family members _____ people
❑ Friends or neighbors _____ people
❑ Strangers who ask permission _____ people
❑ People who lease my property _____ people
❑ Other (please list: _____) _____ people

15. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*).

❑ 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 (please list: _____)

16. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season? (*Please check all that apply*).

❑ 2011 | ❒ 2012 | ❒ 2013
❑ I hunt deer but did not hunt any of these years → Please skip to Question 21
❑ I do not hunt deer at all → Please skip to Question 22

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

❑ 241 | ❑ 242 | ❑ 246 | ❑ 248 | ❑ 251 | ❑ 258 | ❑ 259 | ❑ 287 | ❑ N/A

18. If you did not hunt one of the permit areas listed above, please tell us which one you hunted most often:
_____Area Number

19. How much of your deer hunting did you do on each of the following types of land during your most recent deer hunting season? (*Circle one number for each item*).

	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 **not** own or lease	1	2	3	4
Public land	1	2	3	4

20. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years.

21. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check one.*)

❑ Strongly Oppose ❒ Slightly Oppose ❒ Neither ❒ Slightly Support ❒ Strongly Support

23. 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	**Disagree**	**Neither Agree nor Disagree**	**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 landowners.	1	2	3	4	5

28. What is your gender?

❑ Male ❒ Female

29. What year were you born? _____ (please use 4 digits)

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: _____

East Central Uplands (Block G4)
Deer Goal Setting
Landowner and Hunter Survey Results

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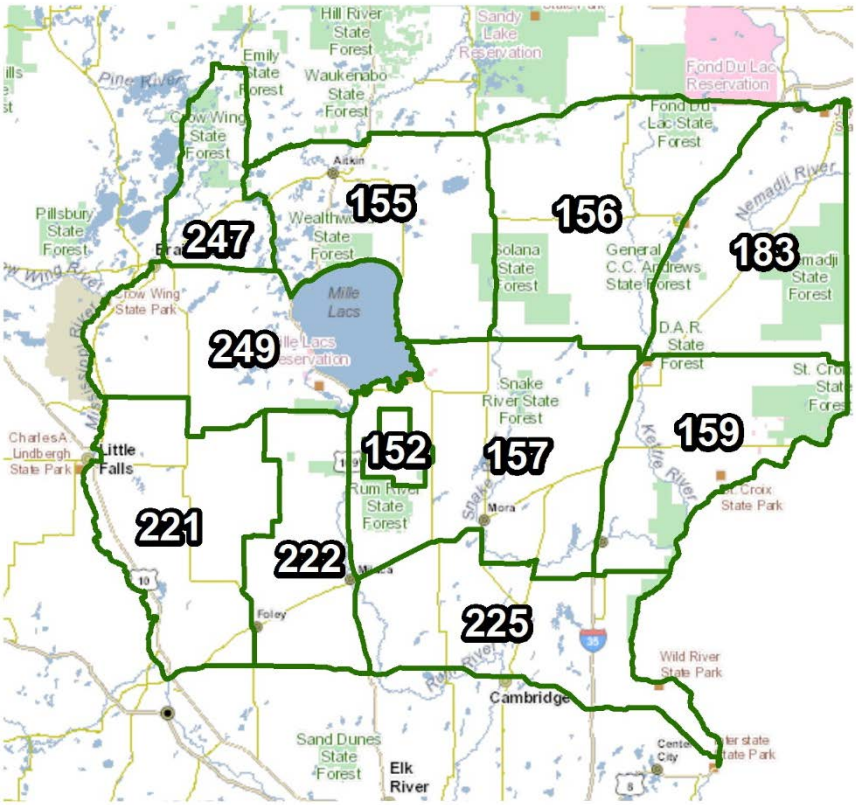
Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2014, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block 4, East Central Uplands.



Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting survey completion online; the third wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,600 adult 2013 deer license holders who indicated they intended to hunt in deer areas 152, 155, 156, 157, 159, 183, 221, 222, 225, 247, or 249. A total of 123 were undeliverable and we received 773 completed responses, which yielded an adjusted response rate of 31%. Deer area 152 (Mille Lacs WMA) is comprised entirely of public land so there was no was no landowner survey. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random

sample from all 4 stratum (n = 650). Overall, there were 288 undeliverable surveys; 914 completed landowner surveys were returned, yielding a 37% adjusted response rate. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (98%) indicated they hunted during the 2013 firearm deer season. Overall 25% indicated they hunted deer during the archery season and 11% hunted muzzleloader. Firearm hunters spent an average of 5.4 days afield, compared to 6.2 for muzzleloader and 17.7 for archery hunters. Overall, individuals had hunted an average of 27 years in Minnesota and 19 years in the deer area they indicated they hunted most often. Overall, 89% of respondents were male and the average age was 48.7 (range = 16 – 87).

More than half of hunters did at least some of their hunting on their own private land (68%) or other private land (68%). Slightly more than half (55%) did at least some of their hunting on public land. Another 9.4% indicated they did at least some hunting on lands that they leased for deer hunting. Only 2.9% of respondents hunted exclusively on land they leased. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 76% of respondents indicated there were fewer deer than 5 years ago, 6% indicated more, and 18% believed populations were the same. We observed some differences; hunters in deer area 156 were most likely to indicate populations had declined (89%); conversely, hunters in deer area 225 were least likely to indicate a population decline (59%) (Table 2). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Nearly two-thirds (69%) believed the population was ‘too low’, 28% thought it was ‘about right’, and 2% indicated the population was ‘too high’. We observed statistical differences among deer permit areas with similar patterns as described above (Table 3). Respondents were also asked to indicate their desires for future deer population densities and 77% wanted to see an increase in deer densities at some level (Table 4, Figure 1). A majority of respondents (82%) would shoot an antlerless deer if given the opportunity.

Table 44. Condensed table of desired deer population trends of hunters, by land type hunted.

		Desired Population Trend		
Type of land hunted		Decrease	No Change	Increase
Private land that I own	None	9%	14%	77%
	Some	8%	12%	80%
	Most	5%	20%	76%
	All	6%	18%	76%
Private land that I lease for hunting	None	7%	15%	78%
	Some	7%	40%	53%
	Most	0%	25%	75%
	All	0%	17%	83%
Private land that I do not own or lease	None	4%	15%	82%
	Some	5%	14%	81%
	Most	7%	14%	79%
	All	10%	19%	71%
Public land	None	7%	18%	75%
	Some	5%	15%	80%
	Most	6%	6%	88%
	All	6%	16%	79%

Table 45. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
152	5	83%	1	17%	0	0%
155	58	66%	24	27%	6	7%
156	80	89%	8	9%	2	2%
157	108	80%	18	13%	9	7%
159	70	82%	13	15%	2	2%
183	70	79%	10	11%	9	10%
221	39	77%	7	14%	5	10%
222	30	71%	11	26%	1	2%
225	38	59%	22	34%	4	6%
247	28	82%	5	15%	1	3%
249	26	61%	13	30%	4	9%
Total	552	76%	132	18%	43	6%

Table 46. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
152	5	83%	1	17%	0	0%
155	59	68%	25	29%	3	3%
156	77	86%	13	14%	0	0%
157	88	65%	46	34%	1	1%
159	68	81%	14	17%	2	2%
183	75	85%	12	14%	1	1%
221	26	51%	22	43%	3	6%
222	25	60%	16	38%	1	2%
225	32	51%	28	44%	3	5%
247	24	73%	8	24%	1	3%
249	22	51%	19	44%	2	5%
Total	501	69%	204	28%	17	2%

Table 47. Deer population trend preferences for hunters, by deer permit area.

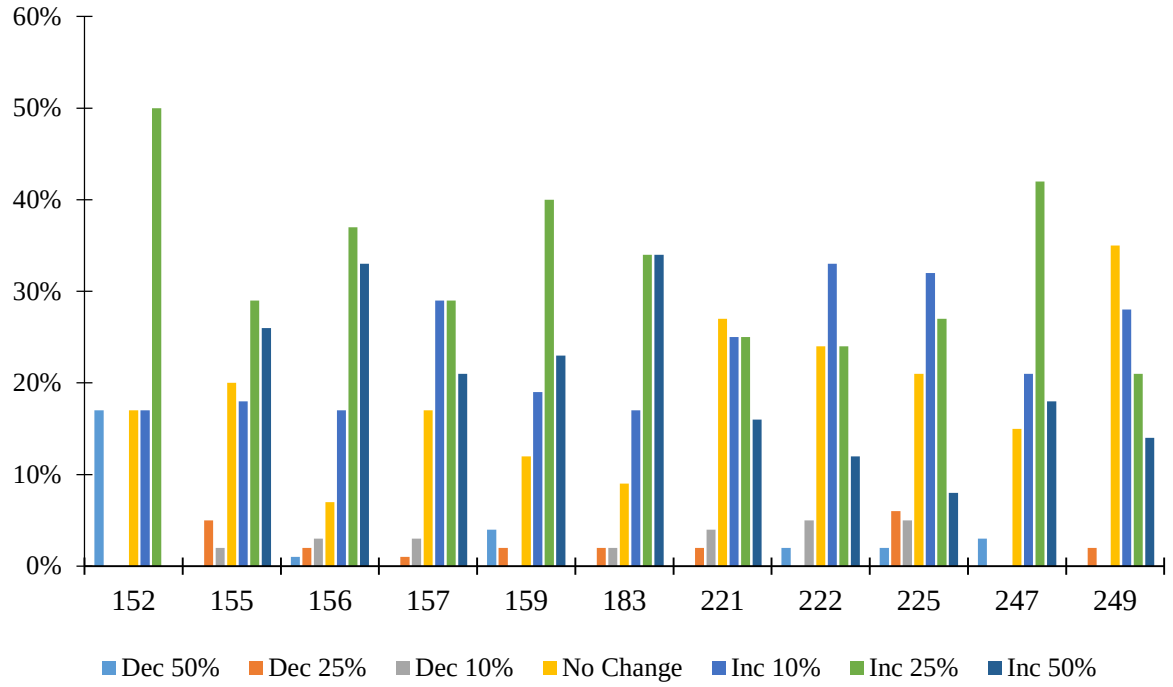
(a) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
152	17%	0%	0%	17%	17%	50%	0%
155	0%	5%	2%	20%	18%	29%	26%
156	1%	2%	3%	7%	17%	37%	33%
157	0%	1%	3%	17%	29%	29%	21%
159	4%	2%	0%	12%	19%	40%	23%
183	0%	2%	2%	9%	17%	34%	34%
221	0%	2%	4%	27%	25%	25%	16%
222	2%	0%	5%	24%	33%	24%	12%
225	2%	6%	5%	21%	32%	27%	8%
247	3%	0%	0%	15%	21%	42%	18%
249	0%	2%	0%	35%	28%	21%	14%
Total	1%	2%	3%	17%	23%	32%	22%

(b) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
152	17%	17%	67%
155	7%	20%	73%
156	6%	7%	87%
157	4%	17%	79%
159	6%	12%	82%
183	4%	9%	85%
221	6%	27%	66%
222	7%	24%	69%
225	13%	21%	67%
247	3%	15%	81%
249	2%	35%	63%
Total	6%	17%	77%

Figure 29. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. Only 19% were satisfied with current deer numbers; 66% indicated dissatisfaction (Table 5). In total, only 29% indicated they were satisfied with the total number of deer they saw while hunting (60% were not satisfied and 11% were neutral). Thirty nine percent were satisfied with the total number of antlerless deer they observed. Only one-quarter (26%) were satisfied with the number of legal bucks observed; more than half were dissatisfied (59%). Half (50%) indicated they saw heard about or saw legal bucks while hunting. More hunters (57%) were dissatisfied than satisfied (27%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer numbers; most were not satisfied with the number of deer they saw while hunting (range = 53% - 74%) (Figure 2).

Table 48. Overall hunter satisfaction with total deer numbers, by deer area.

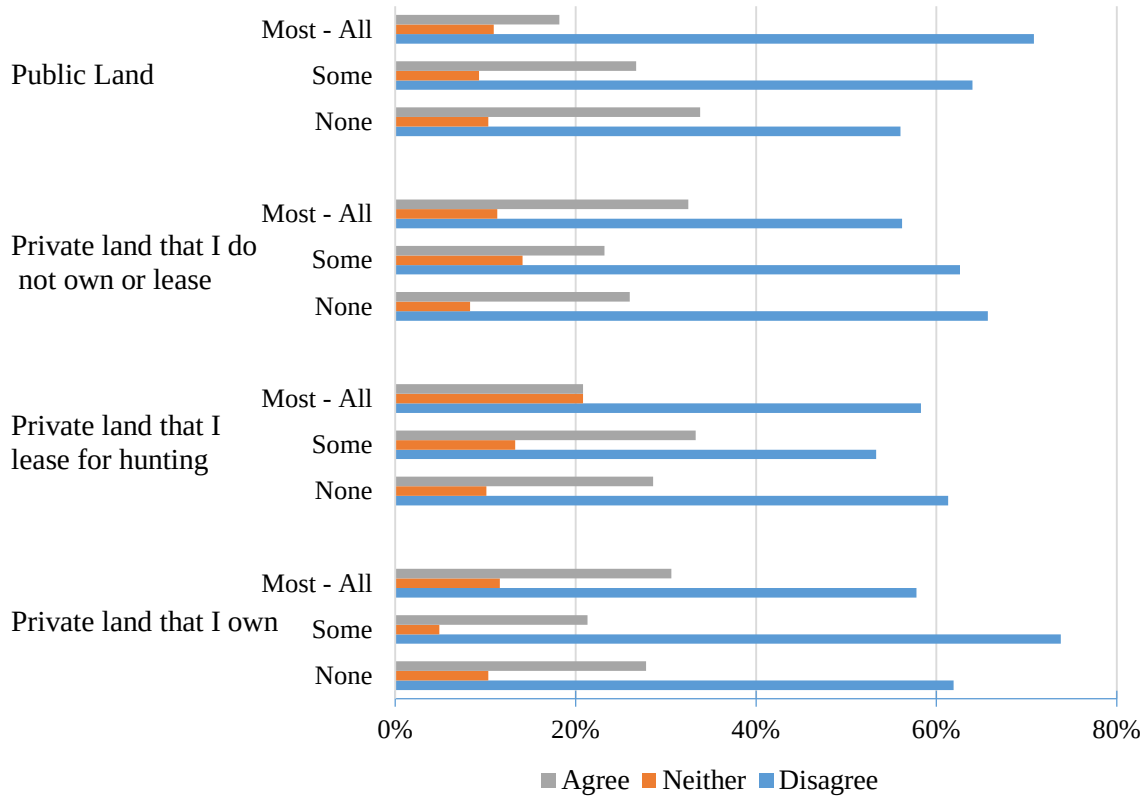
	Dissatisfied		Neither		Satisfied	
DPA	N	Percent	N	Percent	N	Percent
152	5	83%	1	17%	0	0%
155	52	59%	14	16%	22	25%
156	67	74%	15	17%	8	9%
157	84	62%	26	19%	25	19%
159	62	73%	14	17%	9	11%
183	71	80%	9	10%	9	10%
221	33	65%	7	14%	11	22%
222	23	55%	7	17%	12	29%
225	35	55%	6	9%	23	36%
247	24	71%	4	12%	6	18%
249	24	56%	9	21%	10	23%
Total	480	66%	112	15%	135	19%

Table 49. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area					
		152	155	156	157	159	183
I was satisfied with the number of legal bucks	Disagree	50%	56%	72%	55%	72%	70%
	Neither	0%	14%	18%	17%	14%	9%
	Agree	50%	31%	10%	28%	14%	21%
I was satisfied with the quality of bucks	Disagree	50%	42%	69%	56%	62%	64%
	Neither	0%	21%	18%	18%	15%	8%
	Agree	50%	38%	14%	26%	22%	28%
I heard about or saw legal bucks while hunting	Disagree	67%	43%	48%	36%	39%	53%
	Neither	33%	9%	13%	13%	12%	6%
	Agree	0%	48%	40%	52%	49%	41%
I was satisfied with the total number of antlerless deer	Disagree	50%	46%	64%	46%	51%	62%
	Neither	0%	17%	9%	12%	13%	12%
	Agree	50%	38%	27%	43%	37%	26%
I was satisfied with the total number of deer I saw while hunting	Disagree	67%	57%	75%	56%	65%	76%
	Neither	17%	13%	10%	15%	8%	7%
	Agree	17%	31%	15%	30%	27%	17%

		Deer Area					
		221	222	225	247	249	Total
I was satisfied with the number of legal bucks	Disagree	51%	43%	42%	68%	54%	59%
	Neither	20%	29%	14%	9%	14%	15%
	Agree	29%	29%	44%	24%	33%	26%
I was satisfied with the quality of bucks	Disagree	61%	52%	44%	74%	56%	57%
	Neither	16%	17%	17%	12%	7%	15%
	Agree	24%	31%	39%	15%	37%	27%
I heard about or saw legal bucks while hunting	Disagree	28%	21%	30%	32%	35%	39%
	Neither	10%	19%	14%	15%	12%	12%
	Agree	62%	60%	56%	53%	54%	50%
I was satisfied with the total number of antlerless deer	Disagree	43%	39%	36%	38%	40%	48%
	Neither	16%	7%	11%	24%	9%	13%
	Agree	41%	54%	53%	38%	51%	39%
I was satisfied with the total number of deer I saw while hunting	Disagree	57%	48%	48%	53%	49%	60%
	Neither	8%	14%	11%	24%	5%	11%
	Agree	35%	38%	41%	24%	47%	29%

Figure 30. Hunter satisfaction with total number of deer seen, based on land type hunted.



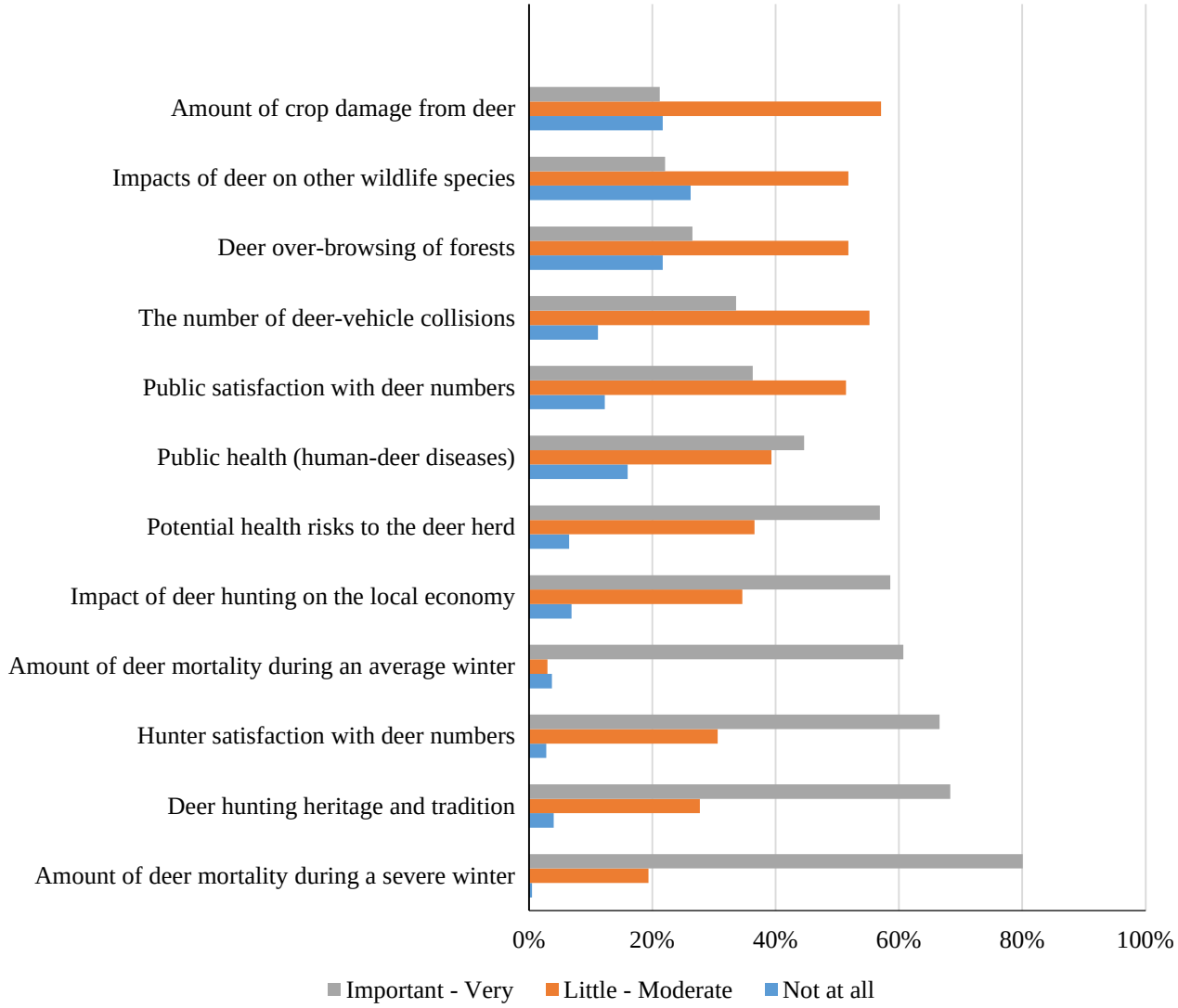
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents viewed severe winter mortality, hunting tradition, and hunter satisfaction as the 3 most important items. The amount of crop damage, impacts on other species, and deer over-browsing of forests were the 3 lowest variables (Table 7; Figure 3).

Table 50. Items that hunters believed should be important when considering setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	4%	12%	24%	43%	18%
Amount of deer mortality during a severe winter	1%	5%	15%	39%	41%
Deer over-browsing of forests	22%	23%	29%	20%	7%
Public satisfaction with deer numbers	12%	25%	27%	27%	10%
Hunter satisfaction with deer numbers	3%	9%	22%	42%	24%
The number of deer-vehicle collisions	11%	26%	29%	23%	10%
Amount of crop damage from deer	22%	31%	26%	17%	4%
Impacts of deer on other wildlife species	26%	25%	27%	17%	5%
Potential health risks to the deer herd	7%	16%	21%	29%	28%
Public health (human-deer diseases)	16%	21%	18%	25%	20%
Impact of deer hunting on the local economy	7%	12%	23%	34%	25%
Deer hunting heritage and tradition	4%	9%	19%	32%	36%

Figure 31. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Items were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 184, 220, 263, and 247 responses from the 4 strata, respectively. In total, 65% of respondents indicated they hunted deer in Minnesota during the 2013 deer season; similar percentages were reported for 2011 (65%) and 2012 (65%). Since those percentages of landowners that hunted did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2013 only. By stratum, a lower proportion of respondents who owned 2 – 20 acres indicated they hunted (40%), as compared to other landowners (20-79.9: 65%; 80-319.9: 69%; 320+: 72%). Overall, individuals had hunted an average of 37 years. Overall, 87% of respondents were male and the average age was 60.5 (range = 20 – 94).

Hunting patterns

A majority of landowners did most (19%) or all (70%) of their hunting on their own private land. Only 38% of all landowners did at least some hunting on public land, while 38% also hunted private land they didn't own. Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

Slightly more than two-thirds (76%) indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (40%) then landowners with at least 20 acres (range = 78% – 87%). Overall, only 3.1% (n = 28) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 88% indicated family members, 58% indicated friends or neighbors, and 10% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) increased with stratum (range 10% - 55%). The percentage of respondents who owned woodlands or residential properties was consistent among stratum (Figure 4). Landowners who owned at least 320 acres were most likely to indicate they had damage to their crops (62%). A smaller percentage of respondents indicated they had woodlot (9.0%) or residential (20%) damage from deer. With respect to residential damage, landowners who owned <20 acres were slightly more inclined to indicate residential damage from deer (Figure 5).

We observed no statistical differences among severity of damage based on land type (crop, woods, residential) or strata by deer permit area. Essentially, crop damage due to deer was typically categorized as 'minor' or 'moderate', regardless of parcel size (Table 9). We also observed no statistical differences among deer permit areas for landowners who reported damage to crops, woods, or residential acreage (Figure 6).

Table 51. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	20%	42%	39%
	Some	11%	22%	67%
	Most	11%	30%	59%
	All	12%	30%	58%
Private land that I lease for hunting	None	16%	34%	50%
	Some	9%	9%	82%
	Most	17%	33%	50%
	All	0%	0%	100%
Private land that I do not own or lease	None	14%	36%	51%
	Some	9%	26%	64%
	Most	3%	29%	69%
	All	27%	30%	43%
Public land	None	17%	33%	50%
	Some	2%	32%	66%
	Most	0%	7%	93%
	All	11%	37%	53%

Figure 32. Percent of landowners who owned crops, woods, and residential acreage.

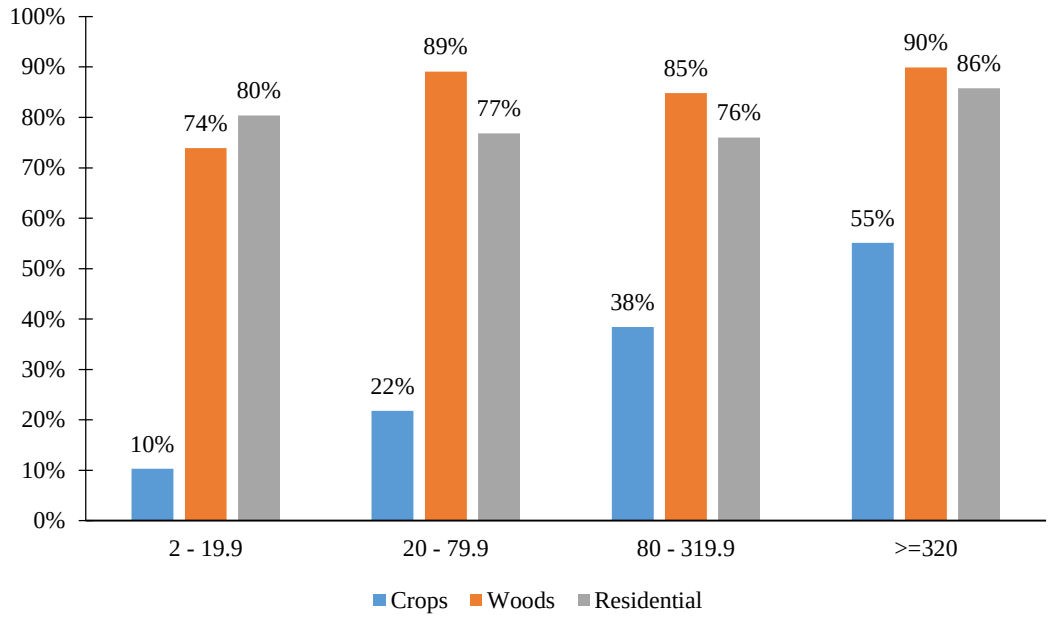


Figure 33. Percent of landowners who indicated they had damage from deer.

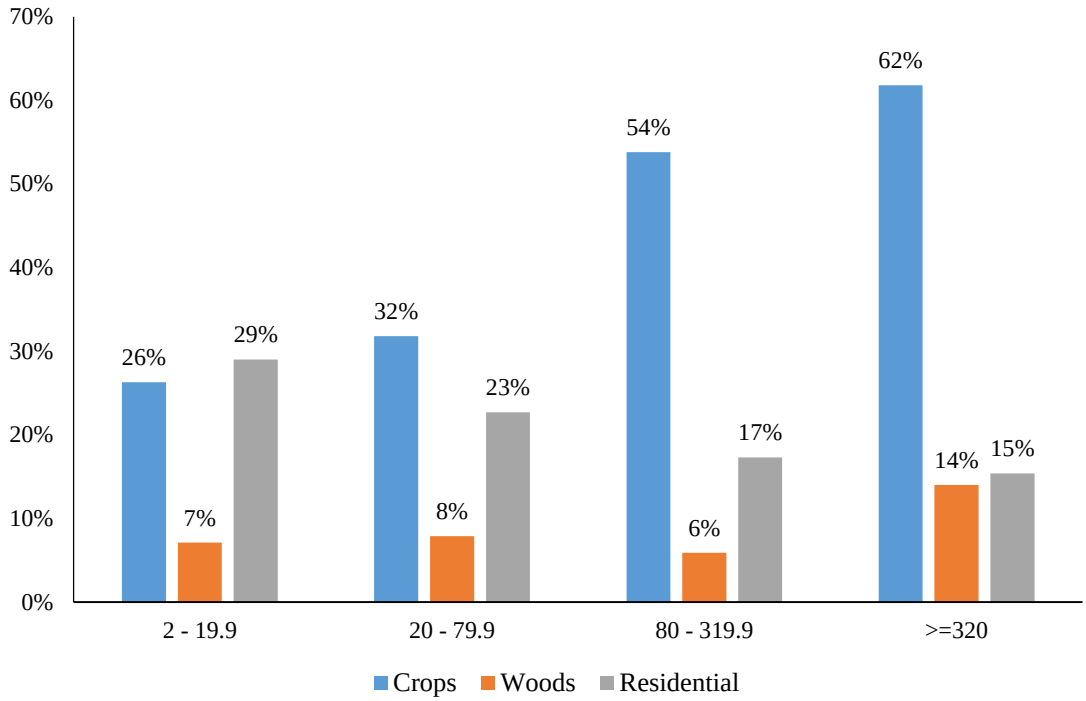
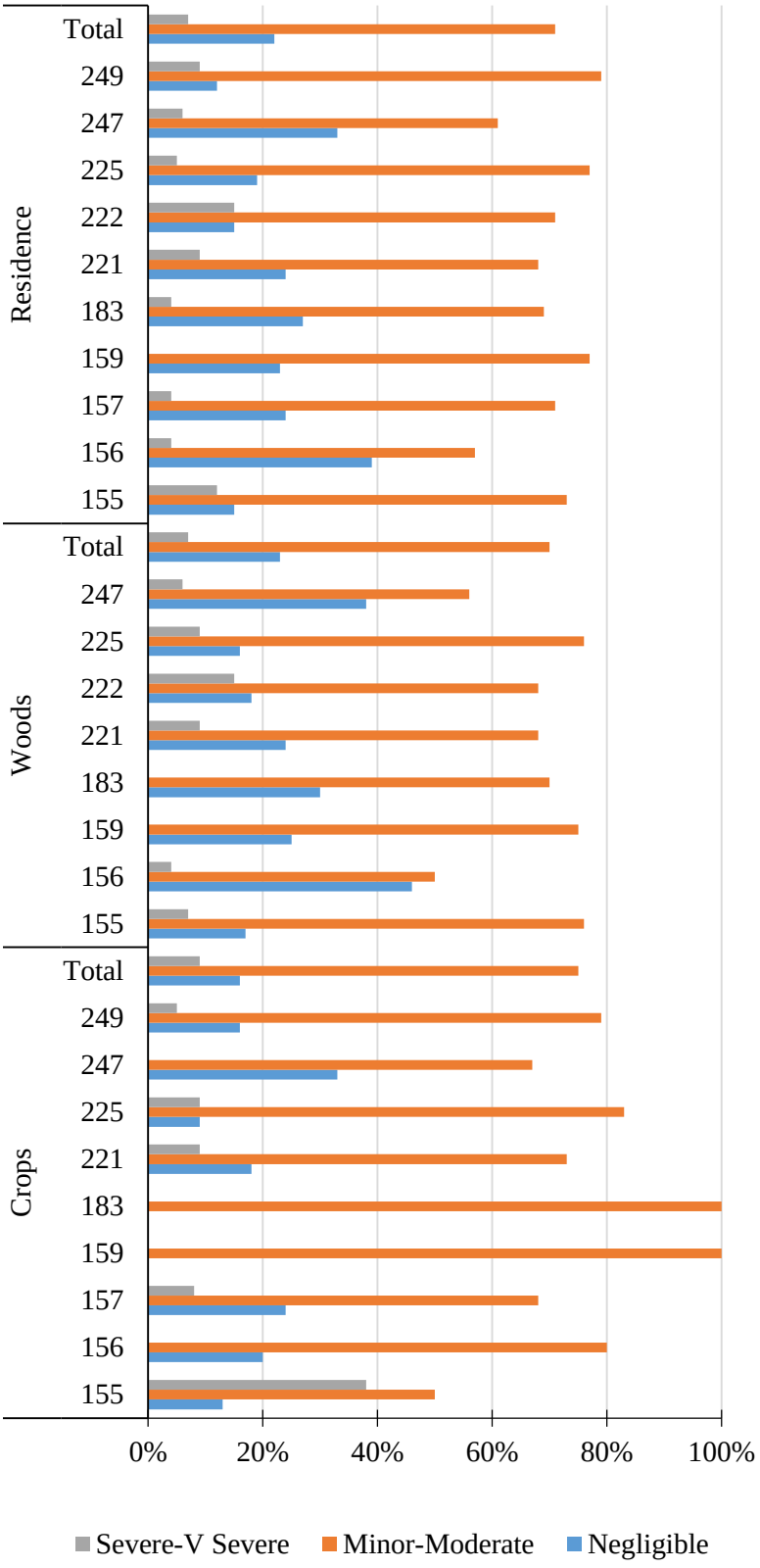


Table 52. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2 - 19.9	20 - 79.9	80 - 319.9	>=320	Total
Crops	Negligible	29%	20%	14%	15%	16%
	Minor	57%	40%	43%	51%	47%
	Moderate	14%	35%	36%	22%	28%
	Severe	0%	5%	2%	8%	5%
	Very Severe	0%	0%	5%	5%	4%
Woods	Negligible	28%	27%	25%	17%	23%
	Minor	50%	37%	45%	49%	46%
	Moderate	20%	29%	24%	24%	24%
	Severe	2%	7%	2%	6%	5%
	Very Severe	0%	0%	3%	4%	2%
Residential	Negligible	27%	26%	22%	16%	22%
	Minor	51%	38%	45%	49%	46%
	Moderate	20%	28%	27%	24%	25%
	Severe	2%	9%	2%	6%	5%
	Very Severe	0%	0%	4%	5%	3%

Figure 34. Reported damage to crops, woods, and residential acreage, by deer permit area.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 65% (57% non-hunters, 69% hunters) of respondents indicated there were fewer deer than 5 years ago, 12% (18% non-hunters, 9.3% hunters) indicated more, and 23% (26% non-hunters, 22% hunters) believed populations were the same. Landowners in deer area 159 were most likely to indicate the population was lower (94%; Table 10). Respondents were also asked for their perceptions of total deer population size as rated by 'too low', 'about right', or 'too high'. Non-hunting landowners were more likely to indicate the deer population was 'about right' (52% vs. 36%), while hunters were more likely to indicate populations were 'too low' (58% vs 33%). Non-hunters were more likely to indicate the population was 'too high' (5.4% hunters, 15% non-hunters). Similar patterns were detected by deer area in that hunting landowners were more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 58% wanted to see an increase in deer densities at some level (Table 12, Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 53. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
155	77	70%	20	18%	13	12%
156	92	88%	11	11%	2	2%
157	113	76%	25	17%	11	7%
159	29	94%	2	7%	0	0%
183	53	66%	23	29%	4	5%
221	43	48%	28	32%	18	20%
222	53	58%	21	23%	17	19%
225	62	55%	38	34%	12	11%
247	14	38%	12	32%	11	30%
249	36	44%	25	31%	20	25%
Total	572	65%	205	23%	108	12%

Table 54. Landowner beliefs about current deer population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (35%)	155	11	31%	19	53%	6	17%
	156	14	50%	12	43%	2	7%
	157	19	42%	16	36%	10	22%
	159	8	53%	5	33%	2	13%
	183	11	37%	17	57%	2	7%
	221	7	29%	15	63%	2	8%
	222	11	32%	14	41%	9	27%
	225	9	17%	39	75%	4	8%
	247	3	21%	3	21%	8	57%
	249	8	29%	18	64%	2	7%
	Sum	101	33%	158	52%	47	15%
Yes (65%)	155	50	69%	17	23%	6	8%
	156	56	74%	17	22%	3	4%
	157	70	69%	28	28%	4	4%
	159	13	81%	3	19%	0	0%
	183	29	58%	18	36%	3	6%
	221	27	43%	31	49%	5	8%
	222	35	61%	19	33%	3	5%
	225	24	42%	29	51%	4	7%
	247	9	39%	13	57%	1	4%
	249	20	38%	31	59%	2	4%
	Sum	333	58%	206	36%	31	5%
Total	155	61	56%	36	33%	12	11%
	156	70	67%	29	28%	5	5%
	157	89	61%	44	30%	14	10%
	159	21	68%	8	26%	2	7%
	183	40	50%	35	44%	5	6%
	221	34	39%	46	53%	7	8%
	222	46	51%	33	36%	12	13%
	225	33	30%	68	62%	8	7%
	247	12	32%	16	43%	9	24%
	249	28	35%	49	61%	4	5%
	Total	434	50%	364	42%	78	9%

Table 55. Preferred landowner population trends, by deer area.

(a) by individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
155	2%	5%	7%	15%	30%	25%	17%
156	2%	4%	0%	13%	31%	31%	20%
157	3%	4%	7%	21%	15%	28%	21%
159	3%	3%	0%	16%	13%	35%	29%
183	1%	3%	5%	30%	22%	22%	18%
221	2%	7%	7%	40%	19%	14%	11%
222	8%	4%	3%	27%	21%	23%	13%
225	3%	3%	6%	46%	25%	17%	2%
247	5%	16%	8%	35%	11%	19%	5%
249	0%	5%	4%	48%	16%	19%	9%
Total	3%	5%	5%	29%	21%	23%	14%

(b) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
155	14%	15%	72%
156	6%	13%	82%
157	14%	21%	64%
159	6%	16%	77%
183	9%	30%	62%
221	16%	40%	44%
222	15%	27%	57%
225	12%	46%	44%
247	29%	35%	35%
249	9%	48%	44%
Total	13%	29%	58%

Figure 35. Graphical representation of desired deer population trends for landowners.

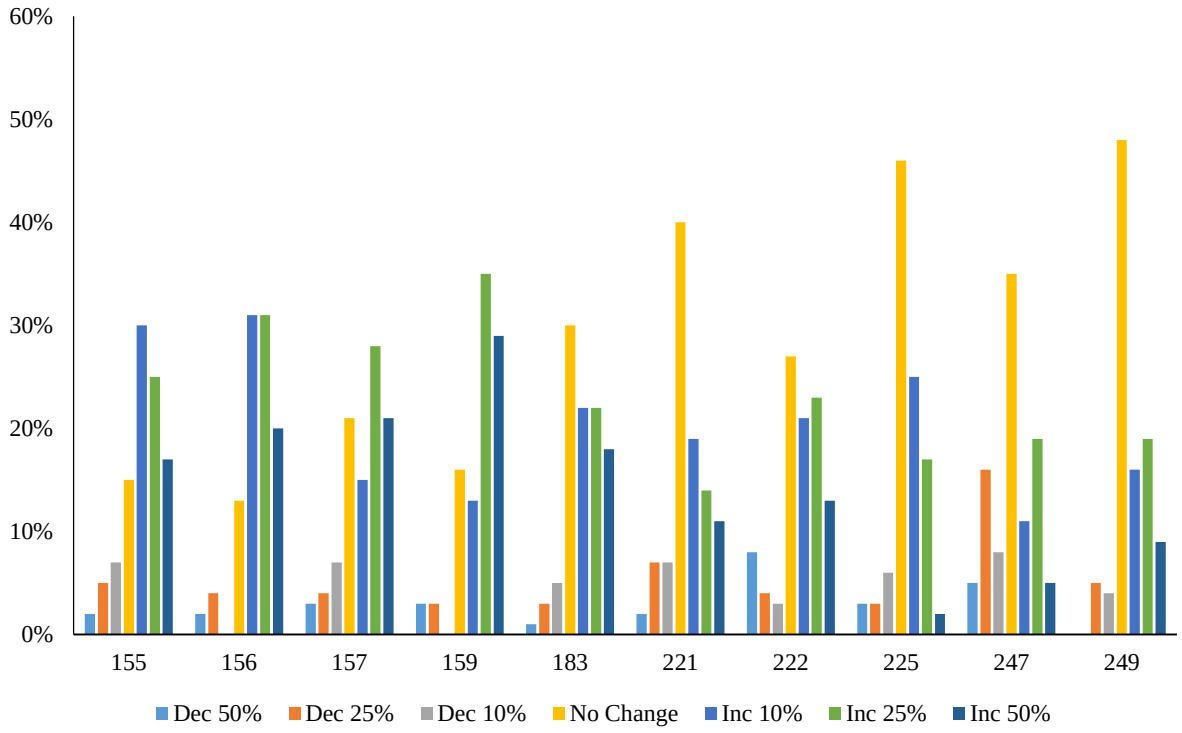
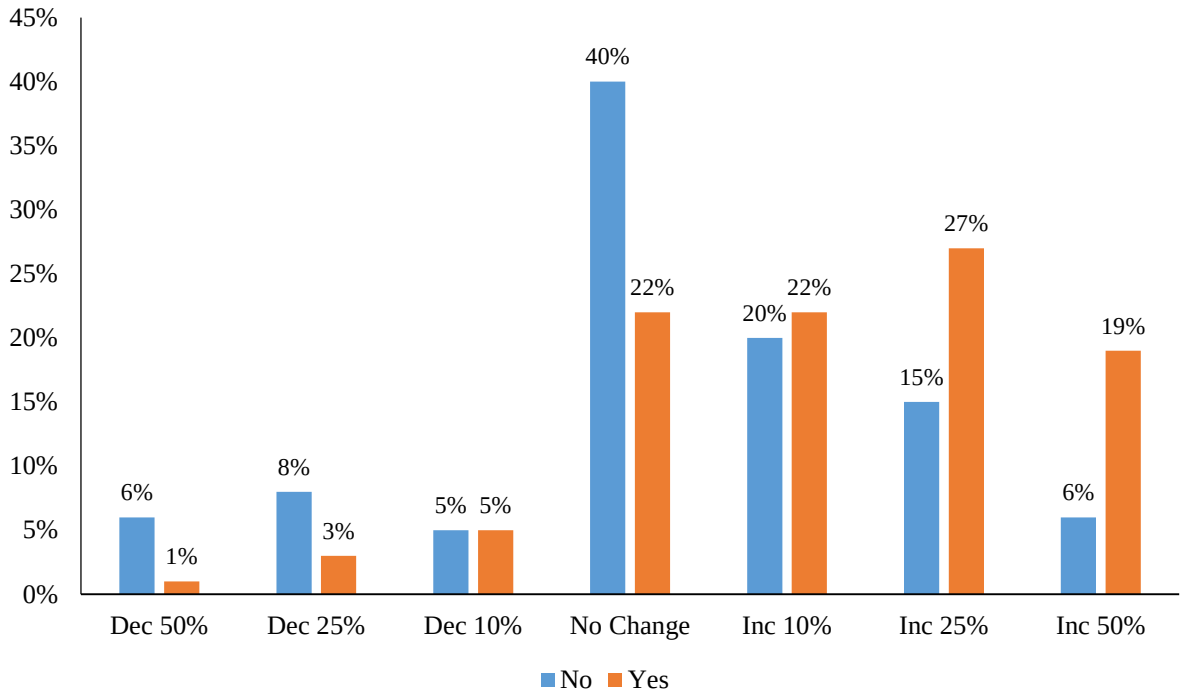


Table 56. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No (35%)	155	3%	3%	11%	31%	33%	14%	6%
	156	4%	7%	0%	18%	36%	18%	18%
	157	9%	9%	9%	37%	13%	15%	9%
	159	7%	7%	0%	20%	20%	40%	7%
	183	3%	3%	3%	48%	24%	14%	3%
	221	4%	13%	0%	54%	17%	13%	0%
	222	18%	9%	3%	35%	21%	12%	3%
	225	2%	6%	6%	57%	20%	8%	2%
	247	14%	36%	7%	14%	14%	14%	0%
	249	0%	4%	7%	57%	0%	21%	11%
	Total	6%	8%	5%	40%	20%	15%	6%
Yes (65%)	155	1%	6%	6%	7%	28%	31%	22%
	156	1%	3%	0%	11%	29%	36%	21%
	157	1%	2%	7%	14%	16%	34%	26%
	159	0%	0%	0%	13%	6%	31%	50%
	183	0%	2%	6%	20%	20%	26%	26%
	221	2%	5%	9%	34%	20%	14%	16%
	222	2%	2%	4%	21%	21%	30%	20%
	225	3%	0%	5%	36%	29%	24%	2%
	247	0%	4%	9%	48%	9%	22%	9%
	249	0%	6%	2%	43%	25%	17%	8%
	Total	1%	3%	5%	22%	22%	27%	19%

Figure 36. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



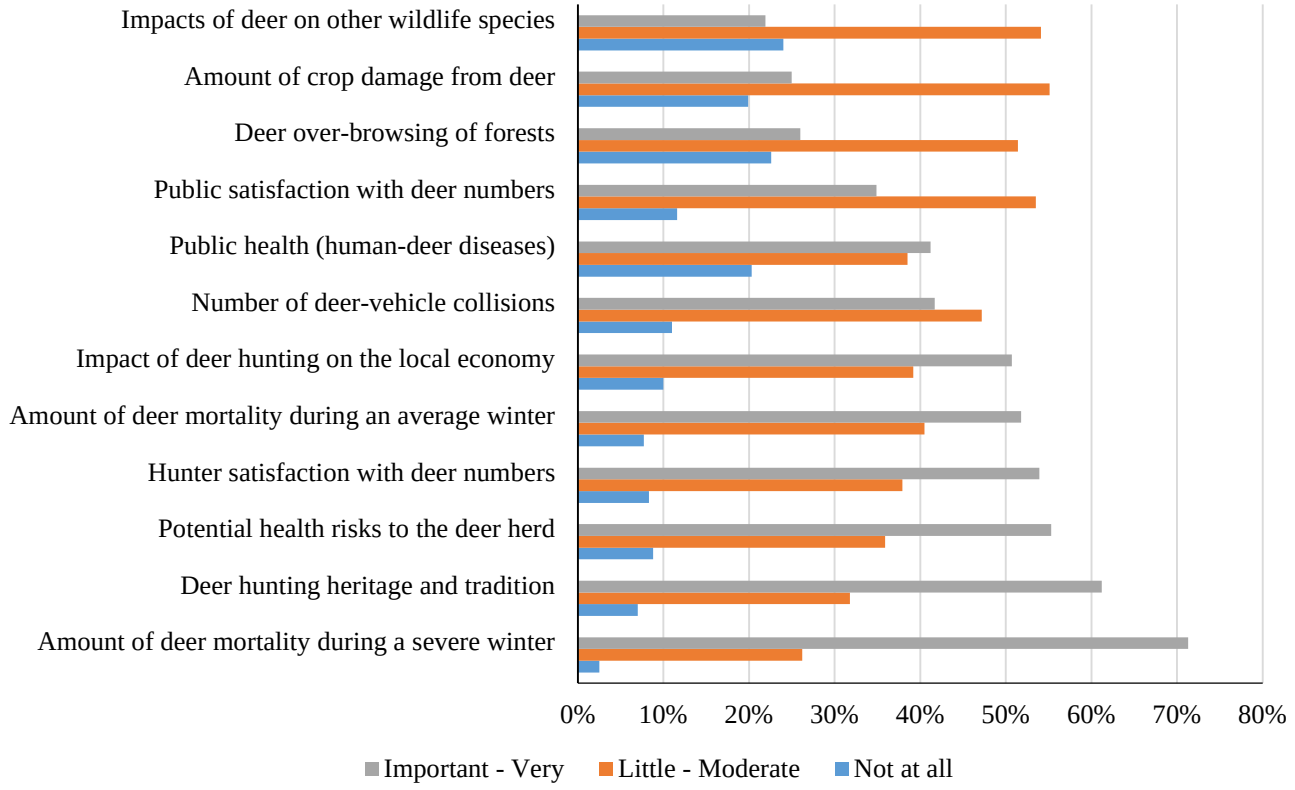
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher or lower deer populations. Deer mortality during a severe winter, hunting tradition, and disease risks to deer were the 3 most important considerations for landowner. Impacts of deer on other species, deer over-browsing, and public health comprised had the lowest relative importance (Table 14; Figure 9).

Table 57. Importance of items landowners indicated should be considered when setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	8%	14%	27%	36%	16%
Amount of deer mortality during a severe winter	3%	10%	17%	35%	37%
Deer over-browsing of forests	23%	23%	28%	19%	7%
Public satisfaction with deer numbers	12%	20%	34%	26%	9%
Hunter satisfaction with deer numbers	8%	12%	26%	33%	21%
Number of deer-vehicle collisions	11%	21%	26%	27%	15%
Amount of crop damage from deer	20%	24%	31%	19%	6%
Impacts of deer on other wildlife species	24%	25%	29%	17%	5%
Potential health risks to the deer herd	9%	17%	19%	31%	25%
Public health (human-deer diseases)	20%	21%	18%	22%	19%
Deer hunting heritage and tradition	7%	11%	21%	31%	31%
Impact of deer hunting on the local economy	10%	14%	25%	30%	21%

Figure 37. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Items were consolidated into 3 groups and ranked from low to high by highest importance.



Appendix A. East Central Uplands (Block G4) hunter survey

2014 Survey of Minnesota Deer Hunters: Population Management

The Minnesota Department of Natural Resources will be evaluating deer population goals in east-central Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt. This survey should take less than 10 minutes to complete.

1. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season. (*Please check all that apply*).

   ❑ 2011 | ❒ 2012 | ❒ 2013

   ❑ 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 hunted.

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

3. Which **ONE** deer permit area did you hunt most often during the <u>most recent</u> deer season you hunted?
   ❑ 219 | ❑ 223 | ❑ 224 | ❑ 227 | ❑ 229 | ❑ 235 | ❑ 236 | ❑ 285 | ❑ 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 2013, how many years have you hunted deer in the permit area you hunt most often?
   _____ Years

6. Including 2013, 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. 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.

A. _____

B. _____

C. _____

26. 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

27. 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)

28. 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? (*Check <u>one</u>*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

29. 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

30. What is your gender?

❑ Male ❑ Female

31. What year were you born? _____ (*Please use the 4 digit year*).

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: _____

Appendix B. East Central Uplands (Block G4) landowner survey.

2014 Survey of Minnesota Landowners: Deer Management

The Minnesota Department of Natural Resources will be evaluating deer population goals in east-central Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. This survey should take less than ten minutes to complete. Your responses will help guide deer population goals in the area you own land.

1. How many total acres did you own and/or lease at the end of 2013?
   _____ Acres Owned _____ Acres Leased

2. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

3. Did you experience deer damage to land that you own or leased in 2013?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Landscaping	❑ Yes	❑ No	

4. How would you describe the total amount of deer damage you experienced in 2013? (*Check one*)
   ❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

5. How would you compare the amount of deer damage you experienced in 2013 to what you experienced 5 years ago? (*Check one*)

   ❑ Much less damage than 5 years ago
   ❑ Slightly less damage than 5 years ago
   ❑ About the same damage as 5 years ago
   ❑ Slightly more damage than 5 years ago
   ❑ Much more damage than 5 years ago
   ❑ I was not farming/managing lands 5 years ago

6. Over the past 5 years, what trend have you seen in the deer population in the area of your property? (*Check one*)

- ❑ Much fewer deer now than 5 years ago
- ❑ Slightly fewer deer now than 5 years ago
- ❑ About the same number of deer now as 5 years ago
- ❑ Slightly more deer now than 5 years ago
- ❑ Many more deer now than 5 years ago

7. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers. (*Check one*)

- ❑ Very Dissatisfied
- ❑ Slightly Dissatisfied
- ❑ Neither Dissatisfied nor Satisfied
- ❑ Slightly Satisfied
- ❑ Very Satisfied

8. 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 such as chronic wasting disease	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

11. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

A. _____

B. _____

C. _____

35. In thinking about your property and the surrounding area, would you say the deer population is, (*Check one*)

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

36. In thinking about your property 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)

37. Did you allow hunting on your property during the 2013 deer season? (*Check only one*)

- ❑ Yes
- ❑ No→PLEASE SKIP TO QUESTION 16

38. Do you lease any of your property for deer hunting?

- ❑ Yes
- ❑ No

39. Who did you allow to hunt deer on your property? (*Check all that apply*). Please also estimate the number of people who hunted your property in 2013.

❑ Myself or family members	_____ people	❑ Strangers who ask permission	_____ people
❑ Friends or neighbors	_____ people	❑ People who lease my property	_____ people

❑ Other (please list: _____) _____ people

40. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*)

- ❑ 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 list: _____)

41. Please check the boxes below if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season? (*Please check all that apply*)

- ❑ 2011 | ❒ 2012 | ❒ 2013
- ❑ I hunt deer but did not hunt any of these years → Please skip to Question 20
- ❑ I do not hunt deer at all → Please skip to Question 21

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

❑ 219 | ❑ 223 | ❑ 224 | ❑ 227 | ❑ 229 | ❑ 235 | ❑ 236 | ❑ 285 | ❑ I hunted a permit area not listed

43. 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

44. How much of your deer hunting did you do on each of the following types of land during your most recent deer hunting season? (*Circle one number for 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 **not** own or lease	1	2	3	4
Public land	1	2	3	4

45. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years.

46. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check one*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

25. 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 landowners.	1	2	3	4	5

30. What is your gender?

❑ Male ❒ Female

31. What year were you born? _____ (*Please use the 4 digit year*)

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: _____

Sand Plain – Big Woods (Block G5)
Deer Goal Setting
Landowner and Hunter Survey Results

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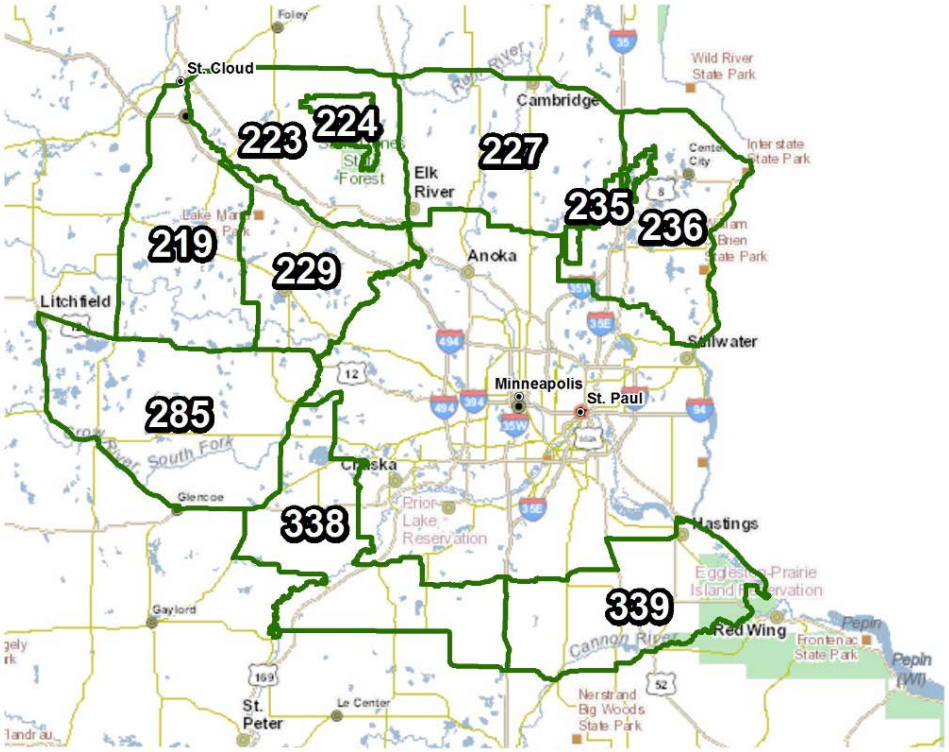
Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2014, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block 5, Sand Plain – Big Woods.



Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting survey completion online; the third wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,600 adult 2013 deer license holders who indicated they intended to hunt in deer areas 219, 223, 224, 227, 229, 235, 236, or 285. Deer areas 338 and 339 were included in the 2012-13 hunter and landowner surveys for southeastern Minnesota; as a result the permit areas were not surveyed again in 2014. A total of 110 surveys were undeliverable and we received 737 completed responses, which yielded an adjusted response rate

of 30%. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1 and 2 (n = 759), strata 3 (n = 758), and surveyed all landowners in strata 4 (N = 324). Overall, there were 288 undeliverable surveys; 871 completed landowner surveys were returned, yielding a 36% adjusted response rate. Deer areas 224 (Sherburne NWR) and 235 (Carlos Avery WMA) are comprised entirely of public land so were no landowner surveys. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (94%) indicated they hunted during the 2013 firearm deer season. Overall 26% indicated they hunted deer during the archery season and 21% hunted muzzleloader. Firearm hunters spent an average of 5.4 days afield, compared to 6.2 for muzzleloader and 17.7 for archery hunters. Overall, individuals had hunted an average of 24 years in Minnesota and 16 years in the deer area they indicated they hunted most often. Overall, 89% of respondents were male and the average age was 47.9 (range = 15 – 80).

More than half of hunters did at least some of their hunting on their own private land (61%) or other private land (79%). Slightly less than half (43%) did at least some of their hunting on public land. Another 8.5% indicated they did at least some hunting on lands that they leased for deer hunting. Only 3.4% of respondents hunted exclusively on land they leased. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 64% of respondents indicated there were fewer deer than 5 years ago, 12% indicated more, and 24% believed populations were the same. We observed some differences; hunters in deer area 224 (Sherburne NWR) were most likely to indicate populations had declined (80%). Slightly more than half of 219 (55%), 223 (57%), 227 (58%), and 235 (58%) hunters felt populations had declined (Table 2). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Slightly more than half (54%) believed the population was ‘too low’, 42% thought it was ‘about right’, and 5% indicated the population was ‘too high’. We observed statistical differences among deer permit areas with similar patterns as described above (Table 3). Respondents were also asked to indicate their desires for future deer population densities and two-thirds (67%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). A majority of respondents (85%) would shoot an antlerless deer if given the opportunity.

Table 58. Condensed table of desired deer population trends of hunters, by land type hunted.

		Desired Population Trend		
Type of land hunted		Decrease	No Change	Increase
Private land that I own	None	7%	21%	72%
	Some	13%	15%	72%
	Most	11%	26%	63%
	All	11%	31%	58%
Private land that I lease for hunting	None	9%	23%	68%
	Some	9%	18%	73%
	Most	0%	0%	100%
	All	23%	31%	46%
Private land that I do not own or lease	None	13%	28%	59%
	Some	9%	20%	71%
	Most	11%	19%	71%
	All	7%	26%	67%
Public land	None	10%	27%	64%
	Some	9%	21%	70%
	Most	10%	15%	74%
	All	5%	8%	87%

Table 59. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
219	55	55%	23	23%	22	22%
223	70	57%	31	25%	21	17%
224	24	80%	3	10%	3	10%
227	87	58%	43	29%	19	13%
229	30	63%	13	27%	5	10%
235	11	58%	7	37%	1	5%
236	84	74%	22	20%	7	6%
285	54	75%	15	21%	3	4%
Total	415	64%	157	24%	81	12%

Table 60. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
219	47	47%	47	47%	6	6%
223	55	46%	61	51%	4	3%
224	22	76%	7	24%	0	0%
227	67	45%	69	46%	14	9%
229	25	52%	22	46%	1	2%
235	12	63%	7	37%	0	0%
236	67	59%	41	36%	6	5%
285	55	76%	17	24%	0	0%
Total	350	54%	271	42%	31	5%

Table 61. Deer population trend preferences for hunters, by deer permit area.

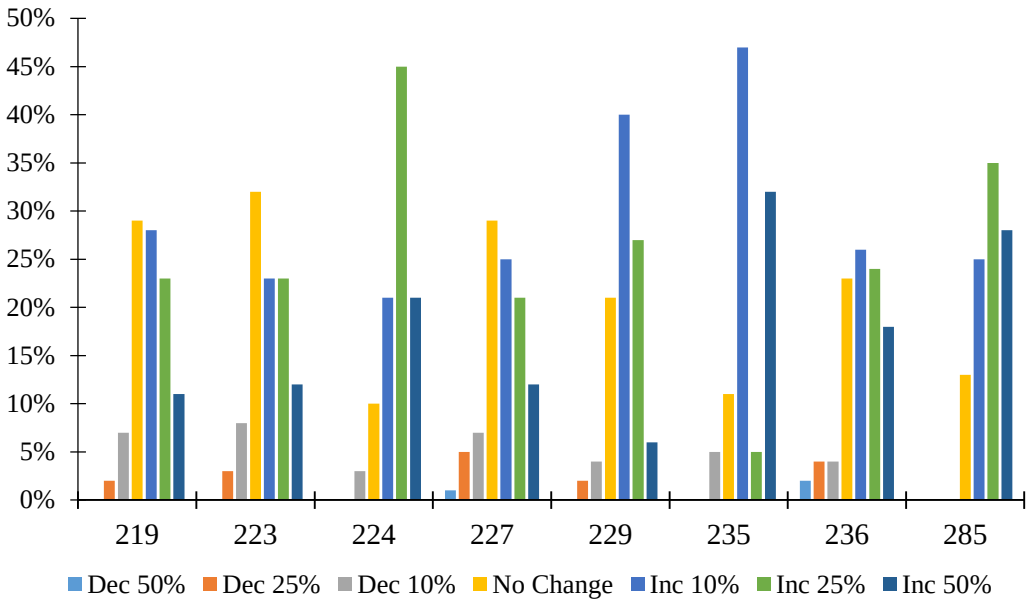
(a) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
219	0%	2%	7%	29%	28%	23%	11%
223	0%	3%	8%	32%	23%	23%	12%
224	0%	0%	3%	10%	21%	45%	21%
227	1%	5%	7%	29%	25%	21%	12%
229	0%	2%	4%	21%	40%	27%	6%
235	0%	0%	5%	11%	47%	5%	32%
236	2%	4%	4%	23%	26%	24%	18%
285	0%	0%	0%	13%	25%	35%	28%
Total	1%	3%	5%	25%	27%	25%	15%

(b) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
219	9%	29%	62%
223	11%	32%	58%
224	3%	10%	87%
227	13%	29%	58%
229	6%	21%	73%
235	5%	11%	84%
236	10%	23%	68%
285	0%	13%	88%
Total	9%	25%	67%

Figure 38. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. Nearly one-third (32%) were satisfied with current deer numbers; a slight majority (52%) indicated dissatisfaction (Table 5). In total, less than half of respondents (39%) indicated they were satisfied with the total number of deer they saw while hunting (50% were not satisfied and 12% were neutral). Half were satisfied with the total number of antlerless deer they observed. About one-third (34%) were satisfied with the number of legal bucks observed; about half were dissatisfied (48%). More than half (57%) indicated they heard about or saw legal bucks while hunting. More hunters (51%) were dissatisfied than satisfied (34%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer numbers; around half to two-thirds were not satisfied with the number of deer they saw while hunting (range = 44% - 67%) (Figure 2).

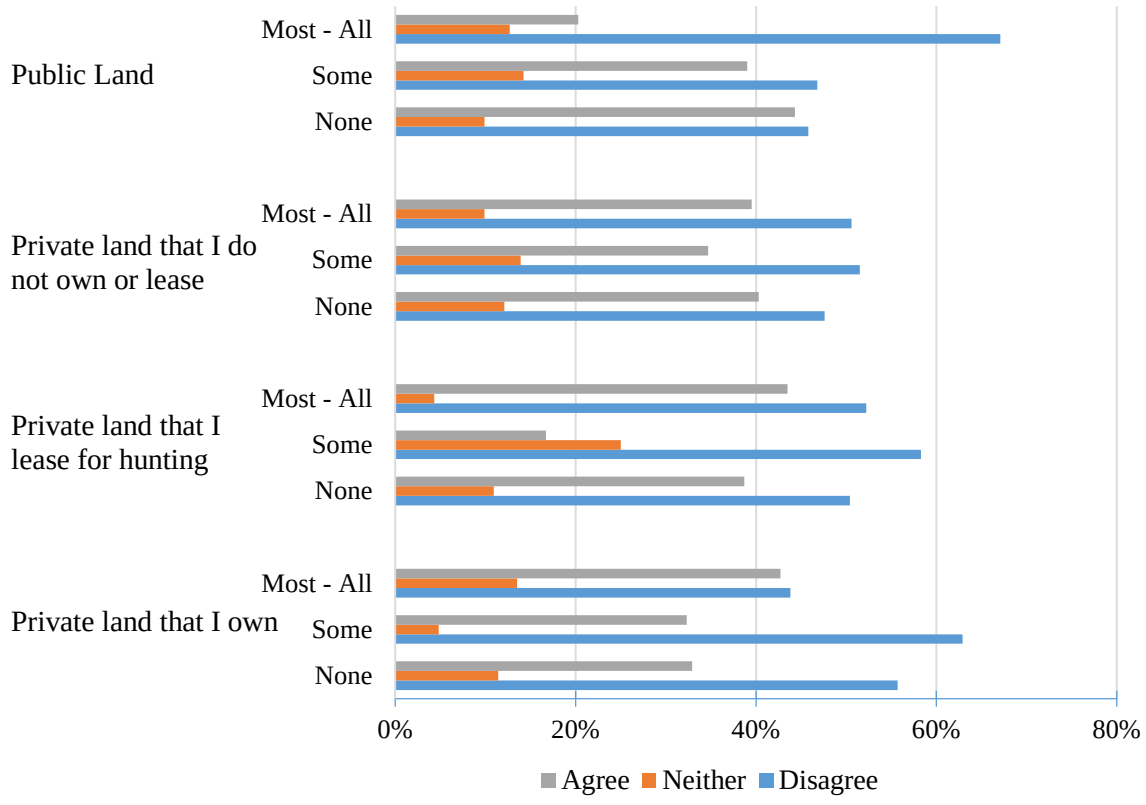
Table 62. Overall hunter satisfaction with total deer numbers, by deer area.

	Dissatisfied		Neither		Satisfied	
DPA	N	Percent	N	Percent	N	Percent
219	41	41%	15	15%	44	44%
223	56	46%	24	20%	42	34%
224	22	73%	5	17%	3	10%
227	74	49%	20	13%	56	37%
229	22	46%	10	21%	16	33%
235	12	63%	4	21%	3	16%
236	63	55%	19	17%	33	29%
285	48	67%	13	18%	11	15%
Total	338	52%	110	17%	208	32%

Table 63. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area								
		219	223	224	227	229	235	236	285	Total
I was satisfied with the number of legal bucks	Disagree	45%	41%	46%	44%	33%	68%	54%	67%	48%
	Neither	13%	19%	18%	17%	27%	11%	18%	15%	17%
	Agree	42%	40%	36%	39%	40%	21%	29%	18%	35%
I was satisfied with the quality of bucks	Disagree	53%	46%	50%	45%	38%	58%	57%	69%	51%
	Neither	11%	13%	7%	18%	31%	11%	16%	13%	15%
	Agree	36%	41%	43%	37%	31%	32%	27%	18%	34%
I heard about or saw legal bucks while hunting	Disagree	28%	29%	25%	28%	23%	42%	35%	38%	30%
	Neither	6%	15%	7%	11%	23%	16%	8%	21%	13%
	Agree	66%	57%	68%	60%	54%	42%	58%	42%	57%
I was satisfied with the total number of antlerless deer	Disagree	25%	28%	50%	32%	29%	50%	48%	54%	37%
	Neither	13%	17%	7%	11%	23%	17%	11%	13%	13%
	Agree	62%	55%	43%	57%	48%	33%	42%	33%	50%
I was satisfied with the total number of deer I saw while hunting	Disagree	43%	48%	53%	42%	40%	63%	57%	68%	50%
	Neither	6%	15%	13%	9%	23%	16%	10%	13%	12%
	Agree	51%	38%	33%	49%	38%	21%	32%	19%	39%

Figure 39. Hunter satisfaction with total number of deer seen, based on land type hunted.



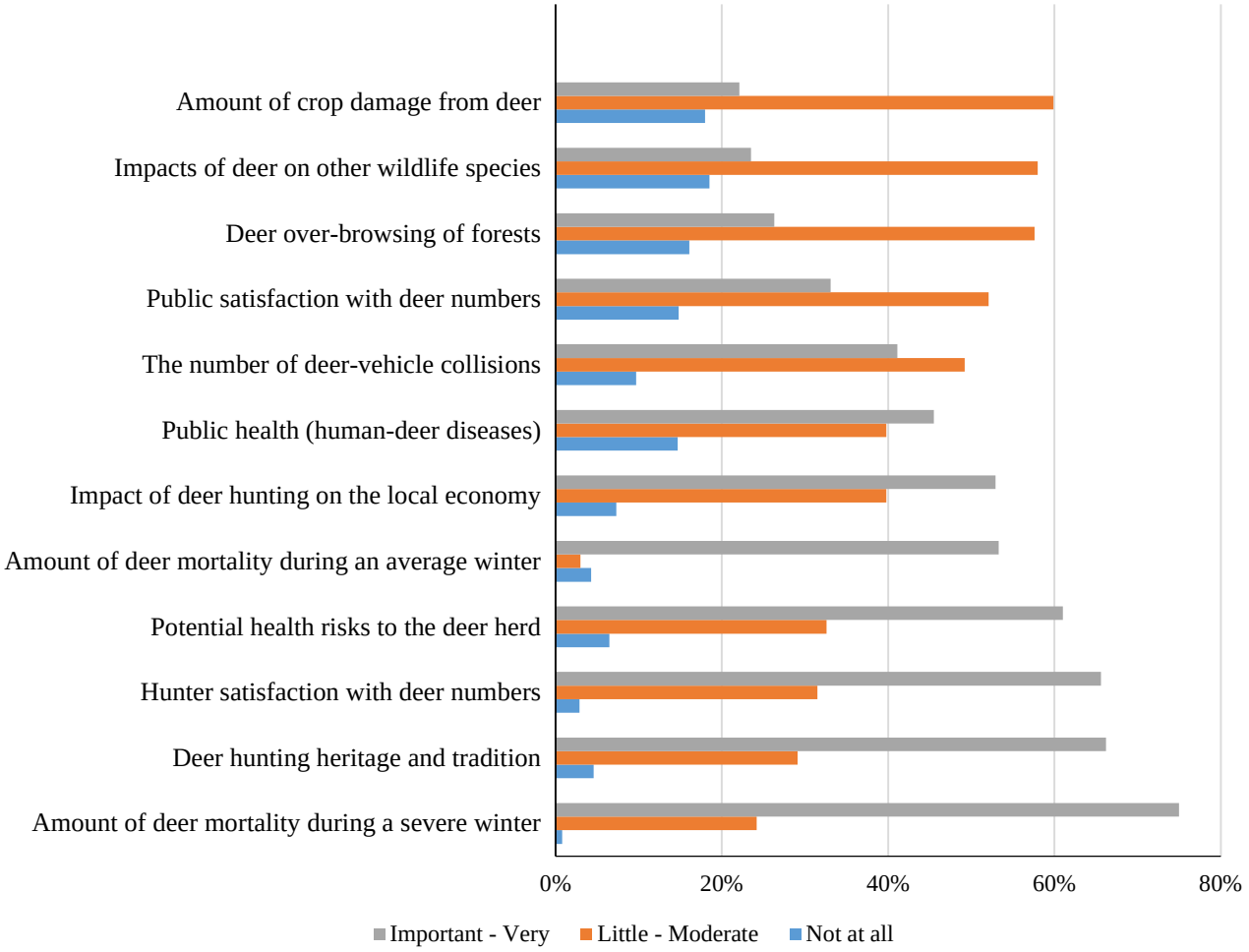
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents viewed severe winter mortality, hunting tradition, and hunter satisfaction as the 3 most important items. The amount of crop damage, impacts on other species, and deer over-browsing of forests were the 3 lowest variables (Table 7, Figure 3).

Table 64. Items that hunters believed should be important when considering setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	4%	14%	29%	38%	15%
Amount of deer mortality during a severe winter	1%	8%	16%	39%	36%
Deer over-browsing of forests	16%	26%	32%	20%	7%
Public satisfaction with deer numbers	15%	22%	30%	24%	9%
Hunter satisfaction with deer numbers	3%	9%	23%	41%	25%
The number of deer-vehicle collisions	10%	20%	29%	27%	14%
Amount of crop damage from deer	18%	32%	28%	18%	5%
Impacts of deer on other wildlife species	19%	27%	31%	18%	5%
Potential health risks to the deer herd	7%	14%	19%	32%	29%
Public health (human-deer diseases)	15%	21%	19%	25%	20%
Impact of deer hunting on the local economy	7%	13%	27%	31%	22%
Deer hunting heritage and tradition	5%	9%	20%	30%	36%

Figure 40. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Items were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 223, 266, 280, and 101 responses from the 4 strata, respectively. In total, 43% of respondents indicated they hunted deer in Minnesota during the 2013 deer season; similar percentages were reported for 2011 (44%) and 2012 (44%). Since those percentages of landowners that hunted did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2013 only. By stratum, a lower proportion of respondents who owned 2 – 20 acres indicated they hunted (37%), as compared to other landowners (20-79.9: 49%; 80-319.9: 44%; 320+: 43%). Overall, individuals had hunted an average of 32 years. Overall, 83% of respondents were male and the average age was 61.2 (range = 20 – 95).

Hunting patterns

A majority of landowners did most (15%) or all (59%) of their hunting on their own private land. Only one-third of all landowners did at least some hunting on public land (34%), while 50% hunted private land they didn't own. Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

Slightly more than two-thirds (68%) indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (34%) then landowners with at least 20 acres (range = 74% – 90%). Overall, only 4% (n = 23) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 48% indicated family members, 41% indicated friends or neighbors, and 8.6% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) increased with stratum (range 17% - 81%). The percentage of respondents who owned woodlands or residential properties was consistent among stratum (Figure 4). Landowners who owned at least 320 acres were most likely to indicate they had damage to their crops (68%). A smaller percentage of respondents indicated they had woodlot (7.6%) or residential (20%) damage from deer. With respect to residential damage, landowners who owned <20 acres were slightly more inclined to indicate damage from deer (Figure 5).

We observed no statistical differences among severity of damage based on land type (crop, woods, residential) or strata by deer permit area. Essentially, damage due to deer was typically categorized as 'negligible' or 'minor', regardless of parcel size (Table 9). We also observed no statistical differences among deer permit areas for landowners who reported damage to crops, woods, or residential acreage (Figure 6).

Table 65. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	20%	42%	39%
	Some	11%	22%	67%
	Most	11%	30%	59%
	All	12%	30%	58%
Private land that I lease for hunting	None	16%	34%	50%
	Some	9%	9%	82%
	Most	17%	33%	50%
	All	0%	0%	100%
Private land that I do not own or lease	None	14%	36%	51%
	Some	9%	26%	64%
	Most	3%	29%	69%
	All	27%	30%	43%
Public land	None	17%	33%	50%
	Some	2%	32%	66%
	Most	0%	7%	93%
	All	11%	37%	53%

Figure 41. Percent of landowners who owned crops, woods, and residential acreage.

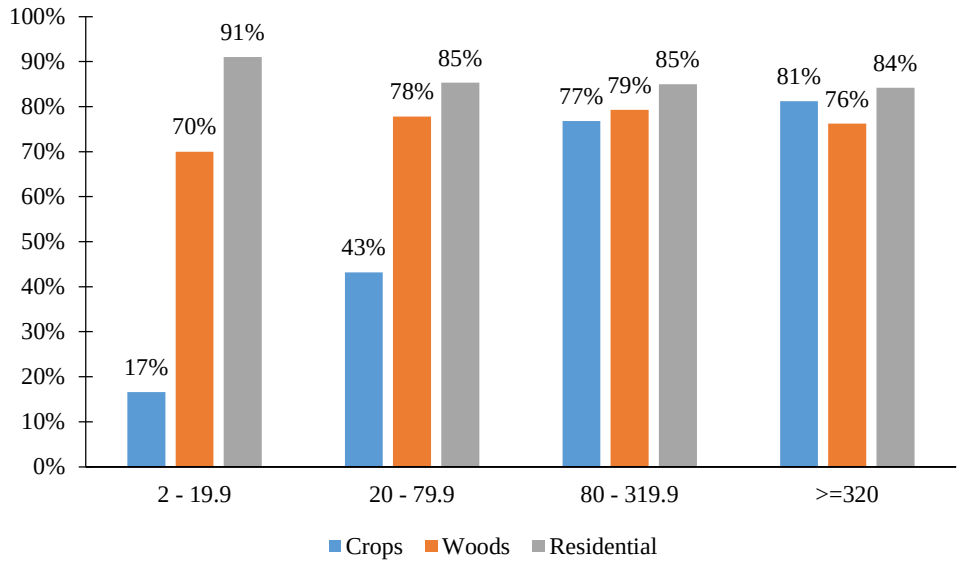


Figure 42. Percent of landowners who indicated they had damage from deer.

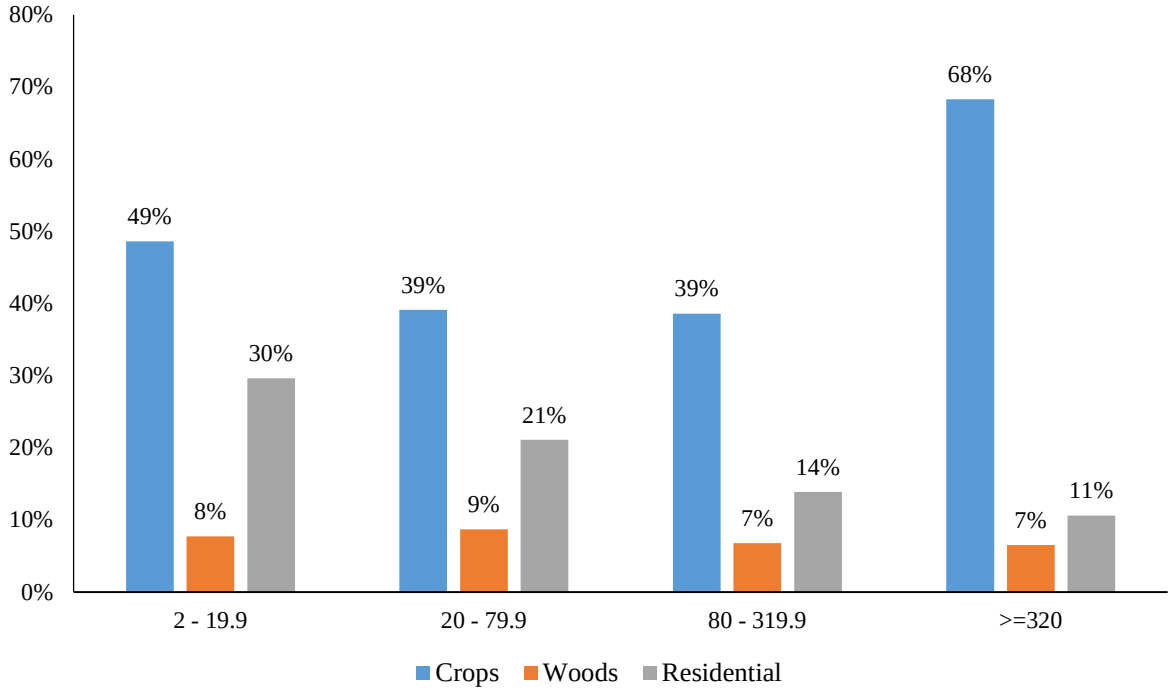
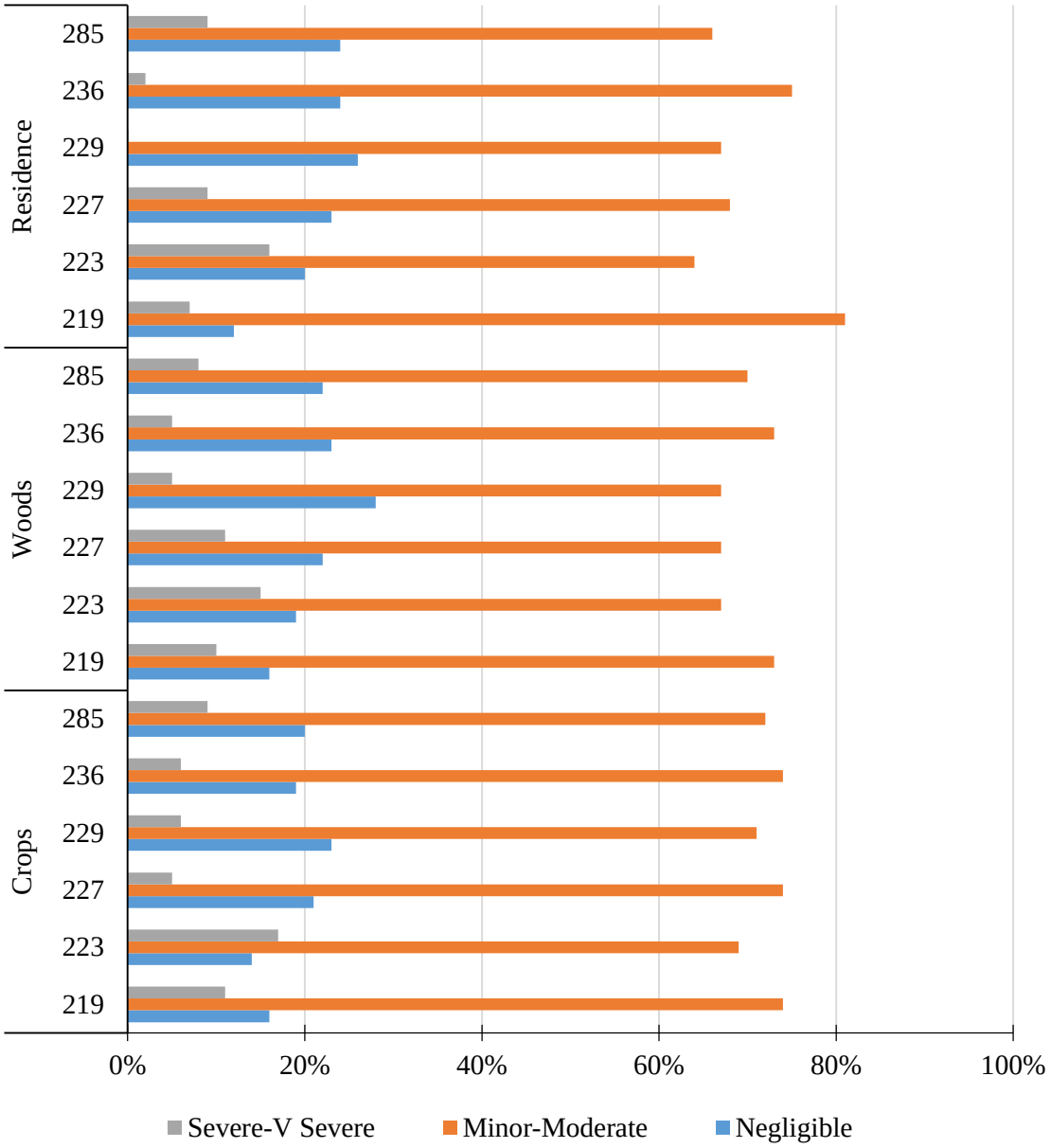


Table 66. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2 - 19.9	20 - 79.9	80 - 319.9	>=320	Total
Crops	Negligible	24%	20%	21%	13%	19%
	Minor	62%	43%	52%	54%	51%
	Moderate	10%	28%	19%	22%	21%
	Severe	5%	8%	5%	10%	7%
	Very Severe	0%	0%	3%	2%	2%
Woods	Negligible	29%	25%	19%	12%	21%
	Minor	41%	48%	51%	55%	49%
	Moderate	19%	20%	22%	21%	20%
	Severe	7%	5%	5%	10%	6%
	Very Severe	4%	2%	3%	2%	3%
Residential	Negligible	25%	23%	22%	13%	21%
	Minor	47%	48%	49%	52%	49%
	Moderate	18%	23%	22%	23%	21%
	Severe	7%	5%	6%	10%	7%
	Very Severe	3%	1%	2%	2%	2%

Figure 43. Reported damage to crops, woods, and residential acreage, by deer permit area.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 47% (41% non-hunters, 55% hunters) of respondents indicated there were fewer deer than 5 years ago, 20% (22% non-hunters, 18% hunters) indicated more, and 33% (37% non-hunters, 27% hunters) believed populations were the same. We found no statistical differences among deer areas in attitudes towards population trends (Table 10). Respondents were also asked for their perceptions of total deer population size as rated by 'too low', 'about right', or 'too high'. Non-hunting landowners were more likely to indicate the deer population was 'about

right' (62% vs. 42%), while hunters were more likely to indicate populations were 'too low' (50% vs 22%). Non-hunters were more likely to indicate the population was 'too high' (8.3% hunters, 17% non-hunters). Similar patterns were detected by deer area in that hunting landowners were more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 43% wanted to see an increase in deer densities at some level (Table 12, Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 67. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
219	66	49%	43	32%	27	20%
223	55	40%	50	36%	33	24%
227	71	43%	60	36%	34	21%
229	45	47%	31	33%	19	20%
236	61	61%	25	25%	14	14%
285	96	48%	63	31%	43	21%
Total	394	47%	272	33%	170	20%

Table 68. Landowner beliefs about current deer population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (57%)	219	15	23%	34	52%	16	25%
	223	7	13%	43	77%	6	11%
	227	21	23%	61	66%	11	12%
	229	11	21%	31	60%	10	19%
	236	8	13%	42	66%	14	22%
	285	34	29%	66	56%	17	15%
	Sum	96	22%	277	62%	74	17%
Yes (43%)	219	31	47%	29	44%	6	9%
	223	33	42%	42	53%	4	5%
	227	30	45%	28	42%	9	13%
	229	21	50%	20	48%	1	2%
	236	21	64%	9	27%	3	9%
	285	48	57%	29	35%	7	8%
	Sum	184	50%	157	42%	30	8%
Total	219	46	35%	63	48%	22	17%
	223	40	30%	85	63%	10	7%
	227	51	32%	89	56%	20	13%
	229	32	34%	51	54%	11	12%
	236	29	30%	51	53%	17	18%
	285	82	41%	95	47%	24	12%
	Total	280	34%	434	53%	104	13%

Table 69. Preferred landowner population trends, by deer area.

(a) by individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
219	4%	9%	6%	34%	24%	18%	6%
223	2%	5%	6%	47%	20%	14%	7%
227	2%	4%	11%	40%	23%	12%	8%
229	4%	7%	4%	39%	20%	19%	5%
236	5%	7%	7%	41%	19%	14%	6%
285	2%	8%	7%	39%	18%	20%	9%
Total	3%	7%	7%	40%	20%	16%	7%

(b) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
219	19%	34%	48%
223	13%	47%	41%
227	17%	40%	43%
229	15%	39%	44%
236	19%	41%	39%
285	17%	39%	47%
Total	17%	40%	43%

Figure 44. Graphical representation of desired deer population trends for landowners.

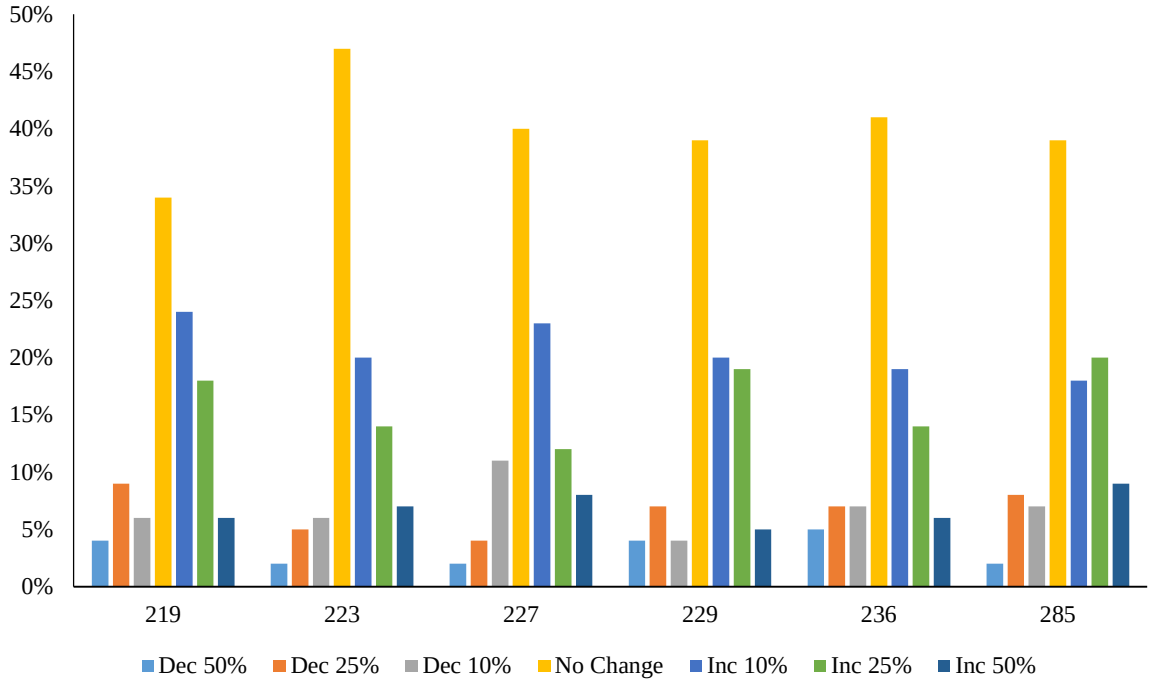
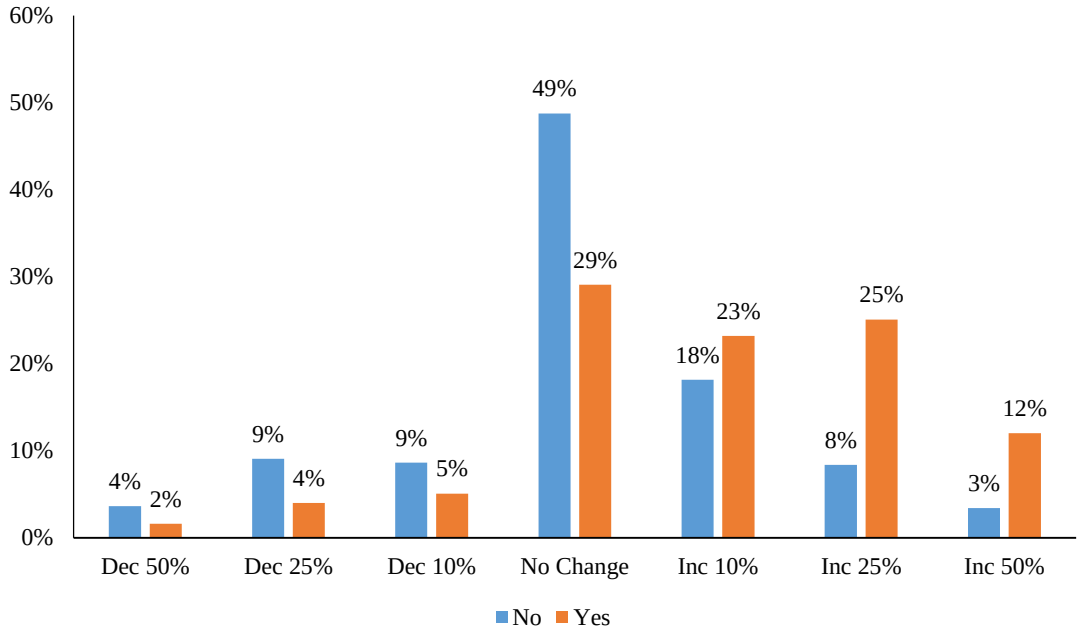


Table 70. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No (57%)	219	6%	17%	6%	36%	25%	6%	3%
	223	2%	7%	7%	62%	15%	5%	2%
	227	1%	4%	12%	49%	19%	10%	4%
	229	8%	12%	6%	50%	15%	8%	2%
	236	5%	8%	11%	51%	16%	5%	5%
	285	3%	9%	8%	47%	18%	12%	3%
	Total	4%	9%	9%	49%	18%	8%	3%
Yes (43%)	219	1%	1%	6%	31%	22%	28%	9%
	223	1%	4%	5%	36%	24%	19%	10%
	227	3%	4%	9%	28%	29%	14%	13%
	229	0%	2%	2%	26%	26%	33%	10%
	236	6%	6%	0%	24%	24%	32%	9%
	285	0%	6%	5%	26%	17%	30%	17%
	Total	2%	4%	5%	29%	23%	25%	12%

Figure 45. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



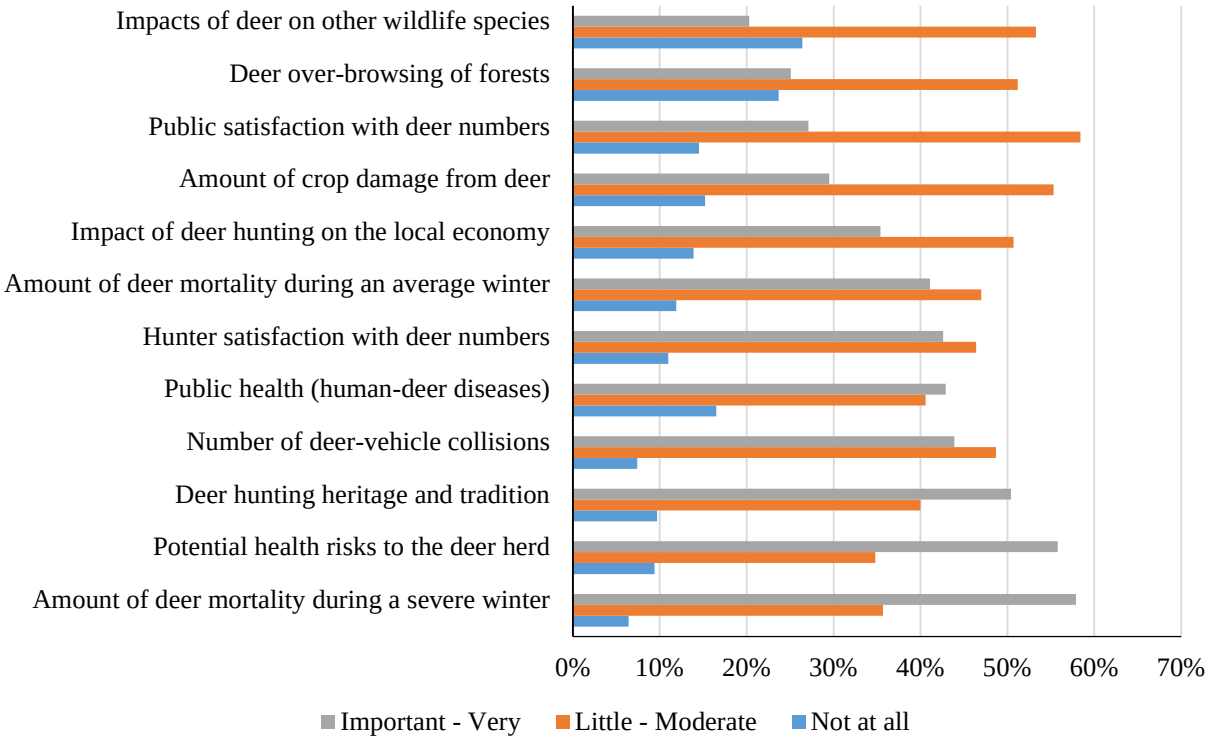
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. Deer mortality during a severe winter, disease risks to deer, and hunting tradition were the 3 most important considerations for landowner. Impacts of deer on other species, deer over-browsing, and public health comprised had the lowest relative importance (Table 14; Figure 9).

Table 71. Importance of items landowners indicated should be considered when setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	12%	17%	31%	31%	10%
Amount of deer mortality during a severe winter	6%	15%	21%	32%	26%
Deer over-browsing of forests	24%	26%	25%	20%	5%
Public satisfaction with deer numbers	15%	25%	34%	21%	6%
Hunter satisfaction with deer numbers	11%	17%	29%	27%	16%
Number of deer-vehicle collisions	7%	20%	28%	26%	18%
Amount of crop damage from deer	15%	28%	28%	21%	8%
Impacts of deer on other wildlife species	26%	25%	28%	16%	4%
Potential health risks to the deer herd	9%	15%	20%	33%	23%
Public health (human-deer diseases)	17%	20%	21%	24%	19%
Deer hunting heritage and tradition	10%	14%	26%	27%	23%
Impact of deer hunting on the local economy	14%	22%	29%	23%	12%

Figure 46. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Items were consolidated into 3 groups and ranked from low to high by highest importance.



2014 Survey of Minnesota Deer Hunters: Population Management

The Minnesota Department of Natural Resources will be evaluating deer population goals in east-central Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt. This survey should take less than 10 minutes to complete.

15. Please check the boxes below to report if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season. (*Please check all that apply*).

    ❑ 2011 | ❒ 2012 | ❒ 2013

    ❑ I did not hunt deer any of these years → Please skip to Question 13

16. 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 hunted.

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

17. Which **ONE** deer permit area did you hunt most often during the <u>most recent</u> deer season you hunted?
    ❑ 219 | ❑ 223 | ❑ 224 | ❑ 227 | ❑ 229 | ❑ 235 | ❑ 236 | ❑ 285 | ❑ I hunted a permit area not listed

18. 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

19. Including 2013, how many years have you hunted deer in the permit area you hunt most often?
    _____ Years

20. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years

21. 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

22. 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): _____

23. 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

24. Will you shoot an antlerless deer if given the opportunity?

❑ Yes ❑ No

25. 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

26. 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

27. 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

28. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

A. _____

B. _____

C. _____

32. 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

33. 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)

34. 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? (*Check <u>one</u>*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

35. 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

36. What is your gender?

❑ Male ❑ Female

37. What year were you born? _____ (*Please use the 4 digit year*).

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: _____

Appendix B. Sand Plain – Big Woods (Block G5) landowner survey.

2014 Survey of Minnesota Landowners: Deer Management

The Minnesota Department of Natural Resources will be evaluating deer population goals in east-central Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. This survey should take less than ten minutes to complete. Your responses will help guide deer population goals in the area you own land.

9. How many total acres did you own and/or lease at the end of 2013?
   _____ Acres Owned _____ Acres Leased

10. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

11. Did you experience deer damage to land that you own or leased in 2013?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Landscaping	❑ Yes	❑ No	

12. How would you describe the total amount of deer damage you experienced in 2013? (*Check one*)
    ❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

13. How would you compare the amount of deer damage you experienced in 2013 to what you experienced 5 years ago? (*Check one*)

    ❑ Much less damage than 5 years ago
    ❑ Slightly less damage than 5 years ago
    ❑ About the same damage as 5 years ago
    ❑ Slightly more damage than 5 years ago
    ❑ Much more damage than 5 years ago
    ❑ I was not farming/managing lands 5 years ago

14. Over the past 5 years, what trend have you seen in the deer population in the area of your property? (*Check one*)

- ❑ Much fewer deer now than 5 years ago
- ❑ Slightly fewer deer now than 5 years ago
- ❑ About the same number of deer now as 5 years ago
- ❑ Slightly more deer now than 5 years ago
- ❑ Many more deer now than 5 years ago

15. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers. (*Check one*)

- ❑ Very Dissatisfied
- ❑ Slightly Dissatisfied
- ❑ Neither Dissatisfied nor Satisfied
- ❑ Slightly Satisfied
- ❑ Very Satisfied

16. 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 such as chronic wasting disease	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

12. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

A. _____

B. _____

C. _____

47. In thinking about your property and the surrounding area, would you say the deer population is, (*Check one*)

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

48. In thinking about your property 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)

49. Did you allow hunting on your property during the 2013 deer season? (*Check only one*)

- ❑ Yes
- ❑ No→PLEASE SKIP TO QUESTION 16

50. Do you lease any of your property for deer hunting?

- ❑ Yes
- ❑ No

51. Who did you allow to hunt deer on your property? (*Check all that apply*). Please also estimate the number of people who hunted your property in 2013.

❑ Myself or family members	_____ people	❑ Strangers who ask permission	_____ people
❑ Friends or neighbors	_____ people	❑ People who lease my property	_____ people

❑ Other (please list: _____) _____ people

52. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*)

- ❑ 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 list: _____)

53. Please check the boxes below if you hunted deer in Minnesota during the 2011, 2012 or 2013 Minnesota deer season? (*Please check all that apply*)

- ❑ 2011 | ❒ 2012 | ❒ 2013
- ❑ I hunt deer but did not hunt any of these years → Please skip to Question 20
- ❑ I do not hunt deer at all → Please skip to Question 21

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

❑ 219 | ❑ 223 | ❑ 224 | ❑ 227 | ❑ 229 | ❑ 235 | ❑ 236 | ❑ 285 | ❑ I hunted a permit area not listed

55. 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

56. How much of your deer hunting did you do on each of the following types of land during your most recent deer hunting season? (*Circle one number for 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 **not** own or lease	1	2	3	4
Public land	1	2	3	4

57. Including 2013, how many years have you been hunting deer in Minnesota? _____ Years.

58. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check one*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

26. 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 landowners.	1	2	3	4	5

32. What is your gender?

❑ Male ❒ Female

33. What year were you born? _____ (*Please use the 4 digit year*)

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: _____

MNDNR

Northwest Parkland-Prairie (Block G7)
Deer Goal Setting
Landowner and Hunter Survey Results

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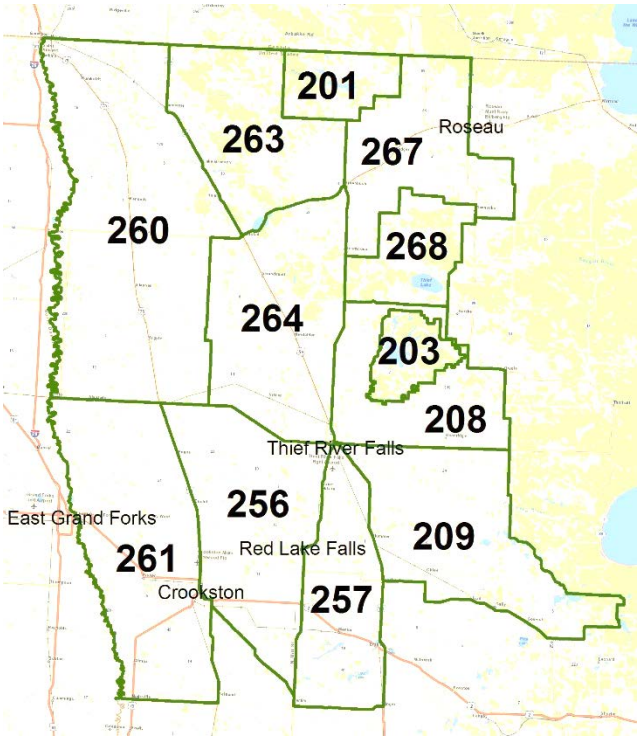
Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2015, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block 7, Northwest Parkland-Prairie.



Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting completion online; the third and fourth wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,600 adult 2014 deer license holders who indicated they intended to hunt in deer areas 201, 203, 208, 209, 256, 257, 260, 261, 263, 264, 267, or 268. A total of 107 surveys were undeliverable and we received 986 completed responses, which yielded an adjusted response rate of 40%. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1 (n=630), strata 2 (n=537), strata 3 (n=561), and surveyed all landowners in strata 4 (n=281).

Overall, there were 119 undeliverable surveys; 566 completed landowner surveys were returned, yielding a 30% adjusted response rate. Landowners in Marshall County were originally included in the sample but were excluded due to out-of-date records and resulted in no data for permit area 208. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (96%) indicated they hunted during the 2014 firearm deer season. Overall 14% indicated they hunted during the archery season and 17% hunted muzzleloader. Firearm hunters spent an average of 5.8 days afield, compared to 5.8 for muzzleloader and 13.4 for archery hunters. Overall, individuals had hunted an average of 29 years in Minnesota and 21 years in the deer area they indicated they hunted most often. Overall, 88% of respondents were male and the average age was 50.7 (range = 19 – 90).

More than half of hunters did at least some of their hunting on their own private land (66%) or other private land that they do not own or lease (66%). More than half (52%) did at least some of their hunting on public land. Another 6.2% indicated they did at least some hunting on lands that they leased for deer hunting. Only 0.9% of respondents hunted exclusively on lands they leased for deer hunting. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions on deer population trends over the last 5 years. Overall, 80% of respondents indicated there were fewer deer than 5 years ago, 7% indicated more, and 14% believed populations were the same (Table 2). We observed some differences among deer permit areas with deer area 260 was most likely to indicate populations had declined (87%), while respondents from deer area 201 were least likely to indicate that the population had declined (65%). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. More than half (65%) believed the population was ‘too low’, 31% thought it was ‘about right’, and 3% indicated the population was ‘too high’. We observed statistical differences among deer permit areas with similar patterns as described above (Table 3). Respondents were also asked to indicate their desires for future deer population densities and a majority (73%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). A majority of respondents (82%) would shoot an antlerless deer if given the opportunity.

Table 72. Condensed table of desired deer population trends of hunters, by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	5%	19%	76%
	Some	8%	15%	77%
	Most	9%	15%	76%
	All	9%	22%	69%
Private land that I lease for hunting	None	8%	20%	72%
	Some	9%	17%	74%
	Most	0%	0%	100%
	All	0%	0%	100%
Private land that I do not own or lease	None	9%	22%	70%
	Some	6%	14%	80%
	Most	7%	20%	73%
	All	10%	18%	72%
Public land	None	9%	22%	69%
	Some	7%	17%	76%
	Most	3%	12%	85%
	All	2%	16%	82%

Table 73. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
201	20	65%	9	29%	2	6%
203	15	79%	4	21%	0	0%
208	40	75%	12	23%	1	2%
209	109	78%	23	17%	7	5%
256	104	86%	12	10%	5	4%
257	84	84%	10	10%	6	6%
260	85	87%	7	7%	6	6%
261	28	80%	5	14%	2	6%
263	71	72%	14	14%	13	13%
264	138	79%	25	14%	11	6%
267	26	72%	5	14%	5	14%
268	47	81%	6	10%	5	9%
Total	767	80%	132	14%	63	7%

Table 74. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
201	18	58%	11	35%	2	6%
203	15	83%	3	17%	0	0%
208	35	66%	17	32%	1	2%
209	87	64%	45	33%	5	4%
256	71	58%	48	39%	3	2%
257	60	59%	38	38%	3	3%
260	78	80%	20	20%	0	0%
261	22	63%	10	29%	3	9%
263	69	70%	26	27%	3	3%
264	105	61%	60	35%	8	5%
267	23	66%	10	29%	2	6%
268	40	73%	13	24%	2	4%
Total	623	65%	301	31%	32	3%

Table 75. Deer population trend preferences for hunters, by deer permit area.

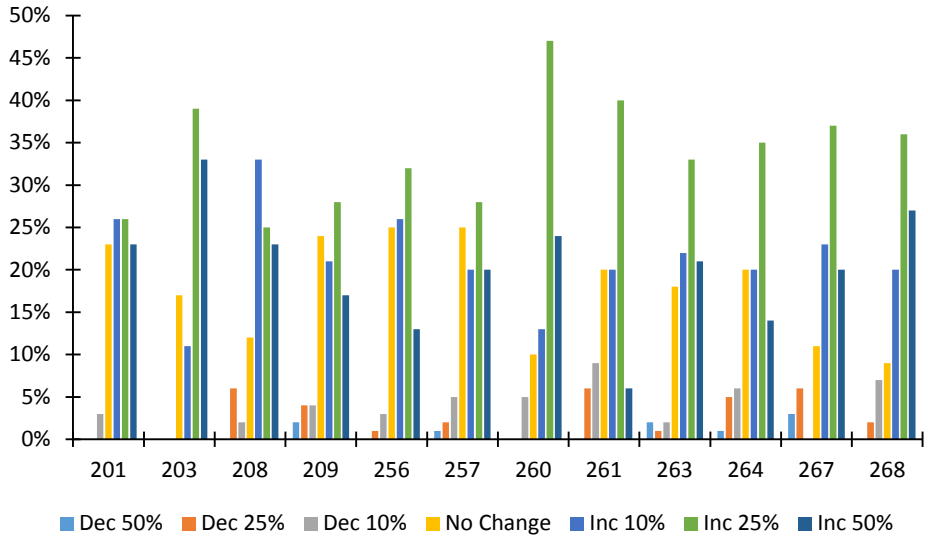
(a) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
201	0%	0%	3%	23%	26%	26%	23%
203	0%	0%	0%	17%	11%	39%	33%
208	0%	6%	2%	12%	33%	25%	23%
209	2%	4%	4%	24%	22%	28%	17%
256	0%	1%	3%	25%	26%	32%	13%
257	1%	2%	5%	24%	20%	29%	20%
260	0%	0%	5%	10%	13%	47%	24%
261	0%	6%	9%	20%	20%	40%	6%
263	2%	1%	2%	18%	22%	33%	21%
264	1%	5%	6%	20%	20%	35%	14%
267	3%	6%	0%	12%	21%	38%	21%
268	0%	2%	7%	9%	20%	36%	27%
Total	1%	3%	4%	19%	21%	34%	19%

(b) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
201	3%	23%	74%
203	0%	17%	83%
208	8%	12%	81%
209	10%	24%	66%
256	4%	25%	71%
257	9%	23%	68%
260	5%	10%	85%
261	14%	20%	66%
263	5%	18%	77%
264	11%	20%	69%
267	9%	12%	79%
268	9%	9%	82%
Total	8%	19%	73%

Figure 47. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. Nearly one-quarter (24%) were satisfied with current deer numbers and a majority (60%) indicated they were dissatisfied (Table 5). In total, over one-third of respondents (35%) indicated they were satisfied with the total number of deer they saw while hunting (53% were not satisfied and 13% were neutral). Less than half (42%) were satisfied with the total number of antlerless deer they observed. About one-third (30%) were satisfied with the number of legal bucks observed; more than half were dissatisfied (53%).

More than half (60%) indicated they heard about or saw legal bucks while hunting. More hunters (49%) were dissatisfied than satisfied (31%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer numbers; around half to two-thirds were not satisfied with the number of deer they saw while hunting (range = 43% - 64%) (Figure 2).

Table 76. Overall hunter satisfaction with total deer numbers, by deer area.

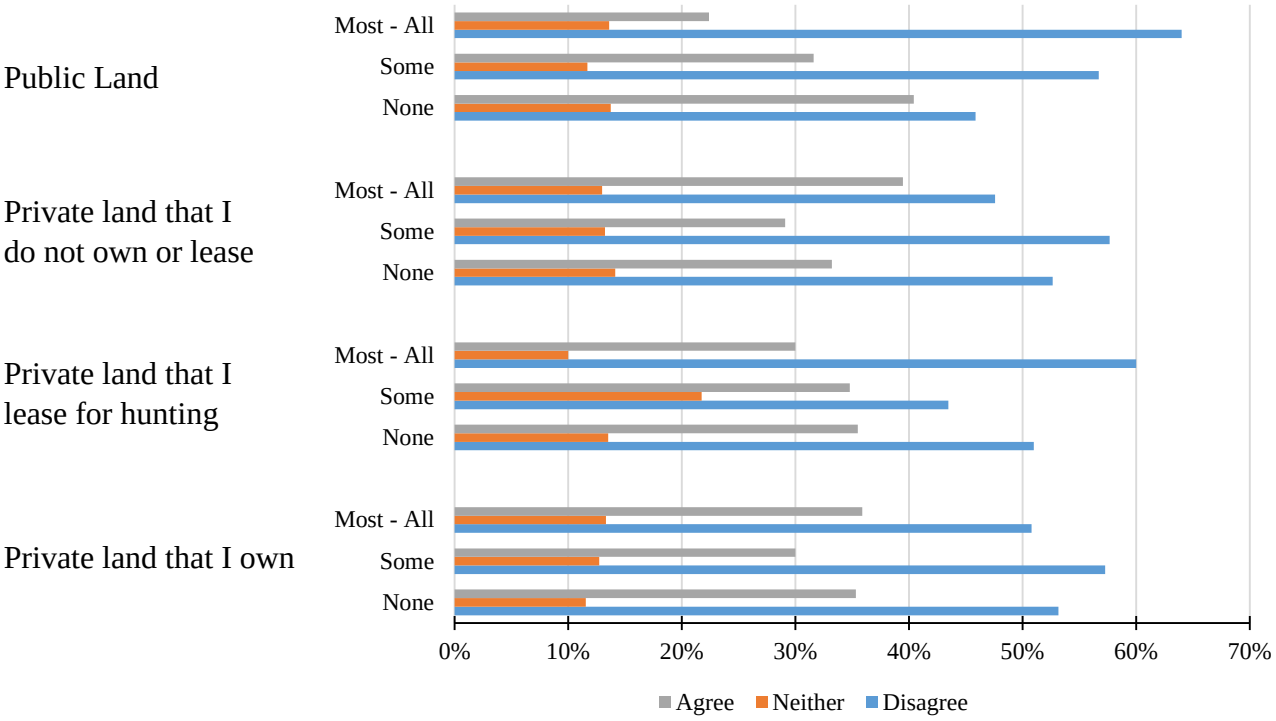
	Dissatisfied		Neither		Satisfied	
Deer Area	N	Percent	N	Percent	N	Percent
201	16	52%	7	23%	8	26%
203	14	74%	3	16%	2	11%
208	30	57%	9	17%	14	26%
209	76	54%	25	18%	39	28%
256	67	55%	18	15%	36	30%
257	55	54%	21	21%	25	25%
260	73	74%	12	12%	13	13%
261	21	60%	6	17%	8	23%
263	62	63%	21	21%	15	15%
264	102	58%	25	14%	48	27%
267	22	61%	4	11%	10	28%
268	41	71%	6	10%	11	19%
Total	578	60%	157	16%	229	24%

Table 77. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area					
		201	203	208	209	256	257
I was satisfied with the number of legal bucks	Disagree	52%	53%	62%	48%	43%	49%
	Neither	10%	16%	13%	20%	22%	24%
	Agree	38%	32%	25%	31%	34%	27%
I was satisfied with the quality of bucks	Disagree	41%	42%	51%	46%	44%	45%
	Neither	17%	32%	20%	20%	28%	24%
	Agree	41%	26%	29%	34%	28%	31%
I heard about or saw legal bucks while hunting	Disagree	19%	26%	33%	24%	24%	32%
	Neither	26%	11%	15%	12%	16%	8%
	Agree	55%	63%	52%	63%	61%	60%
I was satisfied with the total number of antlerless deer	Disagree	42%	42%	35%	42%	40%	45%
	Neither	10%	21%	15%	14%	9%	17%
	Agree	48%	37%	50%	44%	50%	38%
I was satisfied with the total number of deer I saw while hunting	Disagree	45%	58%	50%	54%	44%	50%
	Neither	0%	16%	17%	12%	15%	15%
	Agree	55%	26%	33%	34%	41%	35%

		Deer Area						
		260	261	263	264	267	268	Total
I was satisfied with the number of legal bucks	Disagree	69%	41%	53%	54%	39%	64%	53%
	Neither	9%	3%	17%	17%	17%	12%	17%
	Agree	22%	56%	30%	29%	44%	23%	30%
I was satisfied with the quality of bucks	Disagree	61%	47%	52%	51%	33%	62%	49%
	Neither	14%	3%	19%	19%	28%	14%	20%
	Agree	25%	50%	29%	29%	39%	23%	31%
I heard about or saw legal bucks while hunting	Disagree	34%	21%	26%	25%	22%	29%	27%
	Neither	10%	6%	15%	15%	19%	7%	13%
	Agree	56%	74%	59%	60%	58%	64%	60%
I was satisfied with the total number of antlerless deer	Disagree	49%	26%	54%	41%	36%	48%	43%
	Neither	16%	12%	16%	17%	17%	11%	15%
	Agree	34%	62%	30%	42%	47%	41%	42%
I was satisfied with the total number of deer I saw while hunting	Disagree	64%	37%	61%	49%	56%	61%	53%
	Neither	11%	14%	11%	14%	17%	5%	13%
	Agree	25%	49%	28%	36%	28%	33%	35%

Figure 48. Hunter satisfaction with total number of deer seen, based on land type hunted.



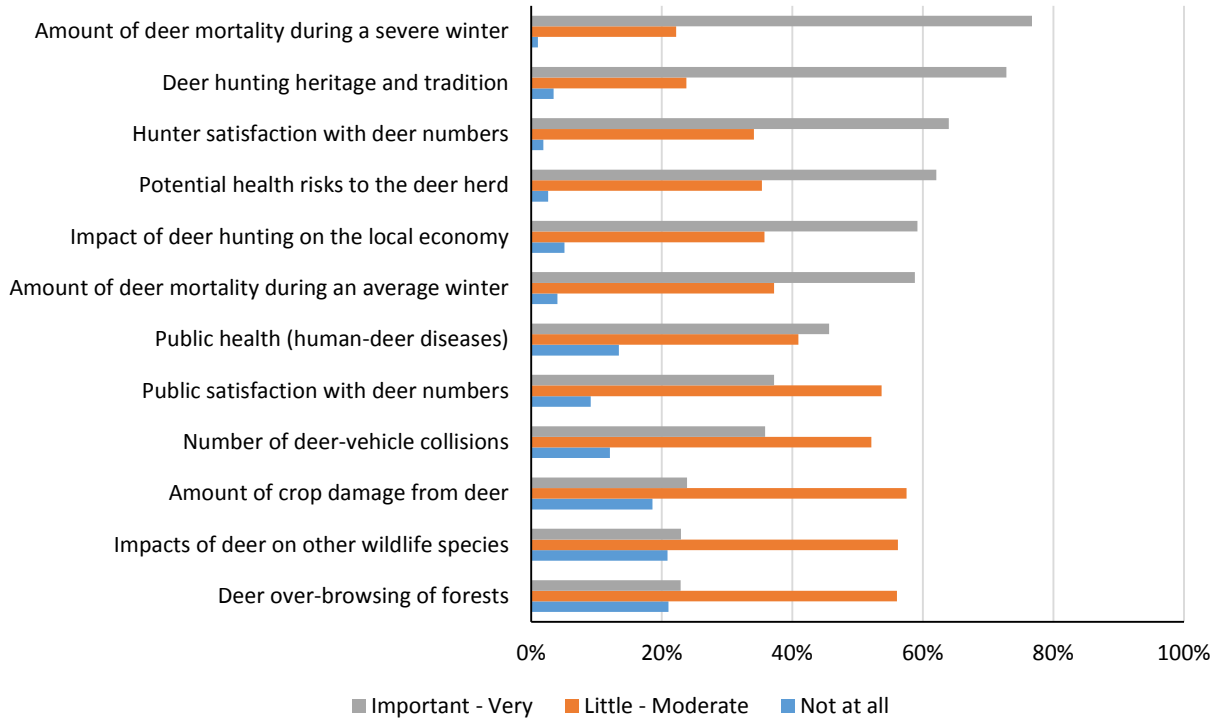
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from ‘not at all important’ to ‘very important’ and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents viewed severe winter mortality, hunting tradition, and hunter satisfaction as the 3 most important items. The deer over-browsing of forests, impacts on other wildlife, and crop damage were the 3 lowest variables (Table 7, Figure 3).

Table 78. Items that hunters believed should be important when considering setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	4%	10%	27%	42%	17%
Amount of deer mortality during a severe winter	1%	6%	17%	36%	41%
Potential health risks to the deer herd	3%	12%	24%	40%	22%
Public health (human-deer diseases)	13%	20%	21%	25%	20%
Amount of crop damage from deer	19%	30%	28%	17%	7%
Number of deer-vehicle collisions	12%	26%	27%	24%	12%
Deer over-browsing of forests	21%	27%	29%	17%	5%
Impacts of deer on other wildlife species	21%	29%	27%	18%	5%
Deer hunting heritage and tradition	3%	7%	17%	34%	39%
Hunter satisfaction with deer numbers	2%	10%	24%	40%	24%
Public satisfaction with deer numbers	9%	22%	31%	27%	11%
Impact of deer hunting on the local economy	5%	13%	23%	35%	24%

Figure 49. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Responses were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 159, 153, 163, and 91 responses from the 4 strata, respectively. In total, 54% of respondents indicated they hunted deer in Minnesota during the 2014 deer season; similar percentages were reported for 2012 (56%) and 2013 (55%). Since those percentages of landowners that hunted did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2014 only. By stratum, a lower proportion of respondents who owned 2 – 20 acres indicated they hunted (48%), as compared to other landowners (20-79.9: 56%; 80 – 319.9: 54%; 320+: 57%). Overall, individuals had hunted an average of 38 years. Overall, 85% of respondents were male and the average age was 59.3 (range = 22 – 97).

Hunting patterns

A majority of landowners did most (28%) or all (51%) of their hunting on their own private land. Half of all landowners did at least some hunting on public land (47%), while 42% hunted private land they did not own or lease. Only 7% hunted on private land that they leased for hunting. Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

Three-quarters (75%) of landowners indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (55%) than landowners with at least 20 acres (range = 80% - 83%). Overall, only 1% (n=5) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 55% indicated family members, 41% indicated friends and neighbors, and 7% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) increased with stratum (range = 64% - 82%). The percentage of respondents who owned residential properties decreased with stratum (range = 78% - 93%), while ownership of woodlands was consistent among stratum (Figure 4). Among landowners who owned cropland, about one-quarter (22%) indicated that they experienced damage to their crops. Landowners who owned at least 320 acres were most likely to indicate they had damage to their crops (31%). A smaller percentage of respondents indicated they had residential (14%) or forest (4%) damage from deer. With respect to residential damage, landowners who owned <20 acres were slightly more inclined to indicate damage from deer (Figure 5).

We observed no statistical differences among severity of damage between strata for the crop and residential land types, but there was a statistical difference for forested lands. Essentially, damage due to deer was typically categorized as ‘negligible’ or ‘minor’, regardless of parcel size (Table 9). We also observed no statistical differences among deer permit areas for landowners who reported damage to crops, woods, or residential acreage (Figure 6).

Table 79. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	13%	13%	73%
	Some	10%	17%	74%
	Most	3%	14%	83%
	All	10%	15%	75%
Private land that I lease for hunting	None	7%	15%	78%
	Some	0%	11%	89%
	Most	0%	33%	67%
	All	0%	100%	0%
Private land that I do not own or lease	None	6%	16%	78%
	Some	8%	8%	85%
	Most	7%	21%	71%
	All	7%	33%	60%
Public land	None	7%	17%	77%
	Some	7%	14%	79%
	Most	12%	12%	76%
	All	0%	0%	100%

Figure 50. Percent of landowners who owned crops, woods, and residential acreage.

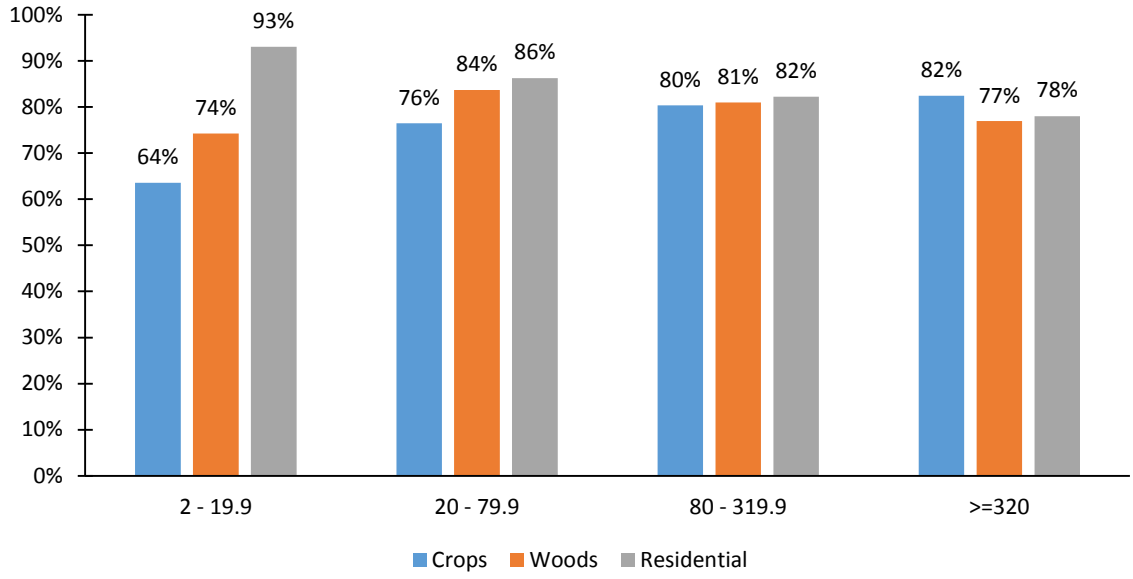


Figure 51. Percent of landowners who indicated they had damage from deer.

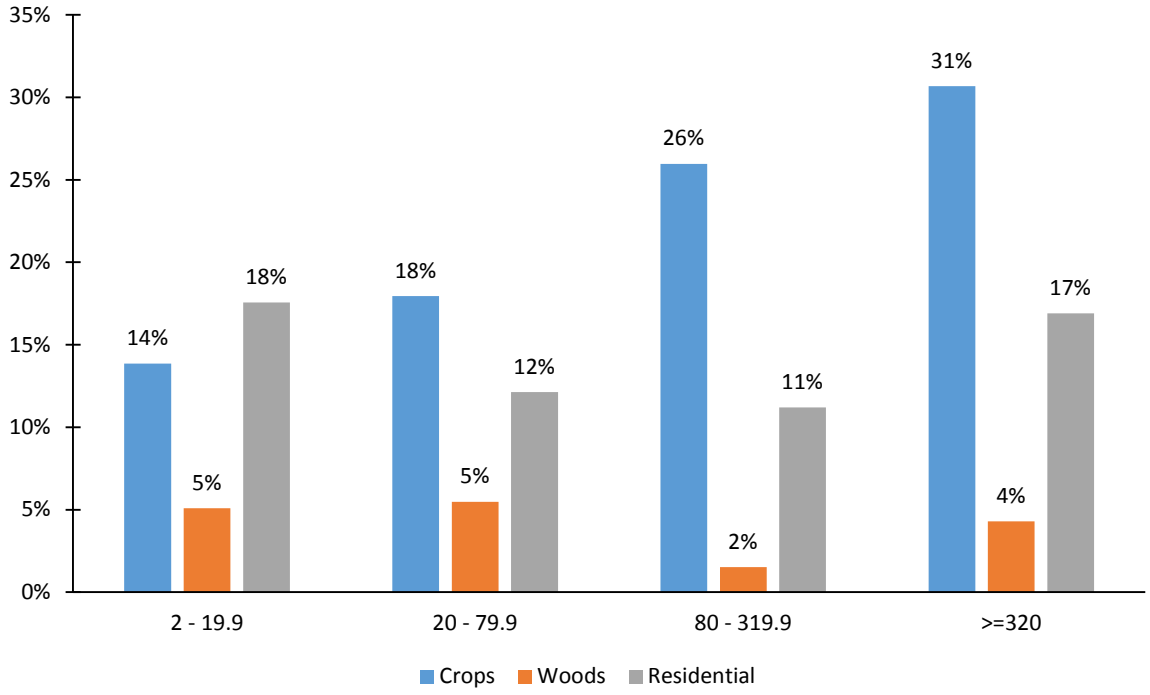
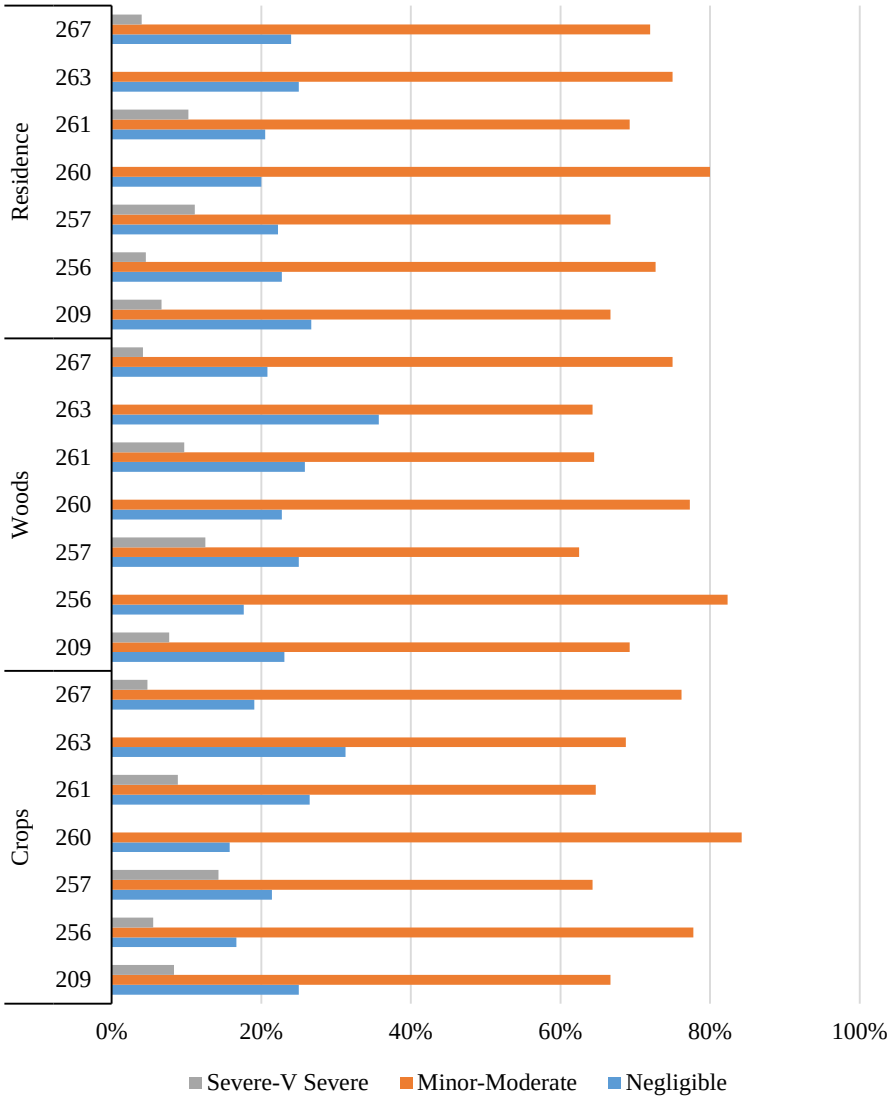


Table 80. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2-19.9	20-70.9	80-319.9	>=320	Total
Crops	Negligible	21%	11%	26%	28%	22%
	Minor	41%	61%	51%	48%	50%
	Moderate	26%	25%	17%	21%	22%
	Severe	9%	4%	4%	3%	5%
	Very Severe	3%	0%	2%	0%	1%
Woods	Negligible	20%	14%	29%	27%	23%
	Minor	42%	57%	53%	50%	50%
	Moderate	25%	25%	16%	20%	21%
	Severe	10%	4%	0%	3%	4%
	Very Severe	2%	0%	2%	0%	1%
Residential	Negligible	20%	10%	29%	25%	22%
	Minor	48%	57%	54%	53%	52%
	Moderate	22%	27%	13%	19%	20%
	Severe	8%	3%	2%	3%	4%
	Very Severe	2%	3%	2%	0%	2%

Figure 52. Reported damage to crops, woods, and residential acreage, by deer permit area. Deer permit areas 201, 264, and 268 were excluded due to low response.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 74% (64% non-hunters, 82% hunters) of respondents indicated there were fewer deer than 5 years ago, 10% (13% non-hunters, 8% hunters) indicated more, and 16% (23% non-hunters, 10% hunters) believed populations were the same. We found no statistical differences among deer areas in attitudes toward population trends (Table 10). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Non-hunting landowners were more likely to indicate the deer population was ‘about right’ (45% vs 32%), while hunters were more likely to indicate populations were ‘too low’ (65% vs 42%). Non-hunters were more likely to indicate the population was ‘too high’ (3% hunters, 13% non-hunters). Similar patterns were detected by deer area in that hunting

landowners were more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 64% wanted to see an increase in deer densities at some level (Table 12; Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 81. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
201	7	70%	2	20%	1	10%
209	31	91%	2	6%	1	3%
256	35	73%	7	15%	6	12%
257	38	70%	12	22%	4	7%
260	53	82%	9	14%	3	5%
261	73	69%	16	15%	17	16%
263	52	76%	9	13%	7	10%
264	8	67%	3	25%	1	8%
267	76	71%	20	19%	11	10%
268	11	79%	2	14%	1	7%
Total	384	74%	82	16%	52	10%

Table 82. Landowner beliefs about current population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (41%)	201	1	50%	0	0%	1	50%
	209	5	71%	2	29%	0	0%
	256	10	40%	10	40%	5	20%
	257	9	28%	17	53%	6	19%
	260	8	35%	12	52%	3	13%
	261	28	43%	29	45%	8	12%
	263	7	50%	7	50%	0	0%
	264	3	60%	2	40%	0	0%
	267	16	46%	15	43%	4	11%
	268	1	50%	1	50%	0	0%
	Sum	88	42%	95	45%	27	13%
Yes (59%)	201	4	50%	4	50%	0	0%
	209	17	65%	9	35%	0	0%
	256	13	59%	7	32%	2	9%
	257	11	52%	10	48%	0	0%
	260	28	68%	12	29%	1	2%
	261	25	68%	11	30%	1	3%
	263	38	72%	13	25%	2	4%
	264	3	38%	4	50%	1	12%
	267	48	67%	23	32%	1	1%
	268	7	64%	4	36%	0	0%
	Sum	194	65%	97	32%	8	3%
Total	201	5	50%	4	40%	1	10%
	209	22	67%	11	33%	0	0%
	256	23	49%	17	36%	7	15%
	257	20	38%	27	51%	6	11%
	260	36	56%	24	38%	4	6%
	261	53	52%	40	39%	9	9%
	263	45	67%	20	30%	2	3%
	264	6	46%	6	46%	1	8%
	267	64	60%	38	36%	5	5%
	268	8	62%	5	38%	0	0%
	Sum	282	55%	192	38%	35	7%

Table 83. Preferred landowner population trends, by deer area.

(a) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
201	0%	11%	0%	11%	22%	33%	22%
209	3%	0%	0%	18%	24%	45%	9%
256	7%	7%	11%	24%	20%	28%	4%
257	6%	8%	2%	36%	17%	26%	6%
260	3%	5%	2%	29%	11%	29%	22%
261	3%	6%	6%	27%	25%	24%	10%
263	3%	3%	3%	19%	19%	35%	18%
264	8%	0%	0%	31%	31%	8%	23%
267	2%	5%	1%	21%	24%	26%	21%
268	8%	0%	0%	15%	15%	46%	15%
Total	4%	5%	3%	25%	21%	29%	14%

(b) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
201	11%	11%	78%
209	3%	18%	79%
256	24%	24%	52%
257	15%	36%	49%
260	10%	29%	62%
261	15%	27%	58%
263	9%	19%	72%
264	8%	31%	62%
267	7%	21%	71%
268	8%	15%	77%
Total	11%	25%	64%

Figure 53. Graphical representation of desired deer population trends for landowners.

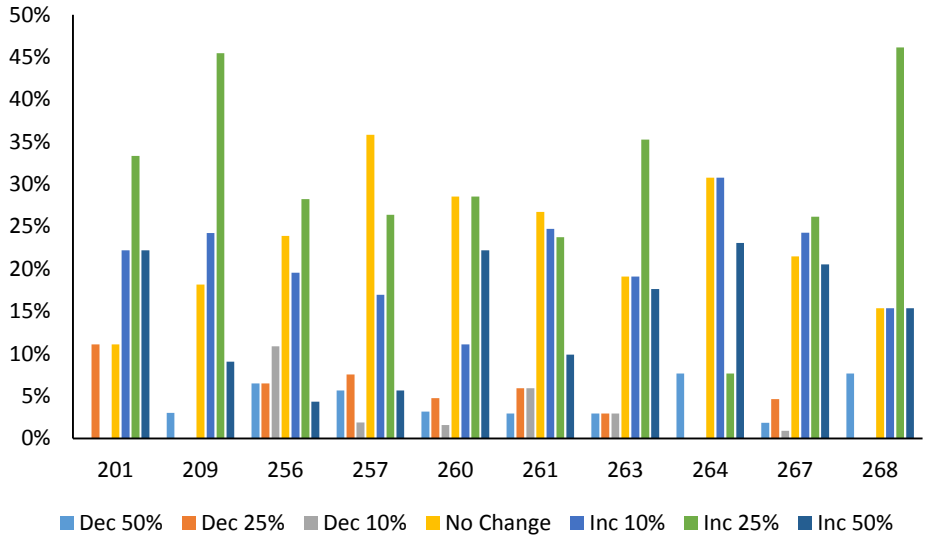
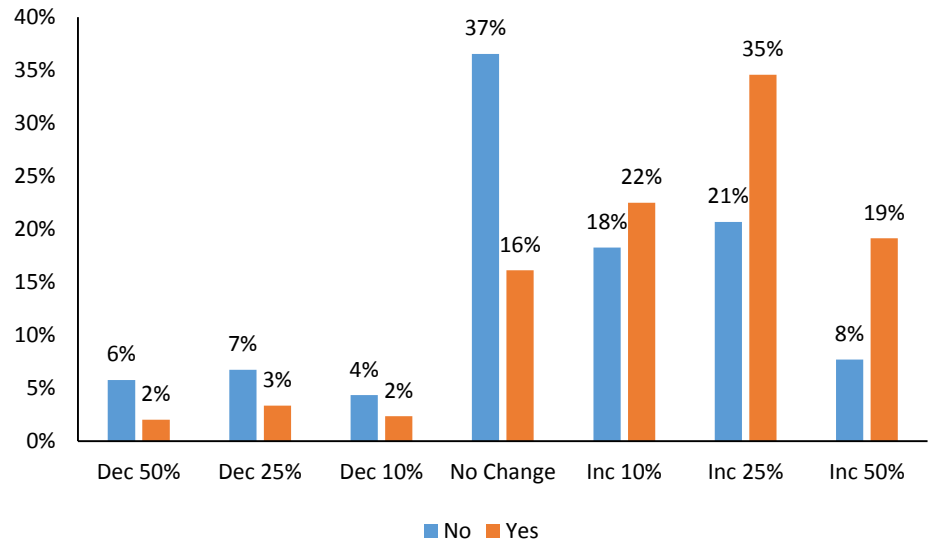


Table 84. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No (41%)	201	0%	50%	0%	0%	0%	50%	0%
	209	0%	0%	0%	14%	14%	71%	0%
	256	4%	12%	8%	33%	17%	25%	0%
	257	9%	6%	3%	41%	22%	16%	3%
	260	9%	4%	4%	43%	13%	13%	13%
	261	5%	9%	6%	38%	19%	17%	6%
	263	7%	0%	0%	36%	14%	29%	14%
	264	0%	0%	0%	40%	40%	0%	20%
	267	6%	3%	3%	34%	20%	20%	14%
	268	0%	0%	0%	50%	0%	50%	0%
	Total	6%	7%	4%	37%	18%	21%	8%
Yes (59%)	201	0%	0%	0%	14%	29%	29%	29%
	209	4%	0%	0%	19%	27%	38%	12%
	256	9%	0%	14%	14%	23%	32%	9%
	257	0%	10%	0%	29%	10%	43%	10%
	260	0%	5%	0%	20%	10%	38%	28%
	261	0%	0%	5%	8%	35%	35%	16%
	263	2%	4%	4%	15%	20%	37%	19%
	264	12%	0%	0%	25%	25%	12%	25%
	267	0%	6%	0%	15%	26%	29%	24%
	268	9%	0%	0%	9%	18%	45%	18%
	Total	2%	3%	2%	16%	22%	35%	19%

Figure 54. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



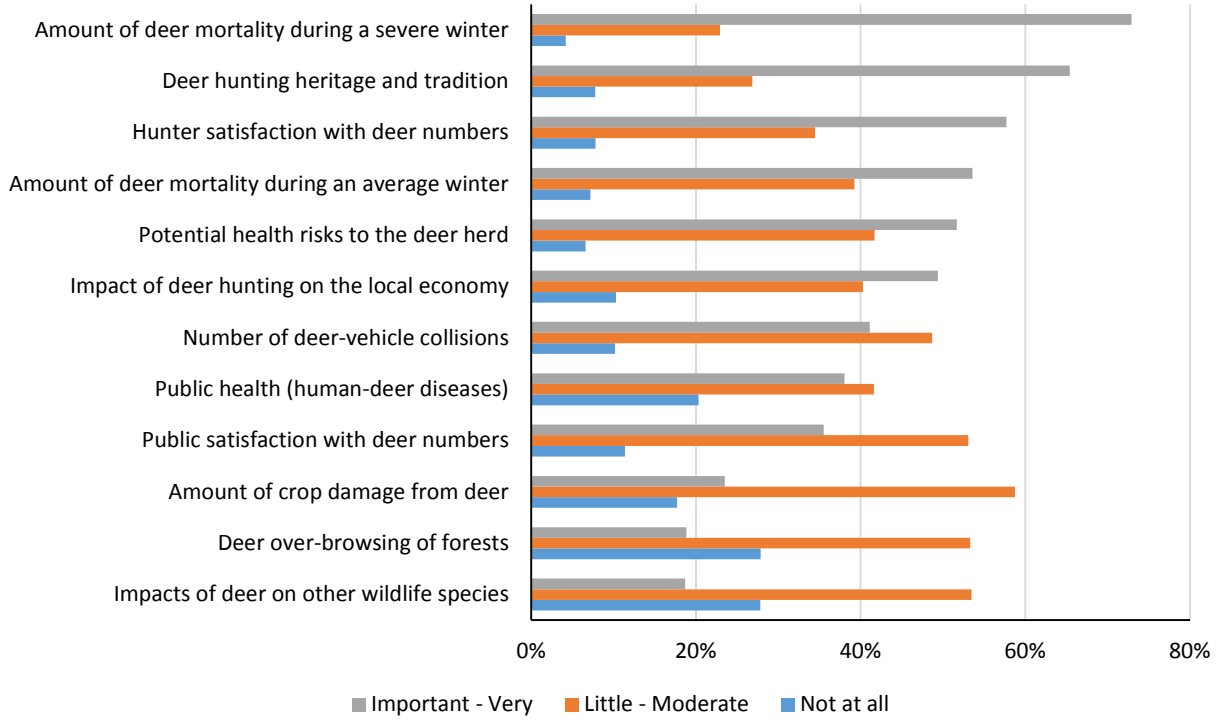
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. Severe winter mortality, hunting tradition, and hunter satisfaction were the 3 most important considerations for landowners. Impacts on other species, deer over-browsing of forests, and the amount of crop damage were the 3 lowest variables (Table 14; Figure 9).

Table 85. Importance of items landowners indicated should be considered when setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	7%	12%	27%	39%	15%
Amount of deer mortality during a severe winter	4%	8%	15%	35%	37%
Potential health risks to the deer herd	7%	18%	24%	29%	23%
Public health (human-deer diseases)	20%	20%	22%	19%	19%
Amount of crop damage from deer	18%	29%	30%	16%	8%
Number of deer-vehicle collisions	10%	20%	28%	27%	14%
Deer over-browsing of forests	28%	24%	29%	15%	4%
Impacts of deer on other wildlife species	28%	28%	26%	15%	4%
Deer hunting heritage and tradition	8%	10%	17%	29%	36%
Hunter satisfaction with deer numbers	8%	10%	24%	33%	25%
Public satisfaction with deer numbers	11%	21%	33%	24%	11%
Impact of deer hunting on the local economy	10%	13%	27%	28%	21%

Figure 55. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Responses were consolidated into 3 groups and ranked from low to high by highest importance.



2015 Survey of Minnesota Deer Hunters: Hunters Opinions and Activities

The Minnesota Department of Natural Resources will be evaluating deer population goals in northwestern Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt; we are also collecting additional information on hunter perspectives regarding deer management in general. This survey should take less than 20 minutes to complete.

29. Please check the boxes below to report if you hunted deer in Minnesota during the 2012, 2013 or 2014 Minnesota deer season. (*Please check all that apply*).
    - ❑ 2012 | ❒ 2013 | ❒ 2014
    - ❑ I did not hunt deer any of these years → **PLEASE SKIP TO QUESTION 13**

30. 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	❒	❒	_____	_____

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

    ❑ 201 | ❑ 203 | ❑ 208 | ❑ 209 | ❑ 213 | ❑ 214 | ❑ 215 | ❑ 218 | ❑ 239 | ❑ 240 | ❑ 256 |

    ❑ 257 | ❑ 260 | ❑ 261 | ❑ 262 | ❑ 263 | ❑ 264 | ❑ 265 | ❑ 266 | ❑ 267 | ❑ 268 | ❑ 269 |

    ❑ 270 | ❑ 271 | ❑ 272 | ❑ 273 | ❑ 276 | ❑ 277 | ❑ 297 ❑ I hunted a permit area not listed

32. 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

33. Including 2014, how many years have you hunted deer in the permit area you hunt most often?

    _____ Years

34. Including 2014, how many years have you been hunting deer in Minnesota? _____ Years

35. 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

36. 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): _____

37. 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

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

39. 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

40. 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

41. 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

42. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

D. _____

E. _____

F. _____

38. 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

39. 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)

40. 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

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

19. How many years have you lived in Minnesota _____ Years

20. What is your gender?

❑ Male ❑ Female

21. What is your age? _____

22. 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

23. 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. Northwest Parkland – Prairie (Block G7) landowner survey

2015 Survey of Minnesota Landowners: Preference for Deer Management and Management Processes

The Minnesota Department of Natural Resources will be evaluating deer population goals in northwestern Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. We are also seeking input on public preferences regarding participation in management decisions. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. This survey should take less than 20 minutes to complete. Your responses will help guide deer population goals in the area you own land and help inform public engagement in general.

1. How many total acres did you own and/or lease at the end of 2014?
   _____ Acres Owned _____ Acres Leased

2. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

3. Did you experience deer damage to land that you own or leased in 2014?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Landscaping	❑ Yes	❑ No	

4. How would you describe the total amount of deer damage you experienced in 2014? (*Check one*)

❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

5. How would you compare the amount of deer damage you experienced in 2014 to what you experienced 5 years ago? (*Check one*)
   - ❑ Much less damage than 5 years ago
   - ❑ Slightly less damage than 5 years ago
   - ❑ About the same damage as 5 years ago
   - ❑ Slightly more damage than 5years ago
   - ❑ Much more damage than 5 years ago
   - ❑ I was not farming/managing lands 5 years ago

6. Over the past 5 years, what trend have you seen in the deer population in the area of your property?
   - ❑ 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

7. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers.
   - ❑ Very Dissatisfied
   - ❑ Slightly Dissatisfied
   - ❑ Neither Dissatisfied nor Satisfied
   - ❑ Slightly Satisfied
   - ❑ Very Satisfied

8. 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

9. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

1) _____

2) _____

3) _____

10. In thinking about your property and the surrounding area, would you say the deer population is,

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

11. In thinking about your property 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)

12. Did you allow hunting on your property during the 2014 deer season? (*Check only one*)
    - ❑ Yes
    - ❑ No→PLEASE SKIP TO QUESTION 16

13. Do you lease any of your property for deer hunting?
    - ❑ Yes
    - ❑ No

14. Who did you allow to hunt deer on your property? (*Check all that apply*). Please also estimate the number of people who hunted your property in 2014.

❑ Myself or family members	_____ people	❑ Strangers who ask permission	_____ people
❑ Friends or neighbors	_____ people	❑ People who lease my property	_____ people

❑ Other (please list: _____) _____ people

15. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*)
    - ❑ 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 list: _____)

16. Please check the boxes below if you hunted deer in Minnesota during the 2012, 2013 or 2014 Minnesota deer season? (*Please check all that apply*)
    - ❑ 2012 | ❒ 2013 | ❒ 2014
    - ❑ I hunt deer but did not hunt any of these years → Please skip to Question 20
    - ❑ I do not hunt deer at all → Please skip to Question 21

17. Which **ONE** deer permit area did you hunt most often during the <u>most recent</u> deer season you hunted?
❑ 201 | ❑ 203 | ❑ 208 | ❑ 209 | ❑ 213 | ❑ 214 | ❑ 215 | ❑ 218 | ❑ 239 | ❑ 240 | ❑ 256 |
❑ 257 | ❑ 260 | ❑ 261 | ❑ 262 | ❑ 263 | ❑ 264 | ❑ 265 | ❑ 266 | ❑ 267 | ❑ 268 | ❑ 269 |
❑ 270 | ❑ 271 | ❑ 272 | ❑ 273 | ❑ 276 | ❑ 277 | ❑ 297 | ❑ I hunted a permit area not listed

18. 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

19. How much of your deer hunting did you do on each of the following types of land during your <u>most recent</u> deer hunting season? (*Circle one number for 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

20. Including 2014, how many years have you been hunting deer in Minnesota? _____ Years.

21. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check <u>one</u>*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

22. 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 landowners.	1	2	3	4	5

23. How many years have you lived in Minnesota?_____ years

24. What is your gender?

❑ Male ❑ Female

25. What is your age? _____

26. 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

27. What was your annual household income from all sources, before taxes, in 2014?

$ _____

28. 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: _____

Please write any comments you may have in the space below:

West Central Prairie (Block G8)
Deer Goal Setting
Landowner and Hunter Survey Results

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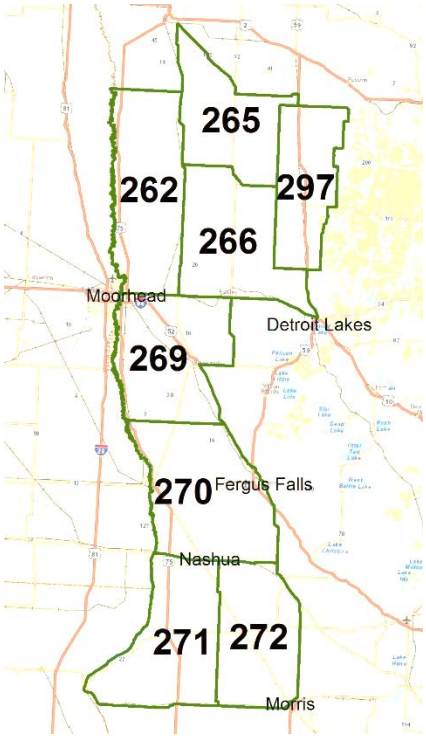
Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2015, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block 8, West Central Prairie.



Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting completion online; the third and fourth wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,600 adult 2014 deer license holders who indicated they intended to hunt in deer areas 262, 265, 266, 269, 270, 271, 272, or 297. A total of 123 surveys were undeliverable and we received 1,012 completed responses, which yielded an adjusted response rate of 41%. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1 (n=637), strata 2 (n=616), strata 3 (n=610), and strata 4 (n=624). Overall, there were 177

undeliverable surveys; 751 completed landowner surveys were returned, yielding a 33% adjusted response rate. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (94%) indicated they hunted during the 2014 firearm deer season. Overall 14% indicated they hunted during the archery season and 17% hunted muzzleloader. Firearm hunters spent an average of 5.2 days afield, compared to 5.9 for muzzleloader and 17.7 for archery hunters. Overall, individuals had hunted an average of 27 years in Minnesota and 20 years in the deer area they indicated they hunted most often. Overall, 89% of respondents were male and the average age was 49.9 (range = 19 – 93).

More than half of hunters did at least some of their hunting on their own private land (56%) or other private land that they do not own or lease (77%). More than half (58%) did at least some of their hunting on public land. Another 7.6% indicated they did at least some hunting on lands that they leased for deer hunting. Only 1.3% of respondents hunted exclusively on lands they leased for deer hunting. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions on deer population trends over the last 5 years. Overall, 75% of respondents indicated there were fewer deer than 5 years ago, 8% indicated more, and 17% believed populations were the same (Table 2). We observed some differences among deer permit areas with deer area 297 was most likely to indicate populations had declined (91%), while respondents from deer area 271 were least likely to indicate that the population had declined (52%). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. More than half (68%) believed the population was ‘too low’, 28% thought it was ‘about right’, and 5% indicated the population was ‘too high’. We observed statistical differences among deer permit areas with similar patterns as described above (Table 3). Respondents were also asked to indicate their desires for future deer population densities and a majority (75%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). A majority of respondents (82%) would shoot an antlerless deer if given the opportunity.

Table 86. Condensed table of desired deer population trends of hunters, by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	10%	15%	75%
	Some	7%	17%	76%
	Most	10%	17%	72%
	All	10%	19%	71%
Private land that I lease for hunting	None	9%	18%	73%
	Some	16%	4%	80%
	Most	5%	0%	95%
	All	11%	0%	89%
Private land that I do not own or lease	None	7%	18%	75%
	Some	6%	15%	79%
	Most	8%	14%	78%
	All	12%	18%	70%
Public land	None	12%	19%	69%
	Some	6%	17%	77%
	Most	3%	10%	88%
	All	5%	10%	85%

Table 87. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
262	59	67%	20	23%	9	10%
265	132	68%	45	23%	18	9%
266	140	83%	21	12%	7	4%
269	109	83%	12	9%	11	8%
270	79	79%	14	14%	7	7%
271	50	52%	27	28%	19	20%
272	81	75%	21	19%	6	6%
297	84	91%	6	7%	2	2%
Total	734	75%	166	17%	79	8%

Table 88. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
262	46	51%	38	42%	6	7%
265	103	53%	73	38%	17	9%
266	127	75%	39	23%	4	2%
269	107	82%	19	15%	5	4%
270	78	78%	18	18%	4	4%
271	45	47%	44	46%	6	6%
272	74	67%	32	29%	4	4%
297	84	89%	9	10%	1	1%
Total	664	68%	272	28%	47	5%

Table 89. Deer population trend preferences for hunters, by deer permit area.

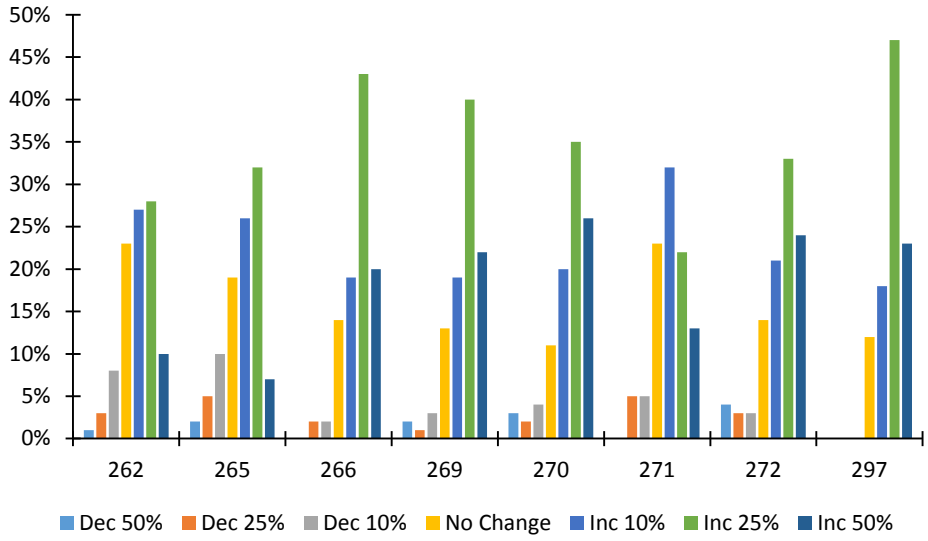
(c) By individual response

	Dec	Dec	Dec	No	Inc	Inc	Inc
Deer Area	50%	25%	10%	Change	10%	25%	50%
262	1%	3%	8%	23%	27%	28%	10%
265	2%	5%	10%	19%	26%	32%	7%
266	0%	2%	2%	14%	19%	43%	20%
269	2%	1%	3%	13%	19%	40%	22%
270	3%	2%	4%	11%	20%	35%	26%
271	0%	5%	5%	23%	32%	22%	13%
272	4%	3%	3%	14%	21%	33%	24%
297	0%	0%	0%	12%	18%	47%	23%
Total	2%	3%	5%	16%	22%	35%	17%

(d) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
262	12%	23%	64%
265	17%	19%	64%
266	5%	14%	82%
269	6%	13%	81%
270	9%	11%	80%
271	11%	23%	66%
272	9%	14%	77%
297	0%	12%	88%
Total	9%	16%	75%

Figure 56. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. Nearly one-quarter (23%) were satisfied with current deer numbers and a majority (63%) indicated they were dissatisfied (Table 5). In total, less than half of respondents (35%) indicated they were satisfied with the total number of deer they saw while hunting (51% were not satisfied and 14% were neutral). Less than half (46%) were satisfied with the total number of antlerless deer they observed. About one-third (30%) were satisfied with the number of legal bucks observed; more than half were dissatisfied (54%). More than half (60%) indicated they heard about or saw legal bucks while hunting. More hunters (52%) were dissatisfied than satisfied (30%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer numbers; around half were not satisfied with the number of deer they saw while hunting (range = 38% - 65%) (Figure 2).

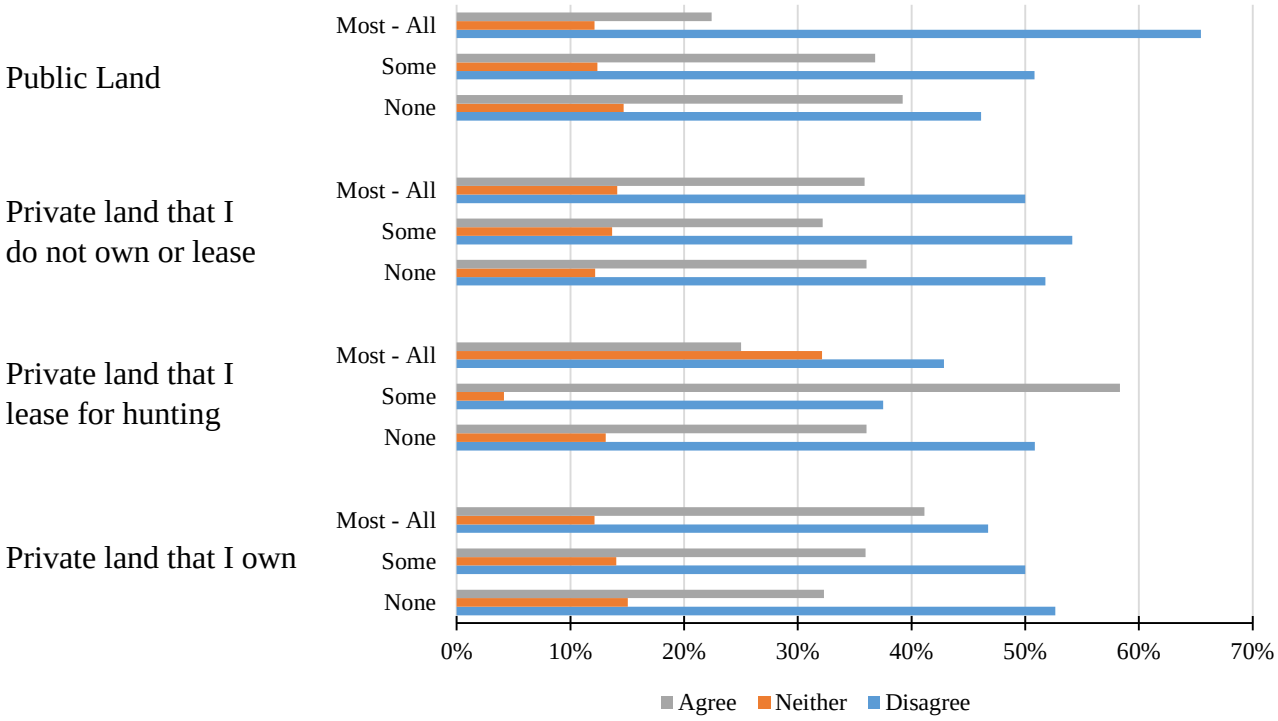
Table 90. Overall hunter satisfaction with total deer numbers, by deer area.

	Dissatisfied		Neither		Satisfied	
Deer Area	N	Percent	N	Percent	N	Percent
262	43	49%	20	23%	25	28%
265	101	52%	32	16%	61	31%
266	116	69%	22	13%	30	18%
269	94	71%	14	11%	24	18%
270	68	67%	11	11%	22	22%
271	49	51%	11	11%	36	38%
272	69	63%	17	16%	23	21%
297	75	81%	10	11%	8	9%
Total	615	63%	137	14%	229	23%

Table 91. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area								
		262	265	266	269	270	271	272	297	Total
I was satisfied with the number of legal bucks	Disagree	53%	48%	57%	58%	47%	45%	61%	68%	54%
	Neither	15%	17%	18%	18%	16%	16%	13%	15%	16%
	Agree	32%	35%	25%	24%	36%	40%	26%	16%	30%
I was satisfied with the quality of bucks	Disagree	45%	49%	54%	59%	43%	46%	51%	63%	52%
	Neither	26%	16%	22%	13%	23%	18%	17%	19%	19%
	Agree	28%	34%	24%	28%	33%	36%	31%	19%	30%
I heard about or saw legal bucks while hunting	Disagree	17%	20%	31%	29%	36%	23%	24%	40%	27%
	Neither	9%	13%	13%	14%	9%	14%	11%	17%	13%
	Agree	74%	67%	56%	56%	55%	63%	65%	43%	60%
I was satisfied with the total number of antlerless deer	Disagree	27%	26%	42%	46%	46%	26%	40%	53%	38%
	Neither	16%	18%	14%	17%	14%	15%	20%	15%	16%
	Agree	57%	56%	44%	36%	40%	59%	41%	32%	46%
I was satisfied with the total number of deer I saw while hunting	Disagree	38%	36%	58%	61%	58%	43%	57%	67%	51%
	Neither	20%	14%	13%	10%	9%	15%	16%	13%	14%
	Agree	42%	50%	30%	29%	33%	43%	27%	20%	35%

Figure 57. Hunter satisfaction with total number of deer seen, based on land type hunted.



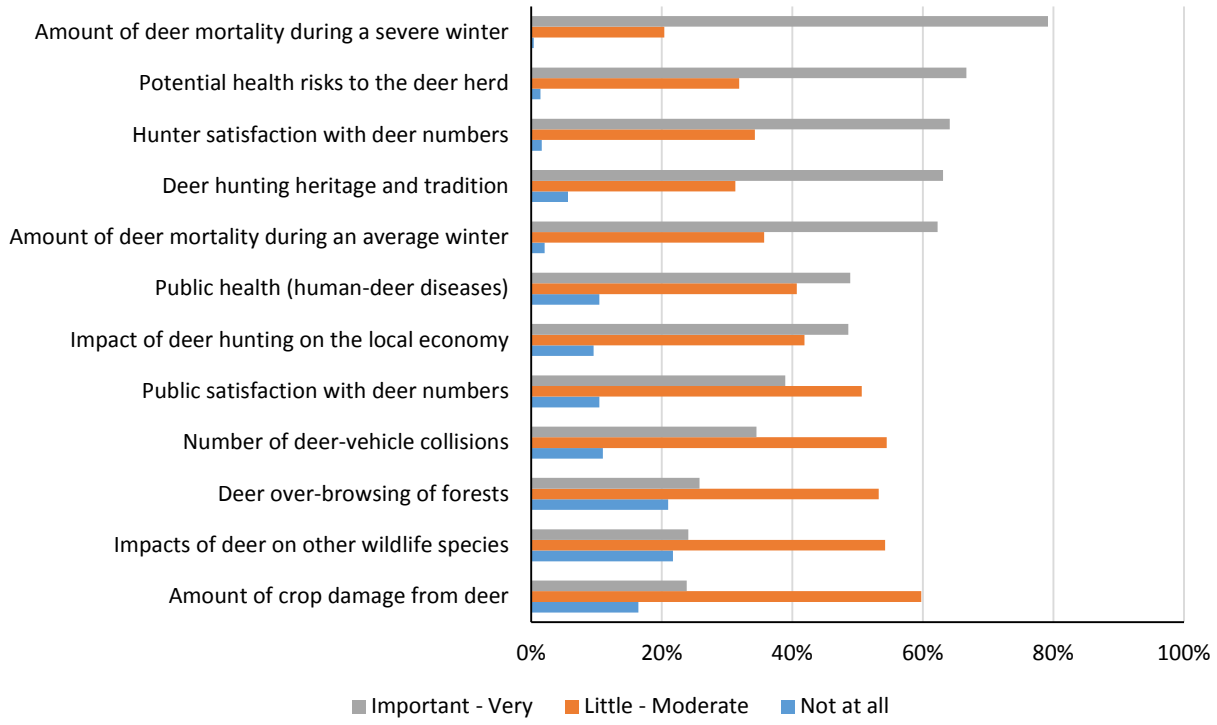
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from ‘not at all important’ to ‘very important’ and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents viewed severe winter mortality, health risks to deer, and hunter satisfaction as the 3 most important items. The amount of crop damage, impacts on other species, and deer over-browsing of forests were the 3 lowest variables (Table 7, Figure 3).

Table 92. Items that hunters believed should be important when considering setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	2%	9%	27%	45%	18%
Amount of deer mortality during a severe winter	0%	6%	14%	41%	38%
Potential health risks to the deer herd	1%	9%	23%	45%	22%
Public health (human-deer diseases)	10%	18%	23%	27%	22%
Amount of crop damage from deer	16%	29%	30%	17%	7%
Number of deer-vehicle collisions	11%	24%	31%	23%	12%
Deer over-browsing of forests	21%	23%	31%	21%	5%
Impacts of deer on other wildlife species	22%	26%	28%	20%	4%
Deer hunting heritage and tradition	6%	10%	21%	31%	32%
Hunter satisfaction with deer numbers	2%	9%	25%	36%	28%
Public satisfaction with deer numbers	10%	21%	30%	26%	13%
Impact of deer hunting on the local economy	10%	17%	25%	31%	17%

Figure 58. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Responses were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 174, 189, 188, and 200 responses from the 4 strata, respectively. In total, 43% of respondents indicated they hunted deer in Minnesota during the 2014 deer season; similar percentages were reported for 2012 (45%) and 2013 (44%). Since those percentages of landowners that hunted did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2014 only. By stratum, a higher proportion of respondents who owned 20 – 79.9 acres indicated they hunted (55%), as compared to other landowners (2-19.9: 38%; 80 – 319.9: 40%; 320+: 38%). Overall, individuals had hunted an average of 33 years. Overall, 82% of respondents were male and the average age was 60.8 (range = 25 – 92).

Hunting patterns

A majority of landowners did most (23%) or all (43%) of their hunting on their own private land. About half of all landowners did at least some hunting on public land (47%), while 57% hunted private land they did not own or lease. Only 9% hunted on private land that they leased for hunting. A majority of hunting landowners expressed a desire for an increase in deer numbers, except for landowners who did all of their hunting on private land they leased for hunting (33%) (Table 8).

Two-thirds (69%) of landowners indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (47%) than landowners with at least 20 acres (range = 69% - 80%). Overall, only 2% (n=10) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 45% indicated family members, 41% indicated friends and neighbors, and 9% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) increased with stratum (range = 64% - 93%). The percentage of respondents who owned residential properties decreased with stratum (range = 78% - 91%), while ownership of woodlands varied among stratum (range = 65% - 80%) (Figure 4). Among landowners who owned cropland, about one-quarter (23%) indicated that they experienced damage to their crops. Landowners who owned at least 320 acres were most likely to indicate they had damage to their crops (28%). A smaller percentage of respondents indicated they had residential (12%) or forest (5%) damage from deer. With respect to residential damage, landowners who owned at least 320 acres were more inclined to indicate damage from deer (Figure 5).

We observed no statistical differences among severity of damage by strata based on land type (crop, woods, residential). Essentially, damage due to deer was typically categorized as ‘negligible’ or ‘minor’, regardless of parcel size (Table 9). We did observe statistical differences among severity of damage by deer permit areas for each land type (crop, woods, or residential) (Figure 6).

Table 93. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	6%	11%	83%
	Some	6%	24%	69%
	Most	7%	15%	78%
	All	7%	26%	67%
Private land that I lease for hunting	None	5%	22%	73%
	Some	25%	25%	50%
	Most	0%	0%	100%
	All	0%	67%	33%
Private land that I do not own or lease	None	7%	22%	70%
	Some	6%	22%	72%
	Most	2%	24%	73%
	All	3%	10%	86%
Public land	None	7%	24%	69%
	Some	6%	11%	82%
	Most	0%	24%	76%
	All	10%	20%	70%

Figure 59. Percent of landowners who owned crops, woods, and residential acreage.

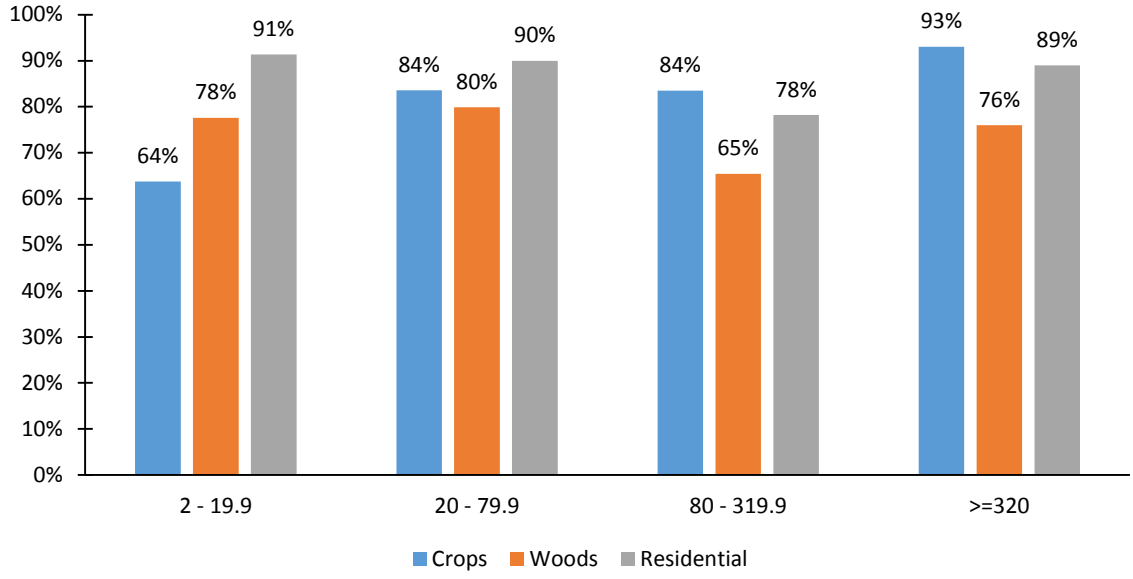


Figure 60. Percent of landowners who indicated they had damage from deer.

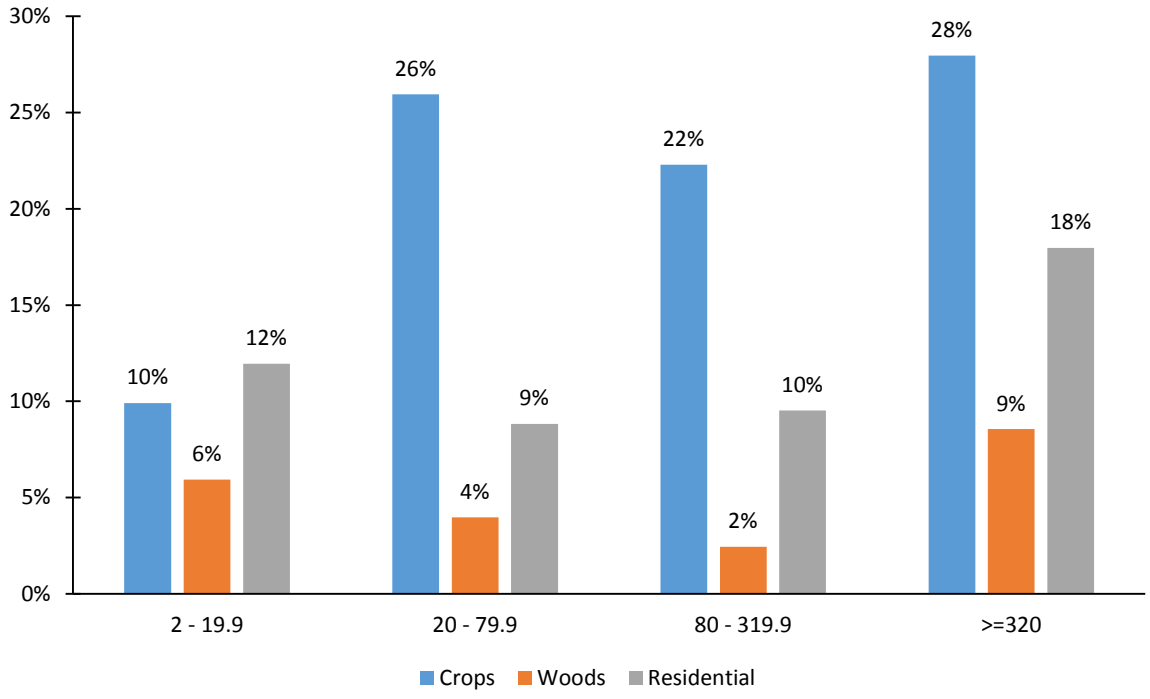
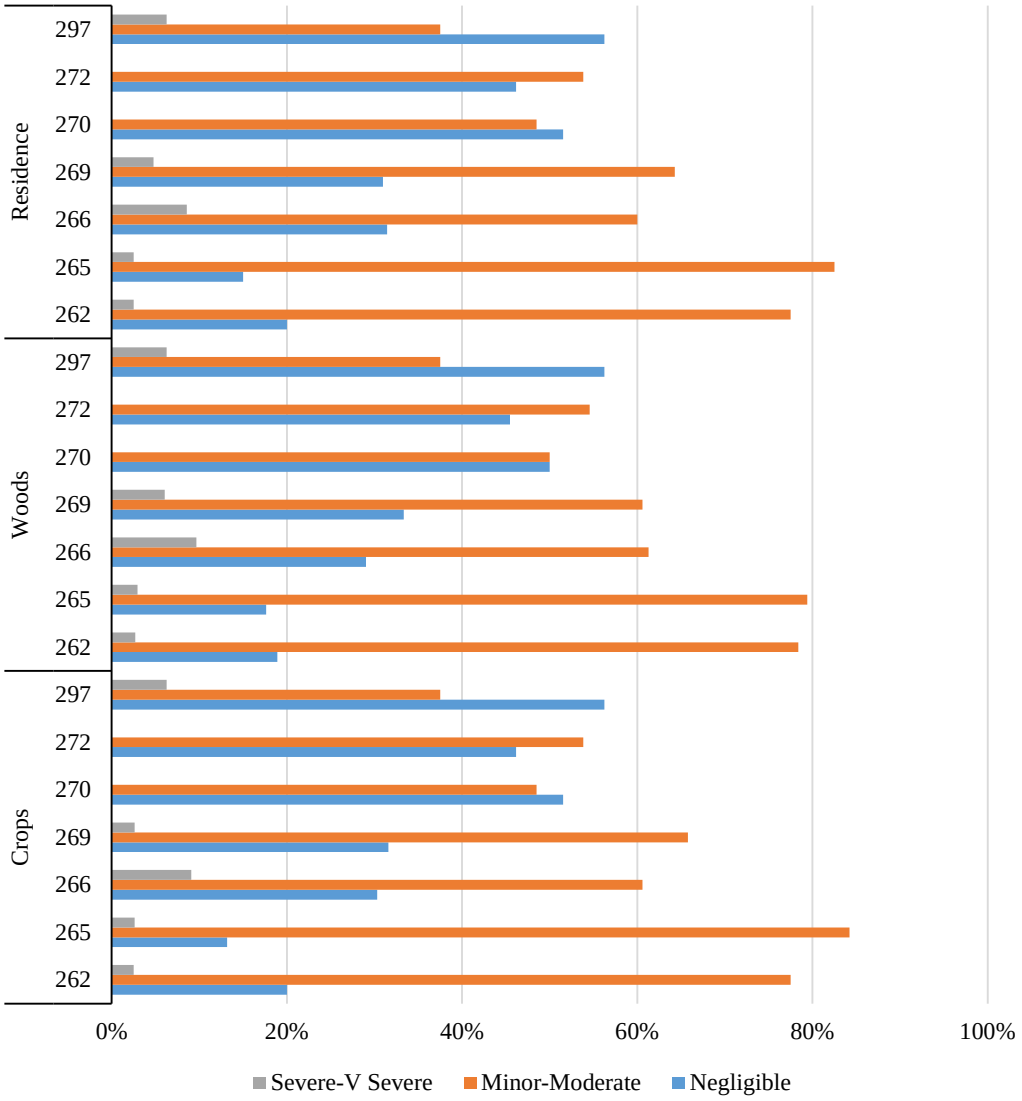


Table 94. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2-19.9	20-70.9	80-319.9	>=320	Total
Crops	Negligible	23%	24%	40%	33%	31%
	Minor	46%	57%	42%	50%	50%
	Moderate	27%	14%	17%	13%	16%
	Severe	4%	5%	0%	1%	2%
	Very Severe	0%	0%	0%	2%	1%
Woods	Negligible	22%	27%	37%	36%	31%
	Minor	44%	52%	49%	48%	48%
	Moderate	28%	16%	14%	12%	16%
	Severe	6%	5%	0%	1%	3%
	Very Severe	0%	0%	0%	3%	1%
Residential	Negligible	24%	27%	38%	34%	31%
	Minor	47%	54%	44%	49%	49%
	Moderate	24%	14%	19%	14%	16%
	Severe	6%	5%	0%	1%	3%
	Very Severe	0%	0%	0%	2%	1%

Figure 61. Reported damage to crops, woods, and residential acreage, by deer permit area. Deer permit area 271 was excluded due to low response.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 66% (58% non-hunters, 75% hunters) of respondents indicated there were fewer deer than 5 years ago, 10% (12% non-hunters, 8% hunters) indicated more, and 24% (31% non-hunters, 17% hunters) believed populations were the same. We found statistical differences among deer areas in attitudes toward population trends (Table 10). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Non-hunting landowners were more likely to indicate the deer population was ‘about right’ (58% vs 36%), while hunters were more likely to indicate populations were ‘too low’ (60% vs 32%). Non-hunters were more likely to indicate the population was ‘too high’ (4% hunters, 10% non-hunters). Similar patterns were detected by deer area in that hunting

landowners were more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 54% wanted to see an increase in deer densities at some level (Table 12; Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 95. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
262	57	55%	32	31%	15	14%
265	49	54%	29	32%	13	14%
266	83	68%	27	22%	12	10%
269	86	72%	27	22%	7	6%
270	80	62%	37	29%	11	9%
271	6	67%	2	22%	1	11%
272	33	77%	4	9%	6	14%
297	53	82%	8	12%	4	6%
Total	447	66%	166	24%	69	10%

Table 96. Landowner beliefs about current population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (53%)	262	15	22%	42	62%	11	16%
	265	10	28%	18	50%	8	22%
	266	21	33%	37	59%	5	8%
	269	24	35%	40	59%	4	6%
	270	26	37%	42	59%	3	4%
	271	1	20%	4	80%	0	0%
	272	7	35%	10	50%	3	15%
	297	9	41%	12	55%	1	5%
	Sum	113	32%	205	58%	35	10%
Yes (47%)	262	13	37%	17	49%	5	14%
	265	26	49%	22	42%	5	9%
	266	29	50%	28	48%	1	2%
	269	37	73%	14	27%	0	0%
	270	40	74%	14	26%	0	0%
	271	2	50%	2	50%	0	0%
	272	16	73%	5	23%	1	5%
	297	29	71%	12	29%	0	0%
	Sum	192	60%	114	36%	12	4%
Total	262	28	27%	59	57%	16	16%
	265	36	40%	40	45%	13	15%
	266	50	41%	65	54%	6	5%
	269	61	51%	54	45%	4	3%
	270	66	53%	56	45%	3	2%
	271	3	33%	6	67%	0	0%
	272	23	55%	15	36%	4	10%
	297	38	60%	24	38%	1	2%
	Sum	305	45%	319	48%	47	7%

Table 97. Preferred landowner population trends, by deer area.

(c) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
262	2%	7%	6%	42%	27%	8%	8%
265	6%	8%	4%	33%	21%	18%	10%
266	0%	5%	7%	40%	20%	18%	10%
269	2%	1%	6%	29%	21%	25%	17%
270	1%	4%	4%	36%	14%	30%	11%
271	0%	0%	11%	56%	33%	0%	0%
272	2%	5%	5%	29%	24%	20%	15%
297	2%	0%	0%	23%	18%	30%	27%
Total	2%	4%	5%	35%	21%	21%	13%

(d) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
262	15%	42%	43%
265	18%	33%	49%
266	11%	40%	48%
269	8%	29%	63%
270	9%	36%	55%
271	11%	56%	33%
272	12%	29%	59%
297	2%	23%	75%
Total	11%	35%	54%

Figure 62. Graphical representation of desired deer population trends for landowners.

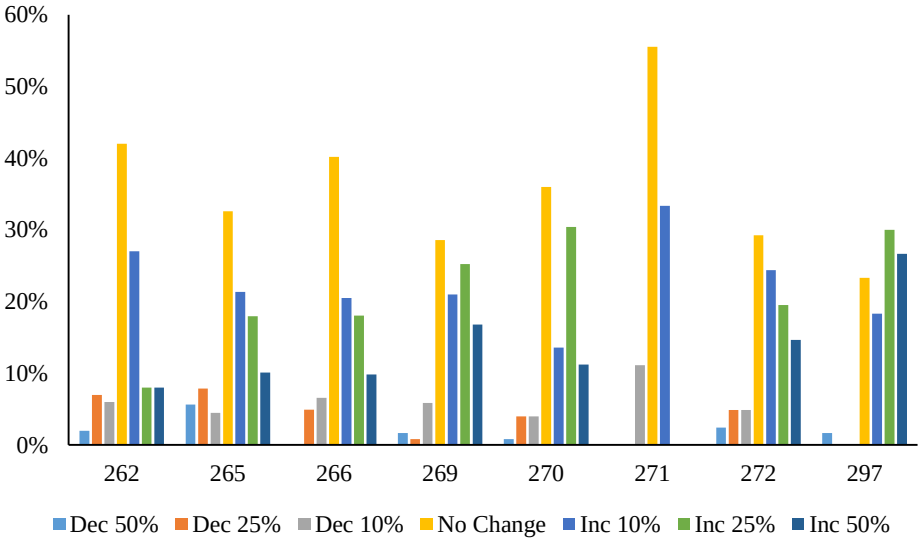
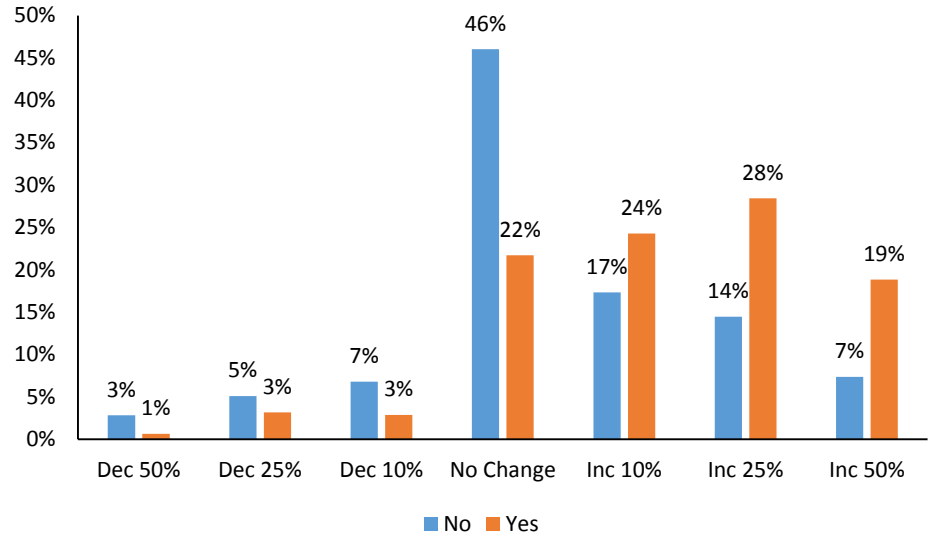


Table 98. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No (53%)	262	3%	6%	8%	46%	25%	3%	9%
	265	8%	11%	3%	43%	19%	11%	5%
	266	0%	8%	6%	50%	19%	12%	5%
	269	3%	0%	10%	41%	16%	21%	9%
	270	1%	4%	7%	51%	8%	24%	4%
	271	0%	0%	20%	60%	20%	0%	0%
	272	5%	10%	5%	45%	15%	15%	5%
	297	5%	0%	0%	38%	24%	10%	24%
	Total	3%	5%	7%	46%	17%	14%	7%
Yes (47%)	262	0%	9%	3%	34%	31%	17%	6%
	265	4%	6%	6%	25%	23%	23%	13%
	266	0%	2%	7%	29%	22%	24%	16%
	269	0%	2%	0%	12%	27%	31%	27%
	270	0%	4%	0%	17%	20%	39%	20%
	271	0%	0%	0%	50%	50%	0%	0%
	272	0%	0%	5%	14%	33%	24%	24%
	297	0%	0%	0%	15%	15%	41%	28%
	Total	1%	3%	3%	22%	24%	29%	19%

Figure 63. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



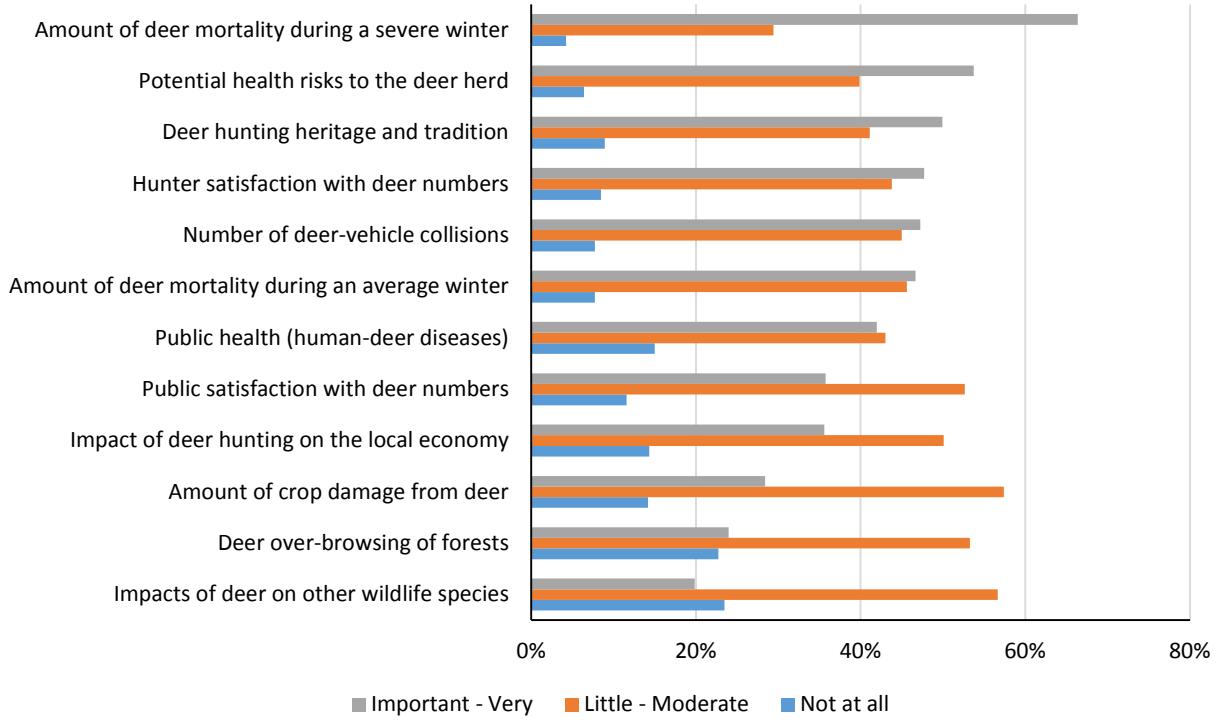
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. Deer mortality during a severe winter, potential health risks, and hunting tradition were the 3 most important considerations for landowners. Impacts on other species, deer over-browsing of forests, and the amount of crop damage from deer were the 3 lowest variables (Table 14; Figure 9).

Table 99. Importance of items landowners indicated should be considered when setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	8%	15%	30%	35%	11%
Amount of deer mortality during a severe winter	4%	10%	19%	39%	28%
Potential health risks to the deer herd	6%	14%	26%	33%	20%
Public health (human-deer diseases)	15%	22%	22%	24%	18%
Amount of crop damage from deer	14%	28%	29%	22%	7%
Number of deer-vehicle collisions	8%	20%	25%	30%	17%
Deer over-browsing of forests	23%	26%	27%	20%	4%
Impacts of deer on other wildlife species	23%	27%	30%	17%	3%
Deer hunting heritage and tradition	9%	15%	26%	28%	22%
Hunter satisfaction with deer numbers	8%	16%	28%	32%	16%
Public satisfaction with deer numbers	12%	19%	34%	28%	8%
Impact of deer hunting on the local economy	14%	22%	28%	25%	11%

Figure 64. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Responses were consolidated into 3 groups and ranked from low to high by highest importance.



Appendix A. West Central Prairie (Block G8) hunter survey

2015 Survey of Minnesota Deer Hunters: Hunters Opinions and Activities

The Minnesota Department of Natural Resources will be evaluating deer population goals in northwestern Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt; we are also collecting additional information on hunter perspectives regarding deer management in general. This survey should take less than 20 minutes to complete.

1. Please check the boxes below to report if you hunted deer in Minnesota during the 2012, 2013 or 2014 Minnesota deer season. (*Please check all that apply*).
   - ❑ 2012 | ❒ 2013 | ❒ 2014
   - ❑ 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?

   ❑ 201 | ❑ 203 | ❑ 208 | ❑ 209 | ❑ 213 | ❑ 214 | ❑ 215 | ❑ 218 | ❑ 239 | ❑ 240 | ❑ 256 |

   ❑ 257 | ❑ 260 | ❑ 261 | ❑ 262 | ❑ 263 | ❑ 264 | ❑ 265 | ❑ 266 | ❑ 267 | ❑ 268 | ❑ 269 |

   ❑ 270 | ❑ 271 | ❑ 272 | ❑ 273 | ❑ 276 | ❑ 277 | ❑ 297 ❑ 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 2014, how many years have you hunted deer in the permit area you hunt most often?

   _____ Years

6. Including 2014, 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. 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.

G. _____

H. _____

I. _____

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

18. 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

19. How many years have you lived in Minnesota _____ Years

20. What is your gender?

❑ Male ❑ Female

21. What is your age? _____

22. 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

23. 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. West Central Prairie (Block G8) landowner survey

2015 Survey of Minnesota Landowners: Preference for Deer Management and Management Processes

The Minnesota Department of Natural Resources will be evaluating deer population goals in northwestern Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. We are also seeking input on public preferences regarding participation in management decisions. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. This survey should take less than 20 minutes to complete. Your responses will help guide deer population goals in the area you own land and help inform public engagement in general.

1. How many total acres did you own and/or lease at the end of 2014?
   _____ Acres Owned _____ Acres Leased

2. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

3. Did you experience deer damage to land that you own or leased in 2014?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Landscaping	❑ Yes	❑ No	

4. How would you describe the total amount of deer damage you experienced in 2014? (*Check one*)

❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

5. How would you compare the amount of deer damage you experienced in 2014 to what you experienced 5 years ago? (*Check one*)
   - ❑ Much less damage than 5 years ago
   - ❑ Slightly less damage than 5 years ago
   - ❑ About the same damage as 5 years ago
   - ❑ Slightly more damage than 5years ago
   - ❑ Much more damage than 5 years ago
   - ❑ I was not farming/managing lands 5 years ago

6. Over the past 5 years, what trend have you seen in the deer population in the area of your property?
   - ❑ 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

7. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers.
   - ❑ Very Dissatisfied
   - ❑ Slightly Dissatisfied
   - ❑ Neither Dissatisfied nor Satisfied
   - ❑ Slightly Satisfied
   - ❑ Very Satisfied

8. 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

9. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

A) _____

B) _____

C) _____

10) In thinking about your property and the surrounding area, would you say the deer population is,

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

11) In thinking about your property 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)

12) Did you allow hunting on your property during the 2014 deer season? (*Check only one*)

❑ Yes

❑ No→PLEASE SKIP TO QUESTION 16

13) Do you lease any of your property for deer hunting?

❑ Yes

❑ No

14) Who did you allow to hunt deer on your property? (*Check all that apply*). Please also estimate the number of people who hunted your property in 2014.

❑ Myself or family members _____ people

❑ Friends or neighbors _____ people

❑ Strangers who ask permission _____ people

❑ People who lease my property _____ people

❑ Other (please list: _____) _____ people

15) Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*)

❑ 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 list: _____)

16) Please check the boxes below if you hunted deer in Minnesota during the 2012, 2013 or 2014 Minnesota deer season? (*Please check all that apply*)

❑ 2012 | ❐ 2013 | ❐ 2014

❑ I hunt deer but did not hunt any of these years → Please skip to Question 20

❑ I do not hunt deer at all → Please skip to Question 21

17) Which **ONE** deer permit area did you hunt most often during the <u>most recent</u> deer season you hunted?
❑ 201 | ❑ 203 | ❑ 208 | ❑ 209 | ❑ 213 | ❑ 214 | ❑ 215 | ❑ 218 | ❑ 239 | ❑ 240 | ❑ 256 |
❑ 257 | ❑ 260 | ❑ 261 | ❑ 262 | ❑ 263 | ❑ 264 | ❑ 265 | ❑ 266 | ❑ 267 | ❑ 268 | ❑ 269 |
❑ 270 | ❑ 271 | ❑ 272 | ❑ 273 | ❑ 276 | ❑ 277 | ❑ 297 | ❑ I hunted a permit area not listed

18) 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

19) How much of your deer hunting did you do on each of the following types of land during your <u>most recent</u> deer hunting season? (*Circle one number for 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

20) Including 2014, how many years have you been hunting deer in Minnesota? _____ Years.

21) To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check <u>one</u>*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

22. 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 landowners.	1	2	3	4	5

23. How many years have you lived in Minnesota?_____ years

24. What is your gender?

❑ Male ❑ Female

25. What is your age? _____

26. 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

27. What was your annual household income from all sources, before taxes, in 2014?

$ _____

28. 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: _____

Please write any comments you may have in the space below:

Central Hills Prairie (Block G9)
Deer Goal Setting
Landowner and Hunter Survey Results

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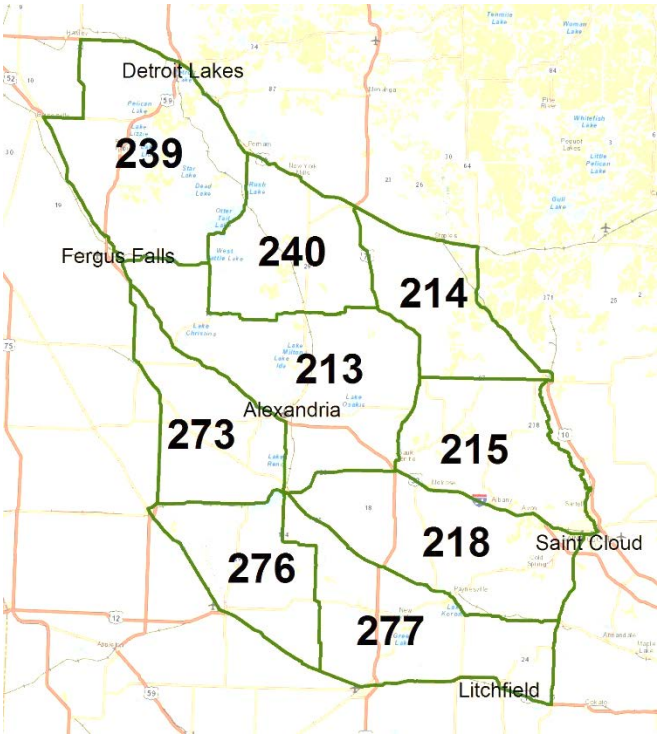
Public Surveys for Deer Goal Setting

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. Thus, these surveys differ from annual public input opportunities which may include some bias according to self-selection of interested parties. In 2015, both hunters (Appendix A) and landowners (Appendix B) in this goal setting block were surveyed; the resulting information provides a basis for the 2015 deer population goal setting process. This report covers goal block 9, Central Hills Prairie.



Methods

Hunters and private landowners were surveyed using a mixed mode design that included two waves of letters requesting completion online; the third and fourth wave was mailed using a self-administered mail back questionnaire (Appendices A and B).

For the hunter survey, we randomly selected 2,601 adult 2014 deer license holders who indicated they intended to hunt in deer areas 213, 214, 215, 218, 239, 240, 273, 276, or 277. A total of 102 surveys were undeliverable and we received 1,097 completed responses, which yielded an adjusted response rate of 44%. Landowner parcels were stratified into 4 acreages, 1) 2 – 19.9, 2) 20 – 79.9, 3) 80 – 319.9, and 4) 320+. We selected a simple random sample from strata 1 (n=662), strata 2 (n=685), strata 3 (n=690), and surveyed all landowners in strata 4 (n=676).

Overall, there were 239 undeliverable surveys; 961 completed landowner surveys were returned, yielding a 39% adjusted response rate. For both surveys, our error rate at the goal block level was approximately 3%.

Hunter Survey

Demographics

Nearly all respondents (97%) indicated they hunted during the 2014 firearm deer season. Overall 19% indicated they hunted during the archery season and 15% hunted muzzleloader. Firearm hunters spent an average of 5.1 days afield, compared to 5.9 for muzzleloader and 17.6 for archery hunters. Overall, individuals had hunted an average of 27 years in Minnesota and 20 years in the deer area they indicated they hunted most often. Overall, 87% of respondents were male and the average age was 49.3 (range = 19 – 89).

More than half of hunters did at least some of their hunting on their own private land (64%) or other private land that they do not own or lease (65%). One-third (33%) did at least some of their hunting on public land. Another 8.5% indicated they did at least some hunting on lands that they leased for deer hunting. Only 2.9% of respondents hunted exclusively on lands they leased for deer hunting. With respect to future populations; a majority expressed a desire for an increase in deer numbers, regardless of where they hunted (Table 1).

Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions on deer population trends over the last 5 years. Overall, 56% of respondents indicated there were fewer deer than 5 years ago, 17% indicated more, and 27% believed populations were the same (Table 2). We observed some differences among deer permit areas with deer area 239 was most likely to indicate populations had declined (74%), while respondents from deer area 218 were least likely to indicate that the population had declined (43%). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. About half (49%) believed the population was ‘too low’, 44% thought it was ‘about right’, and 7% indicated the population was ‘too high’. We observed statistical differences among deer permit areas with similar patterns as described above (Table 3). Respondents were also asked to indicate their desires for future deer population densities and a majority (60%) wanted to see an increase in deer densities at some level (Table 4, Figure 1). A majority of respondents (87%) would shoot an antlerless deer if given the opportunity.

Table 100. Condensed table of desired deer population trends of hunters, by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	9%	27%	65%
	Some	23%	25%	52%
	Most	17%	23%	61%
	All	15%	32%	53%
Private land that I lease for hunting	None	13%	30%	58%
	Some	4%	36%	60%
	Most	6%	11%	83%
	All	4%	35%	61%
Private land that I do not own or lease	None	13%	36%	52%
	Some	14%	23%	63%
	Most	15%	19%	66%
	All	8%	29%	64%
Public land	None	13%	34%	54%
	Some	11%	20%	68%
	Most	9%	11%	80%
	All	6%	23%	71%

Table 101. Hunter perceptions of deer population trends over the last 5 years, by deer permit area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
213	84	48%	48	28%	42	24%
214	89	62%	37	26%	18	12%
215	60	50%	32	27%	27	23%
218	44	43%	40	39%	18	18%
239	114	74%	24	15%	17	11%
240	80	58%	41	30%	17	12%
273	29	69%	8	19%	5	12%
276	43	68%	14	22%	6	10%
277	59	45%	39	30%	32	25%
Total	602	56%	283	27%	182	17%

Table 102. Hunter beliefs about current deer population densities, by deer area.

	Too Low		About Right		Too High	
Deer Area	N	Percent	N	Percent	N	Percent
213	84	47%	68	38%	25	14%
214	58	40%	77	53%	9	6%
215	45	38%	70	59%	3	3%
218	42	42%	52	52%	6	6%
239	97	62%	55	35%	4	3%
240	70	51%	60	43%	8	6%
273	28	68%	12	29%	1	2%
276	36	57%	26	41%	1	2%
277	57	45%	52	41%	17	13%
Total	517	49%	472	44%	74	7%

Table 103. Deer population trend preferences for hunters, by deer permit area.

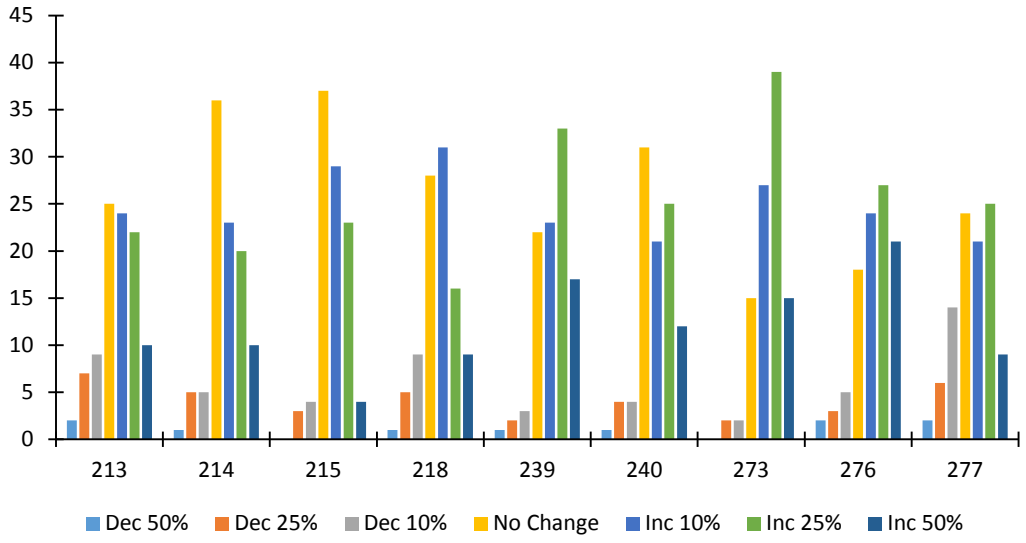
(e) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
213	2%	7%	9%	25%	24%	22%	10%
214	1%	5%	5%	36%	23%	20%	10%
215	0%	3%	4%	37%	29%	23%	4%
218	1%	5%	9%	28%	31%	16%	9%
239	1%	2%	3%	22%	23%	33%	17%
240	1%	4%	4%	31%	21%	25%	12%
273	0%	2%	2%	15%	27%	39%	15%
276	2%	3%	5%	18%	24%	27%	21%
277	2%	6%	14%	24%	21%	25%	9%
Total	1%	5%	6%	28%	24%	25%	11%

(f) Summarized by decrease, same, increase

Deer Area	Decrease	Same	Increase
213	19%	25%	56%
214	11%	36%	53%
215	7%	37%	56%
218	15%	28%	57%
239	5%	22%	72%
240	10%	31%	59%
273	5%	15%	80%
276	10%	18%	73%
277	22%	24%	54%
Total	12%	28%	60%

Figure 65. Graphical representation of hunters' desired deer population trends.



Satisfaction

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. Over one-third (36%) were satisfied with current deer numbers and about half (48%) indicated they were dissatisfied (Table 5). In total, less than half of respondents (45%) indicated they were satisfied with the total number of deer they saw while hunting (44% were not satisfied and 11% were neutral). Over half (52%) were satisfied with the total number of antlerless deer they observed. About one-third (38%) were satisfied with the number of legal bucks observed; less than half were dissatisfied (46%). More than half (62%) indicated they heard about or saw legal bucks while hunting. More hunters (47%) were dissatisfied than satisfied (35%) with the quality of bucks observed (Table 6). Finally, we observed no real differences among land type hunted and satisfaction with total deer

numbers; around half were not satisfied with the number of deer they saw while hunting (range = 37% - 62%) (Figure 2).

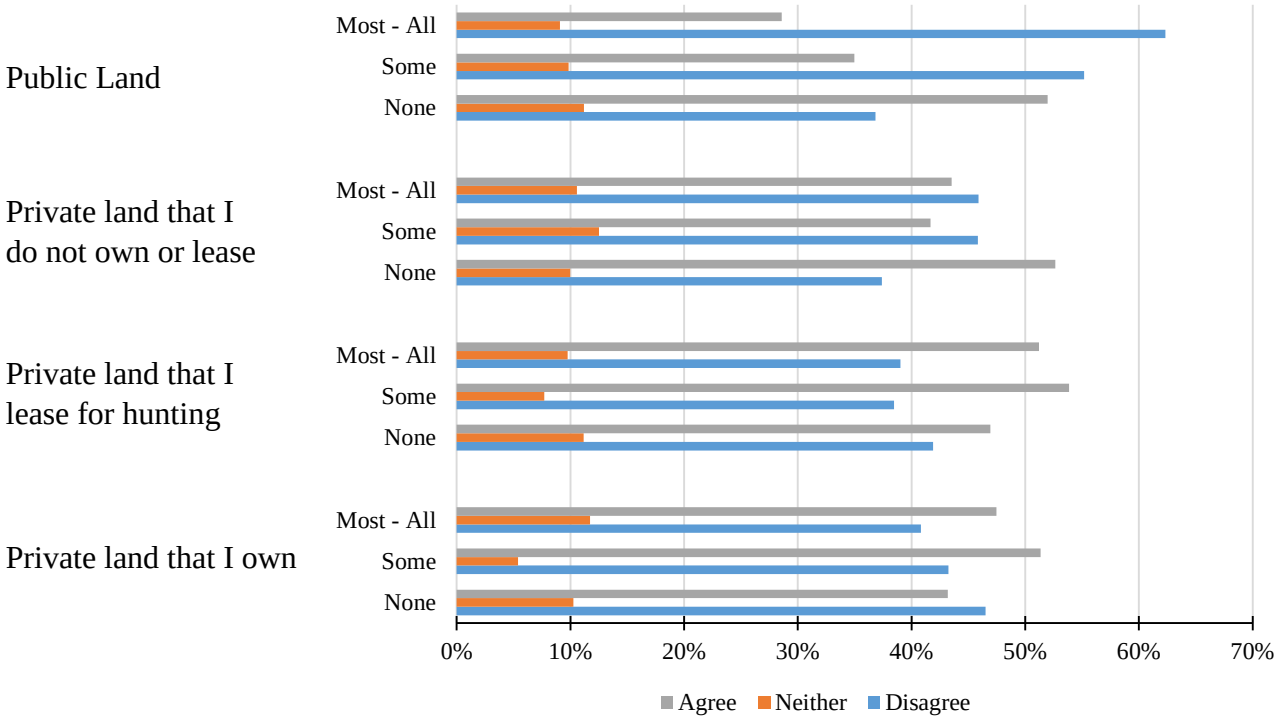
Table 104. Overall hunter satisfaction with total deer numbers, by deer area.

	Dissatisfied		Neither		Satisfied	
Deer Area	N	Percent	N	Percent	N	Percent
213	81	47%	30	17%	63	36%
214	59	41%	25	17%	60	42%
215	50	42%	16	13%	53	45%
218	44	44%	25	25%	32	32%
239	91	59%	13	8%	51	33%
240	70	51%	16	12%	52	38%
273	29	69%	5	12%	8	19%
276	35	56%	14	22%	14	22%
277	55	42%	22	17%	53	41%
Total	514	48%	166	16%	386	36%

Table 105. Hunter satisfaction with number and quality of bucks, antlerless deer, and total deer numbers, by area.

		Deer Area									
		213	214	215	218	239	240	273	276	277	Total
I was satisfied with the number of legal bucks	Disagree	42%	36%	34%	47%	55%	41%	67%	60%	56%	46%
	Neither	11%	14%	18%	20%	14%	21%	21%	13%	15%	16%
	Agree	47%	50%	48%	34%	31%	38%	12%	27%	28%	38%
I was satisfied with the quality of bucks	Disagree	42%	42%	39%	50%	49%	43%	68%	56%	53%	47%
	Neither	18%	16%	18%	15%	18%	21%	12%	11%	21%	18%
	Agree	40%	42%	43%	35%	32%	35%	20%	32%	26%	35%
I heard about or saw legal bucks while hunting	Disagree	24%	22%	15%	25%	31%	21%	36%	25%	27%	24%
	Neither	12%	11%	14%	12%	12%	16%	17%	13%	18%	14%
	Agree	63%	67%	71%	63%	58%	62%	48%	62%	55%	62%
I was satisfied with the total number of antlerless deer	Disagree	34%	30%	30%	23%	46%	35%	46%	32%	34%	34%
	Neither	11%	12%	15%	16%	15%	15%	22%	19%	13%	14%
	Agree	55%	57%	56%	61%	40%	51%	32%	48%	53%	52%
I was satisfied with the total number of deer I saw while hunting	Disagree	43%	38%	36%	35%	55%	47%	69%	57%	38%	44%
	Neither	9%	12%	11%	14%	9%	9%	12%	11%	12%	11%
	Agree	49%	49%	53%	51%	36%	45%	19%	32%	50%	45%

Figure 66. Hunter satisfaction with total number of deer seen, based on land type hunted.



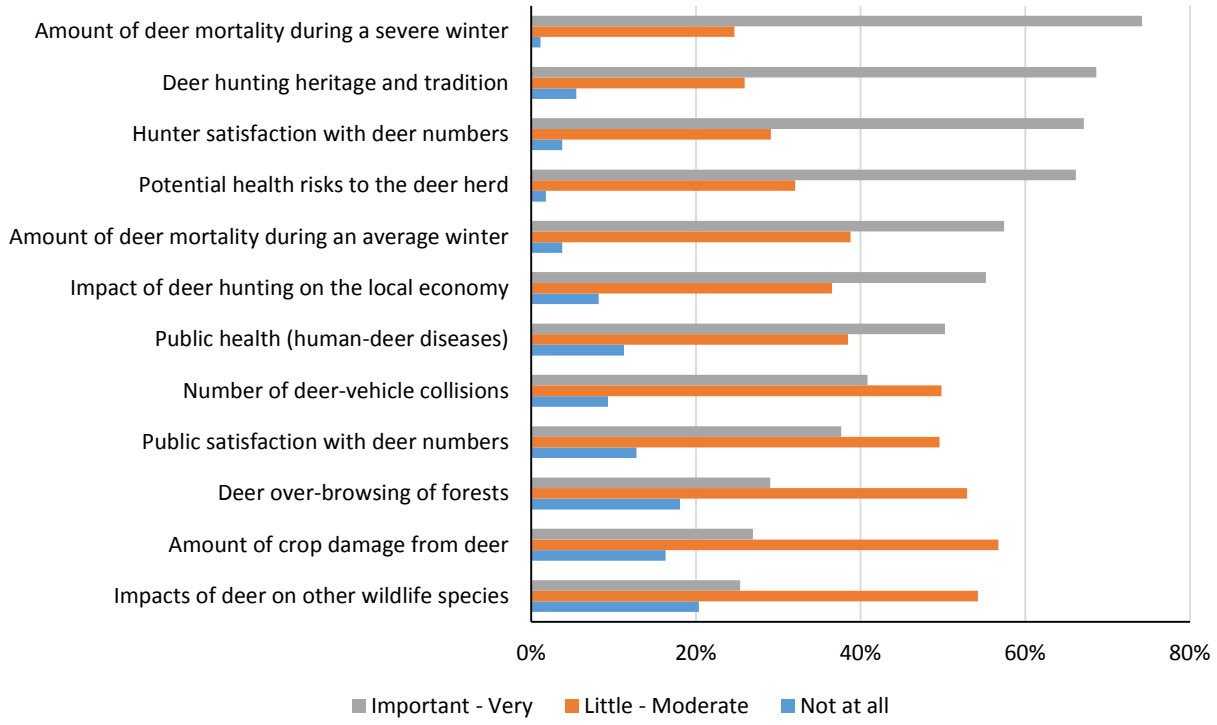
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. They were expressed as items that respondents could consider as relatively important when setting deer population goals. The scale ranges from ‘not at all important’ to ‘very important’ and covered a range of items that would lead to management for either higher or lower deer populations. Overall, respondents viewed severe winter mortality, hunting tradition, and hunter satisfaction as the 3 most important items. The impacts on other species, amount of crop damage, and deer over-browsing of forests were the 3 lowest variables (Table 7, Figure 3).

Table 106. Items that hunters believed should be important when considering setting deer population goals.

Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	4%	13%	26%	43%	15%
Amount of deer mortality during a severe winter	1%	6%	19%	40%	35%
Potential health risks to the deer herd	2%	11%	21%	44%	22%
Public health (human-deer diseases)	11%	18%	20%	26%	25%
Amount of crop damage from deer	16%	29%	28%	20%	7%
Number of deer-vehicle collisions	9%	23%	27%	29%	12%
Deer over-browsing of forests	18%	24%	29%	23%	6%
Impacts of deer on other wildlife species	20%	27%	27%	21%	4%
Deer hunting heritage and tradition	5%	8%	18%	35%	34%
Hunter satisfaction with deer numbers	4%	7%	22%	45%	23%
Public satisfaction with deer numbers	13%	21%	28%	28%	9%
Impact of deer hunting on the local economy	8%	13%	24%	34%	21%

Figure 67. Graphical importance of items that should be considered when setting deer population goals as defined by hunters. Responses were consolidated into 3 groups and ranked by relative importance from low to high.



Landowner Survey

Demographics

We received 222, 238, 250, and 251 responses from the 4 strata, respectively. In total, 57% of respondents indicated they hunted deer in Minnesota during the 2014 deer season; similar percentages were reported for 2012 (59%) and 2013 (58%). Since those percentages of landowners that hunted did not vary, tables that describe hunter attitudes are based off whether or not they hunted in 2014 only. By stratum, a lower proportion of respondents who owned 2 – 20 acres indicated they hunted (43%), as compared to other landowners (20-79.9: 60%; 80 – 319.9: 68%; 320+: 57%). Overall, individuals had hunted an average of 35 years. Overall, 86% of respondents were male and the average age was 60.5 (range = 25 – 95).

Hunting patterns

A majority of landowners did most (21%) or all (63%) of their hunting on their own private land. One-quarter of all landowners did at least some hunting on public land (25%), while 37% hunted private land they did not own or lease. Only 7% hunted on private land that they leased for hunting. Regardless of where they hunted, a majority of hunting landowners expressed a desire for an increase in deer numbers (Table 8).

Three-quarters (76%) of landowners indicated they allowed hunting on their property. As expected, individuals with smaller parcels allowed hunting at lower rates (46%) than landowners with at least 20 acres (range = 78% - 90%). Overall, only 4% (n=26) of landowners indicated they leased their property for hunting. With respect to who is allowed to hunt, 59% indicated family members, 42% indicated friends and neighbors, and 5% allowed strangers who asked permission.

Reported damage from deer

The percentage of landowners who had acreage in crops (e.g., row crops, small grains, orchards, vegetables) increased with stratum (range = 64% - 88%). The percentage of respondents who owned residential properties and those who owned woodlands were both consistent among stratum (Figure 4). Among landowners who owned cropland, one-third (33%) indicated that they experienced damage to their crops. Landowners who owned at least 320 acres were most likely to indicate they had damage to their crops (48%). A smaller percentage of respondents indicated they had residential (17%) or forest (6%) damage from deer. With respect to residential damage, landowners who owned <20 acres were more inclined to indicate damage from deer (Figure 5).

We observed no statistical differences among severity of damage based on land type (crop, woods, residential) or strata by deer permit area. Essentially, damage due to deer was typically categorized from ‘negligible’ to ‘moderate’, regardless of parcel size (Table 9). We also observed no statistical differences among deer permit areas for landowners who reported damage to crops, woods, or residential acreage (Figure 6).

Table 107. Condensed table of desired deer population trends for landowners that hunted by land type hunted.

Type of land hunted		Desired Population Trend		
		Decrease	No Change	Increase
Private land that I own	None	3%	25%	72%
	Some	4%	22%	74%
	Most	7%	20%	73%
	All	16%	29%	55%
Private land that I lease for hunting	None	10%	33%	57%
	Some	7%	14%	79%
	Most	20%	0%	80%
	All	17%	33%	50%
Private land that I do not own or lease	None	12%	36%	52%
	Some	6%	21%	73%
	Most	7%	17%	76%
	All	4%	8%	88%
Public land	None	12%	32%	57%
	Some	5%	22%	73%
	Most	0%	22%	78%
	All	0%	33%	67%

Figure 68. Percent of landowners who owned crops, woods, and residential acreage.

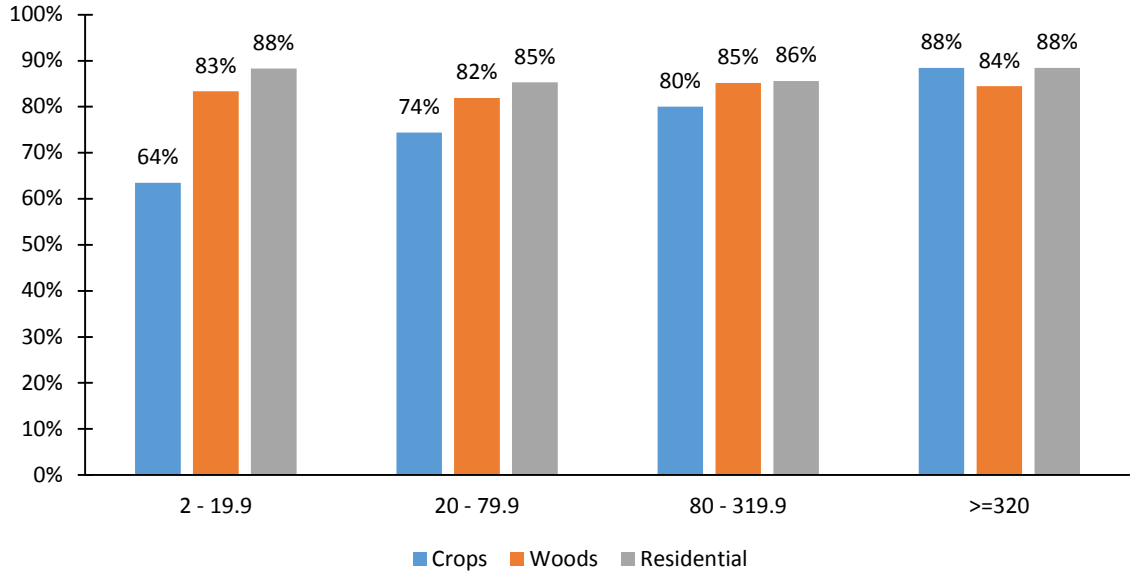


Figure 69. Percent of landowners who indicated they had damage from deer.

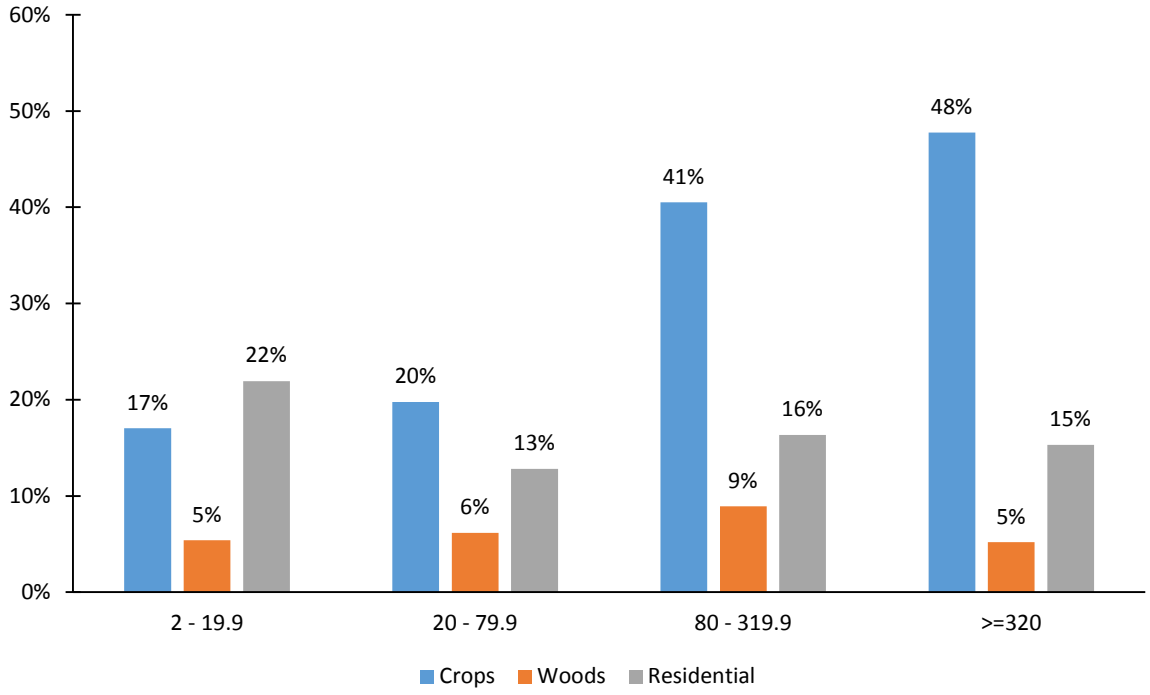
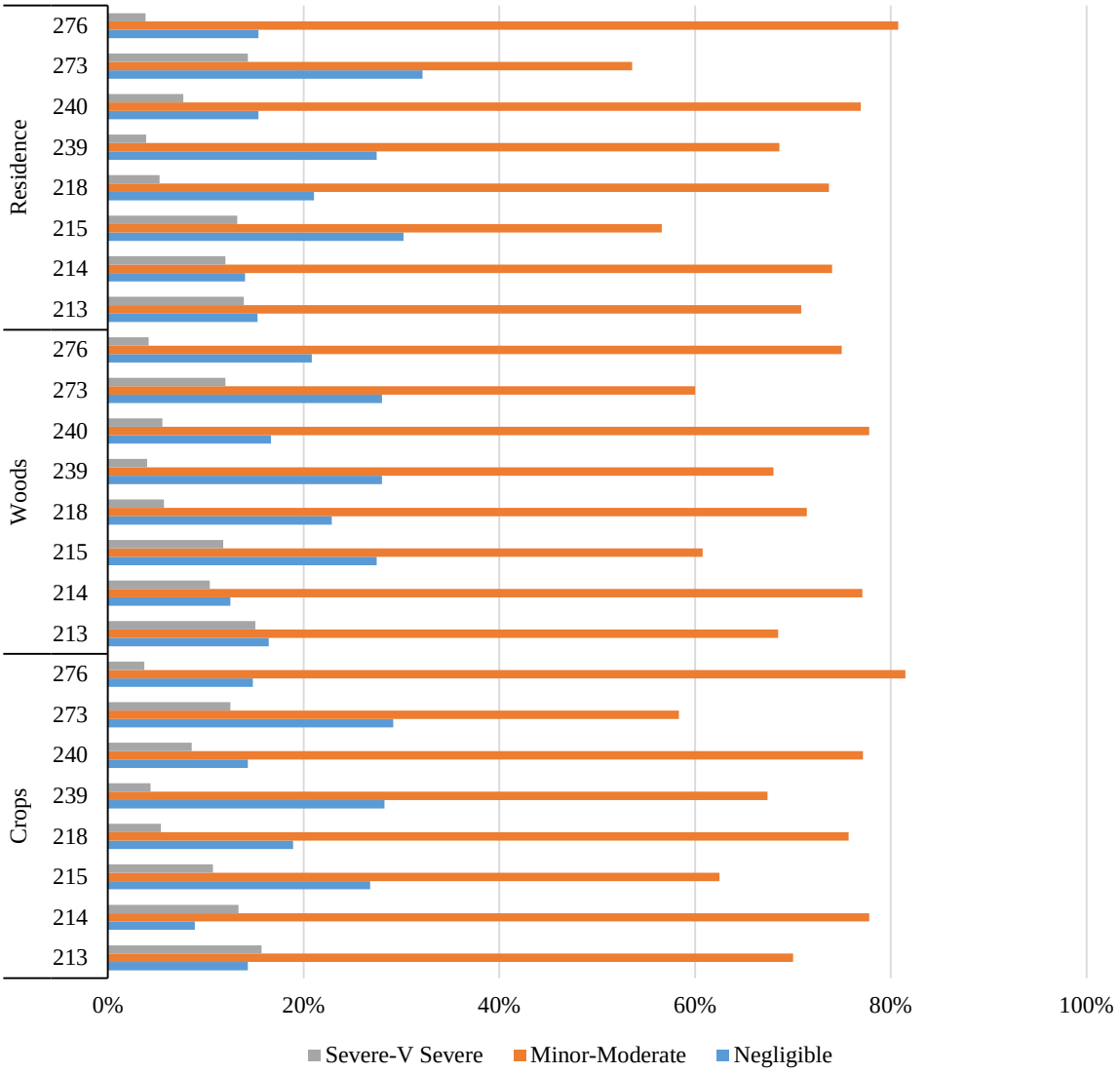


Table 108. Self-described damage caused by deer for crops, woods, and residential land types.

		Strata				
		2-19.9	20-70.9	80-319.9	>=320	Total
Crops	Negligible	25%	23%	21%	12%	19%
	Minor	34%	36%	45%	48%	43%
	Moderate	29%	31%	22%	32%	28%
	Severe	11%	7%	9%	6%	8%
	Very Severe	2%	3%	3%	2%	2%
Woods	Negligible	29%	24%	22%	14%	21%
	Minor	32%	36%	44%	50%	42%
	Moderate	29%	32%	22%	29%	27%
	Severe	11%	7%	10%	4%	8%
	Very Severe	0%	2%	3%	2%	2%
Residential	Negligible	28%	26%	22%	13%	21%
	Minor	30%	36%	44%	50%	42%
	Moderate	31%	26%	21%	30%	27%
	Severe	9%	8%	10%	5%	8%
	Very Severe	1%	3%	3%	2%	2%

Figure 70. Reported damage to crops, woods, and residential acreage, by deer permit area. Deer permit area 277 was excluded due to low response.



Population trends and perceptions about deer populations

Respondents were asked to indicate their perceptions of deer population trends over the last 5 years. Overall, 52% (46% non-hunters, 57% hunters) of respondents indicated there were fewer deer than 5 years ago, 20% (20% non-hunters, 19% hunters) indicated more, and 28% (34% non-hunters, 24% hunters) believed populations were the same. We observed some differences among deer permit areas with respondents from permit area 273 being more likely to indicate the deer population was lower (69%), while respondents from permit area 277 was least likely to indicate that the deer population was lower (33%; Table 10). Respondents were also asked for their perceptions of total deer population size as rated by ‘too low’, ‘about right’, or ‘too high’. Non-hunting landowners were more likely to indicate the deer population was ‘about right’ (53% vs 42%), while hunters were more likely to indicate populations were ‘too low’ (48% vs 30%).

Non-hunters were more likely to indicate the population was ‘too high’ (9% hunters, 18% non-hunters). Similar patterns were detected by deer area in that hunting landowners were more likely to express different population desires than non-hunting landowners (Table 11). Respondents were also asked to indicate their desires for future deer population densities and 51% wanted to see an increase in deer densities at some level (Table 12; Figure 7). We also observed clear differences between hunting and non-hunting landowners with hunting landowners indicating stronger preferences for higher deer populations (Table 13; Figure 8).

Table 109. Perceptions of landowner deer population trends over the last 5 years, by deer area.

	Lower		The Same		Higher	
Deer Area	N	Percent	N	Percent	N	Percent
213	83	47%	54	30%	41	23%
214	49	46%	33	31%	24	23%
215	53	42%	39	31%	34	27%
218	41	40%	36	35%	25	25%
239	105	67%	38	24%	14	9%
240	66	61%	25	23%	17	16%
273	61	69%	19	21%	9	10%
276	22	45%	13	27%	14	29%
277	4	33%	4	33%	4	33%
Total	484	52%	261	28%	182	20%

Table 110. Landowner beliefs about current population densities, by deer area and whether or not they hunted.

Hunt	Deer Area	N	Too low	N	About right	N	Too high
No (40%)	213	31	38%	33	41%	17	21%
	214	2	8%	19	73%	5	19%
	215	11	25%	23	52%	10	23%
	218	9	18%	32	64%	9	18%
	239	26	36%	40	56%	6	8%
	240	10	40%	12	48%	3	12%
	273	16	40%	17	42%	7	18%
	276	3	14%	12	57%	6	29%
	277	1	12%	5	62%	2	25%
	Sum	109	30%	193	53%	65	18%
Yes (60%)	213	38	41%	39	42%	16	17%
	214	27	34%	43	54%	9	11%
	215	31	38%	43	53%	7	9%
	218	23	46%	25	50%	2	4%
	239	57	70%	20	24%	5	6%
	240	40	48%	36	43%	7	8%
	273	36	75%	11	23%	1	2%
	276	12	43%	13	46%	3	11%
	277	1	25%	1	25%	2	50%
	Sum	265	48%	231	42%	52	9%
Total	213	69	40%	72	41%	33	19%
	214	29	28%	62	59%	14	13%
	215	42	34%	66	53%	17	14%
	218	32	32%	57	57%	11	11%
	239	83	54%	60	39%	11	7%
	240	50	46%	48	44%	10	9%
	273	52	59%	28	32%	8	9%
	276	15	31%	25	51%	9	18%
	277	2	17%	6	50%	4	33%
	Sum	374	41%	424	46%	117	13%

Table 111. Preferred landowner population trends, by deer area.

(e) By individual response

Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
213	5%	8%	8%	32%	18%	20%	9%
214	7%	9%	5%	38%	22%	13%	7%
215	5%	4%	5%	40%	23%	16%	7%
218	2%	7%	6%	38%	22%	18%	8%
239	1%	4%	5%	27%	20%	29%	14%
240	2%	6%	7%	30%	22%	21%	12%
273	2%	2%	9%	24%	13%	36%	14%
276	10%	2%	8%	37%	18%	16%	8%
277	8%	17%	8%	50%	8%	8%	0%
Total	4%	6%	6%	33%	20%	21%	10%

(f) Summarized by decrease, stay the same, increase

Deer Area	Decrease	Same	Increase
213	21%	32%	47%
214	20%	38%	42%
215	14%	40%	46%
218	15%	38%	48%
239	10%	27%	63%
240	14%	30%	56%
273	14%	24%	62%
276	20%	37%	43%
277	33%	50%	17%
Total	16%	33%	51%

Figure 71. Graphical representation of desired deer population trends for landowners.

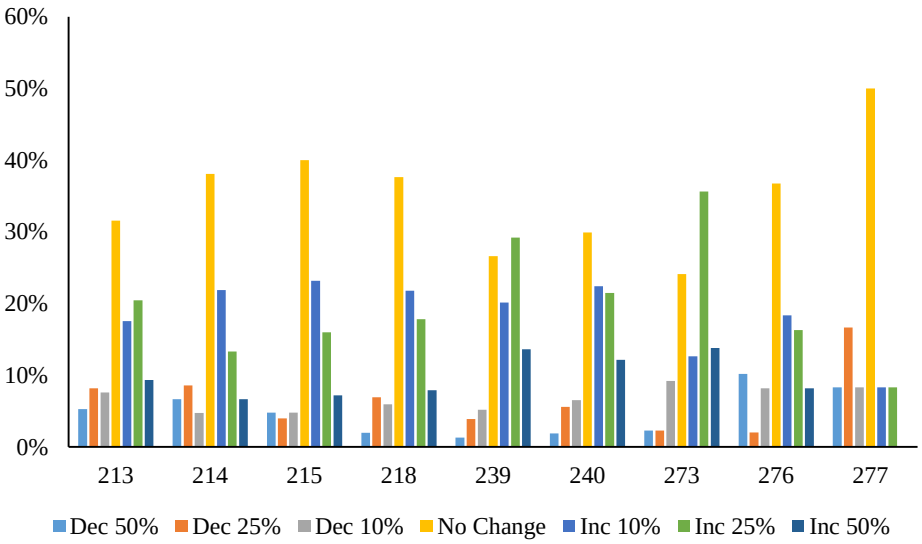
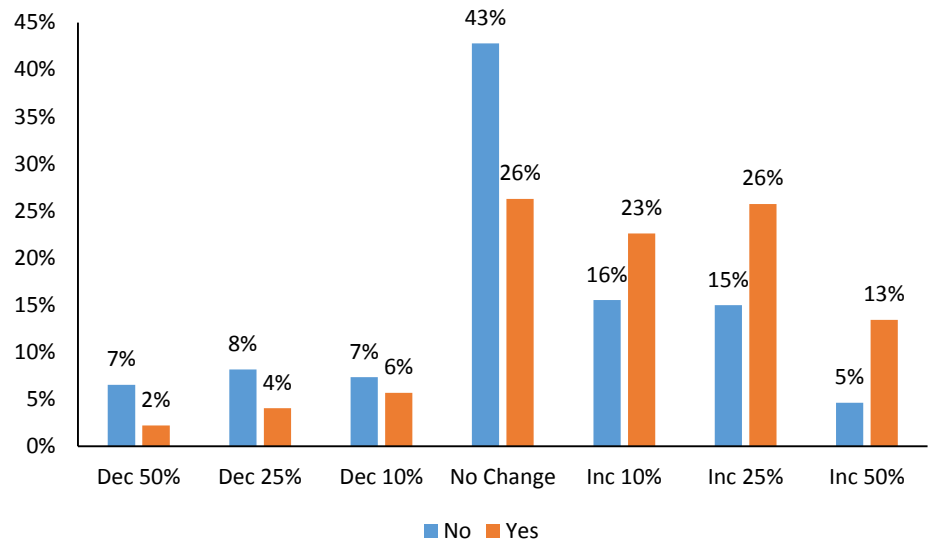


Table 112. Desired deer population trends for landowners, by deer area and whether or not they hunted.

Hunt	Deer Area	Dec 50%	Dec 25%	Dec 10%	No Change	Inc 10%	Inc 25%	Inc 50%
No (40%)	213	9%	10%	8%	35%	14%	16%	9%
	214	12%	12%	4%	50%	19%	4%	0%
	215	11%	7%	2%	48%	16%	16%	0%
	218	4%	10%	10%	53%	10%	14%	0%
	239	1%	7%	4%	44%	18%	18%	7%
	240	0%	8%	12%	40%	20%	20%	0%
	273	5%	5%	15%	32%	15%	18%	10%
	276	14%	5%	10%	38%	24%	5%	5%
	277	12%	12%	0%	62%	0%	12%	0%
	Total	7%	8%	7%	43%	16%	15%	5%
Yes (60%)	213	2%	7%	8%	29%	21%	24%	10%
	214	5%	8%	5%	34%	23%	16%	9%
	215	1%	2%	6%	36%	27%	16%	11%
	218	0%	4%	2%	22%	34%	22%	16%
	239	1%	1%	6%	11%	22%	39%	20%
	240	2%	5%	5%	27%	23%	22%	16%
	273	0%	0%	4%	17%	11%	51%	17%
	276	7%	0%	7%	36%	14%	25%	11%
	277	0%	25%	25%	25%	25%	0%	0%
	Total	2%	4%	6%	26%	23%	26%	13%

Figure 72. Graphical representation of landowner desires for future deer populations, by whether or not they hunted.



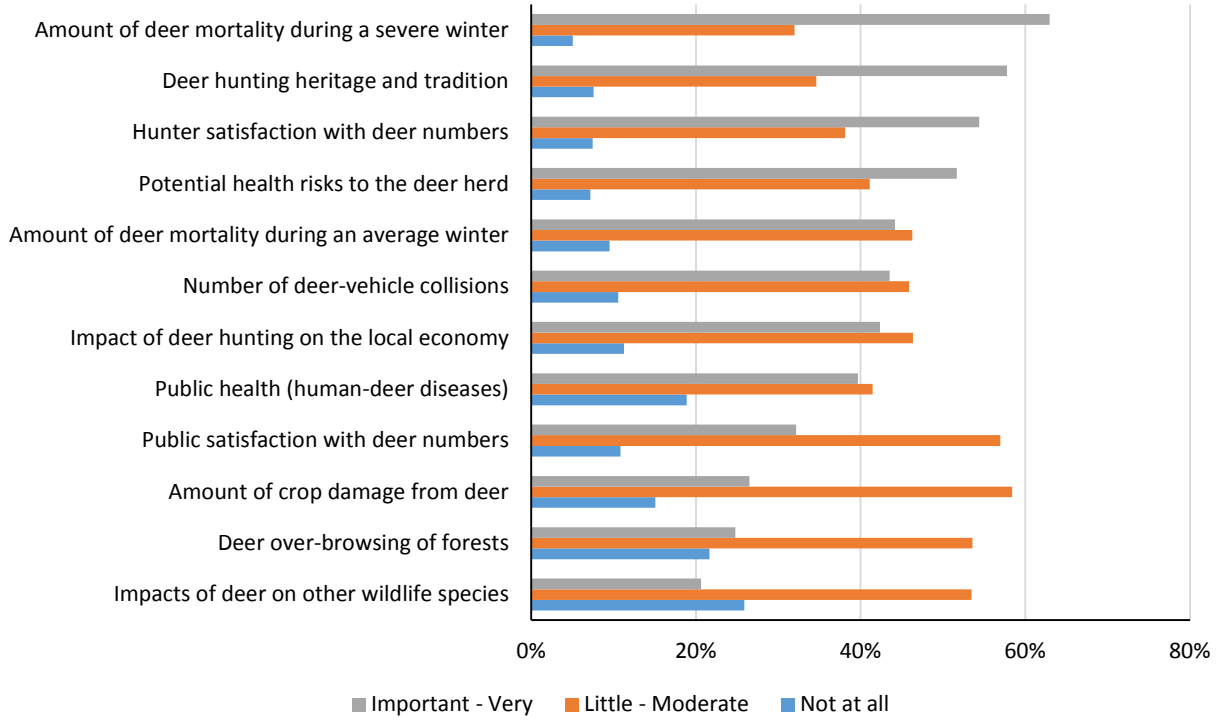
Consideration when setting deer population goals

Respondents were also asked to rate the importance of 12 items when setting deer population goals. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. Deer mortality during a severe winter, hunting tradition, and hunter satisfaction were the 3 most important considerations for landowners. Impacts on other species, deer over-browsing of forests, and the amount of crop damage from deer were the 3 lowest variables (Table 14; Figure 9).

Table 113. Importance of items landowners indicated should be considered when setting deer population goals.

	Relative Importance				
Item	Not at all	A little	Moderately	Important	Very
Amount of deer mortality during an average winter	10%	17%	30%	33%	11%
Amount of deer mortality during a severe winter	5%	12%	20%	35%	28%
Potential health risks to the deer herd	7%	16%	26%	32%	20%
Public health (human-deer diseases)	19%	20%	22%	23%	17%
Amount of crop damage from deer	15%	28%	30%	19%	8%
Number of deer-vehicle collisions	11%	19%	26%	25%	18%
Deer over-browsing of forests	22%	26%	28%	20%	5%
Impacts of deer on other wildlife species	26%	24%	29%	16%	4%
Deer hunting heritage and tradition	8%	11%	24%	32%	26%
Hunter satisfaction with deer numbers	7%	11%	27%	35%	20%
Public satisfaction with deer numbers	11%	21%	36%	24%	8%
Impact of deer hunting on the local economy	11%	17%	30%	30%	13%

Figure 73. Graphical importance of items that should be considered when setting deer population goals as defined by landowners. Responses were consolidated into 3 groups and ranked from low to high by highest importance.



Appendix A. Central Hills Prairie (Block G9) hunter survey

2015 Survey of Minnesota Deer Hunters: Hunters Opinions and Activities

The Minnesota Department of Natural Resources will be evaluating deer population goals in northwestern Minnesota this year. An important component of this project is to collect information from deer hunters regarding their opinions towards deer populations. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. Your responses will help guide deer population goals in the area you hunt; we are also collecting additional information on hunter perspectives regarding deer management in general. This survey should take less than 20 minutes to complete.

1. Please check the boxes below to report if you hunted deer in Minnesota during the 2012, 2013 or 2014 Minnesota deer season. (*Please check all that apply*).
   - ❑ 2012 | ❒ 2013 | ❒ 2014
   - ❑ 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?

   ❑ 201 | ❑ 203 | ❑ 208 | ❑ 209 | ❑ 213 | ❑ 214 | ❑ 215 | ❑ 218 | ❑ 239 | ❑ 240 | ❑ 256 |

   ❑ 257 | ❑ 260 | ❑ 261 | ❑ 262 | ❑ 263 | ❑ 264 | ❑ 265 | ❑ 266 | ❑ 267 | ❑ 268 | ❑ 269 |

   ❑ 270 | ❑ 271 | ❑ 272 | ❑ 273 | ❑ 276 | ❑ 277 | ❑ 297 ❑ 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 2014, how many years have you hunted deer in the permit area you hunt most often?

   _____ Years

6. Including 2014, 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. 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.

A. _____

B. _____

C. _____

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

18. 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

19. How many years have you lived in Minnesota _____ Years

20. What is your gender?

❑ Male ❑ Female

21. What is your age? _____

22. 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

23. 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. Central Hills Prairie (Block G9) landowner survey

2015 Survey of Minnesota Landowners: Preference for Deer Management and Management Processes

The Minnesota Department of Natural Resources will be evaluating deer population goals in northwestern Minnesota this year. An important component of this project is to collect information from landowners regarding their opinions towards deer populations and land management. We are also seeking input on public preferences regarding participation in management decisions. You have been selected at random to participate in this survey. Please take a few moments to answer the questions below. This survey should take less than 20 minutes to complete. Your responses will help guide deer population goals in the area you own land and help inform public engagement in general.

1. How many total acres did you own and/or lease at the end of 2014?
   _____ Acres Owned _____ Acres Leased

2. Please make a "rough" estimate as to how many acres of your property (owned and leased) are in each of the following categories. Please also estimate the percentage of that land type you have enrolled in a State or Federal Conservation Program.

Land Type	Acres Owned	Acres Leased	% Enrolled in Conservation Program
Private Residence (house, lawns, associated buildings)			%
Woodlands (natural forest or tree plantings)			%
Brushland (including abandoned, overgrown fields)			%
Hayfields, Pasture, or Grassland			%
Wetlands			%
Row Crops			%
Small Grains			%
Orchards or Vineyards			%
Vegetables or other Truck Crops			%
Prairie (Native or Restored)			%
Wildlife Food Plots			%
Other (please list: _____)			%

3. Did you experience deer damage to land that you own or leased in 2014?

Crops	❑ Yes	❑ No	
Woodlands	❑ Yes	❑ No	→ IF ALL ARE NO PLEASE SKIP TO QUESTION 6
Landscaping	❑ Yes	❑ No	

4. How would you describe the total amount of deer damage you experienced in 2014? (*Check one*)

❑ Negligible ❑ Minor ❑ Moderate ❑ Severe ❑ Very Severe

5. How would you compare the amount of deer damage you experienced in 2014 to what you experienced 5 years ago? (*Check one*)
   - ❑ Much less damage than 5 years ago
   - ❑ Slightly less damage than 5 years ago
   - ❑ About the same damage as 5 years ago
   - ❑ Slightly more damage than 5years ago
   - ❑ Much more damage than 5 years ago
   - ❑ I was not farming/managing lands 5 years ago

6. Over the past 5 years, what trend have you seen in the deer population in the area of your property?
   - ❑ 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

7. In thinking about your property and the surrounding area, please indicate your overall satisfaction with current deer numbers.
   - ❑ Very Dissatisfied
   - ❑ Slightly Dissatisfied
   - ❑ Neither Dissatisfied nor Satisfied
   - ❑ Slightly Satisfied
   - ❑ Very Satisfied

8. 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

9. Please identify up to 3 other factors that you believe are important and should be considered when setting deer population goals.

A) _____

B) _____

C) _____

10. In thinking about your property and the surrounding area, would you say the deer population is,

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

11. In thinking about your property 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)

12. Did you allow hunting on your property during the 2014 deer season? (*Check only one*)
    - ❑ Yes
    - ❑ No→PLEASE SKIP TO QUESTION 16

13. Do you lease any of your property for deer hunting?
    - ❑ Yes
    - ❑ No

14. Who did you allow to hunt deer on your property? (*Check all that apply*). Please also estimate the number of people who hunted your property in 2014.

❑ Myself or family members	_____ people	❑ Strangers who ask permission	_____ people
❑ Friends or neighbors	_____ people	❑ People who lease my property	_____ people

❑ Other (please list: _____) _____ people

15. Please indicate if you impose any deer harvest restrictions on your property. (*Please check one only*)
    - ❑ 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 list: _____)

16. Please check the boxes below if you hunted deer in Minnesota during the 2012, 2013 or 2014 Minnesota deer season? (*Please check all that apply*)
    - ❑ 2012 | ❒ 2013 | ❒ 2014
    - ❑ I hunt deer but did not hunt any of these years → Please skip to Question 20
    - ❑ I do not hunt deer at all → Please skip to Question 21

17. Which **ONE** deer permit area did you hunt most often during the <u>most recent</u> deer season you hunted?
❑ 201 | ❑ 203 | ❑ 208 | ❑ 209 | ❑ 213 | ❑ 214 | ❑ 215 | ❑ 218 | ❑ 239 | ❑ 240 | ❑ 256 |
❑ 257 | ❑ 260 | ❑ 261 | ❑ 262 | ❑ 263 | ❑ 264 | ❑ 265 | ❑ 266 | ❑ 267 | ❑ 268 | ❑ 269 |
❑ 270 | ❑ 271 | ❑ 272 | ❑ 273 | ❑ 276 | ❑ 277 | ❑ 297 | ❑ I hunted a permit area not listed

18. 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

19. How much of your deer hunting did you do on each of the following types of land during your <u>most recent</u> deer hunting season? (*Circle one number for 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

20. Including 2014, how many years have you been hunting deer in Minnesota? _____ Years.

21. To what extent would you support or oppose a regulation that would increase the proportion of antlered bucks in the area you own property? (*Check <u>one</u>*)

- ❑ Strongly Oppose
- ❑ Slightly Oppose
- ❑ Neither Oppose nor Support
- ❑ Slightly Support
- ❑ Strongly Support

22. 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 landowners.	1	2	3	4	5

23. How many years have you lived in Minnesota?_____ years

24. What is your gender?

❑ Male ❑ Female

25. What is your age? _____

26. 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

27. What was your annual household income from all sources, before taxes, in 2014?

$ _____

28. 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: _____

Please write any comments you may have in the space below: