MNDNR

Superior Uplands Arrowhead

Deer Goal Setting – Block G1

Landowner and Hunter Survey Results

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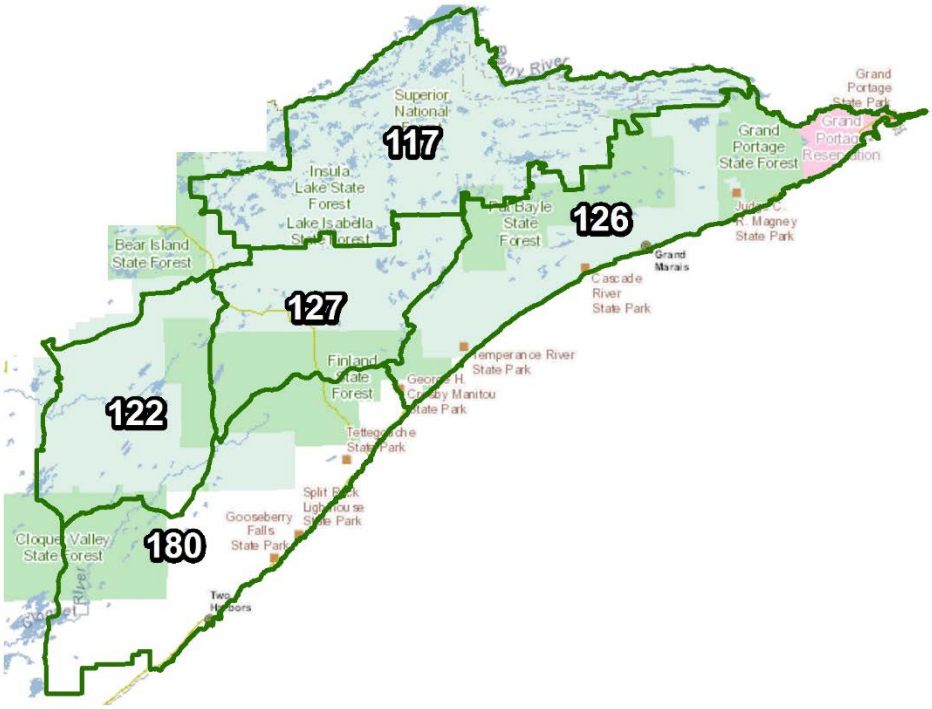
Public Surveys for Deer Goal Setting

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.

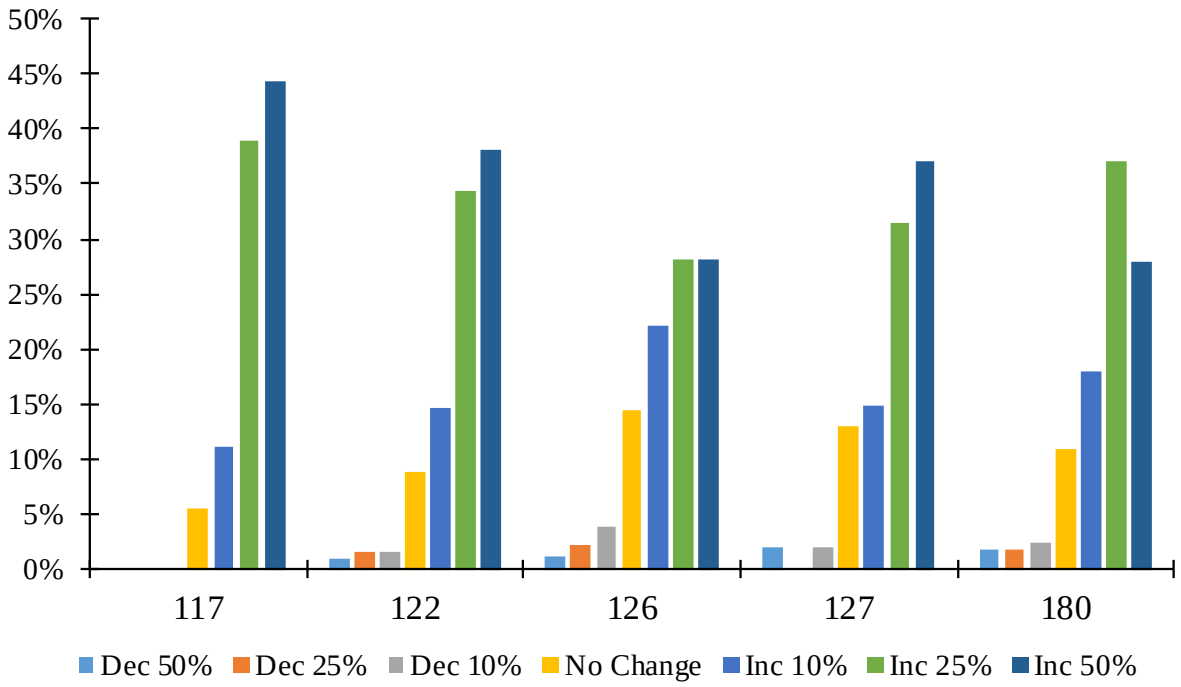
(a) By individual response

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).

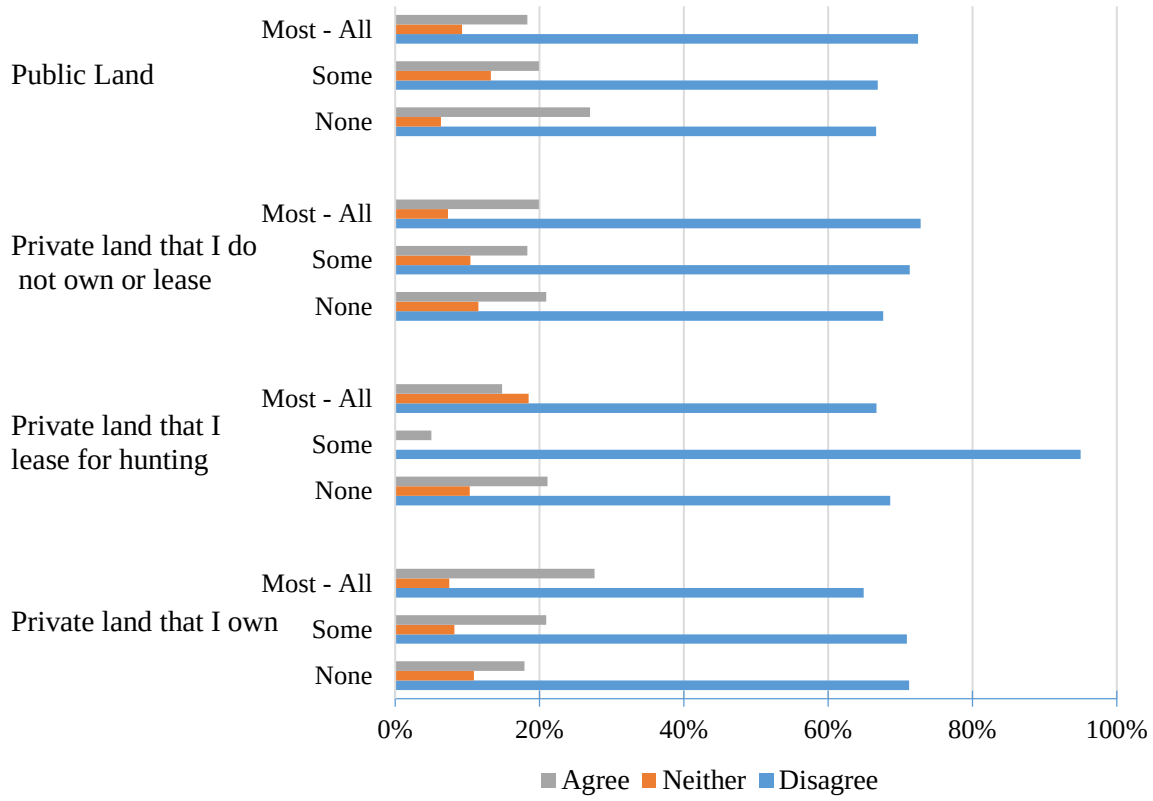
Table 5. Overall hunter satisfaction with total deer numbers, by deer area.

	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.



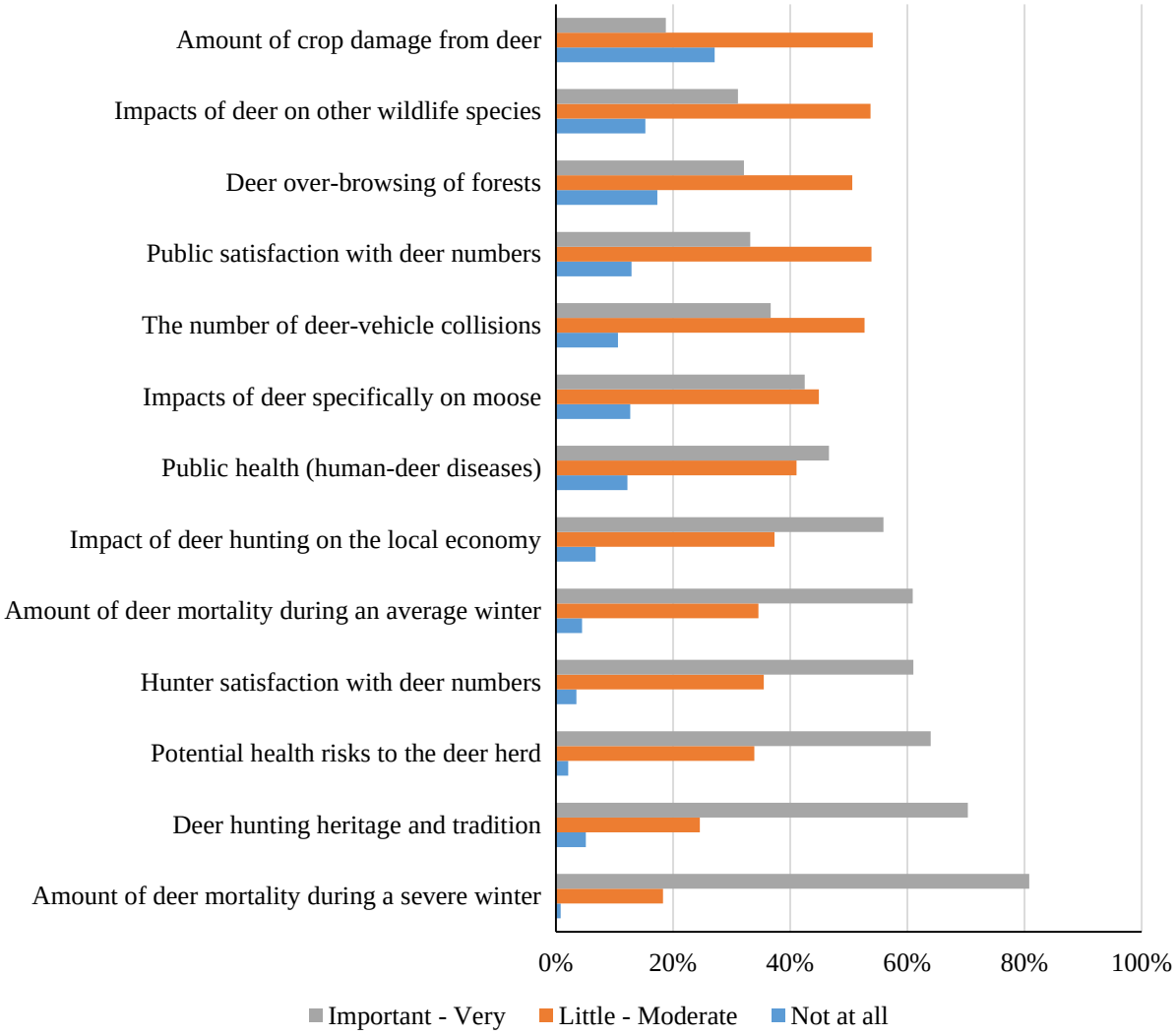
Consideration when setting deer population goals

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.

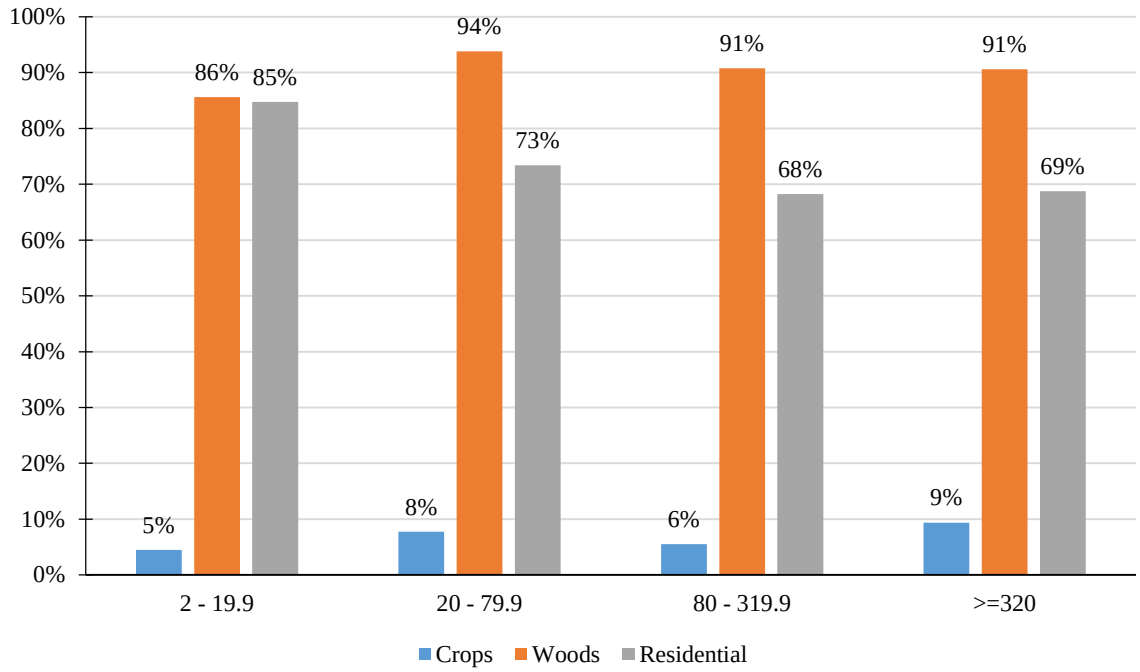


Figure 5. Percent of landowners who indicated they had damage from deer. Reported crop damage should be approached with caution because of small sample sizes.

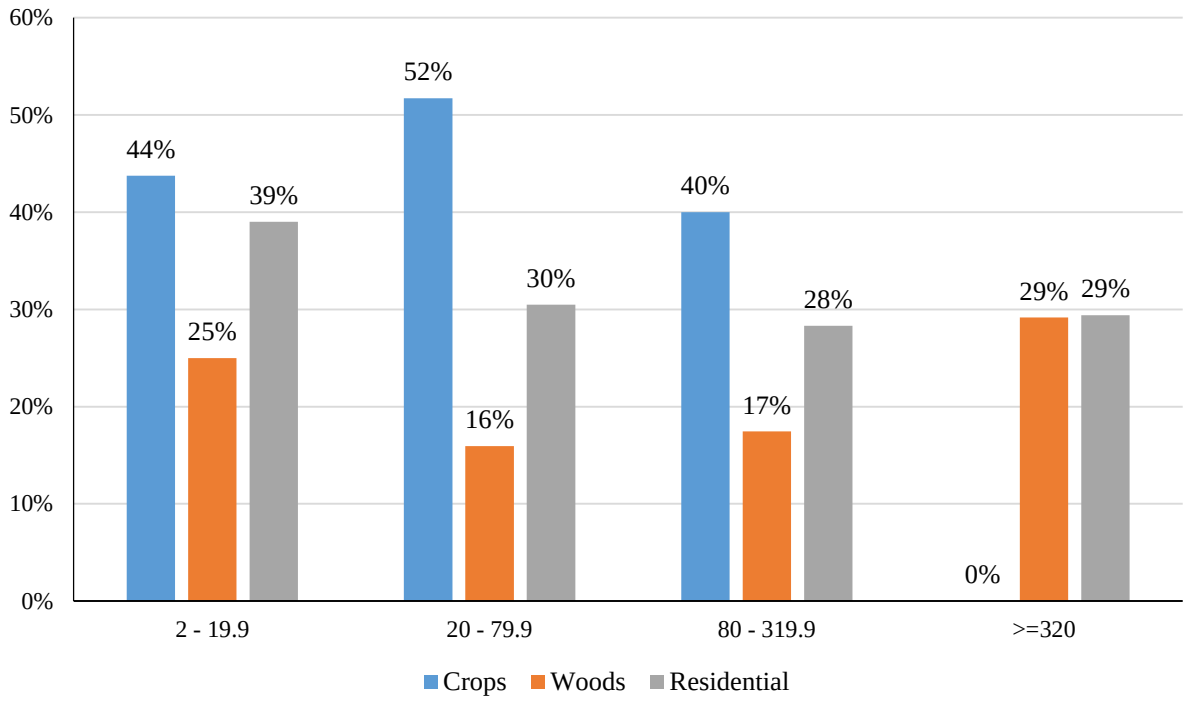
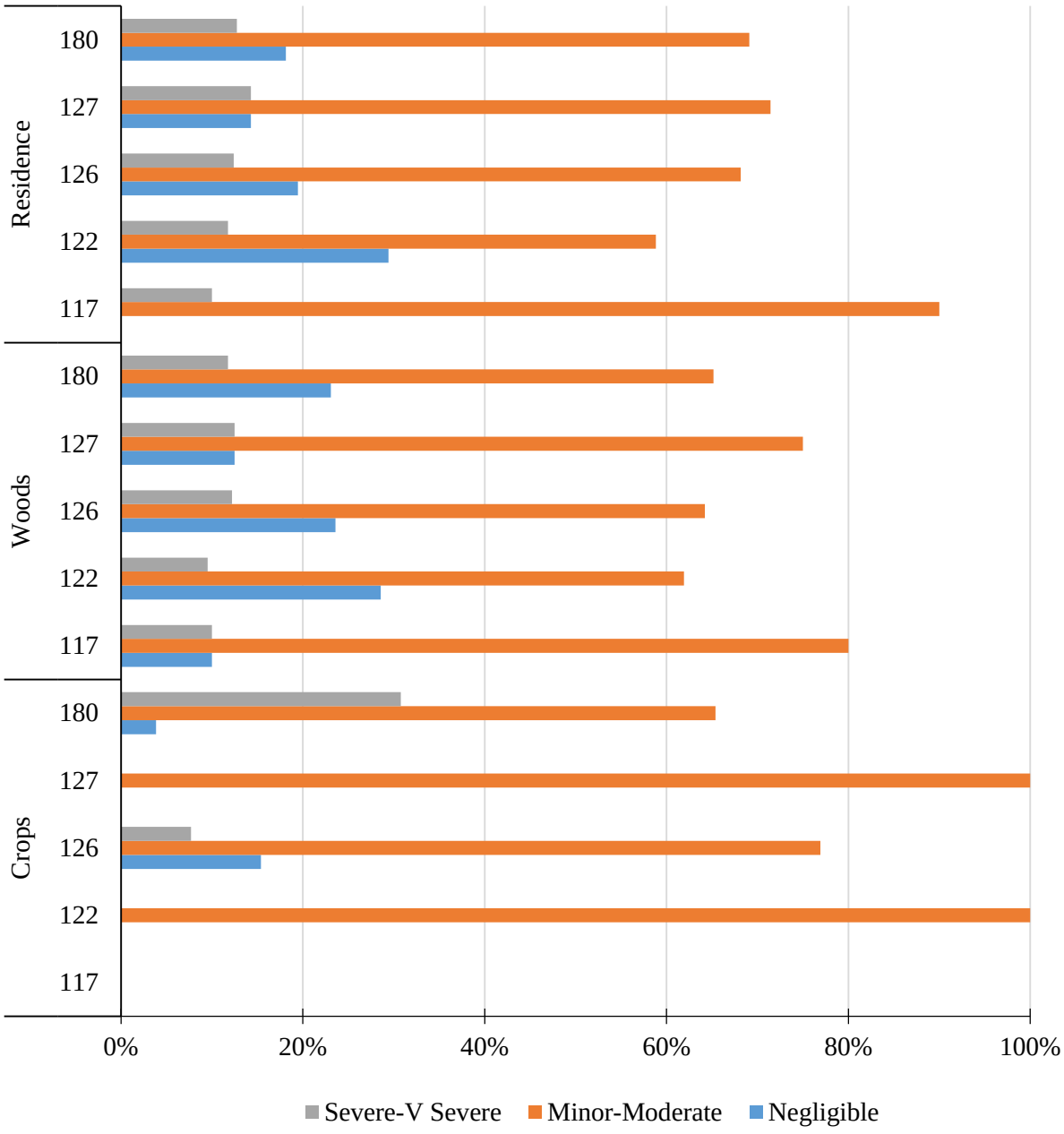


Table 9. Self-described damage caused by deer for crops, woods, and residential land types.

		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.

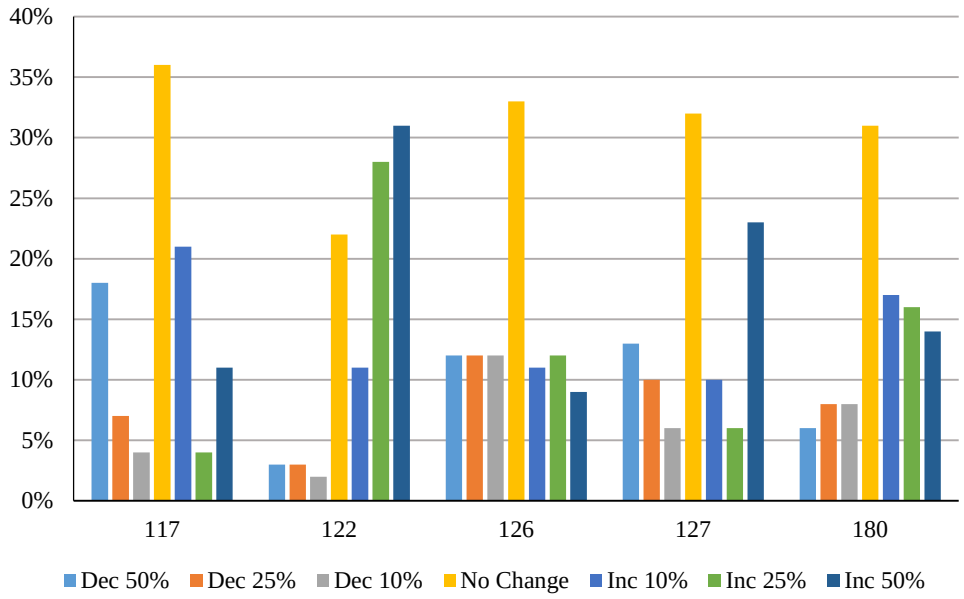
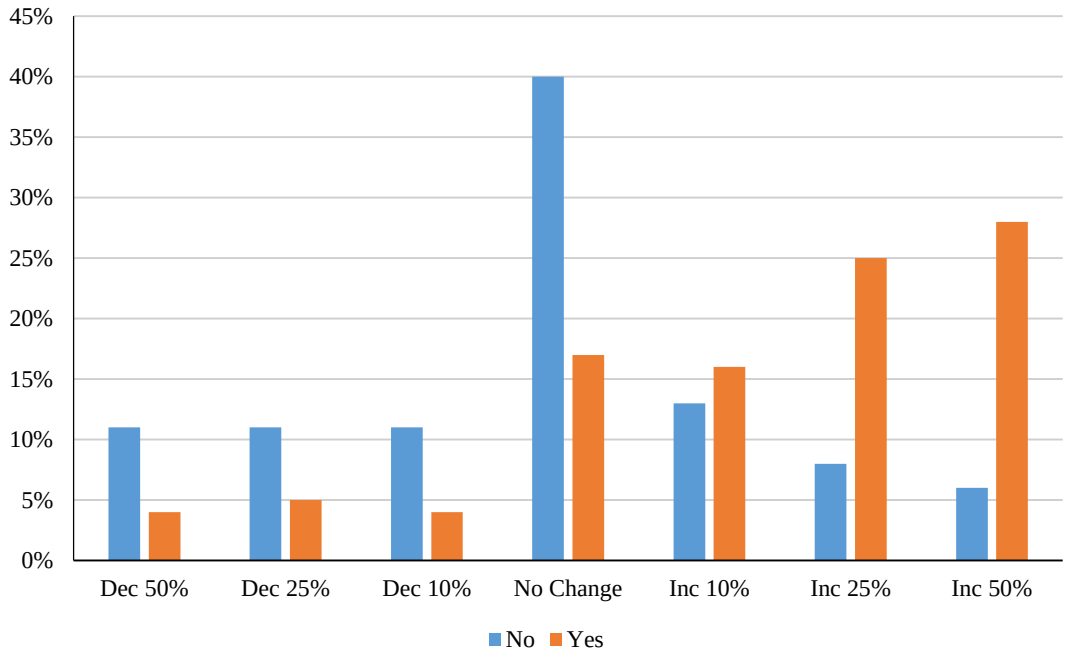


Table 13. Desired deer population trends for landowners, by deer area and whether or not they hunted.

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

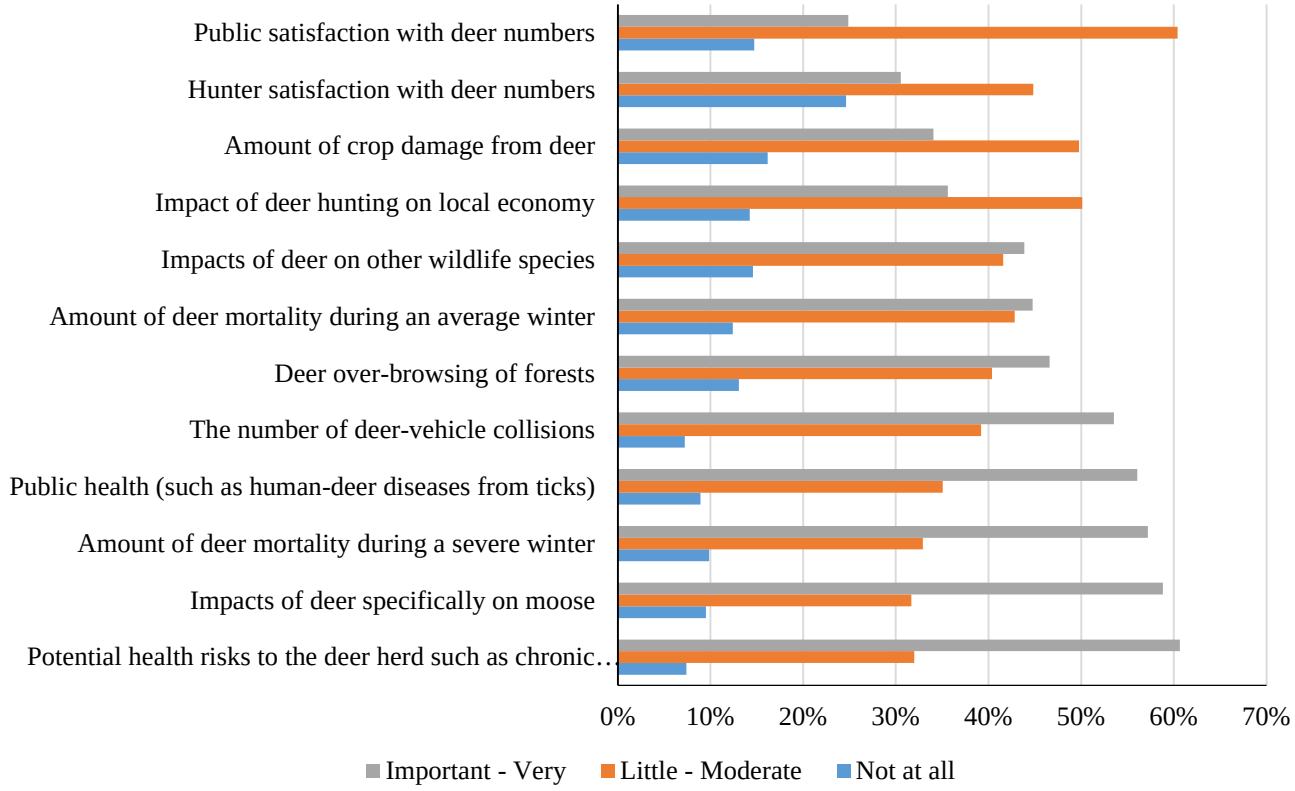
Respondents were also asked to rate the importance of 12 items when setting deer population goals[1]. The scale ranges from 'not at all important' to 'very important' and covered a range of items that would lead to both higher and lower deer populations. There were some similarities and some differences 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%

[1] 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.



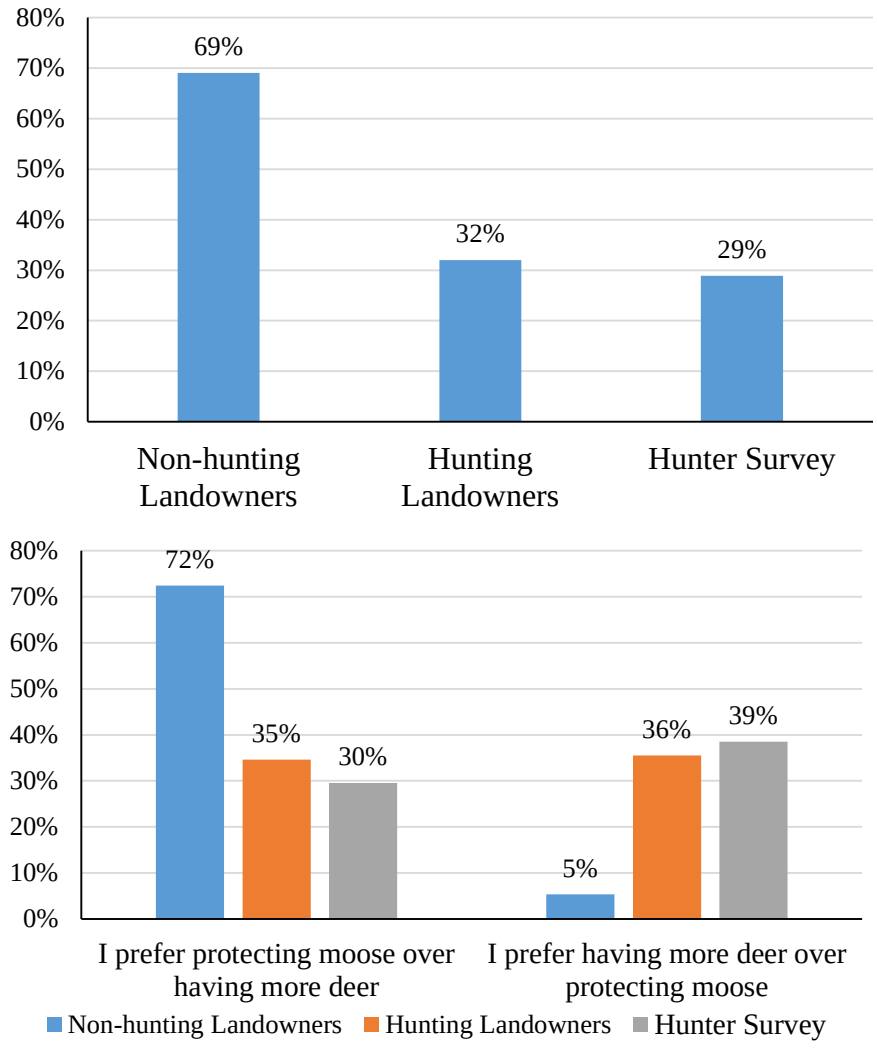
Moose specific questions (Hunter and Landowner combined)

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.



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.

1) _____

2) _____

3) _____

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.
   1) _____
   2) _____
   3) _____

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: _____