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December 8, 2006
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An Assessment of Hunters’ Perceptions
Of Chronic Wasting Disease in Illinois’ Deer Herd:
Impacts on Hunter Participation in 2002-2003 and 2003-2004

Federal Aid Project Number W-112-R-13
Job Number 101.5
Wildlife Restoration Fund

July 1, 2003-September 30, 2004

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Abstract

This study examines hunter attitudes, perceived risks, and planned behavioral changes due to chronic wasting disease (CWD) in white-tailed deer (*Odocoileus virginianus*) in Illinois. Data for this study were obtained with two different surveys of Illinois deer hunters: 1) 2002-2003 Illinois Deer Hunter Survey, and 2) 2003-2004 Illinois Hunter Harvest Survey. No differences in perceived risks of becoming ill from CWD were found between hunters in counties in the CWD Zone and those outside of the zone for each survey, however, comparisons between the two surveys were significant ($t = 3.303, p <0.001$) with more hunters perceiving CWD to be a “Slight” or “Moderate” risk during the 2003-2004 survey than during the 2002-2003 survey. Planned behavioral changes due to CWD did not differ between the county groups for either survey, but did differ significantly by year in which the survey was conducted ($t = 5.96, p<0.001$), with more hunters reporting in the 2003-2004 survey they planned no change in hunting behavior due to CWD or they would be more likely to check the behavior of a deer before attempting to harvest it. Comparing CWD to other wildlife-borne diseases (e.g., West Nile virus, Lyme disease) and food-borne illnesses (*E. coli*, salmonella bacteria, and Bovine Spongiform Encephalopathy), suggests hunters in general view risks from CWD as slight, yet are more undecided about this disease than any other. Cluster analysis identified four groups of hunters based on the comparison of risks associated with CWD and other diseases. One group was more sensitive to perceived risks from all diseases ($n = 123$). This same group reported lower participation in hunting during the 2003-2004 deer season than two of the remaining three groups and the same as the third. Findings of this study suggest differing sensitivity to CWD and other diseases among deer hunters, and that at least one segment exhibits great sensitivity that may result in lower participation in deer hunting.
Objective

To survey one group of forest game (deer, turkey, squirrel) hunters annually to determine their activities, harvests, characteristics, and attitudes in Illinois.

Introduction

Chronic wasting disease (CWD) is a form of Transmissible Spongiform Encephalopathy that affects cervids, primarily white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), and Rocky Mountain elk (*Cervus elaphus nelsoni*). Methods of transmission are unknown, however, prion structure is similar to Scrapie in sheep and Bovine Spongiform Encephalopathy (BSE) in cattle. CWD has been found in captive and wild cervid populations in several U.S. states and Canadian provinces. Moreover, state and provincial wildlife officials have been monitoring both captive and wild cervid populations within their jurisdiction, as well as instituting protective measures which range from banning importation of cervid parts from CWD-positive states to placing restrictions on captive cervid operations. Although no evidence of CWD crossing the species barrier has been determined, CWD does exhibit similar characteristics to BSE *in vitro* (Raymond, et al., 2000). However, venison is consumed at a much lower rate than beef, and CWD is therefore not considered as great a threat as BSE in humans (Yam, 2003).

*CWD and Hunter Participation*

One concern of state agencies is the extent to which presence of CWD will affect hunter participation (Gigliotti, 2004; Miller, 2004). Hunters play a vital role in reducing deer populations, and reduced hunter effort due to CWD may affect our ability to control deer
population through hunting. Although a threshold in deer density may be reached below which hunter effort is ineffective in further reducing deer populations (Van Deelen and Etter, 2003), hunting has been a tool many agencies have relied on in their efforts to control further spread of CWD among wild deer. Therefore, hunter participation is viewed as an important agent in controlling deer populations, and by extension CWD in wild cervids.

Factors influencing hunter participation are varied and somewhat complex. Situational and personal constraints to participation have been identified for hunters in various states (Mehmood, Zhang, & Armstrong, 2003; Miller and Vaske, 2003; Enck, Decker, & Brown, 2000). Personal constraints may be considered to include perceived presence of CWD, whereby declining hunter participation could be an avoidance behavior on the part of deer hunters. Hunter participation in the presence of CWD has been reported in previous studies (Vaske, Timmons, Beaman, & Petchenik, 2004; Miller, 2004). Early projections of decreased hunter participation due to CWD predicted 5 to 20% of hunters would be at risk for dropping out of deer hunting (Miller, 2003; Petchenik, 2003; Needham, Vaske, & Manfredo, 2004). Perceived risks from CWD were instrumental in Wisconsin deer hunters' decisions not to hunt (Vaske, Timmons, Beaman, & Petchenik, 2004), although other constraints also contributed to their decisions as well. Most deer hunters in Wisconsin continued to hunt, and those not hunting due in part to concerns about CWD were opposed to shooting deer if the meat was not going to be consumed. Elk and deer hunters in the western United States reported differing levels of intention to hunt based on hypothetical levels of CWD in respective states (Needham, Vaske, & Manfredo, 2004). In this context, we note that the percentage of hunters who indicate they would not hunt increases with increased percentages of CWD among cervids. This suggests that
a segment of the hunter population undergoes a cognitive evaluation process by which they weigh perceived risks from CWD, then base intention to act in part on that evaluation.

Perceptions of Risk

People construct risk in different manners depending on various factors including situational context, demographics, and perceived locus of control (Savage 1996). Such constructs have been found to affect behaviors perceived as risky. Viscusi (1991) found younger smokers tended to overestimate the proportion of cases of disease due to smoking and were less likely to smoke due to these perceptions, whereas Weinstien (1998) reports smokers perceived risks due to smoking to be lower than actual and therefore continued to engage in the risky behavior of smoking. Individuals are likely to construct risks in a domain-specific manner and are not consistent in behaviors toward all risks (i.e., not “high risk” in all risk situations) (Weber, Blais & Betz, 2002). Constructing risk appears to be dependent on how risks are communicated (Fischoff, 1985, 1987), although few studies have been conducted that show conclusive links between risk communication and alteration of behaviors to avoid or reduce risk (Gerrard, Gibbons, & Reis-Bergan, 1999). A study of human behaviors toward food risks involved with Bovine Growth Hormone (Grobe, Douthitt, & Zepeda, 1999) found demographic and attitudinal aspects of risk perceptions can be significantly mediated by factors such as credibility of source of communication or regulation, ability of individual to discern contaminated foods from uncontaminated, and benefits to consumers. As no studies investigating risk communication for CWD and behavior have been published to date, it is difficult to discuss the relationship of communications to risk construction. Limited analyses of demographics and risk perceptions
have shown no significant link between age, income, or education with perceived risks associated with CWD in white-tailed deer (Miller, Colligan, & Campbell, 2003).

The intent of this study was three-fold: (1) to examine possible changes in hunters’ perceptions of CWD from the onset of the disease beginning during December 2002 through spring 2004, (2) to discern hunter constructs of CWD relative to other diseases, and (3) to investigate hunters at risk of abandoning deer hunting due in part to CWD.

Methods

Data for this paper were collected via two mail surveys of resident Illinois deer hunters: 2002-2003 Illinois Deer Hunter Survey and 2003-2004 Illinois Hunter Harvest Survey. Questionnaire items addressing CWD comprised approximately 20% of the 2002-2003 survey questionnaire (Appendix A) and 25% of the 2003-2004 survey questionnaire (Miller et al. 2004). Initial data were collected as part of the 2002-2003 survey and included 3,500 deer hunters. Firearm and muzzleloader deer hunters were sampled by county for which they held a permit for the 2002-2003 firearm and muzzleloader seasons, respectively; archery deer hunters were selected by the county in which they resided, as archery permits were allocated for the entire state (as opposed to firearm and muzzleloader, which are allocated for specific county). Each participant selected for the 2002-2003 Illinois Deer Hunter Survey was mailed a 15-page questionnaire, cover letter, and postage-paid return envelope on March 13, 2003 (Appendix A). A postcard reminder was mailed 14 days later to individuals who failed to return the questionnaire. After a second 14-day interval, a second questionnaire, cover letter, and return envelope were mailed to those individuals who had not responded to the first questionnaire.
mailing or reminder postcard. After another 14-day interval, a second and final postcard reminder was mailed to hunters who failed to respond to the previous mailings.

The 2003-2004 Illinois Hunter Harvest Survey was undertaken as part of annual efforts to document harvest of game and furbearer species in Illinois. A sample of 3,000 hunters were selected equally among residents who purchased mandatory Habitat Stamps \((n = 1,500)\) and resident hunting licenses \((n = 1,500)\). Sampled participants of the 2003-2004 survey were mailed an 8-page questionnaire, cover letter, and postage-paid return envelope on April 22, 2004. The same mailing schedule was employed for the 2003-2004 survey as for the 2002-2003 survey, whereby a postcard reminder was mailed 14 days after the first mailing of the questionnaire. A second questionnaire and a second postcard reminder were mailed on 14-day intervals to those hunters who failed to respond to either the first questionnaire mailing or the first reminder postcard.

**Data Analysis**

Data from both the 2002-2003 Illinois Deer Hunter Survey and 2003-2004 Illinois Hunter Harvest Survey (deer hunters only) were analyzed for frequency of response to CWD-related variables. Following general frequency analyses, respondents were stratified by county in which each hunter hunted deer. Counties were classified into one of two groups: (a) counties in which deer tested positive for CWD (Boone, DeKalb, McHenry, and Winnebago) and adjacent counties (Kane, Lake, Ogle, and Stephenson), and (b) all other counties in Illinois. Hunters in both surveys were asked to provide their perceptions of risk from CWD on a 5-point scale: “None,” “Slight,” “Moderate,” “High,” and “Undecided.” Responses were classified as “CWD Zone” and “Other Counties.” Paired t-tests \((\alpha = 0.05)\) were used to test differences in mean response by
year and also by type of county hunted (CWD or other). Hunters in both surveys were likewise presented with four statements describing a range of attitudes toward CWD and asked to choose the statement that best fit their opinion of the disease. Paired t-tests were used to detect differences in mean responses for both year and type of county hunted. To investigate possible affects of the presence of CWD on hunter participation, hunters were asked to choose one of five responses to a question regarding level of participation during the 2002-2003 deer season given the presence of CWD in Illinois. Two choices indicated increased or no change in participation over past years, whereas the remaining 3 choices indicated either reduced participation or selective hunting of deer based on perceptions of health or size (large bucks only). One-way ANOVA tests were used to examine differences by year in mean responses from hunters in counties in the CWD zone and in the remainder of Illinois for perceived risks from CWD, attitudes toward CWD, and planned deer hunting behaviors in response to CWD. Independent sample t-tests were employed to determine differences in mean responses between the 2 years across type of county hunted.

**Cluster Analysis**

To understand the relationship between perceptions of risk due to CWD and other risk factors, hunters were requested to identify their perceived levels of risk for CWD, two insect-borne diseases (Lyme Disease and West Nile Virus), and three food-borne illnesses (i.e., *E. coli*, *Salmonella* bacteria, and Bovine Spongiform Encephalopathy). These risk factors were chosen because their perceived locus of control rested outside of the individual, compared to other risk factors (e.g., automobile accident, falling from tree stand) where the hunter may perceive a certain level of control in determining level of risk. The three food-borne illnesses were also
chosen as they constitute a means of contraction perceived to be similar to that of CWD (i.e., eating contaminated food). Responses to risk factors were investigated for potential typology of hunter risk sensitivity using K-means cluster analysis. Clusters were then converted to variables for use as independent variables.

**Loglinear Logit Model**

The risk sensitivity variable produced through cluster analysis served as the independent variable in a loglinear logit model investigating influence of risk on hunter participation during the 2003-2004 deer season in Illinois. Binomial responses for participation during the season (Yes/No) was used as the dependent variable to test for possible effect of perceived risk on participation.

**Results**

**Descriptive Comparisons**

We received a total of 2,683 (79%) responses to the 2002-2003 Illinois Deer Hunter Survey and 1,891 (66%) responses to the 2003-2004 Illinois Hunter Harvest Survey. Of the respondents to the 2002-2003 survey, 89% participated in the 2002-2003 Illinois firearm deer season, 61% participated in the archery season, 20% participated in the muzzleloader season, and 11% participated in the handgun season. In comparison, fewer hunters surveyed as part of the 2003-2004 Illinois Hunter Harvest Survey hunted deer: 61% participated in the firearm deer season, 34% participated in the archery season, 9% participated in the muzzleloader season, and 5% participated in the handgun season. Deer hunters in the CWD Zone of Illinois were underrepresented compared to total responses statewide: 156 (6%) of hunters responding to the
2002-2003 survey, and 42 (2%) of hunters responding to the 2003-2004 survey, indicated they hunted in the CWD Zone.

**Awareness of CWD**

Almost all hunters (96%) in the 2002-2003 survey were aware of CWD in deer (Figure 1). These hunters differed in awareness by state in which CWD occurred (Figure 2). Of the 2,564 hunters who reported an awareness of CWD, slightly more had heard of CWD in Wisconsin (79%) than in Illinois (77%). Less than half (46%) of hunters reported they had heard of CWD in states other than Illinois or Wisconsin. Sources of information for CWD cited most frequently by hunters included newspapers (73%), magazines (69%), and television news (61%) (Table 1). A minority of hunters reported using the Internet (19%), club newsletters (13%), or hearing CWD discussed at club meetings (10%).

![Figure 1. Illinois deer hunter awareness of CWD (n=2,564, 2002-2003 survey).](image-url)
Figure 2. Illinois deer hunter awareness of CWD by state (n = 2,564, 2002-2003 survey).

Table 1. Sources of information regarding CWD for Illinois deer hunters (2002-2003 survey).

<table>
<thead>
<tr>
<th>How did you hear about CWD?</th>
<th>Percent Response</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers</td>
<td>73%</td>
<td>1,854</td>
</tr>
<tr>
<td>Magazines</td>
<td>69</td>
<td>1,764</td>
</tr>
<tr>
<td>Television news</td>
<td>61</td>
<td>1,548</td>
</tr>
<tr>
<td>Friends or relatives</td>
<td>57</td>
<td>1,464</td>
</tr>
<tr>
<td>Radio</td>
<td>28</td>
<td>727</td>
</tr>
<tr>
<td>Television program</td>
<td>26</td>
<td>669</td>
</tr>
<tr>
<td>Internet</td>
<td>19</td>
<td>482</td>
</tr>
<tr>
<td>Hunting or sportsman’s club newsletter</td>
<td>13</td>
<td>340</td>
</tr>
<tr>
<td>Hunting or sportsman’s club meeting</td>
<td>10</td>
<td>256</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>130</td>
</tr>
</tbody>
</table>

* Percentages equal more than 100 because respondents could choose more than one answer.

Perceived risks for CWD

Illinois deer hunters differed in their perceptions of risk from CWD based on counties hunted relative to the distribution of the disease during the 2003-2004 season (Table 2). A shift in perceived risk was observed between hunters responding to the 2002-2003 survey and those
responding to the 2003-2004 survey, although in both cases the shifts were not significant. One-third (33%) of hunters responding to the 2002-2003 survey from the CWD Zone perceived no risk from CWD, as did 27% of hunters from the remainder of Illinois. Reported frequencies for the same items in the 2003-2004 survey were lower, with 19% of hunters in both the CWD Zone and other counties perceiving no risk from CWD. Hunters in the CWD Zone likewise reported a shift in the “slight” risk category between the two surveys: 40% of hunters in the 2002-2003 survey from the CWD Zone perceived a slight risk from CWD, whereas 61% reported so in the 2003-2004 survey. A comparison of shifts in perceived risks between the 2 years found significant differences between the two groups ($t = 3.303, p < 0.001$).

Table 2. Perceived risks among Illinois deer hunters of becoming ill from chronic wasting disease.

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CWD Zone</td>
<td>Other Counties</td>
</tr>
<tr>
<td></td>
<td>% response</td>
<td>% response</td>
</tr>
<tr>
<td>None</td>
<td>33% (n=156)</td>
<td>27% (n=2527)</td>
</tr>
<tr>
<td>Slight</td>
<td>40%</td>
<td>47%</td>
</tr>
<tr>
<td>Moderate</td>
<td>9%</td>
<td>12%</td>
</tr>
<tr>
<td>High</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Undecided</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>CWD Zone/Other Counties</td>
<td>F = 0.22 ($p = 0.639$, eta = 0.009)</td>
<td>F = 0.84 ($p = 0.359$, eta = 0.022)</td>
</tr>
<tr>
<td>CWD Zones/Other counties by years</td>
<td>$t = 3.303$ ($p = 0.001$)</td>
<td></td>
</tr>
</tbody>
</table>

Patterns for attitudes toward CWD remained relatively constant between hunters in the CWD Zone and other counties across the two surveys (Table 3). Approximately one-half of hunters in all four categories perceived “some risk of CWD to humans exists, but not enough is known to be sure”. Expressed attitudes that the threat of CWD was exaggerated shifted only slightly between years, from 22% to 18% among hunters in the CWD Zone and remaining constant at 11% for hunters in other counties. Very little difference in attitudes between years
was observed in perceived “risk to deer but not to humans,” and that CWD “can possibly infect humans if they eat infected meat.” One-way ANOVA found no significant differences between the CWD Zone and other counties by year for any of the attitudinal items, and the independent sample t-test likewise showed no significant difference between years.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat of CWD exaggerated</td>
<td>22%</td>
<td>11%</td>
<td>18%</td>
<td>11%</td>
</tr>
<tr>
<td>Risk to deer, not to humans</td>
<td>13%</td>
<td>19%</td>
<td>14%</td>
<td>19%</td>
</tr>
<tr>
<td>Some risk to humans exists, but not enough is known to be sure</td>
<td>49%</td>
<td>54%</td>
<td>55%</td>
<td>53%</td>
</tr>
<tr>
<td>Can possibly infect humans if they eat infected meat</td>
<td>17%</td>
<td>18%</td>
<td>14%</td>
<td>18%</td>
</tr>
<tr>
<td>CWD Zone/Other Counties</td>
<td>F = 3.01 (p = 0.083, eta = 0.034)</td>
<td></td>
<td>F = 2.27 (p = 0.132, eta = 0.037)</td>
<td></td>
</tr>
<tr>
<td>CWD Zones/Other counties by years</td>
<td>t = 1.11 (p = 0.269)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Slight changes were observed for anticipated changes in hunter behavior in response to CWD (Table 4). More hunters in both the CWD Zone and other counties in the 2003-2004 survey stated they did not plan to change their hunting behaviors than did hunters in the 2002-2003 survey: 58% CWD Zone hunters from the 2002-2003 survey and 65% of CWD Zone hunters from the 2003-2004 survey anticipated no change in hunting behavior. Likewise, most hunters (63% and 72%, respectively) from outside of the CWD Zone did not foresee changes in their hunting due to CWD. Comparing the 2003-2004 survey to the 2002-2003 survey, more hunters (26% vs. 24%) in the CWD Zone planned to check a deer’s behavior before attempting to harvest it, but fewer hunters (19% vs. 21%) in other counties planned to do so. Fewer hunters in the 2003-2004 survey, compared to the 2002-2003 survey, planned to check to see if CWD is
in the county they hunted. No significant changes were noted for mean attitude comparisons (one-way ANOVA) between CWD Zone and other counties among responses to either the 2002-2003 survey or the 2003-2004 survey. However, significant differences ($t = 5.96, p < 0.001$) were noted in comparisons between the two surveys.

<table>
<thead>
<tr>
<th>Planned Behavior</th>
<th>2002-2003 CWD Zone (n=156)</th>
<th>Other Counties (n=2527)</th>
<th>2003-2004 CWD Zone (n=42)</th>
<th>Other Counties (n=1300)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>58%</td>
<td>63%</td>
<td>65%</td>
<td>72%</td>
</tr>
<tr>
<td>Check deer behavior before shooting</td>
<td>24%</td>
<td>21%</td>
<td>26%</td>
<td>19%</td>
</tr>
<tr>
<td>Plan to hunt different location</td>
<td>1%</td>
<td>&lt;1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Check to see if CWD is in area I hunt</td>
<td>14%</td>
<td>15%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>Consider not hunting</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>CWD Zone/Other Counties</td>
<td>F = 0.18 (p = 0.669, eta = 0.008)</td>
<td>F = 0.022 (p = 0.882, eta = 0.004)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CWD Zones/Other counties by years</td>
<td>$t = 5.96 (p &lt; 0.001)$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A comparison of hunters’ perceptions of risks from CWD, insect-borne diseases, and food-borne illnesses showed more hunters perceived CWD to be a lesser threat than contracting Lyme Disease or West Nile Virus, but a higher threat than contracting BSE, another food-borne disease (Table 5). A higher percentage of hunters were unsure about CWD than the other five illnesses listed; 3 times as many hunters were unsure about contracting CWD compared to contracting West Nile Virus. Chi-square analysis comparing the 6 risk factors by CWD Zone versus other counties hunted showed no significant differences.
Table 5. Perceived risks among Illinois deer hunters of CWD and similar illnesses, 2003-2004 (n=1,342).

<table>
<thead>
<tr>
<th>Perceived Level of Risk</th>
<th>None</th>
<th>Slight</th>
<th>Moderate</th>
<th>High</th>
<th>Undecided</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Becoming ill from CWD</td>
<td>18%</td>
<td>51%</td>
<td>15%</td>
<td>7%</td>
<td>9%</td>
<td>2.53</td>
</tr>
<tr>
<td>Risk of contracting Lyme Disease</td>
<td>7%</td>
<td>49%</td>
<td>33%</td>
<td>8%</td>
<td>4%</td>
<td>2.37</td>
</tr>
<tr>
<td>Becoming ill from E. coli bacteria</td>
<td>21%</td>
<td>48%</td>
<td>18%</td>
<td>8%</td>
<td>4%</td>
<td>2.24</td>
</tr>
<tr>
<td>Becoming ill from Salmonella poisoning</td>
<td>24%</td>
<td>48%</td>
<td>17%</td>
<td>8%</td>
<td>4%</td>
<td>2.20</td>
</tr>
<tr>
<td>Eating meat contaminated with mad cow disease</td>
<td>34%</td>
<td>42%</td>
<td>10%</td>
<td>9%</td>
<td>5%</td>
<td>2.08</td>
</tr>
<tr>
<td>Contracting West Nile Virus</td>
<td>9%</td>
<td>47%</td>
<td>31%</td>
<td>11%</td>
<td>3%</td>
<td>2.53</td>
</tr>
</tbody>
</table>

Cluster Analysis

K-means cluster analysis produced four distinct clusters (Table 6). The first cluster was comprised of individuals who did not perceive any of the risks of disease as potentially threatening, as each risk factor was rated “No Risk”, with the exception of contracting BSE which was centered on “None”. This first group was labeled “Risk Insensitive.” The second cluster perceived insect-borne illnesses and CWD to be “Risk Moderate” threats but did not view other food-borne illnesses as a serious risk. Cluster three was labeled “TSE Insensitive” as these individuals perceived the insect and food-borne illnesses as “Risk Moderate”, however, CWD and BSE were considered low risks. The fourth cluster was labeled “Risk Sensitive” because five of the six risk factors (all but Lyme Disease) were considered “Risk High” by members of this group. One-way ANOVA showed no significant difference among group membership between hunters in the CWD Zone and other counties. Hunters assigned to the Risk Insensitive group (Cluster 1) were most likely to have participated in the 2003-2004 deer season, whereas
hunters in the Risk Sensitive group (Cluster 4) were much less likely to have hunted during the season (Table 7). Approximately one-third of hunters in both the TSE Insensitive group (Cluster 3) and the Risk Sensitive group did not hunt during the 2003 deer season, compared to 17% of hunters in the Risk Insensitive group.

Table 6. Cluster centers for Illinois hunter perceptions of CWD risk, 2003-2004 (n=1,342).

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Cluster 1 (n = 607)</th>
<th>Cluster 2 (n = 380)</th>
<th>Cluster 3 (n = 211)</th>
<th>Cluster 4 (n = 123)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of contracting Lyme disease</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Becoming ill from CWD</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Becoming ill from E. coli bacteria</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Becoming ill from Salmonella poisoning</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Eating meat contaminated with mad cow disease</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Contracting west Nile virus</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Columns present mean cluster centroids for each risk factor. Scale: 1 = "No risk", 2 = "Low Risk", 3 = "Moderate Risk", 4 = "High risk".

Table 7. Logit comparisons for participation during 2003-2004 Illinois deer seasons by CWD risk cluster.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>&quot;Did you hunt during the 2003 Illinois firearm season?&quot;</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Insensitive (n = 607)</td>
<td>17% No</td>
<td>83% Yes</td>
</tr>
<tr>
<td>Risk Moderate (n = 380)</td>
<td>21% No</td>
<td>79% Yes</td>
</tr>
<tr>
<td>TSE Insensitive (n = 211)</td>
<td>36% No</td>
<td>64% Yes</td>
</tr>
<tr>
<td>Risk Sensitive (n = 123)</td>
<td>36% No</td>
<td>64% Yes</td>
</tr>
</tbody>
</table>

Discussion

Illinois deer hunters statewide did not perceive CWD to be a serious threat during and immediately following the 2002-2003 season; however, the perceived risk of becoming ill from
CWD shifted somewhat by the following year. Fewer hunters surveyed during the second year of CWD in Illinois viewed the disease as a non-existent threat and relatively more hunters saw it as a slight threat to their health. Although this shift in attitudes was evident throughout the state, it was more pronounced in those counties where CWD was present. No corresponding shift in perceptions were noted for ratings of moderate to high risk; however, fewer hunters were undecided during the 2003-2004 survey compared to the 2002-2003 survey. Overall, hunters seemed to be more apt to view CWD as somewhat of a threat, but not a serious one. As more information is provided about CWD, hunters may be making informed decisions about the risk of the disease to themselves and others.

Attitudes toward CWD as a threat to humans, deer, or as an exaggerated issue did not change significantly between 2002-2003 and 2003-2004, although significant differences were noted between hunters from CWD counties and the remainder of the state for both time periods. For both years and across county type, 49-55% of hunters felt that although CWD may pose a risk to humans, not enough was known of the effects to be sure. Slightly less than one-fifth of hunters in both groups reported that they felt CWD could be contracted by humans eating meat from infected deer. These responses suggest hunters are unsure of the ability of CWD to transfer across species barriers and invade humans. Such concerns could prove problematic if CWD was to spread beyond current counties that have tested positive for the disease.

Most hunters did not foresee a change in their hunting behaviors from the 2002-2003 to the 2003-2004 Illinois deer seasons, given the level of CWD at the time the studies were conducted. Hunters from the CWD Zone showed an increased level of caution by expressing their intentions of checking the behavior of deer before attempting to harvest them. Few hunters indicated they would apply for permits in other counties because of CWD. The percentage of
hunters who would check to see if CWD was in the area they planned to hunt decreased from 2002-2003 to 2003-2004, likely due to greater publicity about the distribution of CWD during the latter season compared to the previous year when CWD was first discovered.

Not all hunters view CWD as a potential problem. Results of cluster analysis indicate hunters who perceive CWD to be a possible health threat represent a minority of the deer hunters in Illinois. Furthermore, these hunters view threats from other illnesses and diseases in higher regard than do other hunters. Results presented here support findings of Vaske et al. (2004) that suggest hunters who abandoned deer hunting following the discovery of CWD in Wisconsin did so at least in part from concerns about potential risks of CWD. From the findings presented in this paper, there appears to be a segment of the deer hunter population that views threats from wildlife and food-borne diseases as serious. These hunters were among the lowest percentage of participants in the 2003-2004 deer season in Illinois, and although this difference in participation may not be due exclusively to the presence of CWD, their participation was more than 2.5 times lower than hunters who did not perceive CWD to be a threat.

That no demographic factors relating to attitudes toward CWD were found, may be due in part to survey questionnaire content. However, this lack of clear prediction to model attitudes among segments of the deer hunter population may also be related to the manner in which hunters construct threats from wildlife-borne diseases. One possible explanation for this difference in perception of CWD among hunters may be found in the precautionary principle (Star, 2003; Morris, 2002; Mayer, Brown, & Linder, 2002). This principle states that until all information is known about a health threat, the assumption is that a certain degree of probability exists that the threat is legitimate and therefore no action (e.g. eating venison) should be taken that would put the individual at risk. In other words, a substance has a risk until proven
otherwise. The precautionary principle is the mainstay of policy addressing environmental and health hazards in Europe. It is viewed by some to be contrary to the dominant paradigm for policy in the United States, where testing is conducted for a period of time and a product (e.g. medicines) or food item is then deemed to be safe even if not all questions regarding health and safety risks have been completely resolved.

More research is needed to examine hunter response to CWD from established theoretical frameworks in human dimensions, specifically from the perspectives of deer hunter motivations, commitment to deer hunting, and activity substitution. Such research may shed light on hunters who hold extreme views: Those who indicate they would hunt deer no matter the level of CWD and those who plan to drop out of deer hunting at low levels of CWD. Further work is needed to determine hunters' knowledge and construction of CWD, and the influences these factors may have over intentions to continue hunting deer or elk.

Management Implications

Chronic wasting disease is but one threat of wildlife-borne diseases faced by hunters. It is important for management agencies to understand how hunters and other stakeholders construct risk factors and how they arrive at perceptions of risk. Wildlife managers and biologists nationwide are faced with publics that have various levels of concern for threats from diseases not only from wildlife, but also from domestic animals that may cross over into wildlife populations. For example, during fall 2005 media attention toward avian influenza A/H5N1 strain generated calls to state wildlife officials from duck hunters concerned about possible infection as a result of duck hunting (R. Helm, Louisiana Department of Wildlife and Fisheries, personal communication). Given declines in hunter participation in some regions of the United
States and Canada, and declines for hunting certain game species (for example, rabbits and squirrels), adding perceived risks from wildlife-borne diseases could compound efforts by agency officials to increase hunting participation, especially among young hunters. Wildlife managers need to understand stakeholder perceptions of risk and potential threats to participation before they develop plans to reduce at-risk wildlife populations, and this understanding becomes more important if hunting is to be used as the means to reduce these populations. Only through understanding both the biological aspects of the disease (e.g., transmission, infection rates) and the human perceptions of risk from the disease can managers develop effective programs to control or eradicate wildlife-borne diseases.

**Literature Cited**


Figure 1. Cover letter #1 sent with first mailing of the 2002-2003 Illinois Deer Hunter Survey.

Dear Illinois Deer Hunter,

Many important issues face deer hunters in Illinois. Chronic Wasting Disease, use of handguns during firearm season, and land access are just a few of the issues currently affecting Illinois deer hunters. You are one of a few select hunters chosen by the Illinois Department of Natural Resources for this important survey. Your opinions will help us determine how deer hunters like yourself feel about the critical issues of deer hunting and management in Illinois. Please take a few minutes of your time to complete this questionnaire.

The information you and other selected deer hunters furnish our biologists is vital for proper wildlife management and allows us to safeguard deer populations while maximizing hunting opportunities.

This survey is limited to those hunters selected. Please take a few minutes to complete the enclosed questionnaire even if you did not hunt deer during the 2002 seasons. A postage-paid envelope is provided for returning the questionnaire to us.

If you have questions concerning this questionnaire, please call (217) 244-5121.

Thank you for your time and assistance.

Sincerely,

Craig Miller
Human Dimensions Program Leader

607 East Peabody Drive, Champaign, Illinois 61820-6970 USA
(217) 333-6880 Fax (217) 333-4949
http://www.inhs.uiuc.edu
Dear Illinois Deer Hunter,

You were recently mailed a questionnaire asking for your input on the many important issues face deer hunters in Illinois. We have not received your completed questionnaire. Perhaps you have mailed it to us and it has not yet arrived. If so, we thank you. We have included a second copy of the questionnaire for you to complete, in the event that the first copy we sent you has been misplaced.

You are one of a few select hunters chosen by the Illinois Department of Natural Resources for this important survey. Your opinions will help us determine how deer hunters like yourself feel about the critical issues of deer hunting and management in Illinois. Please take a few minutes of your time to complete this questionnaire.

The information you and other selected deer hunters furnish our biologists is vital for proper wildlife management and allows us to safeguard deer populations while maximizing hunting opportunities.

This survey is limited to those hunters selected. Please take a few minutes to complete the enclosed questionnaire even if you did not hunt deer during the 2002 seasons. A postage-paid envelope is provided for returning the questionnaire to us.

If you have questions concerning this questionnaire, please call (217) 244-5121.

Thank you for your time and assistance.

Sincerely,

Craig Miller
Human Dimensions Program Leader
Dear Illinois Hunters,

You have been selected to participate in the Illinois Deer Hunter Survey. A survey questionnaire was recently mailed to you. We have not received your questionnaire. If you have returned this questionnaire, we thank you. If you have not returned the questionnaire, please do so as soon as possible. Your input is important.

Your name and address will be deleted from our mailing list when your questionnaire is received.

Thank you for your cooperation.
Illinois Deer Hunter Survey

Important Issues Facing Illinois Deer Hunters

ALL RESPONSES ARE CONFIDENTIAL

THANK YOU FOR YOUR COOPERATION!

Postage-paid return envelope provided

The Department of Natural Resources is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under the Illinois Compiled Statutes, The Wildlife Code, Chapter 520. Disclosure of information is voluntary.
Section 1. Hunting Experience. Please complete the following questions related to your deer hunting experience.

1. In which of the following seasons did you hunt deer during the 2002-03 Illinois deer seasons?
   - archery season
   - muzzleloader season
   - youth-only season
   - firearm season
   - handgun season

2. In which Illinois county did you hunt deer most often during the 2002-03 Illinois deer seasons?
   ________________________________ County

3. How many total days (for all types of deer hunting) did you hunt deer during the 2002-03 Illinois hunting seasons?  
   Note: Part of a day counts as one day.
   - 1 day
   - 8-10 days
   - 17-19 days
   - More than 25 days
   - 2-4 days
   - 11-13 days
   - 20-22 days
   - 5-7 days
   - 14-16 days
   - 23-25 days

4. How many total days (for all types of deer hunting) did you spend preparing to hunt (scouting, practice shooting, etc.) deer during the 2002-03 Illinois hunting seasons?
   - 1 day
   - 8-10 days
   - 17-19 days
   - More than 25 days
   - 2-4 days
   - 11-13 days
   - 20-22 days
   - 5-7 days
   - 14-16 days
   - 23-25 days

5. How many deer did you harvest during the 2002-03 Illinois deer hunting seasons? Please write the number of deer harvested in the space provided by the appropriate season.
   - Archery ___ buck ___ doe
   - Firearm ___ buck ___ doe
   - Muzzleloader ___ buck ___ doe
   - Handgun ___ buck ___ doe

6. How many deer have you harvested in Illinois during the past 5 years?
   - Archery ___ buck ___ doe
   - Firearm ___ buck ___ doe
   - Muzzleloader ___ buck ___ doe
   - Handgun ___ buck ___ doe

7. How many years total have you hunted deer? _______ years

8. How many years have you hunted deer in Illinois? _______ years
9. Would you support regulations permitting handguns to be used during firearm deer season statewide (in all but Cook and surrounding counties)?
   _____ Yes  _____ No

9a. If you would not support regulations permitting handguns to be used during firearm deer season please select the one statement that best describes your reason:

   Please choose one response
   _____ 1) there would be too many hunters afield
   _____ 2) it would create an unsafe hunting environment
   _____ 3) it would increase the number of handguns in Illinois
   _____ 4) handgun hunters would disrupt my hunt
   _____ 5) other (please explain): ________________________________

10. If handguns were allowed to be used during firearm season, would you hunt deer with one?
    _____ Yes  _____ No

11. Which of the following describes how often you hunt deer in Illinois? Choose one.
    _____ every year  _____ most years  _____ some but not most years

11a. If you don’t hunt every year, do you buy an Illinois hunting license each year?
    _____ Yes  _____ No

12. Have you (as an Illinois resident) hunted deer or elk as a nonresident in a state other than Illinois?
    _____ Yes  _____ No (Please go to question 17)

13. In which state(s) have you hunted?: ________________________________

14. Did you hunt with a guide or outfitter?  _____ Yes  _____ No

15. What type of deer or elk hunting did you do in other states? Please check all that apply.
    _____ firearm  _____ archery  _____ muzzleloader  _____ handgun

16. How often did you hunt deer or elk in another state? Please check one response.
    _____ 1) more than 10 seasons  _____ 3) 2 - 5 seasons
    _____ 2) more than 5 seasons, but less than 10  _____ 4) one season

17. Do you plan to hunt deer or elk in another state in the upcoming year (2003)?
    _____ Yes  Which state(s)?: ________________________________
    _____ No
18. Do you watch deer hunting shows on television?  _____ Yes  _____ No (Go to question 21)

19. If you watch deer hunting shows on television, how often have you watched shows in the past 12 months?
   _____ 1) Every week  _____ 3) Between 5 and 12 times in the past year
   _____ 2) About 3 times a month  _____ 4) Less than 5 times in the past year

20. Which of the following best describes your reasons to watch hunting programs on television? Please choose one response.
   _____ 1) to learn new hunting techniques  _____ 3) to learn about wildlife management
   _____ 2) to get ideas where to take hunting trips  _____ 4) to see hunts in different locations
   _____ 5) to be entertained

21. Have you ever heard of the Quality Deer Management Association?  _____ Yes  _____ No

22. Please rate the deer population for the county where you hunt deer most often. Circle the number that matches your response.

<table>
<thead>
<tr>
<th>Too Low</th>
<th>Low</th>
<th>About Right</th>
<th>High</th>
<th>Too High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

23. What do you feel is the level of the deer population where you hunt deer most often compared to 5 years ago? Please circle the number that matches your response.

<table>
<thead>
<tr>
<th>Much Higher</th>
<th>Higher</th>
<th>Somewhat Higher</th>
<th>About the Same</th>
<th>Somewhat Lower</th>
<th>Lower</th>
<th>Much Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

24. In your opinion, which of the following describes the buck to doe ratio where you hunt?
   _____ not enough bucks per doe
   _____ about right mix of does to bucks
   _____ too many bucks to does

25. In your opinion, what would be the ideal buck to doe ratio for the area where you hunt?
   _____ 1 buck to 1 doe  _____ 2 bucks to 1 doe
   _____ 1 buck to 2 does  _____ 3 bucks to 1 doe
   _____ 1 buck to 5 does  _____ 5 bucks to 1 doe
   _____ 1 buck for 10 does  _____ other (please give ratio): ___________
The statements below apply only to exotic and domestic big game (deer, elk, and other big game). These statements do not involve shooting preserves for small game such as pheasants, quail, or chukar partridge. Please give your opinion of the following statements by circling the number that matches your response.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Unsure</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shooting deer or elk inside a fenced enclosure is an acceptable practice.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Shooting any big game animal inside a fenced enclosure should be illegal.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Game ranches allow hunters to shoot game animals they would otherwise not be able to hunt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I feel it is inhumane to shoot tigers, lions, or other exotic game in pens.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Shooting animals inside enclosures is not hunting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I don’t see anything wrong with shooting exotic game in pens if the hides and meat are used.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Game ranches that allow hunters to shoot game can help improve public perception of hunting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Game ranches reduce hunting pressure on wild populations.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Game ranches will help preserve the legacy of hunting in North America.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I feel it is acceptable to shoot domesticated animals such as hogs inside fenced areas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Shooting exotic game in enclosures allow hunters to get trophies they could not otherwise.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Shooting game animals inside fenced enclosures gives hunting a bad name.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
1. Have you heard about Chronic Wasting Disease (CWD) in deer?  
   _____ Yes  
   _____ No (Please go to Question 4)

2. If “Yes,” have you heard about CWD in: (Please check all that apply)  
   _____ Illinois  
   _____ Wisconsin  
   _____ States other than Wisconsin and Illinois

3. If “Yes,” how did you hear about CWD? Please check all that apply.  
   _____ outdoor magazines  
   _____ newspaper  
   _____ television news  
   _____ television program (for example, Animal Planet or other program)  
   _____ radio  
   _____ hunting or sportsmen’s club meeting  
   _____ friends or relatives  
   _____ hunting or sportsmen’s club newsletter  
   _____ internet  
   _____ other (please identify): ______________________

4. Please give your opinion of the risk of the following by circling the number that matches your response.

<table>
<thead>
<tr>
<th>Risk</th>
<th>No Risk</th>
<th>Slight Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
<th>Undecided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>Contracting Lyme’s disease</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Risk</td>
<td>Becoming ill from Chronic Wasting Disease</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Risk</td>
<td>Having a heart attack while hunting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Risk</td>
<td>Being involved in a vehicle accident while traveling to hunt</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Risk</td>
<td>Contracting Rabies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Risk</td>
<td>Contracting West Nile Disease</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

5. Please indicate your concern of impact on the deer herd in Illinois due to the following factors.

<table>
<thead>
<tr>
<th>Concern</th>
<th>Not Concerned</th>
<th>Slightly Concerned</th>
<th>Moderately Concerned</th>
<th>Very Concerned</th>
<th>Undecided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact</td>
<td>Decrease due to CWD</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Impact</td>
<td>Loss of habitat to housing or commercial developments</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Impact</td>
<td>Decrease from West Nile Disease</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Impact</td>
<td>Overharvest of trophy bucks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Impact</td>
<td>Loss of habitat to agriculture</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
6. Did you hunt during the 2002 Illinois firearm deer season?
   _____ Yes (Please go to question 7)  _____ No

6a. If “No,” please choose the one statement below that best describes your reason for not participating:
   _____ 1) I hunt only during archery season
   _____ 2) I did not have time
   _____ 3) no place to hunt
   _____ 4) other (Please explain): ____________________________

7. Did the discovery of CWD in Illinois change your hunting during the 2002 firearm deer season?
   _____ No, I hunted more than in past years
   _____ No, I hunted as much as in past years
   _____ Yes, I hunted less than in past years
   _____ Yes, I hunted only deer that acted healthy
   _____ Yes, I hunted only large buck

8. Do you think the presence of CWD will make changes in your hunting during the 2003 deer season?
   _____ No change, I plan to hunt the same as always
   _____ I will check how deer was acting before shooting
   _____ I plan to hunt a different location
   _____ I will check to see if CWD is in the area where I plan to hunt
   _____ I will consider not hunting deer in Illinois because of CWD

9. If you decide not to hunt deer due to the presence of CWD where you usually hunt, what would you do instead? Please place a check next to the one statement that best matches what you would do.
   _____ 1) hunt deer in a county in Illinois that did not have CWD
   _____ 2) hunt deer in a CWD-free state
   _____ 3) hunt other game that was in season at the same time in Illinois (for example geese)
   _____ 4) skip deer hunting for that season only
   _____ 5) skip deer hunting until CWD was eradicated in the county where I hunt
   _____ 6) stop hunting deer altogether

10. Which of the following describes your opinion of CWD? Please check one response.
    _____ 1) the threat of CWD has been exaggerated
    _____ 2) CWD poses some risk to deer, but not to humans
    _____ 3) CWD may pose some risk to humans, but not enough is known to be sure
    _____ 4) CWD can possibly infect humans if they eat meat from animals infected with it

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The presence of CWD may change deer hunting for some deer hunters. Please use the statements below to provide your response to each scenario and write the letter that matches your response in the space provided.

A. I will hunt as usual and eat deer meat if I harvest a deer
B. I will hunt as usual and eat deer meat, but my family will not
C. I will hunt as usual, but not eat deer meat
D. I will hunt as usual, but only eat deer meat if I am first able to have it tested for CWD
E. I will hunt deer in a different county
F. I will not hunt deer in Illinois, but will go out of state to hunt deer
G. I will not go deer hunting at all

11. If CWD is found in the county next to where you hunt deer, will you change any of your deer hunting habits?
   Your Response: ______

12. If one deer tested positive for CWD in the county where you hunt deer, will you change any of your deer hunting habits?
   Your Response: ______

13. If 10 deer tested positive for CWD in the county where you hunt deer, will you change any of your deer hunting habits?
   Your Response: ______

14. If 20 deer tested positive for CWD in the county where you hunt deer, will you change any of your deer hunting habits?
   Your Response: ______

15. If 50 deer tested positive for CWD in the county where you hunt deer, will you change any of your deer hunting habits?
   Your Response: ______

16. If more than 50 deer tested positive for CWD in the county where you hunt deer, will you change any of your deer hunting habits?
   Your Response: ______
### Section 3. Opinions toward deer hunting in Illinois.

Please give your opinions of deer hunting in **ILLINOIS** by circling the number that matches your response.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Unsure</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The chance to harvest a trophy buck is an important part of why I hunt deer.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I usually shoot at the first legal deer, regardless of buck or doe.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Hunting for trophy bucks has ruined deer hunting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>More emphasis should be placed on producing trophy deer.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Seeing deer is an important part of the hunt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Attention should be placed on providing food plots for producing high quality deer.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Deer managers should focus on providing bucks with large racks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Shooting a deer should involve fair chase.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I am disappointed when I don’t get any shots when deer hunting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Hunters should resist shooting bucks with smaller racks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Hunters should harvest more does to increase the number of bucks in the herd.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Some of my best days hunting are when I don’t see any deer.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I usually pass on shots at does in order to take a buck.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Private deer herds improve the genetic stock of deer herds.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Harvesting smaller bucks will help produce a healthy herd.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Section 4. Hunting Access. Please answer the following questions about land access for deer hunting in ILLINOIS.

1. On which of the following types of property did you hunt most often during the 2002-03 deer seasons? Please list the counties hunted and place a check in the box below the category that matches your response.

<table>
<thead>
<tr>
<th>County or counties where you hunted</th>
<th>State lands (state parks, conservation areas, etc.)</th>
<th>Federal lands (national wildlife refuges, national forest, etc.)</th>
<th>My own private property</th>
<th>Private property not owned by me</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firearm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muzzleloader</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handgun</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Have you ever lost hunting access to land where you hunted deer in Illinois?
   _____ Yes   _____ No (Please go to Section 5)

3. How long had you hunted deer on the land where you lost access? _____ Years

4. In what county was the land where you lost access? ____________________________ County

5. What type of land ownership was the land where you lost access for deer hunting? Please choose one response.
   _____ 1) private land owned by one landowner who lived on the land
   _____ 2) private land owned by one landowner who lived outside of the area
   _____ 3) private land owned by a land trust
   _____ 4) private land owned by a corporation
   _____ 5) public land
   _____ 6) not sure who owned the land

6. What was the reason why you lost access to the land where you used to hunt deer? Please choose one response.
   _____ 1) land was sold to another landowner
   _____ 2) land was sold to a developer
   _____ 3) land was leased by other hunters
   _____ 4) land was leased by a guide or outfitter
   _____ 5) landowner decided to discontinue allowing hunters on the land
   _____ 6) land use changed (for example timber harvested, mined, or quarried)
   _____ 7) other (please explain): ____________________________________________
7. If you lost access to the land where you used to hunt, did you find other land?
   ______ Yes, other private land in the same county
   ______ Yes, other private land in another county  What county? __________________________
   ______ Yes, public land in the same county
   ______ Yes, public land in another county
   ______ No, I have not found other land

8. How did losing access to your deer hunting spot affect your time spent deer hunting? Please circle the number that matches your response.

   Decreased Considerably  Decreased Moderately  Decreased Slightly  No Change  Increased Slightly  Increased Moderately  Increased Considerably
   1  2  3  4  5  6  7

9. How long did it take you to find other land on which to hunt? Please check one response.
   ______ 1) more than 1 year
   ______ 2) between 6 months and a year
   ______ 3) more than 1 month, but less than 6 months
   ______ 4) less than a month
   ______ 5) I’m still looking
   ______ 6) I gave up looking and no longer hunt deer, but now hunt other game species closer to home
   ______ 7) I gave up looking and no longer hunt at all

10. How would you rate your efforts to find new land on which to hunt deer in Illinois? Please circle the number that matches your response.

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Somewhat Difficult</th>
<th>Undecided</th>
<th>Somewhat Easy</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

11. How do you search for new land for hunting deer?
   ______ go from door to door asking landowners
   ______ use plat maps to locate promising spots then go to landowners’ homes
   ______ use plat maps to locate promising spots then call landowners’ homes
   ______ ask friends and relatives if they know anyone who will let me hunt
   ______ ask employees of Illinois Department of Natural Resources for references to landowners
   ______ all of the above
   ______ other (please explain): ____________________________________________
### Section 5. Attitudes toward deer hunting.

Please give your attitudes toward the following statements by circling the number that matches your response.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Unsure</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunting determines much of my lifestyle.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Deer hunting is one of the most important activities in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I spend a lot of time before the season scouting the area I will hunt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I plan vacation time around deer season.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Deer hunting is a test of skill.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I spend a lot of time in the off-season planning for the hunt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I would rather go hunting than any other recreation activity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>If I cannot find anyone to hunt with me I often go alone.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I hunt deer for the challenge.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I am disappointed when I don’t get any shots when deer hunting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>It takes a great deal of skill to be a successful deer hunter.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Practicing with my equipment contributes to my hunting enjoyment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Deer hunting is my favorite type of hunting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I will usually wait as long as possible to take a buck, even if I have to pass on shots at does.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Private deer herds should be viewed the same as domestic livestock.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>The number of bucks needs to be higher in the area where I hunt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Section 6. Background. The following questions are important to help us understand more about the people involved in deer hunting in Illinois. Please tell us something about yourself by checking the responses that apply. All responses are kept confidential.

1. What is your county of residence? ___________________________ County

2. Please give your age. _____ years

3. What is your gender? _____ Male _____ Female

4. What is your ethnic/cultural group? (Please check one number)
   _____ 1) Caucasian/White
   _____ 2) African-American
   _____ 3) Asian-American
   _____ 4) Hispanic
   _____ 5) Native American (American Indian)
   _____ 6) Other (please specify) ___________________________

5. What is the highest level of education you have completed? (Please check one number)
   _____ 1) Less than high school
   _____ 2) Graduated high school
   _____ 3) Technical/Vocational school
   _____ 4) Some college
   _____ 5) Associate degree (2 years of college)
   _____ 6) Bachelor's degree
   _____ 7) Some graduate study
   _____ 8) Graduate degree or professional school

6. How would you describe the size of your community? (Please check one number)
   _____ 1) Rural, farm
   _____ 2) Rural non-farm
   _____ 3) Small town, under 10,000 people
   _____ 4) Small city, 10,000 to 100,000 people
   _____ 5) Mid-sized city, 100,000 to 1 million people
   _____ 6) Large city, over 1 million people

7. What was your approximate total household income before taxes in 2001? (Check one number)
   _____ 1) Under $20,000
   _____ 2) $20,000-$39,999
   _____ 3) $40,000-$59,999
   _____ 4) $60,000-$79,999
   _____ 5) $80,000-$99,999
   _____ 6) $100,000 or more

8. Have you or any member of your family participated in a youth deer hunt in Illinois during the past 5 years?
   _____ Yes _____ No

9. Do you belong to any national, state, or local hunting/conservation organizations?
   _____ Yes Please identify: ___________________________
   _____ No

10. Do you subscribe to hunting magazines?
    _____ Yes
    _____ No

11. Have you ever attended an outdoor show that emphasizes deer hunting in Illinois (for example, the Illinois Deer Classic)?
   _____ Yes
   _____ No

   11a. If you attended an outdoor show that emphasizes deer hunting in Illinois, how often do you attend?
   _____ 1) every year
   _____ 2) most years, but not every year
   _____ 3) only a few years
   _____ 4) I've only attended one

12. Have you ever attended an outdoor show in a state other than Illinois that emphasizes deer hunting?
   _____ Yes  What state(s)?: __________________________
   _____ No

   12a. If "Yes," how often do you attend?
   _____ 1) every year
   _____ 2) most years, but not every year
   _____ 3) only a few years
   _____ 4) I've only attended one

In your opinion, what is the most serious issue facing deer hunting in Illinois?
Do you feel the Illinois Department of Natural Resources should make changes to improve deer hunting in Illinois? If so, please explain.
OTHER COMMENTS

If you have further comments regarding deer hunting and management in Illinois, we’d like to hear from you. Please provide your comments on this page and the following pages.
This study is funded through federal Wildlife Restoration dollars through your purchase of hunting arms and ammunition.

Thank you for your time and assistance!

Your input will help us understand more about hunters and hunting in Illinois.