

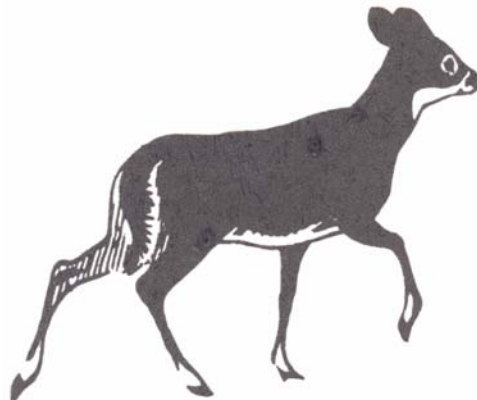
2008 Black Hills Deer Hunter Survey Report

HD-2-09.AMS

Larry Gigliotti, Ph.D.
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This report was produced for Game, Fish and Parks’ wildlife staff and administrators to evaluate the 2008 Black Hills deer season from the perspective of deer hunters and to improve their understanding of Black Hills deer hunters. Recommendations made in this report are solely my opinion and are intended as suggestions for future discussion and consideration by GFP wildlife staff. Recommendations in this report do not necessarily reflect any final decisions by wildlife staff or GFP policy.

Larry M. Gigliotti
Planning Coordinator / Human Dimensions Specialist

Executive Summary

2008 Black Hills Deer Hunter Survey Report

HD-2-09.AMS

Larry M Gigliotti, Ph.D.

This survey represents the 14th consecutive year of studying Black Hills deer hunters, and the 13th year following the change in the management of the Black Hills deer herd. A major objective of these surveys are to track satisfaction and to identify other hunter-related parameters to evaluate the Black Hills deer season (i.e., provide an evaluation of each year's deer season from the hunters' perspective). A secondary purpose was to gain an overall better understanding of Black Hills deer hunters and Black Hills deer hunting.

The results of this study and previous years' surveys provides a very comprehensive description of Black Hills deer hunters and an evaluation of the change in deer management from the hunters' perspective. A response rate of about 85.5% was achieved (2,791 usable returned questionnaires). An evaluation of nonresponse bias was conducted in 2004 and nonresponse bias was determined to be very minimal and not considered a problem for this survey with such a high response rate.

Summarized Results

The 2008 Black Hills deer season was a successful and positive deer hunting experience from the hunters' perspective for most hunters, although satisfaction did drop somewhat from the previous couple of years. The number of deer, bucks and quality bucks seen by hunters and their evaluations of these parameters all dropped slightly from the pervious five-year trends. In addition, harvest success also dropped a little from the previous years. Also, a slightly higher percent of hunters reported feeling crowded compared to pervious years.

- About 68% of the Black Hills deer hunters were satisfied and about 20% were dissatisfied. A greater percentage of nonresidents were satisfied compared to residents (82% vs. 67%) (Figures A and B).
- The number of deer and bucks and quality bucks have increased substantially since first measured in 1998 (Table A).

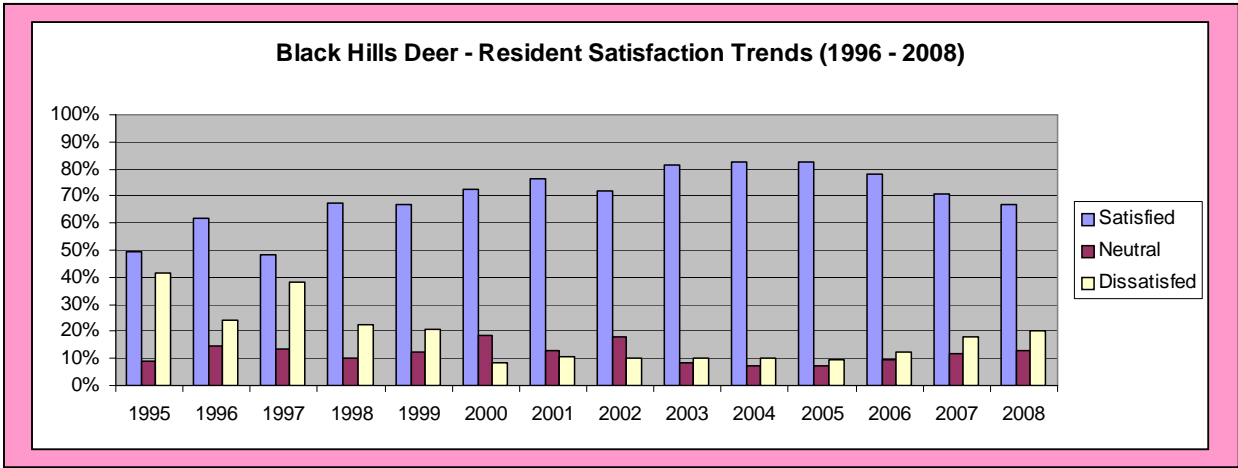


Figure A. Satisfaction trends for resident Black Hills deer hunters (1995 – 2008).

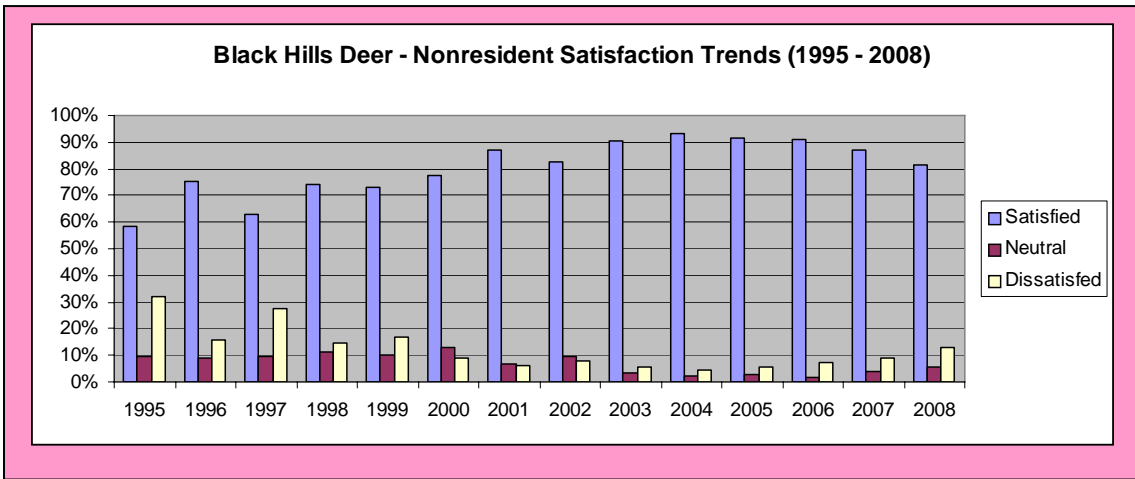


Figure B. Satisfaction trends for nonresident Black Hills deer hunters (1995 – 2008).

Table A. About how many deer, bucks and quality bucks did you see during your total Black Hills deer hunt?

| Hunter Reported Mean Total: | Year | | | | | | | | | | |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| Deer Seen | 42.4 | 43.5 | 77.5 | 54.6 | 69.3 | 80.0 | 77.4 | 82.1 | 74.9 | 72.4 | 58.3 |
| Bucks Seen | 3.6 | 4.6 | 7.6 | 7.2 | 7.9 | 10.0 | 10.9 | 11.0 | 10.8 | 11.7 | 8.8 |
| Quality Bucks Seen | 1.1 | 1.4 | 2.2 | 2.2 | 2.4 | 2.9 | 3.1 | 2.6 | 2.8 | 2.6 | 2.1 |

- On average, 2008 Black Hills deer hunters saw about 58 deer, 9 bucks and 2 “quality” bucks.
- On average from 1997 to 2008, hunters’ evaluation of the number of deer seen increased 23%, evaluation of the number of bucks seen increased 23%, and evaluation of the number of quality bucks seen increased 13% (Figure C).

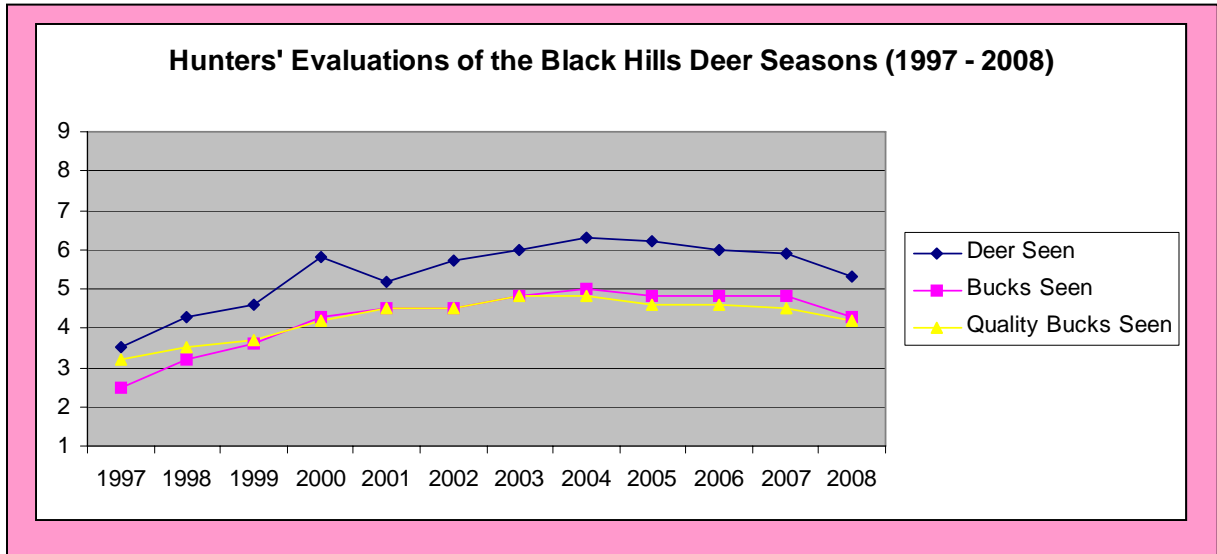
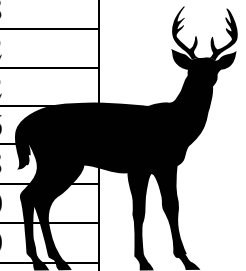


Figure C. Hunters' evaluation of the number of deer seen, number of bucks seen and the quality of bucks seen, rated on a scale of 1 to 9 (1997– 2008).

- Another parameter that has steadily increased since the deer management change is harvested antler size (Table B). Most whitetail bucks harvested (78%) in 2008 had 8 or more total points.

Table B. Antler size (Eastern count) trends for the Black Hills deer season (96–08).

| Year | Whitetail Buck | | Mule Deer Buck | |
|------|-------------------|-------------|-------------------|-------------|
| | Ave. Total Points | Sample Size | Ave. Total Points | Sample Size |
| 1996 | 6.7 | 362 | 4.7 | 75 |
| 1997 | 6.7 | 318 | 5.1 | 100 |
| 1998 | 7.0 | 744 | 5.3 | 251 |
| 1999 | 7.0 | 464 | 5.5 | 188 |
| 2000 | 7.5 | 626 | 5.8 | 137 |
| 2001 | 7.8 | 646 | 5.9 | 218 |
| 2002 | 7.9 | 665 | 6.0 | 192 |
| 2003 | 8.1 | 757 | 5.9 | 212 |
| 2004 | 8.1 | 736 | 5.8 | 246 |
| 2005 | 8.2 | 598 | 5.7 | 168 |
| 2006 | 8.1 | 547 | 5.9 | 130 |
| 2007 | 8.2 | 590 | 6.9 | 30 |
| 2008 | 8.0 | 741 | 6.5 | 42 |



- The management change has resulted in an improvement (for most hunters) in terms of crowding. In 2008, 51% of the Black Hills deer hunters rated the hunting conditions in terms of the number of other hunters as “just right” and only 5% felt “very crowded” (Table C).

Table C. Comparison of the hunters’ evaluation of crowding during their Black Hills deer hunting in 1997 – 2008.

| Evaluation of Crowding | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Not Enough Hunters | 7.0% | 7.3% | 10.0% | 6.2% | 9.8% | 9.2% |
| Just Right – Not Crowded | 51.2% | 58.8% | 66.3% | 60.4% | 64.8% | 66.1% |
| Slightly Crowded | 23.4% | 21.5% | 15.4% | 21.8% | 17.7% | 17.5% |
| Moderately Crowded | 11.4% | 9.9% | 6.5% | 9.0% | 6.0% | 5.3% |
| Very Crowded | 7.0% | 2.5% | 1.9% | 2.6% | 1.7% | 1.9% |
| TOTAL | 1,557 | 354 | 1,699 | 1,634 | 1,641 | 1,643 |
| Total License Sales | 12,362 | 8,262 | 7,830 | 7,921 | 6,707 | 6,449 |

Table C-Continued.

| Evaluation of Crowding | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Not Enough Hunters | 7.5% | 6.7% | 6.3% | 6.3% | 5.2% | 5.0% |
| Just Right – Not Crowded | 64.9% | 67.1% | 66.0% | 61.2% | 59.1% | 50.6% |
| Slightly Crowded | 18.8% | 18.4% | 19.6% | 21.1% | 20.7% | 26.6% |
| Moderately Crowded | 7.0% | 5.6% | 6.2% | 8.0% | 10.1% | 12.9% |
| Very Crowded | 1.8% | 2.1% | 1.9% | 3.4% | 4.8% | 5.0% |
| TOTAL | 1,710 | 1,841 | 1,679 | 1,519 | 1,494 | 2,349 |
| Total License Sales | 6,438 | 7,346 | 7,814 | 8,932 | 8,949 | 9,173 |

- Hunters’ subjective evaluation of the number of deer, bucks and quality of bucks seen is a better predictor of satisfaction than the actual number seen. Also, just feeling that they saw an adequate number of deer, bucks or large bucks is more important to the satisfaction of most Black Hills deer hunters than actually getting a deer every year.
- In 2008, a Black Hills deer season rated as average would be seeing a total of 52 deer, 9 bucks and 2.5 quality bucks and an exceptional deer season would involve seeing 144 deer, 27 bucks and 6 quality bucks.
- About 51% of the unsuccessful hunters were still satisfied, however, harvesting a doe increased satisfaction by 17% and harvesting a buck increased satisfaction by 21%.

- Social aspects, nature enjoyment, and excitement were the top three main motivations for liking Black Hills deer hunting (Table D). The classification scheme for Black Hills deer hunters identified 8 types of hunters (based on a hunter’s top reason for liking Black Hills deer hunting). The behaviors and attitudes of each of the hunter types seem to logically fit what one would expect to find based on the dominant characteristic of each group, suggesting that this hunter-typology model is a valid tool for understanding Black Hills deer hunters.

Table D. Main reason for 2008 Black Hills deer hunting– Overall, which statement above best describes your top reason for why you like Black Hills deer hunting?

| TOP REASON | RESIDENTS¹ | NONRESIDENTS¹ | COMBINED |
|--|------------------------------|---------------------------------|-----------------|
| Enjoying the time spent with friends/family. (Social) | 27.1% | 31.4% | 27.5% |
| To enjoy nature, the outdoors and the beauty of the area. (Nature) | 23.4% | 31.4% | 24.1% |
| For the excitement that hunting provides, e.g., the feeling one gets when you see deer, etc. (Excitement) | 16.7% | 20.4% | 17.0% |
| To bring meat home for food. (Meat) | 16.9% | 4.2% | 15.9% |
| For the challenges associated with “out smarting” a deer & dealing with the elements (Challenge) | 6.3% | 3.1% | 6.0% |
| To bring home a nice buck to hang on the wall or otherwise to demonstrate hunting skills and accomplishment. (Trophy) | 4.2% | 3.1% | 4.1% |
| To have <u>additional</u> deer hunting opportunities (Hunting Opportunity) | 2.6% | 5.2% | 2.8% |
| To spend time alone in the woods. (Solitude) | 2.8% | 1.0% | 2.7% |
| NUMBER | 2,201 | 191 | 2,392 |

¹Resident vs. Nonresident – Pearson Chi-square: $X^2=7.767$; $df=7$; $p=0.354$

- Residents averaged 15 years of Black Hills deer hunting experience and nonresidents averaged 8.5 years. Average age of resident hunters was 43.9 years and nonresident hunters averaged 46.6 years of age.
- About 91% of the Black Hills deer hunters were male; 9% female. The percentage of women hunting in the Black Hills deer season has increased over the past 11 years (Table E).

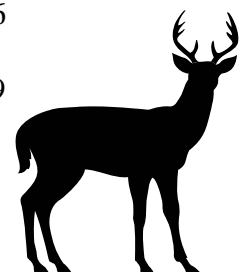
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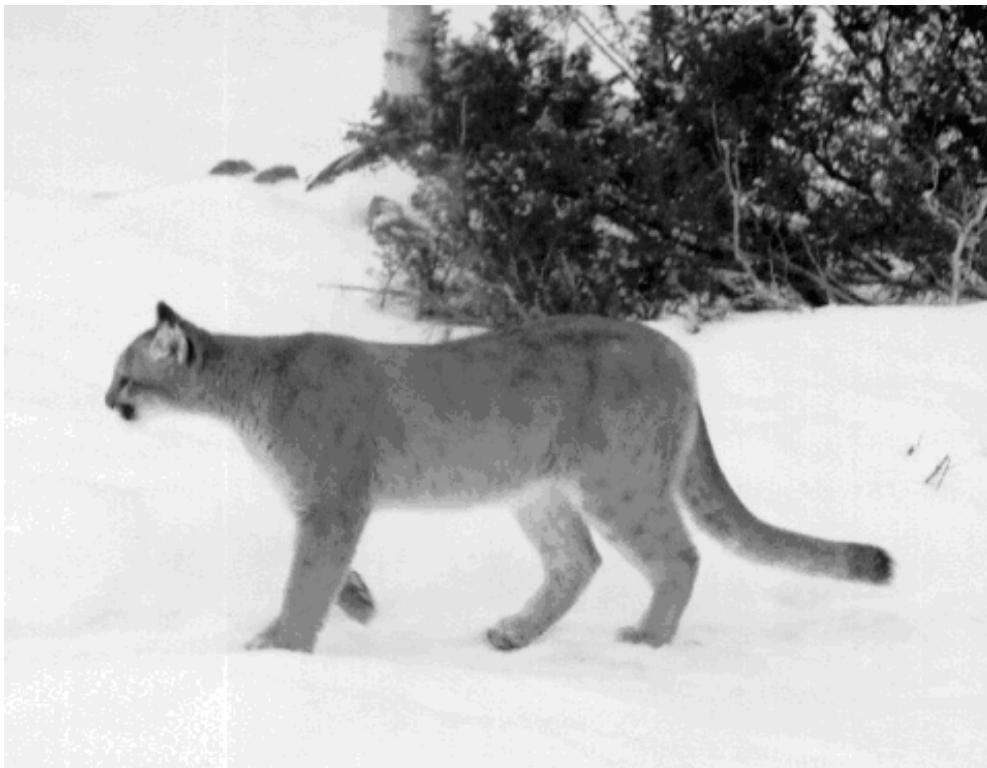
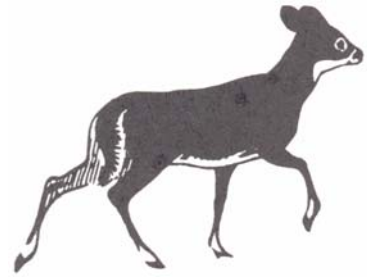
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2008 Black Hills Deer Hunter Survey Report

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The purpose of this survey is to measure and track hunter satisfaction with and hunter evaluations of the Black Hills deer season. A change in the management of the Black Hills deer herd was implemented in 1996. The old management system emphasized maximum recreational opportunity by offering unlimited buck licenses sold over the counter and managing the herd via limited doe licenses sold by lottery for specific Black Hills deer units. The change emphasized management of the buck herd and hunter density by also limiting the number of buck licenses available that are sold via a lottery system. The change was very controversial but favored 2-to-1 by Black Hills deer hunters. The reason for the change was to improve overall satisfaction with Black Hills deer hunting.

Division of Wildlife has tracked deer hunters' satisfaction with and evaluations of their deer hunting experience for thirteen years following this change (1996–2008). A secondary purpose of this survey was to explore factors related to a “quality” Black Hills deer hunt and to gain an overall better understanding of Black Hills deer hunters. Each year a different element of “quality” was studied. The 4-page survey instrument used this year measured some hunter evaluations of the 2008 Black Hills deer season (deer, bucks and quality bucks seen, hunters’ evaluations of these parameters, crowding, and satisfaction), days hunted, harvest, motivations related to Black Hills deer hunting, mountain lion interactions while deer hunting, years of Black Hills deer hunting experience, residence, age, and gender (Appendix A). The survey also collected optional comments from respondents (Appendix B). The 2008 Black Hills Deer Season marked a change from the previous two years in which the mountain lion season did not coincide with the Black Hills Deer Season. In addition, 2008 was the second year for the change in the types of buck licenses available (increased protection for mule deer in the Black Hills)¹. The purpose of this recent license change was to increase the age (and thus antler size) of mule deer bucks.

¹ Gigliotti, L.M. 2008. 2007 Black Hills Deer Hunter Survey Report. Report ID# HD-3-08.AMS. South Dakota Game, Fish & Parks Department. Pierre, SD.

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The mailing of the first questionnaire was sent after the end of the Black Hills deer season (December 1, 2008) with a reminder postcard being sent on December 8th. A second mailing of the questionnaire was sent out on December 29th with a reminder postcard being sent on January 5th. A third mailing of the questionnaire (with an insert) was sent out on January 23rd with a final reminder postcard being sent on February 5th, which included a deadline for returning the questionnaire by February 26 (data collection ended March 5th).

Sample Selection and Return Rate:

The sampling procedure randomly selected 3,288 hunters (36% of the licenses available) (3,042 resident and 246 nonresident hunters), each group proportional to license type and unit (Tables 1 and 2). The final sample size was 3,263 (minus the 25 undeliverable addresses). A total of 2,791 usable questionnaires were returned for a return rate of 85.5% (Table 2). This is considered a good return rate. Nonresponse bias was not considered a problem for this survey. Resident hunters accounted for 92% of the usable returns (Table 3). Return rate was relatively proportional to the license types and units available in the Black Hills (Table 4).

Licenses:²

In 2008 about two-thirds of the available licenses are the any-whitetail license (Type 11), a small number of any-deer licenses (Type 01) and about one-third are antlerless deer licenses (Type 03 and 13), which closely matched the return rates for these license types (Tables 1 and 4). About 13% of the licensed hunters did not hunt in 2008 for various reasons (Table 5). Hunters with the antlerless licenses (Types 03 and 13) were much more likely to not hunt during the 2008 Black Hills deer season (10% for the any-deer / any-whitetail licenses and 17% for the antlerless licenses).

Sample Description:

The top five resident counties for the 2008 Black Hills deer season were Pennington (32.0%), Lawrence (12.2%), Minnehaha (8.9%), Meade (8.5%), and Custer (6.3%) (Table 6). These were the same top five counties in 1997 through 2007. Black Hills counties (Pennington, Lawrence, Custer, Fall River and Meade) accounted for 67.9% of the total 2008 resident Black Hills deer hunters. West River counties,

² Draw statistics for the 2008 Black Hills deer season can be found in Appendix C.

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excluding the counties in the Black Hills accounted for only 3.9% and East River counties accounted for 35.7% of the total number of resident hunters (Tables 6 and 7).

Most 2008 Black Hills nonresident deer hunters came from Minnesota (30.1%), followed by Iowa, Wyoming (7.0% each) and Wisconsin (6.5%) (Table 8).

Most (90.9%) 2008 Black Hills deer hunters were male (Table 9). Percentage of female Black Hills deer hunters has risen from 3.7% in 1998 to 9.1% in 2008. Female hunters comprised 9.4% of the resident hunters and 6.5% of the nonresident hunters (Table 10). The mean age of the 2008 Black Hills deer hunters was 44.1 years (Table 11). On average, resident hunters were younger than were nonresident hunters (43.9 years vs. 46.6 years) (Table 12).

Hunting Statistics:

Resident hunters hunting with the any-deer or any-whitetail license types (Types 01 and 11) averaged 5.2 days of hunting and nonresidents averaged 4.3 days of hunting (Table 13). Resident hunters hunting with antlerless deer licenses (Type 03/13) averaged 3.9 days and nonresidents averaged 3.5 days. The 2008 Black Hills deer season provided an estimated 36,091 recreation days (Table 12). The frequencies of days hunted is provided in Table 15.

Harvest Statistics for 2008 Black Hills Deer Season:

Hunters harvested an estimated 2,310 whitetail bucks, 132 mule deer bucks and 2,188 antlerless deer (Table 16). Success in 2008 was lower compared to previous years (Table 17). Success for 2008 Black Hills deer hunters was about 59% (excluding hunters that did not hunt) or 52% (including all licensed hunters) (Table 18). The 2008 season included the possibility of hunters having more than one Black Hills deer license and success here is measured as harvesting at least one deer regardless of the license type or number of licenses held by the hunter. Hunter success with a type 01/11 license was estimated to be 57% and success for the antlerless deer license (Type 03/13 for all four units) was estimated to be about 62% overall (Table 18). Nonresidents had higher harvest success rates than did residents (69% vs. 58%; rate excludes hunters that did not hunt).

Most whitetail bucks harvested in 2008 were 8-points (eastern count) (47.6%) (Table 19). About 78% of the whitetail bucks harvested were 8-point or greater and about 45% of the mule deer bucks were 8-points or greater. Average number of points on

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harvested whitetail bucks increased from 6.7 in 1996 to 8.0 points in 2008 (Table 20).

Average number of points on harvested mule deer bucks ranged from 4.7 in 1996 to 6.5 in 2008 (Table 20). Average number of points overall decreased slightly from the previous year.

Satisfaction with the 2008 Black Hills Deer Season & Trends (1995–2008):

About 68% of the Black Hills deer hunters were satisfied and about 20% were dissatisfied (Table 21). A greater percentage of nonresidents were satisfied compared to residents (82% vs. 67%). Appendix B contains general comments by the Black Hills deer hunters regarding the 2008 deer season.

Satisfaction levels have steadily risen between 1995 and 2006, with the exception of 1997 and a slight drop in 2002 but began to drop slightly in 2006 (in 2006 the slight dip in satisfaction level was for resident hunters only) and with more substantial drops in satisfaction levels for 2007 and 2008 (Tables 22 and 23 and Figures 1 and 2).

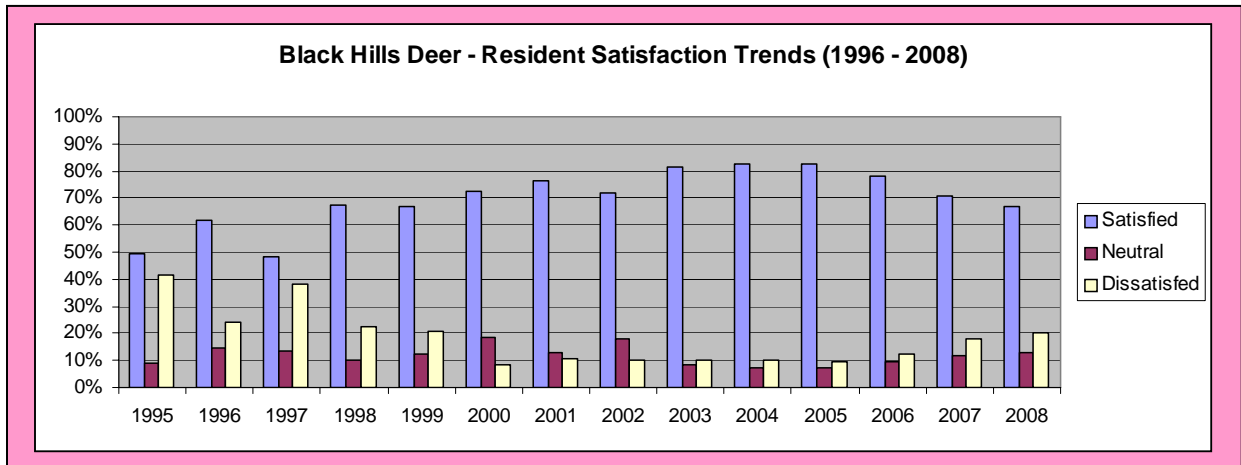
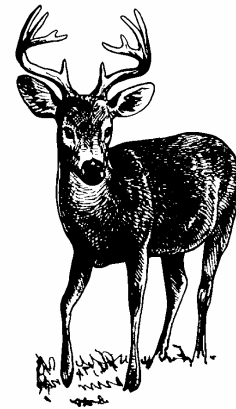


Figure 1. Satisfaction trends for resident Black Hills deer hunters (1995 – 2008).

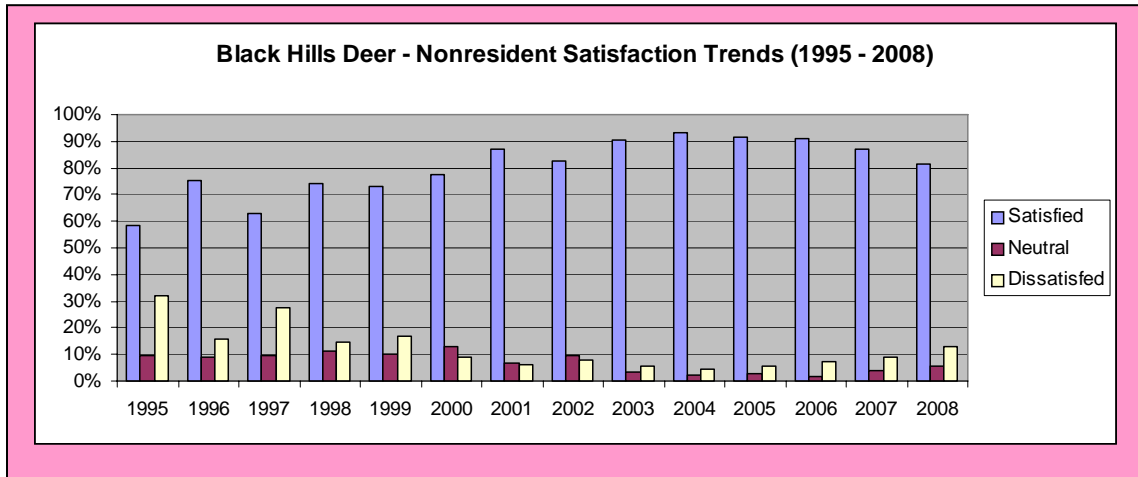


Figure 2. Satisfaction trends for nonresident Black Hills deer hunters (1995 – 2008).

Hunters’ Evaluation of the 2008 Black Hills Deer Season:

In addition to satisfaction, seven additional variables, designed to measure hunters’ evaluations of the deer season, were measured in the 2008 survey of Black Hills deer hunters. These variables were the number of deer, bucks, and “quality” bucks seen and hunters’ subjective evaluations of the number of deer, bucks, and quality bucks seen, plus an evaluation of the degree of crowding.

On average, 2008 Black Hills deer hunters saw about 58 deer, 9 bucks and 2 “quality” bucks (Table 24). The 2008 values for these parameters are down from the previous years. Tables 25–27 include frequency distribution data for the number of deer, bucks and “quality” bucks observed while Black Hills deer hunting (1998 – 2008).

Hunters’ subjective evaluation, on a scale of 1 (very few) to 5 (average) to 9 (lots/exceptional), was 5.3 for the number of deer seen, 4.3 for the number of bucks seen and 4.2 for the “quality” of bucks seen (Tables 28–30). All three subjective evaluations improved significantly from 1997, however the values for 2008 were substantially lower than the previous few years (Tables 31 and 32).

About 51% of the Black Hills deer hunters rated the degree of crowding as “just right,” 5% rated it as “not enough” hunters and 4% felt “very crowded” (Table 33). On average, hunters felt slightly more crowded in 2008 compared to previous years (Table 34).

Motivations Related to Black Hills Deer Hunting:

Hunters were asked to pick their top reason for why they like Black Hills deer hunting from among eight possible reasons (meat, nature, excitement, social, trophy, solitude, challenge, and additional hunting opportunity). Residents and nonresidents picked social and nature reasons most often (Table 35). The main difference between residents and nonresidents was the much higher percent of residents selecting meat reasons compared to nonresidents (17% vs. 4%). Motivations for Black Hills deer hunting have been relatively stable for the past 12 years (1997 – 2008) (Table 36).

Hunters hunt for a number of reasons and these reasons or motivations are related to the benefits that hunters expect to receive from their hunting experience. One of the most important human dimensions concept for the management of hunters is that hunters are not all alike. Each hunter has a package of reasons or motivations for hunting and thus expects a unique package of benefits. While a manager cannot manage the resource for each individual hunter, a classification system that combines hunters into similar types would greatly help to understand their diverse needs. In the survey, hunters' main reason for liking Black Hills deer hunting was used to segment or classify Black Hills deer hunters into eight types: nature, social, excitement, challenge, meat, trophy, hunting opportunist, and solitude.

Hunters were also asked to pick their second most important reason and their least important reason for why they like Black Hills deer hunting from the same list of eight reasons. These choices were used to further describe the motivation types of Black Hills deer hunters (Table 37). Social and nature hunters tended to be relatively similar in their second choice and their least important selection. These two motivations tend to focus on non-harvest factors related to deer hunting. Excitement and challenge hunters tended to be relatively similar and focused on aspects of the hunting process. The meat and trophy hunters were similar in their focus on the product of the hunt, but very different in their focus on what that product should be (large buck vs. deer meat). The hunting opportunists and solitary hunters were relatively few in number and difficult to further describe with the limited number of parameters measured in this survey.

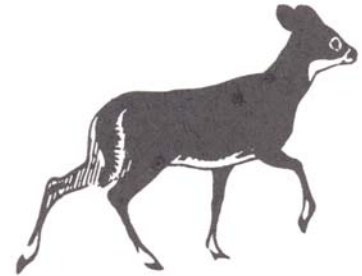
The value of this classification system will be further discussed later in this report.

Understanding Black Hills Deer Hunting:

This section explores the interrelationship of some of the variables in this survey to gain a better understanding of Black Hills deer hunters. This section poses six research questions to accomplish this task.

Research Question #1

What is the relationship between the number of deer, bucks and quality bucks seen and hunters' subjective evaluation of these parameters?



While there is a correlation between the number of deer, bucks and quality bucks seen and hunters' subjective evaluation of these parameters, hunters' subjective evaluation of the number of deer, bucks and quality of bucks seen is a better predictor of satisfaction than the actual number seen (Table 42). However, managers also want to know the meaning of a rating value in terms of the actual number of deer, bucks and quality bucks seen. Unfortunately it is different for each hunter. One hunter can see 10 deer and give it a rating of 9 (lots of deer) on a 9-point scale and another hunter can see 10 deer and rate it as 1 (very few). However; on average, as the number of deer, bucks and quality bucks seen increases, hunters' evaluation of these parameters increases (Figure 3–5) (Tables 43 – 45). For example, on average in 2008, hunters seeing a total of 15 deer rated that as one (very few) while seeing 52 deer was rated as a five (average) and hunters seeing 144 deer rated the season as a nine (lots of deer) (Figure 3 and Table 43). Of course this scale changes for bucks with seeing 9 bucks being evaluated as a five (average) and seeing 27 bucks being evaluated as a nine (lots) (Figure 4 and Table 44). And, seeing about 2.5 quality bucks being rated as a five (average) and seeing about 5.8 quality bucks being rated as a nine (exceptional) (Figure 5 and Table 45). Thus for 2008, an average season would be seeing a total of 52 deer, 9 bucks and 2.5 quality bucks and an exceptional deer season would involve seeing 144 deer, 27 bucks and 5.8 quality bucks.

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Of particular note is the increase in these parameters needed to receive an average or higher evaluation over the ten years measured (1999 – 2008). What this means is that as the actual "quality" of the Black Hills deer season increased, as measured by the number of deer, bucks and quality bucks observed by hunters during the season, so did the hunters' expectations. Thus it takes more deer, bucks and quality bucks to produce an average to exceptional hunting experience in 2008 compared to that needed in 1999.

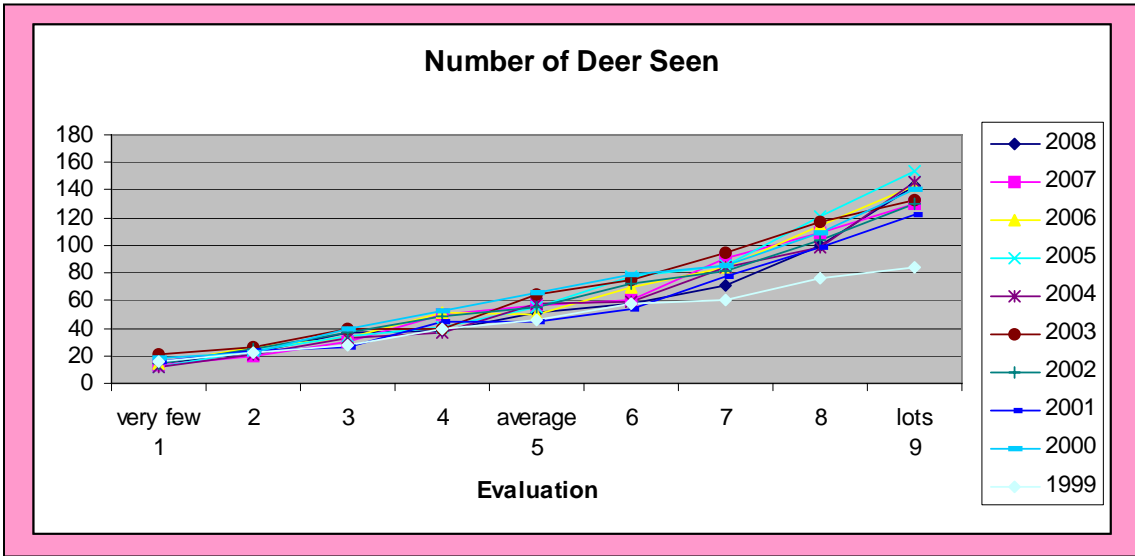


Figure 3. Relationship between the number of deer seen by hunters and hunters' evaluation of the number of deer seen (1999 – 2008).

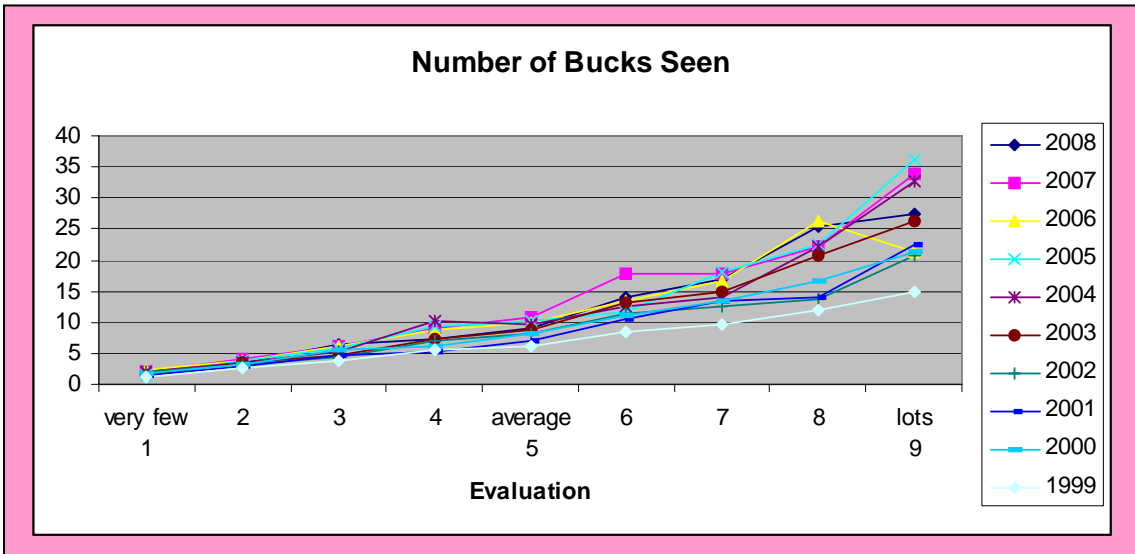


Figure 4. Relationship between the number of bucks seen by hunters and hunters' evaluation of the number of bucks seen (1999 – 2008).

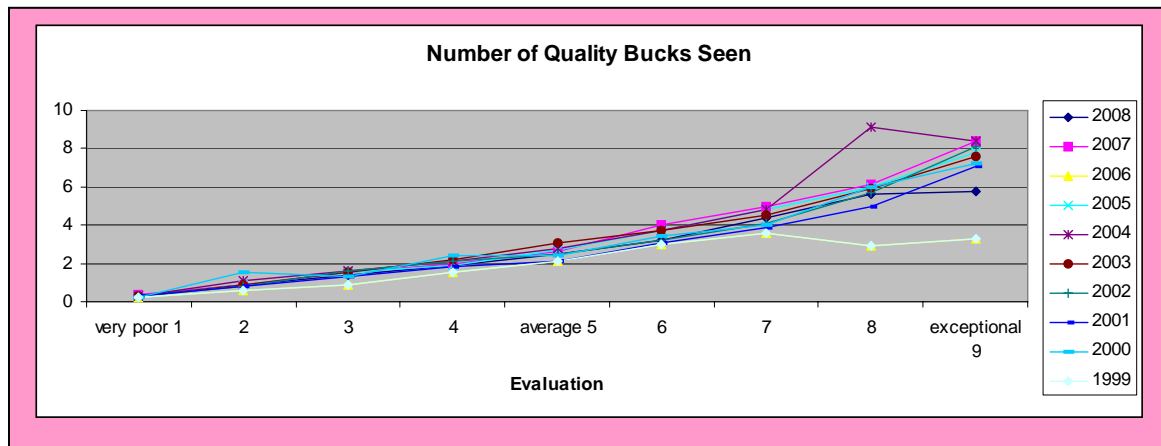


Figure 5. Relationship between the number of quality bucks seen by hunters and hunters' evaluation of the quality of bucks seen (1999 – 2008).

Research Question #2

What is the relationship between type of Black Hills deer hunter (based on their most important reason for Black Hills deer hunting) and the various parameters measured in this survey?

To be useful, a classification scheme should be able to predict various characteristics and behaviors, i.e., hunters should exhibit important differences on certain characteristics and behaviors.

In 2008 the nature and excitement hunters had the highest mean satisfaction levels and the trophy and challenge hunters had the lowest mean satisfaction (Tables 46 and 47). Some types of hunters are more easily satisfied than are others. For example, some types of hunters are more focused on non-harvest benefits, which are easier to achieve during the hunting experience, while other types seem to be more dependent on deer population factors (e.g., meat and trophy hunters). In spite of the differences in satisfaction level among the hunter types in 2008 most of the hunter types were satisfied with their 2008 Black Hills deer hunting experience (Table 47). The percent of satisfied hunters ranged from 59.4% of the trophy hunters to 72.4% of the nature hunters.

On average, the trophy hunters reported seeing the most deer and the meat hunters saw the least; however, hunters' evaluation of the numbers of deer seen was not related to hunter type (Table 48). On average, trophy hunters reported seeing the most bucks (20)

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and meat hunters saw the least (7); however, hunters' evaluation of the numbers of bucks seen was relatively similar among the hunter type (Table 49). Trophy hunters reported seeing the highest number of quality bucks but had the lowest rating of the quality of bucks seen (Table 50).

In 2008, meat hunters were the most successful (66%) and opportunistic hunters the least (54%) (Table 51). Meat hunters harvested about 33 bucks per 100 deer while trophy hunters had the highest ratio of bucks to does harvested (78 bucks per 100 deer) (Table 52). Meat hunters had the smallest percentage of having a "buck" license (type 01/11) (43%) and trophy hunters had the highest proportion of "buck" licensees (91%) (Table 53).

Trophy hunters (with a "buck" license) reported the most days of hunting in 2008 and social and nature hunters hunted the least number of days (Table 54). For the antlerless license (type 03/13) the opportunistic hunters hunted the least number of days and the challenge hunters reported the most days of hunting. In terms of degree of crowding, social hunters had the highest percent rating the 2008 Black Hills deer season as "just right" (55%) while the trophy hunters had the lowest percent rating the 2008 Black Hills deer season as "just right" (37%) (Table 55).

Solitude and challenge hunters had the highest mean number of years of Black Hills deer hunting experience (20.5 years and 18.2 years; respectively) and opportunistic and meat hunters the least number of years experience (10.2 years and 11.8 years; respectively) (Table 56). Solitude hunters had the highest mean age (47.8 years) and meat hunters the lowest mean age (42.7 years) (Table 57). Meat hunters had the highest percentage of female hunters (19.4%) and trophy, challenge and solitude hunters had the lowest percentage of females (4.1%, 4.2% and 4.7%; respectively) (Table 58).

Trophy hunters had the highest number of points on harvested whitetail bucks (8.9 points) and meat hunters the lowest number of points (7.5) (Table 59). Trophy hunters had the highest percent of respondents providing optional comments on the questionnaire (52%) and meat hunters were the least likely group to provide optional comments (34%) (Table 60).

Research Question #3 What is the relationship between satisfaction of 2008 Black Hills deer hunters and various parameters measured in this survey, i.e., which variables are the best predictors of satisfaction?

Fourteen variables were tested for significant correlation with satisfaction; 11 variables were significant (Table 61). Years of Black Hills deer hunting experience, age, and gender were not linearly related to satisfaction. Evaluation of the number of deer seen had the highest correlation with satisfaction (0.468) while the actual number of deer seen had a much lower correlation (0.062). Evaluation of the number of bucks seen had the second highest correlation with satisfaction and evaluation of the quality of bucks seen was third. Success was measured two different ways. Success1, coded as none=0, doe or buck=1 had the fourth highest and success2, coded as none=0, doe=1, buck=2, had the fifth highest correlation with satisfaction.

The seven variables with the highest correlation with satisfaction were analyzed by hunter type (Table 62). Each hunter type had a unique profile.

Crowding can significantly affect satisfaction. Hunters feeling crowded were less satisfied than hunters not feeling crowded (Tables 63 and 64). Also, hunters feeling that there were not enough hunters in the woods were less satisfied than those reporting that hunter density was “just right.”

The hunters’ evaluations of deer population parameters (evaluation of the number of deer seen, number of bucks seen and the “quality” of bucks seen) were much better predictors of satisfaction than were the actual values of the same deer population parameters (actual number of deer seen, number of bucks seen and the number of “quality” bucks seen) (Tables 65 – 67). Overall, hunters’ evaluations of the deer population based on these three factors were the three best predictors of satisfaction.

Nonresidents were more satisfied with their Black Hills deer hunting than were residents; however, residents within South Dakota (Black Hills, West River and East River) was statistically similar in their satisfaction with their 2008 Black Hills deer hunting experiences (Table 68). Successful deer hunters (i.e., they harvested a deer) were much more satisfied than were unsuccessful deer hunters and hunters harvesting a buck were more satisfied than hunters harvesting a doe (Table 69).

Research Question #3A What is the relationship between satisfaction of 2008 Black Hills deer hunter types and success (harvesting a buck or a doe)?

Unsuccessful nature, solitude, social, and excitement hunters were more satisfied with their 2008 Black Hills deer hunting experiences than other unsuccessful hunter types (Tables 70 and 71). Unsuccessful meat and trophy hunters were the least satisfied hunters. All types of hunters were more satisfied when successful (harvesting a doe or a buck). Overall, hunters who harvested a doe were about 17% more satisfied than unsuccessful hunters were and hunters who harvested a buck were about 21% more satisfied than unsuccessful hunters were.

Overall, about 51% of the unsuccessful hunters were satisfied but this varies according to type of hunter, from a low of 37% for meat hunters to a high of 58% for nature hunters (Table 71). Overall, 76% of those harvesting a doe were satisfied and 83% of those harvesting a buck were satisfied.

Harvesting a deer had a significant impact on satisfaction, ranging up to a 29% increase in satisfaction for meat hunters (Table 72). Overall, 80% of the successful deer hunters were satisfied compared to 51% of the unsuccessful deer hunters (Table 73).

Research Question #3B What is the relationship between satisfaction of 2008 Black Hills deer hunters and size (based on total number of points) of antlered buck harvested?

The number of points on harvested whitetail deer was slightly correlated with satisfaction (Tables 74 – 76). Insufficient sample sizes made this analysis difficult, however the low correlations suggests that hunters tend to only shoot a buck with a rack that would meet their expectations for producing a satisfying experience.

Research Question #4 What is the relationship between years of Black Hills deer hunting experience and various selected parameters measured in this survey (2008)?

A biological fact is that the Black Hills deer herd has experienced a long-term decline and the population is much lower than it was in the long-term past (an estimated 60% decline during the past 40 years). However, in the very recent past the quality of the

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deer population and hunting experience has improved. Thus, one variable that may impact hunter opinions and attitudes would be their amount of past Black Hills deer hunting experiences. Hunters with different levels of past Black Hills deer hunting experience may evaluate conditions differently. For this reason, a number of parameters measured in this survey were analyzed by years of Black Hills deer hunting experience.

The number of deer seen tended to increase with hunting experience, however, the hunters' evaluations of the number of deer they saw was inversely correlated with years of hunting experience (Table 77). In other words, the more experienced deer hunters actually saw more deer but their evaluation of that number decreased with experience. This would be expected given the long-term decline and recent improvement in deer population. On the other hand, the number of bucks and the number of quality bucks was not related to years of hunting experience, although hunters' evaluation of the number of bucks increased with years of experience (Tables 78 and 79).

Overall harvest (success) was only slightly related to years of experience however, buck harvest vs. doe harvest was significantly related (Table 80). Hunters harvesting a buck had significantly more experience than did hunters harvesting a doe.

More experienced hunters were more likely to report that there were not enough hunters (Table 81), possibly due to their slightly stronger dislike of the change in deer management.³ The less experienced hunters were more likely to feel crowded. This may be due to the younger hunters having less or no hunting experience under more crowded hunting conditions that existed before the change in the deer management design.

Solitude and challenge hunters had the most experience and opportunistic and meat hunters the least amount of experience (Table 56). Satisfaction with the 2008 Black Hills deer season was not significantly correlated with years of Black Hills deer hunting experience, although the most dissatisfied hunters had the most experience (Table 82).

As expected, more experienced hunters were older (Table 83). Females had less Black Hills deer hunting experience than males (Table 84) and South Dakota residents had more Black Hills deer hunting experience than nonresidents (Table 85).

³ Gigliotti, L. M. 2002. 2001 Black Hills deer hunter survey. Report ID# HD-6-02.AMS. South Dakota Game, Fish and Parks. Pierre, SD.

Discussion

Satisfaction. The most important finding is that satisfaction of Black Hills deer hunters has improved since the change in deer management in 1996 and has remained fairly high. However, satisfaction level for the past two years (2007 and 2008) has dropped a little. An improvement in hunter satisfaction was the overall goal for the management change. To accomplish this managers need a better understanding of all the factors that contribute to a satisfying hunting experience for Black Hills deer hunters.

Harvest success is important for the satisfaction of Black Hills deer hunters (overall, harvesting a doe increased satisfaction by 17% and harvesting a buck by 21%) but the relationship is partly dependent upon hunter type. Harvest success was least important for the satisfaction of nature, solitude and social hunters and most important for the satisfaction of meat and trophy hunters (the other hunter types tended to fall somewhere in the middle on the importance of harvest success to satisfaction). However, harvest success was not the best predictor of satisfaction. Other success-related variables were stronger predictors of satisfaction; namely, hunters' evaluation of the number of deer seen, number of bucks seen and "quality" of bucks seen. In other words, not all hunters need to actually harvest a deer to be satisfied as evidenced by the fact that about 51% of the unsuccessful hunters were satisfied (although overall satisfaction of Black Hills deer hunters increased to about 76% when harvesting a doe and 83% when harvesting a buck).

Just feeling that they saw an adequate number of deer, bucks or large bucks is more important to the satisfaction of Black Hills deer hunters than actually getting a deer every year. However, each hunter has a different evaluation of what is an adequate number of deer, bucks and large bucks. The important finding is that hunters' evaluations of these parameters have been improving since the change in Black Hills deer management. Since first measured in 1997, hunters perceived a 23% increase in the number of deer seen, a 23% increase in the number of bucks seen, and a 13% increase in the quality of bucks seen. However, 2008 marked a reverse in the trend of increasing evaluations of these parameters.

Another assumption about satisfaction is that the bigger the buck the more satisfied the hunter. Unfortunately, this is a difficult hypothesis to test using empirical

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data because apparently many hunters will not shoot a buck that they would not at least be partly satisfied with getting. The same can be said for harvesting a doe. In previous studies a number of hunters reported that they would pass up legal bucks that do not measure up to their standards.⁴

These results strongly suggest that the key to maintaining or further increasing satisfaction will be in improving the Black Hills deer population. However, it is important to note that the results of these findings are probably strongly linked to what has happened to the Black Hills deer herd. Due to habitat changes and other causes, the Black Hills deer herd had experienced a long-term decline with some recent improvements. Hunters have perceived this change to the point where it strongly affects their satisfaction. For example, even in a declining deer population situation some hunters will have a good hunting experience by seeing lots of deer and or bucks while others will have a poor season, thus the empirical data will reveal a strong relationship between these variables and satisfaction. Because hunters have perceived a decline in the quality of deer hunting in the past and have evaluated this as a significant problem that should be addressed this issue is the most salient and thus has a significant impact on hunters' overall satisfaction levels, especially in light of the improvements brought about by the change in 1996 in Black Hills deer management.

Another frequent variable often reported as important to a quality hunting experience is crowding. Crowding was significantly related to satisfaction in this study. Hunters reporting that the degree of crowding was "just right" were the most satisfied and as hunters' degree of perceived crowding increased their satisfaction level decreased. However, the relationship was not as strong as success-related variables in this study largely because the deer management change in 1996 produced a large improvement by reducing crowding conditions. Before the change in Black Hills deer management in 1996 that limited the numbers of deer hunters, crowding seemed to be a common complaint. It is likely that had this study been conducted in 1995, crowding may have played a more significant role in predicting satisfaction. The salience of a problem will likely have a major role in overall satisfaction. It is very likely that this improvement in

⁴ Gigliotti, L. M. 2005. 2004 Black Hills deer hunter survey. Report ID# HD-3-05.AMS. South Dakota Game, Fish and Parks. Pierre, SD

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crowding conditions is responsible for some of the improvement in overall satisfaction with the Black Hills deer hunting following the change in deer management. It is important to note that slightly more hunters in 2008 reported feeling some degree of crowding compared to previous years.

Remember, crowding is a variable measured subjectively by the hunters themselves, it does not reflect the actual number (density) of encounters with hunters. It is likely that hunters seek out hunting conditions in terms of degree of crowding, whenever possible, to meet their needs.⁵ For example, both nature and solitude hunters may seek out scenic, secluded areas, however, the solitude hunters may be more impacted by encounters with other hunters in such areas than the nature hunters.

Also, one might assume that social hunters would not be affected by crowding. This may not be the case. Do not confuse the label, “social,” to mean that these hunters use the hunting experience to meet new people. Social hunters enjoy sharing the experience with friends and family members, but can easily feel crowded by strangers. Actually, because of group size, social hunters may experience more opportunities for crowding if just some of their members experience crowding and then share their frustrations with other members of their group.

Another variable affecting satisfaction is one’s attitude towards the change in Black Hills deer management systems. While the management change was favored by about 2-to-1 this still leaves a number of hunters that were opposed to the change. This change was very controversial and it even affected some hunters’ overall satisfaction with their Black Hills deer hunting experience. Over time hunters’ opinions have been changing, some change due to the positive effects in the deer population structure and less crowded hunting conditions and some change due to hunter recruitment. New Black Hills deer hunters that have no hunting experience with the old, traditional management system are much more favorable towards the current management system. In 2001 (five years after the management change), attitude towards the management system had about an overall 7% effect on satisfaction with one’s hunting experience—those opposed to the

⁵ Graefe, A.R., Vaske, J.J., and Kuss, F.R. 1984. Social carrying capacity: An integration and synthesis of twenty years of research. *Leisure Sciences*, 6(4), 395-431.

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change were less satisfied than those that like the change in deer management systems.⁶ This small effect on satisfaction should continue to decrease over time.

Another factor that is related to a quality hunting experience is aesthetics. The 1999 study of Black Hills deer hunters⁷ found that most hunters felt that the Black Hills offered this quality and for some hunters this factor is enough to produce a satisfying hunt. For example, for some hunters, and especially the nature hunters, this factor alone was enough to produce a satisfying hunting experience. In other word, just getting an opportunity to hunt is enough. These hunters are satisfied year after year regardless of whether or not they harvest a deer.

What about the drop in satisfaction for 2008? Does this drop in satisfaction represent a new trend or just a temporary situation? One factor that may cause a decline in satisfaction would be due to hunters becoming accustomed to the improvement in hunting. Our studies show that as hunting parameters improved (numbers of deer and bucks seen and quality of bucks) hunters' evaluation would at first improve, but in a few years slowly settle back into a more average rating. In other words, hunters began to expect good hunting conditions and rate what they found as simply "average". Since hunters' evaluations of the deer hunting experience had the greatest impact on their satisfaction, once the hunting improvements tended to level off, a small drop in satisfaction level might be expected.

However the drop in satisfaction for 2008 marks a steeper decline following the small drop in satisfaction measured in 2006 and 2007 and thus may signify actual changes in the quality of the hunt for many Black Hills deer hunters. Balancing the goals of providing a quality deer hunt while providing a maximum amount of recreational opportunity is a difficult process.

At this time we can not determine which factors are going to play a dominant role in their effect on satisfaction. Continued monitoring will tell us whether satisfaction will continue to decline, stabilize, or again increase. A good average target for Black Hills

⁶ Gigliotti, L. M. 2002. 2001 Black Hills deer hunter survey. Report ID# HD-6-02.AMS. South Dakota Game, Fish and Parks. Pierre, SD.

⁷ Gigliotti, L., P. Backman, J. Jenks, and D. Hubbard. 2000. 1999 Black Hills deer hunter survey. Report ID#: HD-3-00.SAM. S. D. Game, Fish and Parks. Pierre, SD.

deer hunting would be trying to maintain at least 75% satisfied and/or not more than 10% dissatisfied.

Hunter Typology–Motivations of Black Hills Deer Hunters. This study used hunters' reasons for deer hunting in the Black Hills to segment hunters. Hunters were asked to select their top reason for why they like Black Hills deer hunting. This study makes an assumption, based on the extensive literature on hunter segmentation of the existence of different types of hunters, that hunters have a dominant motivation for hunting, hunters can identify their dominant motivation for hunting and that a hunter's dominant motivation for hunting is a useful segmentation method. This typology has been used for the past several years to produce a fairly good description of each hunter type.

The results from these studies suggest that this methodology did produce a better overall understanding of Black Hills deer hunters. The different types of hunters each demonstrated a unique set of characteristics that would be expected based on hunters' dominant motivation for hunting. All hunter types had the highest rating of the importance of the motivation representing their dominant motivation. Three motivations—social, nature and excitement—seem to be highly important for all types of hunters. These can be considered fundamental reasons for deer hunting. These three hunter types are also the largest three segments. Two types of hunters were found to be very distinct—**meat** hunters and **trophy** hunters. All other types of hunters rate meat and trophy reasons relatively low in importance. Meat hunters even rate trophy reasons low in importance and trophy hunters rate meat reasons low in importance. Thus, the two types of hunters most motivated by harvest success, meat hunters and trophy hunters, are at odds with each other, rating each other's reasons for liking Black Hills deer hunting low in importance.

The solitude hunters are a relatively small group (2.7% in 2008) and are unique in placing a high value on solitude and a low value on social reasons for hunting.

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Motivational research would suggest that these hunters might have very busy home or work life styles for which hunting provides temporary escape.⁸

Some of the unique characteristics of each hunter type are listed below in this summary (results based on this year's and previous years' studies):

Social Hunters (27.5%): Social hunters had the highest tolerance for crowding. The social aspect of hunting is most important to this group. Harvest success is relatively low in importance to this group. Social hunters had the highest percentage of group hunting and had the highest percentage of participation in organized deer drives.⁹ Social reasons for hunting were slightly more important to nonresidents than to residents. "Maintaining special traditions" and "companionship of friends/family" were far more important to this group compared to all the other hunter-types.

Nature Hunters (24.1%): A relatively high percent of unsuccessful (in terms of harvesting a deer) nature hunters can be satisfied probably because the aesthetic factor is most important to this group and most of these hunters feel that the Black Hills environment adequately provides for this factor. Getting a deer is not a very important factor in producing a satisfying hunting experience for the nature hunters. Nature hunters had the highest importance rating of all eight hunter-types for, "beauty of the area" and "observing other wildlife while hunting." Nature hunters were relatively more favorable towards mountain lions in South Dakota but relatively less interested in hunting mountain lions compared to many of the other hunter types.

Excitement Hunters (17.0%): Excitement hunters were the most difficult to characterize. Hunting for them is just plain exciting and this is more of an internal feeling rather than a single external factor. For all the variables measured in this study excitement hunters tended not to show any extremes at either end that would lend to further description of this group of hunters. In other words, these hunters tended to be somewhere in the middle range of most variables tested in this study. On many variables

⁸ Knopf, R.C., Driver, B.L., and Bassett, J.R. 1997. Motivations for fishing. Transactions of the North American Wildlife and Natural Resources Conference, 38, 191-204.

⁹ Gigliotti, L., P. Backman, J. Jenks, and D. Hubbard. 2000. 1999 Black Hills deer hunter survey. Report ID#: HD-3-00.SAM. S. D. Game, Fish and Parks. Pierre, SD.

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(but not all, as there are clearly some distinct differences) excitement hunters were somewhat similar to challenge hunters. This makes sense in that one component of having a challenging experience would be to produce excitement. In 2006, the excitement hunters reported the highest satisfaction with the lion season as conducted in 2006 and reported the highest positive impact of the lion season on their Black Hills deer hunting experience.

Meat Hunters (15.9%): Meat hunters had the highest interest level in getting a deer and they were a relatively successful group, but had the lowest percent of buck harvest. Meat hunters were the least satisfied if unsuccessful. They were the least interested in buck hunting or getting a large buck. They also had the highest percentage of hunters getting the 03/13 license type (antlerless deer licenses). Meat hunters had the highest focus on body size as a measure of a “quality” deer while all the other hunter types focused on antler size parameters. Meat hunters had the highest percentage of female hunters, and meat hunting was more important to residents than it was for nonresidents. Meat hunters had the lowest participation in other deer seasons, other big game (excluding deer) seasons, other types of hunting (e.g., small game, waterfowl, etc.)¹⁰, and the lowest percent purchasing a 2006 and 2007 mountain lion license. Meat hunters had the highest preference for the Black Hills deer season probably due to the fact that a high percent of them only participate in that one deer season and a high percent live locally. Also, resident meat hunters had the second lowest mean expenditures for the 2002 Black Hills deer season, and the lowest estimated value for their Black Hills deer license and the lowest mean willingness-to-pay value.¹¹ Meat hunters tended to have fewer motivations compared to most of the other hunter-types, being mainly motivated by early success and having an easy hunt. Meat hunters had the lowest level of interest in having an opportunity to hunt mountain lions (2005/2006) and the highest concern about mountain lions killing too many game animals.

¹⁰ Gigliotti, L. M. 2002. 2001 Black Hills deer hunter survey. Report ID# HD-6-02.AMS. South Dakota Game, Fish and Parks. Pierre, SD.

¹¹ Gigliotti, L. M. 2003. 2002 Black Hills deer hunter survey. Report ID# HD-4-03.AMS. South Dakota Game, Fish and Parks. Pierre, SD.

Challenge Hunters (6.0%): Challenge hunters were somewhat similar to the excitement hunters on many characteristics. They were also somewhat similar to trophy hunters but rather than focusing on the product of the hunt, a “trophy,” they tended to be more focused on the process of the hunt and desiring that this process be “challenging.” For example, challenge hunters have a high desire to get a nice buck but are much more willing to hunt harder to be successful. Unlike trophy and meat hunters who want an easy hunt and to be successful early in the season, challenge hunters want their hunt to be challenging and being successful early in the season would tend to mean that their hunt was not challenging. Challenge hunters don’t want easy access or to hunt near a road and would strongly prefer to hunt in areas with restricted vehicle access. Challenge hunters had relatively high use of archery and muzzleloader equipment for hunting deer.

Trophy Hunters (4.1%): Trophy hunters were the least satisfied hunter-type with their Black Hills deer hunt for seven of the last ten years measured (1999 – 2008), possibly because Black Hills deer hunting does not produce very many large “trophy” bucks. Trophy hunters had a high buck-to-doe harvest ratio (85% bucks harvested) in 2006 and 2007. Trophy hunters had the highest interest in buck hunting and in getting a large buck and they had the second highest interest in being successful at filling their deer tag. Trophy hunters had a high preference for the buck-only license. Trophy hunters also listed the highest number of points necessary for their definition of a “quality” buck.¹² Trophy hunters and meat hunters were relatively similar on many variables, particularly being very motivated by success (getting a deer), but were widely different on their preference for the type of deer. Also, trophy hunters tended to be a bit more willing to hunt harder for their deer than were meat hunters. Trophy hunters tended to be more overall negative towards mountain lions in South Dakota compared to many of the other hunter types, but had a relatively high level of interest in having an opportunity to hunt mountain lions.

¹² Gigliotti, L., P. Backman, J. Jenks, and D. Hubbard. 2000. 1999 Black Hills deer hunter survey. Report ID#: HD-3-00.SAM. S. D. Game, Fish and Parks. Pierre, SD.

Opportunistic Hunters (2.8%): Opportunistic hunters' main motivation was for additional deer hunting opportunities. Opportunistic hunters were relatively similar to meat hunters on many variables tested (although a little more interested in buck hunting compared to the meat hunters), suggesting that for this group it is not only an opportunity to get in some addition deer hunting, but is also an opportunity to get another deer to eat. Opportunistic hunters were relatively focused on easy hunting, but overall less focused on exclusively Black Hills deer hunting. Opportunistic hunters are strongly interested in deer hunting in general, but had a relatively low importance rating for Black Hills deer hunting. They also had relatively few years of experience hunting deer in the Black Hills compared to the other hunter-types, and they had the lowest percent picking Black Hills as their most preferred South Dakota limited deer season. Opportunistic hunters had the highest participation in other deer seasons. The opportunistic hunters were relatively opposed in general to a new deer application process.¹³ Opportunistic hunters had the highest level of interest in hunting mountain lions in South Dakota (2005/2006).

Solitude Hunters (2.7%): Solitude hunters are somewhat the opposite of the social hunters on their most dominant characteristic, namely solitude. Solitude hunters are somewhat interested in buck hunting and interested in getting a large buck, however, satisfaction was far less tied to harvest success compared to the trophy hunters. By far, having an un-crowded, undisturbed hunting trip was most important to the solitude hunters. Solitude hunters had the lowest interest in hunting in a group and the lowest interest in road hunting or hunting near a road. Solitude hunters are strongly motivated by getting far away from other hunters and like to have lots of days to go hunting.

In summary, the behaviors and attitudes of each of the hunter types seem to logically fit what one would expect to find based on the dominant characteristic of each group. This suggests that this hunter-typology model is a valid tool for understanding Black Hills deer hunters.

¹³ Gigliotti, L. M. 2004. 2003 Black Hills deer hunter survey. Report ID# HD-3-04.AMS. South Dakota Game, Fish and Parks. Pierre, SD.

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Why is this hunter typology model important? This model is important because it demonstrates that there are significant differences among deer hunters. A common tendency is for people to make the assumption that others are similar to themselves. Since deer management decisions are made by relatively few individuals, those responsible for the decisions need an accurate understanding of all deer hunters to avoid the trap of thinking that their values and attitudes are similar to all other deer hunters. This model will help managers and decision-makers to better understand how deer management decisions will affect the different types of hunters. It is also useful when considering communication and information strategies for deer hunters, which need to consider the full range of hunter types.

Effects of the Black Hills Deer Management Change–Trends. In addition to days hunted and harvest success information collected in the regular harvest surveys process, eight different hunter parameters have been identified and measured to evaluate Black Hills deer hunting from the hunters' perspective. These eight parameters were:

1. total number of deer seen by the hunter during the season (1998-2008) (see Tables 24 and 25),
2. total number of bucks seen by the hunter during the season (1998-2008) (see Tables 24 and 26),
3. total number of quality bucks seen by the hunter during the season (1998-2008) (see Tables 24 and 27),
4. hunters' evaluation of the number of deer they saw during the season (1997-2008) (see Tables 31 and 32),
5. hunters' evaluation of the number of bucks they saw during the season (1997-2008) (see Tables 31 and 32),
6. hunters' evaluation of the quality of bucks they saw during the season (1997-2008) (see Tables 31 and 32),
7. hunters' perception of crowding during the season (1997-2008) (see Table 34), and
8. hunters' overall satisfaction level with the deer season (1995-2008) (see Tables 22 and 23).

All these parameters show that deer hunting from the hunters' perspective has improved with the 2003–2006 period being especially good years, however, some parameters exhibited a slight drop in 2007 and 2008.

One recommendation will be to continue monitoring the Black Hills deer season measuring these same eight hunter-perspective parameters and hunter-typology model as

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well as continuing to periodically study various aspects of what makes for a “quality” hunting experience in the Black Hills. First, it will be important to know the stability of the improvement achieved under the current deer management system. Will the improvement continue, level off or decline over time? Second, while we have gained much understanding of Black Hills deer hunters and deer hunting through the surveys conducted over the past fourteen years, there is still much more to learn.

Plans for future Black Hills deer hunter surveys are to continue monitoring a limited number of hunter-evaluation variables annually and to conduct the more in-depth surveys about every third year or when a special topic is needed related to management decisions. For example, the 2006 and 2007 surveys included the special topic of evaluating the impact of the mountain lion seasons on Black Hills deer hunters – the 2006/2007 mountain lion seasons opened on November 1, the same date as the opening for the Black Hills deer season.

The 2007 Change in Black Hills Deer Management. The 2007 change in Black Hills deer management was a change in license types that eliminated the buck-only (2 point or better on one-side) license type and replaced it with a small number of any-deer licenses and a large number of any-whitetail licenses. The purpose of this change was to increase the antler size of mule deer in the Black Hills. This change likely lowered overall satisfaction a little. Many hunters were especially worried about dropping the 2-point restriction. Apparently too many hunters think that the 2-point restriction was responsible for the improvement in the Black Hills deer season.

It is difficult to predict how this change will impact future satisfaction because it will depend on how the mule deer population responds to the change. It will likely take about five years to give the change enough opportunity to improve the mule deer bucks (if it works) and for the hunters to perceive any improvement. Whether or not this factor (improvement in mule deer hunting) will be enough to off-set the negative aspect of the management change will need to be answered by future surveys. The negative aspect of the management change is the choice between the two types of buck-hunting opportunities that hunters have to make when they apply for a license. It is a difficult choice for many hunters to choose between the more preferred “any-deer” license that

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has much lower odds of drawing verses the less preferred (for many hunters) “any-whitetail deer” license that has much better odds of drawing.

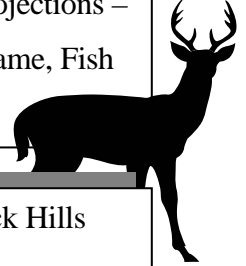
Mountain Lions in the Black Hills. In the 2003 survey some hunters provided comments about mountain lions and expressed concern that mountain lions may be impacting the deer population or expressed a desire for a hunting season. As a result, the topic of mountain lions was added as the special focus area on the 2004 Black Hills deer hunter survey. South Dakota's first mountain lion season was implemented in 2005 to run from October 1 through December 15 or when a harvest quota was reached (25 mountain lions or 5 breeding-aged females). The plan for the 2005 Black Hills deer hunter survey was to include an evaluation of the impact of the mountain lion season on the Black Hills deer hunting experience. However, plans changed when the season ended on October 24 after the fifth breeding-age female was harvested. Instead the 2005 Black Hills deer hunter survey contained three pages of general questions related to attitudes towards mountain lions and the 2005 mountain lion season. For a number of reasons, the 2006 and 2007 Mountain Lion seasons were changed to start on November 1, the same day as the start of the Black Hills Deer Season, thus the 2006 and 2007 Black Hills deer hunter surveys included an evaluation of the impact of the mountain lion season on the Black Hills deer hunting experience as well as a few other parameters related to mountain lions.

Most important was the finding that very few deer hunters perceived any negative impact from the Black Hills mountain lion season occurring with the deer season. While most felt neutral about the mountain lion season there were a significant number of deer hunters that felt the mountain lion season had a positive impact on the Black Hills Deer Season. The positive attitude towards the mountain lion season is probably the result of a high interest in hunting mountain lions. About 24% of the 2006 resident Black Hills deer hunters and 23% of the 2007 resident Black Hills deer hunters had purchased a mountain lion license. However, in 2008 the mountain lion season was changed to a later start-date (January 1st) and thus no longer over-lapped with the Black Hills deer season. This may have a small negative impact on satisfaction with the deer season.

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Appendix D is an excerpt from the 2008 South Dakota Game Report – Big Game Harvest Projects covering the Black Hills (Huxoll, C. 2009. Big Game Harvest Projections – 2008 Annual Report. South Dakota Game Report No. 2009 – 02. South Dakota Game, Fish and Parks, Pierre, SD).



Appendix E is a copy of the Report to Survey Participants for the 2008 Black Hills Deer Hunter Survey Report.

