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**A MIXED-METHOD EXAMINATION OF FACTORS
RELATED TO HUNTING PARTICIPATION**

A Thesis in
Recreation, Park, and Tourism Management

by
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ABSTRACT

This study examined the underlying factors that contribute to hunting participation. My primary goal was to provide insight into the roles that involvement, social support, and participation in other activities play in hunting participation and to link these factors to existing patterns of hunting behavior and socio-demographic characteristics.

My results are presented in three separate chapters. The first tested a path model of hunting participation. Involvement level was moderated by social support when predicting hunting participation. Years at current address, rurality, education, and age did not contribute to explaining hunting participation in the hierarchical regression model.

The second chapter examined the effects of participation in multiple activities. A mixed-method approach was used to test the relationship between participation in hunting and other activities. Hierarchical regression analyses revealed that increased hunting participation is predicted by higher levels of hunting involvement and increased participation in consumptive/hunting-related and motorized activities. Qualitative data suggest that hunters participated in a wide variety of activities. Level of involvement was related to activity choice where avid hunters tended to participate more in consumptive/hunting-related activities.

The third chapter used qualitative data to examine the relationships between involvement, social support, and hunting participation. Level of involvement was related to participation in hunting and related activities, importance of hunting, and identification with hunting. However, not all responses displayed the same trends which suggest that level of involvement is related but may interact with other factors when predicting hunting participation. Direct social support seemed to have a significant positive influence on hunters' participation behavior. Indirect social support was primarily perceived as having no influence on hunting participation. There was

some evidence that social support was related to level of involvement but findings were inconsistent.

Altogether, these findings suggest that involvement and social support are important predictors of hunting participation and help to extend current knowledge. The development of explicit measures to examine these factors is needed in order to use them in future models. Findings also suggest that participation in multiple activities is complex and does not necessarily inhibit participation in any one activity. Future research is needed that examines how multiple activities may overlap and afford participation in other activities.

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CHAPTER 1

INTRODUCTION

Hunting participation is complex because it is influenced by numerous factors that often interact with each other. These interactions complicate the ability to identify the role each factor plays singly as a predictor of participation. While many of these factors, such as socio-demographics, have been identified and documented, the influence of involvement and social support have only been hypothesized and little empirical evidence exists on their role in predicting hunting participation. As a result, this study was designed to better understand and explain the underlying factors that contribute to hunting participation. The primary purpose of this study was to provide insight into the roles that involvement, social support, and participation in other activities play in hunting participation. My goal was to link these factors to existing patterns of hunting behavior and socio-demographic characteristics (e.g., age, residential stability) in an effort to better explain hunting participation. Taken together, they help provide a more comprehensive explanation of hunting participation behavior.

Hunting is often considered quite different from other forms of recreation. However, like many other activities, hunting is a multi-faceted activity that varies in its purpose, benefits, and methods. As such, it is interesting to study in the context of outdoor recreation. For example, although hunting is a culturally important and traditional activity, it is in a steady rate of decline (Brown et al., 2000; Heberlein & Thomson 1992, 1996; Kelly & Warnick, 1999; United States Fish and Wildlife Service [USFWS], 2002). This trend is interesting because participation in other consumptive activities (e.g., fishing) is stable and participation in many non-consumptive outdoor activities (e.g., wildlife viewing) is actually increasing (Brown et al., 2000; Kelly & Warnick, 1999; MacFarlane, 1994). Another interesting characteristic of hunting is its ability to

provide a tangible product for participants (Daigle et al., 2002), a characteristic shared with activities as diverse as woodworking, photography, and needlecrafts. Hunting also exhibits a wide range of specialization and diversification among participants allowing hunters to pursue different species and choose a variety of harvesting techniques/weapons. These options help facilitate increased specialization both within specific game seasons and across hunting in general (Schroeder et al., 2006). Motivations to hunt are also highly variable, ranging from the traditional need for food acquisition to the more modern motivations to hunt for sport or trophy (Decker et al. 2001; Decker and Connelly 1989; Enck et al. 1993).

Unlike most other recreation activities, hunting is a closely regulated seasonal activity that must occur within a specified time frame. In addition, hunting serves the purpose of regulating some wildlife populations and generating revenue for conservation (Decker et al., 2001). Some wildlife species, such as white-tailed deer (*Odocoileus virginianus*) and Canada geese (*Branta canadensis*), have become overabundant where densities have exceeded socially and biologically optimal levels. Managers rely on hunting as a tool for regulating these species in order to reduce impacts such as agricultural damage and negative interactions with humans (Decker et al., 2001).

Traditional utilitarian values are not as dominant in modern society and therefore hunting has become a controversial activity (Fulton et al., 1996; Teel et al., 2005). However, hunting is not the only recreation activity that sparks a debate. Other activities such as motorized recreation and horseback riding have raised questions about their impact on the environment and the conflicts that exist between them and other activities. Understanding the factors that influence hunting participation may help explain participation in similar high impact or controversial activities.

Hunting is clearly a multidimensional activity that exemplifies the complexity of understanding activity participation. While hunting is different than many other forms of recreation, it is influenced by similar factors. However, as a unique activity, hunting provides an opportunity to explore activity participation from a different perspective. For this reason, hunting is a worthwhile activity to consider when studying recreation participation.

Summary of Factors Related to Hunting

The future of hunting is unclear because the proportion of the U.S. population that hunts is in an extended period of decline (Brown et al., 2000; Heberlein & Thomson, 1992, 1996; Kelly & Warnick, 1999). General population trends suggest declining hunting participation may be related to four major social trends: declining residential stability, urbanization, increasing levels of education, and increasing participation rates for other non-consumptive outdoor activities.

Residential stability and relocation may reduce participation in hunting or other outdoor activities by altering the make-up of social groups and impeding access to some areas and opportunities (e.g., Burch, 1969; Decker et al., 1984; Purdy & Decker, 1986; Stokowski, 1990; Zinn, 2003). The gradual urbanization and suburbanization of the population has also been found to be negatively correlated with the proportion of residents who hunt (Brown et al., 2000; U.S. Census Bureau, 2000; USFWS, 1997; Wright et al., 2001).

Education may impact hunting participation by stimulating interest in other activities and causing a decrease in traditional utilitarian values that compete with hunting (Godbey, 1994; Inglehart, 1997; Zinn, 2003). Participation in multiple activities may also cause reduced participation in hunting because of competition for time and resources (Scott & Shafer, 2001;

Wright et al., 2001). However, in one empirical study, Zinn (2003) found a positive relationship between hunting participation and participation in other activities. In fact, correlations have been found between hunting and other activities such as fishing, wildlife viewing, and gathering wild foods (USFWS, 2002; Zinn, 2003).

While residential stability, urbanization, education, and activity participation help explain general trends in hunting participation, rates are also related to individual-level factors such as age, level of involvement, and loss of social support networks (Purdy et al., 1989; Wright et al., 2001). Hunting license sales show that the average age of hunters is increasing and there is low recruitment of young hunters. Further, participation in outdoor activities declines with age, suggesting that hunting participation will decrease once hunters reach a certain age (Gordon, Gaitz, & Scott, 1976).

Social support is one of the least-documented factors influencing hunting participation. Evidence suggests that individuals who receive support for hunting continue to hunt (Enck et al., 2000; Purdy et al., 1989). For example, Field and O'Leary (1973) found that social support influenced participation in selected water activities. Likewise, Hibler and Shinew (2002) found that social support was related to leisure activity selection and participation among interracial couples. Trapping is another activity closely related to hunting. Daigle (1997) found that participation in trapping-related activities was associated with support from a variety of social networks (e.g. family, friends, trapping companions). Since there are a variety of ways hunters can receive social support, the question becomes which type and degree of support is the best predictor of participation (Stokowski, 1990)? Direct support, in the form of hunting companions, influences participation by providing opportunities for learning and apprenticeship (Enck et al., 2000). On the other hand, indirect support, such as supportive non-hunting family members, is

also influential in that it surrounds an individual with others who support his or her hunting without actually accompanying him or her in the field.

In recreation, level of involvement reflects the extent to which we devote ourselves to an activity that is important to us and the motivation is for participation that is “enduring and sustained over time” (Funk et al., 2004; Gahwiler & Havitz, 1998; Kyle & Chick, 2004). Findings from the recreation literature suggest that, in general, higher involvement leads to increased participation and/or commitment (Gahwiler & Havitz, 1998; Shamir, 1988). An important finding by Iwasaki and Havitz (2004) was the role of social support in level of involvement and commitment. They found that social support is a predictor of continued involvement and is important in developing commitment among those who are highly involved in an activity (Iwasaki & Havitz, 2004). While the hunting literature often uses the term commitment, we chose to look at involvement. These findings have important implications for understanding hunting participation because they show a direct link between social support and involvement and highlight the importance of social support in fostering continued participation.

While hunting behavior has been studied extensively, the extent to which social support and involvement influences participation is unclear, particularly when considering how they may interact with each other. In addition, systematic studies focusing on these factors are nearly non-existent. The role that other activities (e.g., outdoor, family) play in influencing hunting participation is also unclear. The current study was designed to help bridge the gap of knowledge that currently exists by examining the roles of activity participation, social support, and involvement in conjunction with other factors that have been linked to hunting behavior.

Research Purpose and Approach

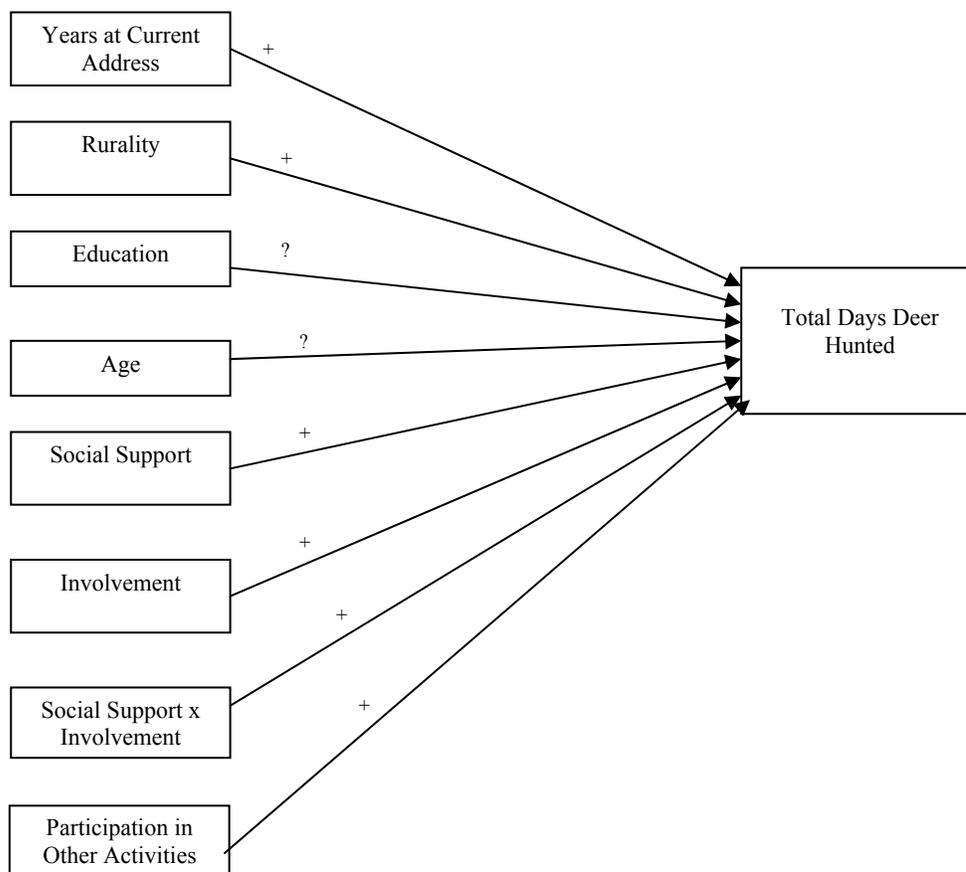
The purpose of this study was to examine how a variety of individual and population level factors influence hunting participation. The complexity surrounding these factors is difficult to measure using only quantitative techniques (DeRuiter & Donnelly, 2002; Babbie, 1998). Qualitative techniques can complement quantitative methods because they are “designed to understand human behavior through an individual point of view” (DeRuiter & Donnelly, 2002, p. 255) and also help “gain insight into cognitive processes that underlie quantitative research” (Manning et al., 2005, p. 205). Therefore, I used a mixed method approach that integrated two distinct phases in order to increase the reliability of the findings. Phase 1 was designed to gather initial data on factors related to hunting participation through a quantitative survey. As a follow-up, Phase 2 was designed to use qualitative interviews to help explain and interpret the findings of the quantitative survey in Phase 1 (Creswell, 2003).

Based on Phases 1 and 2, different aspects of the research purpose were addressed in three separate chapters and relied on a combination of quantitative and qualitative data analysis techniques. The findings are presented in three distinct manuscripts that will be submitted for publication as articles in peer reviewed journals. Article 1 used quantitative data to develop an overall path model of hunting participation. Article 2 used quantitative and qualitative findings to discuss the consequences of participation in multiple activities. Article 3 relied solely on qualitative data to further examine the specific influences that involvement and social support have on hunting participation.

Hypothesized Model

The model included the factors: years at current address, rurality, education, age, social support, involvement, total days hunted, and the moderation interaction between social support and involvement. A simple model of these relationships might look like Figure 1.1.

Figure 1.1. Hypothesized model of hunting participation.



Phase 1 Overview

Hypotheses and Research Questions

Seven hypotheses were used to guide Phase 1 of the study and were developed based on previous research:

H1. Residential stability will be positively related to deer hunting participation.

H2. Rurality will be positively related to deer hunting participation.

H3. Education will be related to deer hunting participation.

H4. Age will be related to deer hunting participation.

Hypotheses 1 and 2 indicate that I expect deer hunting participation to be positively related to residential stability (Brown et al., 2000; Burch, 1969; Decker et al., 1984; Purdy & Decker, 1986) and rurality (U.S. Fish & Wildlife Service, 1997). Due to conflicting literature on the effects of education and age on hunting and recreation participation, I hypothesized a relationship would exist but did not specify a direction for Hypotheses 3 and 4.

H5. Involvement will be positively related to deer hunting participation.

H6. Social support will be positively related to deer hunting participation.

H7. The relationship between social support and deer hunting will differ based on differing levels of involvement.

Hypotheses 5 through 7 indicate I expect deer hunting participation to be positively related to social support (Enck et al., 2000) and involvement (Gahwiler & Havitz, 1998; Shamir, 1988). Based on research by Iwasaki & Havitz (2004), I also expect social support to moderate the relationship between involvement and deer hunting participation.

Two research questions were also used to guide Phase 1 of the study:

RQ1. Does participation in one activity, such as hunting, come at the expense of another activity?

RQ2. Do certain activities afford participation in other activities?

Methods

Phase 1 involved the administration of a quantitative mail survey to assess past, current, and expected future hunting participation and relationships to involvement, social support, and socio-demographic characteristics. The study population was adult Pennsylvania hunters and the sampling frame was Pennsylvania hunting license holders 18 years and older from the 2002-2003 license year. Because of the number and complexity of the questions asked and growing public resistance to telephone surveys (Dillman, 2000), a mail survey was used. To offset low hunting license sales among Pennsylvanians younger than 25 (C. Rosenberry, personal communication, 2004), and obtain adequate numbers of younger hunters, stratified sampling was used to create two age groups: young adult hunters, 18 to 24 years old, and mature hunters, 25 years old and older. Questionnaires were mailed to 900 hunters in each age group in order to increase potential response rates.

Phase 2 Overview

Hypotheses and Research Questions

Several research questions from Phase 1 were used to guide Phase 2 in order to obtain additional information:

RQ1. Does participation in one activity, such as hunting, come at the expense of another activity?

RQ2. Do certain activities afford participation in other activities?

Additional research questions were also developed to explore the role of involvement and social support:

- RQ3. How does participation in hunting and related activities relate to involvement level?
- RQ4. How do direct and indirect social support influence hunting participation?
- RQ5. Is one type of social support perceived as more influential depending on hunters' level of involvement?
- RQ6. Does the importance placed on social support differ depending on hunters' level of involvement?

Methods

Phase 2 was designed as an extension of Phase 1 in order to gather more in-depth information about the role of involvement, social support, and participation in other activities as they relate to hunting participation. The lack of previous work on these factors suggests an exploratory approach is necessary to identify how they might be linked to hunting participation and to each other (DeRuiter & Donnelly, 2002). Therefore, I used qualitative interviews to gather in-depth information designed to explore the relationships among these factors. The study population was Pennsylvania hunters 18 years of age and older. Purposive sampling and a standard snowball technique using key contacts in the hunting community were used to select participants with different levels of hunting involvement (Babbie, 1998; Gall, 1996). Rather than identify a specific sample, data were collected until saturation occurred (Patton, 1990). Consultation with researchers who had collected similar information from similar populations suggested a sample size of 15 to 20 hunters with diverse characteristics was acceptable.

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Orientation to Chapter 2

This chapter is a manuscript that will be submitted to *The Journal of Wildlife Management* or *Human Dimensions of Wildlife* for publication. The purpose of this manuscript is to explore the roles that residential stability, education, age, rurality, social support, and involvement play in predicting deer hunting participation. A path model that illustrates the relationships among these variables is included in this manuscript. The specific hypotheses examined are:

- H1. Residential stability will be positively related to deer hunting participation.
- H2. Rurality will be positively related to deer hunting participation.
- H3. Education will be related to deer hunting participation.
- H4. Age will be related to deer hunting participation.
- H5. Involvement will be positively related to deer hunting participation.
- H6. Social support will be positively related to deer hunting participation.
- H7. The relationship between social support and deer hunting will differ based on differing levels of involvement.

CHAPTER 2

TESTING A PATH MODEL OF DEER HUNTING PARTICIPATION IN PENNSYLVANIA

Abstract

In response to a long decline in hunting participation, theorists have proposed a number of factors that facilitate or inhibit participation. Empirical tests of these relationships have yielded inconsistent results. Using quantitative data from a 2003 mail survey, I tested the role of six factors in a multiple regression path model. These factors included residential stability, rurality, education, age, social support, and level of involvement. I also included the moderated relationship between involvement and social support. Overall, involvement, social support, and their interaction explained approximately 22% of deer hunting participation in the path model. The main effects of residential stability, rurality, education, age and social support did not significantly contribute to the model. Results from the hierarchical regression model indicated that social support moderated the relationship between involvement and deer hunting participation. The slope of the regression lines was greatest for high levels of social support at all levels of involvement suggesting that the predicted number of days spent deer hunting increased at a greater rate under conditions of high social support. The regression lines diverged at low-medium involvement suggesting that the predicted number of days spent deer hunting increased at a greater rate under conditions of high social support once hunters reached low-medium levels of involvement. Future research is suggested for developing a more comprehensive model of hunting participation with particular emphasis on refining measures of involvement and social support.

Introduction

Hunting is important to natural resource management because it is a population control tool for some wildlife species, a funding source for management activities, and an activity that consumes a great deal of natural resource managers' attention (Decker et al., 2001). In Pennsylvania, hunting plays an integral role in the management of white-tailed deer, elk, black bear, and other species that can impact human health and safety, agricultural crops, forest regeneration, and residential landscaping. Hunting is a culturally important activity and a traditional form of outdoor recreation. In 2001, it provided for an estimated 858,000 Pennsylvania residents and 142,000 non-residents (United States Fish and Wildlife Service, 2002) with a source of high quality natural foods, opportunities to establish and renew social bonds and intimate connections to the natural environment, and positive use of free time (e.g., Daigle et al., 2002; Decker et al., 2001). In addition to providing these social benefits to individuals, families, and friends, hunting was economically important in Pennsylvania, with resident and non-resident hunters spending an estimated \$941 million in the Commonwealth in (United States Fish and Wildlife Service, 2002).

In spite of hunting's importance, its future is unclear. Absolute numbers of hunters participating in the activity may be stable (Duda et al., 1998; Flather & Cordell, 1995), but the proportion of the U.S. population that hunts is in an extended period of decline (Brown et al., 2000; Heberlein & Thomson, 1992, 1996; Kelly & Warnick, 1999). General population trends suggest the decline in hunting participation may be related to four major social trends: declining residential stability, urbanization, increasing levels of education, and increasing participation rates for other non-consumptive outdoor activities.

While these population-level factors help explain general trends, hunting participation rates are also related to individual-level factors such as involvement and loss of social support networks (Purdy et al., 1989; Wright et al., 2001). For example, social support and involvement directly influence hunting behavior, and some research suggests these factors may help predict long-term participation (Decker et al., 2001; Decker & Connelly, 1989; Enck et al., 2000; Purdy et al., 1989). However, the specific roles that social support and involvement play are less understood, and systematic studies focusing on these factors are nearly non-existent. I will bridge this gap by examining the roles of social support and involvement in conjunction with other factors that have been linked to hunting behavior. Specifically, I will explore the roles that residential stability, rurality, education, age, social support, and involvement play in predicting deer hunting participation.

Literature Review

Residential Stability

Some researchers have suggested that declining residential stability, or length of time living in one area, may directly impact participation in hunting or other outdoor activities by altering the make-up of social groups or impeding access to some areas and opportunities (e.g., Burch, 1969; Decker et al., 1984; Purdy & Decker, 1986; Stokowski, 1990; Zinn, 2003). Relocation of individuals can disrupt recreation social groups, where they may not be replaced at all or are replaced by groups with different recreation preferences and behavior (Zinn, 2003). When relocation separates an individual from known environments it may be difficult to develop a similar level of knowledge about a new area, especially if relationships with social groups that can facilitate the process must be re-established in the new location (Zinn, 2003). Hunting

participation is also linked to traditional utilitarian values and relocation may inhibit the transmission of these values from one generation to another, resulting in lower participation levels in younger generations (Fulton et al., 1996; Vaske et al., 2001; Zinn, 2003; Zinn et al., 2002). Although there is limited evidence, some researchers hypothesize that relocation is likely to reduce hunting participation (Enck et al., 2000).

Rurality

In the U.S., relocation is accompanied by the gradual urbanization and suburbanization of the population (U.S. Census Bureau, 2000; Wright et al., 2001). This change may influence hunting participation both directly and indirectly (Zinn, 2003). Relocating from a rural area to an urban area can directly influence participation by forcing a hunter to travel greater distances to preferred hunting areas or visit hunting areas that are more heavily used than sites used previously (Zinn, 2003). As urban and suburban sprawl encroaches on rural areas, hunting areas may be used more heavily, become fragmented, or be lost to hunting altogether (Zinn, 2003). Not surprisingly, researchers have found a negative correlation between the level of urbanization and the proportion of residents who hunt (Brown et al., 2000; U.S. Fish & Wildlife Service, 1997). Research also suggests that urban hunters are more likely than rural hunters to quit or reduce the amount of time they participate (Klessing, 1970).

Urbanization can also have indirect effects on hunting participation by influencing long-term hunter recruitment (Zinn, 2003). Children who grow up in rural and urban areas are often socialized into recreation differently and participation behavior as a child can predict the recreation choices they will make as adults (Burch, 1969; Buse & Enosh, 1977; Christensen & Yoesting, 1973; Scott & Willits, 1989; Sofranko & Nolan, 1972; Yoesting & Burkhead, 1973;

Yoesting & Christensen, 1978). Specifically, children in urban areas are less likely to have traditional utilitarian values than those growing up in a rural environment (Teel et al., 2005; Zinn, 2003). Taken together, growing up in an urban environment can negatively influence hunter recruitment by reducing positive interactions with hunters, inhibiting access to hunting areas, and inhibiting the transmission of traditional utilitarian values (Brown & Connelly, 1994; Manfredo & Zinn, 1996).

Education

As the education level of Americans continues to rise, there is an increasing proportion of outdoor recreation participants who are college educated (Cordell & Super, 2000). Research has identified education as an important predictor of recreation behavior because of its role in teaching individuals about different activities that can help expand and improve their leisure repertoire (Iso-Ahola, 1980). Therefore, education may impact hunting participation by stimulating interest and participation in other outdoor activities that could potentially compete with hunting (Godbey, 1994; Zinn, 2003). In fact, competing leisure activities are sometimes noted as constraints to hunting participation (Wright et al., 2001). Although the mechanism is unclear, some studies suggest that increased education may also impact hunting participation because of its link to a decrease in traditional utilitarian values (Inglehart, 1997; Teel et al., 2005).

Age

The recreation literature suggests there is a tendency toward stable participation in some activities across the life span, particularly those that are centered around the home or media (Iso-

Ahola et al., 1994; Scott & Willits, 1998). However, participation in outdoor activities usually declines with age, particularly among activities that require physical exertion and higher levels of involvement (Gordon et al., 1976). In fact, studies have shown there is about a 60% decrease in outdoor recreation participation from the ages of 20 to 75 (Gordon et al., 1976). Recruitment into a new outdoor recreation activity also decreases with age resulting in a higher average age within activities that have fewer young participants (Iso-Ahola et al., 1994).

Hunting license sales show that the average age of hunters is increasing and there is low recruitment of young hunters. This trend is consistent with the recreation literature and shows that as long as recruitment into hunting decreases, the increase in average age among hunters is inevitable. Another explanation for the increase in the average age of hunters is the possibility of higher participation levels among older hunters. As people age, there are other situational changes that occur such as changes in the family structure and the amount of free time (Iso-Ahola et al., 1994; Scott & Willits, 1998). Older hunters may have more opportunities and fewer constraints than younger hunters and therefore may have higher levels of participation. However, while hunting participation may continue to increase over time, there is likely a point in the life cycle where participation decreases as factors such as health, mobility, and key social relationships are disrupted. Once individuals reach the last stages of the life cycle (often defined as 65+ years of age), participation in most physical activities (e.g., hunting) decreases at a greater rate (Iso-Ahola et al., 1994). Therefore, the average age of hunters will likely plateau somewhere in the middle of the life cycle as participation levels stabilize. This suggests that the relationship between age and hunting participation might resemble a bell curve rather than a linear relationship.

Social Support

Cutrona (1980) defines social support as benefits or assets gained through interactions with others and often results in the formation of social groups that are used to derive support for participation in recreation activities (Hibler & Shinew, 2002). For example, Field and O’Leary (1973) found that social support influenced participation in selected water activities. Likewise, Hibler and Shinew (2002) found that social support was related to leisure activity selection and participation among couples. While social support has been linked to recreation participation, it is one of the least-documented factors influencing hunting participation. The evidence that does exist suggests that individuals who receive support for hunting continue to hunt (Enck et al., 2000; Purdy et al., 1989). Trapping is another activity closely related to hunting and Daigle’s (1997) study on trappers found that participation in trapping-related activities was associated with support from a variety of social networks (e.g. family, friends, trapping companions, etc.). Since there are a variety of ways hunters can receive social support, the question becomes what degree of support is the best predictor of participation (Stokowski, 1990).

Involvement

Involvement is defined as “an unobservable state of motivation, arousal, or interest toward a recreational activity or associated product” (Gahwiler & Havitz, 1997, p. 6). In recreation, involvement reflects the extent to which we devote ourselves to an activity that is important to us and results in a desire for sustained participation (Funk et al., 2004; Kyle & Chick, 2004; Gahwiler & Havitz, 1998). Findings from the recreation literature suggest that, in general, higher involvement leads to increased participation (Gahwiler & Havitz, 1998; Shamir, 1988). In the hunting literature, participation is often measured using commitment rather than

involvement. These findings suggest that commitment leads to greater participation but that commitment is largely dependent on the degree to which hunters identify with roles, values, and norms of the hunting population (Purdy et al., 1989). Since my measure was more closely tied to direct participation, I chose to evaluate involvement rather than commitment.

An important finding by Iwasaki and Havitz (2004) was the relationship between social support and level of involvement. They found that social support is a predictor of continued involvement among those who are highly involved in an activity (Iwasaki & Havitz, 2004). These findings have important implications for understanding hunting participation because they show a direct link between social support and involvement and highlight the importance of social support in fostering continued participation.

Research Questions and Hypotheses

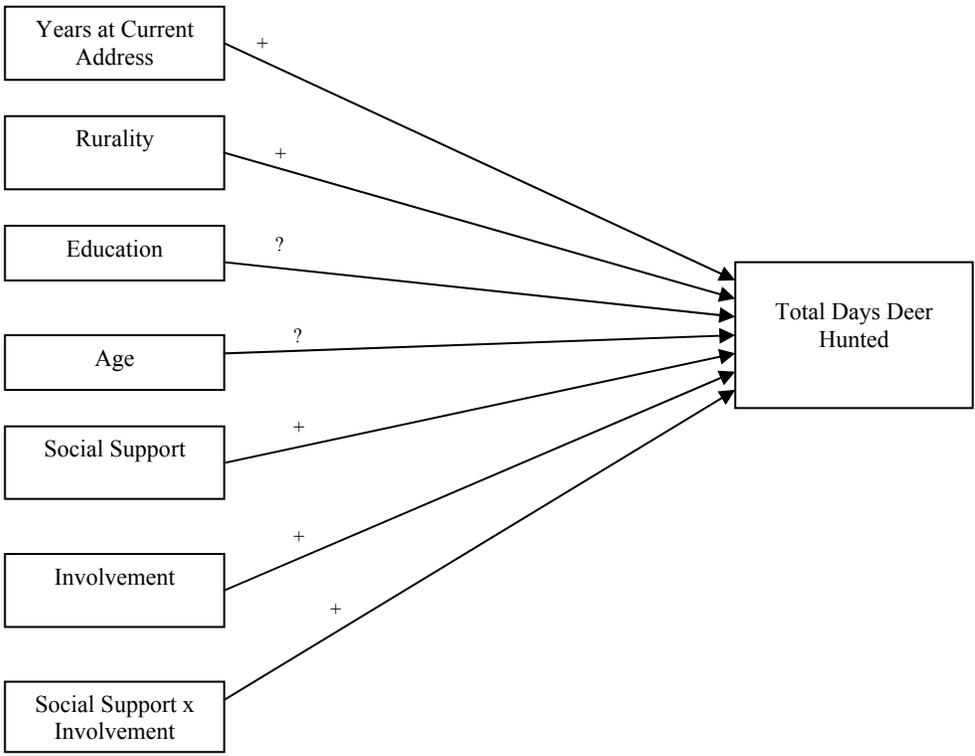
Based on previous hunting research, I hypothesize that residential stability and rurality would be positively associated with deer hunting participation. The literature suggests that education and age have negative associations with hunting participation. However, the evidence is often weak and some exceptions have been found so I hypothesize that a relationship will exist but do not specify a direction. Limited research on the role of social support and involvement suggests there are positive relationships with hunting participation. Therefore, in this study, I also hypothesize that social support and involvement will be positively associated with deer hunting participation. My final hypothesis is that the influence of involvement on deer hunting participation will be moderated by social support. This hypothesis is based on research by Iwasaki and Havitz (2004) which documents that social support is a predictor of involvement

level as measured by level of participation. I hypothesize that involvement will be moderated by social support in predicting deer hunting participation.

Hypothesized Hunting Participation Model

The initial model included: years at current address, rurality, education, age, social support, involvement, total days hunted, and the interaction between social support and involvement. A simple model of these relationships might look like Figure 2.1.

Figure 2.1. Factors hypothesized to influence deer hunting participation



Methods

A survey was used to assess past, current, and expected future hunting participation and relationships to involvement, social support, and socio-demographic characteristics. The study population was adult hunters and the sampling frame was Pennsylvania hunting license holders 18 years and older from the 2002-2003 license year. Because of the number and complexity of the questions asked and growing public resistance to telephone surveys (Dillman, 2000), a mail survey was used.

Sampling Design and Procedure

To offset low hunting license sales among Pennsylvanians younger than 25 (Rosenberry, personal communication, 2004) and obtain adequate numbers of younger hunters in the sample, I stratified the sample into two age groups: young adult hunters, 18 to 24 years old, and mature hunters, 25 years old and older. For each stratum, a minimum target sample size of 300 was chosen in order to estimate population characteristics with a margin of error of 6 percent at a 95 percent level of confidence and to provide adequate response numbers for statistical tests. Based on response rates for recent, comparable mail surveys to similar populations (e.g., Zinn, Manfredo, & Barro, 2002), a 10 percent undeliverable rate and a 50 percent response rate were estimated. On this basis, a sample of 700 license holders in each age group was needed. However, the sample size for each age group was increased from 700 to 900 because of concern that mailing of questionnaires near the beginning of fall hunting seasons had the potential to reduce response rates (Rosenberry, personal communication, 2004).

Samples were drawn by the Pennsylvania Game Commission (PGC) biometrician with the approval of the PGC (Rosenberry, personal communication, 2004). Names of hunters were

obtained from a primary sample that was originally hand-drawn from paper license records and then entered into a Microsoft Excel spreadsheet. The primary sample consisted of 20,000+ names of hunters that had been drawn for possible use in an annual survey of game harvest in 2002/2003. To draw the sample for the present study, birth dates were used to separate the original sample into two age groups—those who were 18-24 in the 2003/2004 license year and those who were 25 and older in the same year. Then random numbers were generated to draw samples from the two age groups.

Questionnaire Development. The items used in this analysis were part of a larger questionnaire used to assess the future of hunting in Pennsylvania. The mail-back questionnaire and supporting documents were developed by reviewing the hunting retention literature and related questionnaires from studies conducted in Pennsylvania (Stedman et al., 2004; Zinn et al., 2002); Illinois (Miller et al., 2003); South Dakota (Gigliotti, 2000); and Colorado (Zinn, Manfredo, & Barro, 2002). Comments on drafts were received from representatives of the Center for Rural Pennsylvania and incorporated into the final version.

Survey Administration. The mail questionnaire, cover letters, thank you/reminder postcard, and follow-up contact card were submitted and approved by the Internal Review Boards (IRB) at Penn State University and California University of Pennsylvania (Appendix A). The study was formally approved on July 12, 2004, and designated #19140 by the Penn State IRB. Questionnaire booklets, outgoing envelopes (9x12), postage-paid business reply envelopes (6x9), and thank you/reminder postcards were professionally printed. The questionnaire was printed on 8.5 x 11 paper with an illustrated cover and instructions inside the front cover. To facilitate tracking questionnaires for the young adult hunter sample and the mature hunter sample, they were printed in different colors. Administration of the mail questionnaire followed

Dillman's Tailored Design Method (2000) with three mailings sent to each potential participant at 10-day intervals: 1) a questionnaire and cover letter, 2) a thank you/reminder postcard, and 3) a replacement questionnaire and cover letter (Dillman, 2000). Data collection began on August 9, 2004 and returned questionnaires were accepted through November 15, 2004.

Data Analysis

Although data were collected for two age groups, the purpose of stratified sampling was to obtain an adequate age distribution among respondents. Comparisons of the two age groups revealed there were no significant differences between them regarding the variables tested in this model. Therefore, data from the two age groups were combined for statistical analysis, thus allowing age to be treated as a continuous variable. This was necessary in order to test all six independent variables simultaneously as predictors of total days hunted. Although data were collected for a variety of different game species, I chose to focus on deer hunters as they accounted for 92 percent of respondents who reported hunting during the 2003/2004 hunting season. Deer hunters were also chosen to reduce the confounding effects of comparing different types of hunters because season lengths and participation patterns differ greatly among game species.

To develop an overall model of deer hunting participation, I began by using correlations to explore simple bivariate relationships between the six independent variables and deer hunting participation and to identify potential multicollinearity. I then included all six predictors in a multiple regression model to determine how they predict deer hunting participation in relation to each other. Non-significant variables were then removed from the model.

Moderation- Interaction Analysis. A moderator is a variable that affects the direction or strength of the relationship between an independent and dependent variable (Baron & Kenny, 1986). To test for moderation, an interaction term is computed between the independent variable and the moderator variable and included in the regression model to predict the dependent variable (Thapa et al., 2005). If the interaction is significant, then the moderation-interaction effect exists (Baron & Kenny, 1986). However, Aiken and West (1991) suggest that before one can create an interaction term, the independent and moderator variables should be centered to reduce multi-collinearity issues. To center variables, the mean score is subtracted from each data case (Aiken & West, 1991). Once the variables are centered, the interaction term can be computed by multiplying the two centered variables together.

The literature suggests the possibility of a relationship between social support and involvement (Iwasaki & Havitz, 2004). Specifically, research suggests that social support may act as a predictor of involvement level when measuring level of participation (Iwasaki & Havitz, 2004). Therefore, I tested social support as a moderator of involvement in predicting deer hunting participation. First, I centered the independent variable (involvement) and the moderator variable (social support). I then computed the interaction term by multiplying the centered variables and included the interaction in the regression model to test for significance.

Results

Measurement of Variables

Dependent Variable. The only dependent variable used in this analysis was total days deer hunted, which represented “deer hunting participation.” I measured this as a continuous variable that was derived from adding up the total number of days hunted for rifle, archery, and muzzleloader seasons during the 2003/2004 hunting season (Table 2.1).

Independent Variables. Six independent variables were tested in this analysis.

Residential stability was measured by using a continuous variable defined by how many years respondents had been living at their current address. I asked respondents to indicate what type of area they currently live in based on the following categories: rural/farm, small town (<10,000 people), large town (10,000 to 50,000 people), medium-sized city (50,000 to 250,000 people), and large city (>250,000). For purposes of this research I labeled this measure “rurality,” the term used by the U.S. Census Bureau and the U.S. Department of Agriculture Economic Research Service (ERS, 2006) to rate how rural an area is.

Education was measured using a continuous variable ranging from 0–17 years of schooling (17 = a respondent who had completed a graduate degree or more). I calculated age as a continuous variable by asking respondents the year they were born.

To measure social support I used a 7-item index to assess the adequacy of having enough social support (Table 2.1). The measure was designed to capture seven potential dimensions of social support (Cutrona, 1986; Daigle, 1997). Responses to each item ranged from 1 (strongly disagree) to 5 (strongly agree). I combined the 7 scores to create a social support index which also had values ranging from 1 (low level of social support) to 5 (high level of social support). The social support index had a high level of reliability (Cronbach’s alpha = 0.84).

I used an 8-item index to assess the level of deer hunting involvement among respondents (Table 2.1). These items had been used in similar studies of deer hunters with high reliability (Miller et al., 2003). Responses to each item ranged from 1 (strongly disagree) to 5 (strongly agree). I combined the 8 scores to create an involvement index which also had values ranging from 1 (low involvement) to 5 (high involvement). The involvement index had a high level of reliability (Cronbach’s alpha = 0.86).

Table 2.1. Composite variables.

Variable	Item mean	Item SD	Overall alpha
Total Days Hunted			n/a
Days hunted deer- regular firearms	5.9	4.0	
Days hunted deer- archery	7.0	9.3	
Days hunted deer- muzzleloader	1.8	3.2	
Days hunted bear	0.6	1.2	
Days hunted turkey	4.1	5.7	
Days hunted waterfowl	1.0	4.0	
Days hunted other migratory and upland birds	1.4	3.9	
Days hunted small game	4.9	6.5	
Social Support			0.84
I have plenty of family members who enjoy hearing about my hunting experiences.	4.1	1.0	
I have plenty of friends who enjoy hearing about my hunting experiences.	4.0	1.0	
I have plenty of family members who enjoy sharing the game I harvest.	4.3	1.0	
I have plenty of friends who enjoy sharing the game I harvest.	3.8	1.0	
I have plenty of hunting partners who want to hunt the same game/seasons I do.	4.0	1.1	
I have plenty of hunting partners who want to hunt the same places I do.	3.9	1.2	
I have plenty of hunting partners who want to hunt the same days and times I do.	3.7	1.1	
Involvement			0.86
Hunting determines much of my lifestyle.	3.7	1.2	
Hunting is one of the most important activities in my life.	3.7	1.2	
I spend a lot of time before the season scouting areas I will hunt.	3.5	1.2	
I plan my vacation time around hunting.	3.6	1.4	
Hunting is a test of my skill.	4.2	1.0	
I spend a lot of time in the off-season planning for the hunt.	3.5	1.2	
I would rather go hunting than any other recreation activity.	3.5	1.3	
If I cannot find anyone to hunt with me I often go alone.	3.7	1.5	

Response Rates and Non-response Analysis

Response Rates. During August and September, 2004, I mailed questionnaires to 900 young adult hunters, 18 to 24 years old, and 900 mature hunters, 25 years old and older. Ninety-two questionnaires for mature hunters were undeliverable, and 368 were returned resulting in a response rate of 45.9%. Eighty-eight questionnaires for young adult hunters

were undeliverable, and 215 were returned resulting in a response rate of 27.5%. These response rates were low compared to typical response rates for similar studies. It is unclear why response rates were low among mature hunters. However, low response rates for young adult hunters may have been related to the timing of the survey. It is possible that some potential respondents in this age group may have already left for college and therefore may not have received the survey.

Due to low response rates, a non-response check was conducted in order to determine if any differences existed between respondents and non-respondents. Ninety non-respondents from each sample were interviewed via telephone using selected questions from the original questionnaire (Appendix B). Statistical analyses were performed to determine if there were significant differences between respondents and non-respondents.

Non-Response Analysis: Mature Hunters. Among mature hunters, respondents and non-respondents were similar. The only difference was that respondents had lived at their current address longer than non-respondents. On average, respondents had lived at their current address for 23 years while non-respondents had lived at their current address for 16 years ($F = 9.64, p = .002$). This difference could potentially influence the interpretation of the relationship between residential stability and hunting participation if hunters with lower residential stability are under-represented in this sample.

Non-Response Analysis: Young Adult Hunters. Among young adult hunters, there were no statistically significant differences between respondents and non-respondents.

Profile of Respondents

Among all respondents, 93% were males and the average age was 41 years old. Ninety-seven percent were Caucasian and, on average, had completed high school with some additional

college or technical school training. Over 80% currently lived in rural areas and had lived at their residence an average of 20 years.

On average, respondents were moderately involved with deer hunting (mean = 3.8) where 51% rated their involvement as moderate to high (≥ 3.75). Nearly 67% of respondents reported having moderate to high (≥ 3.75) levels of social support with the average score being 4.0. On average, respondents hunted approximately 12.5 days hunting deer during the 2003/2004 hunting season.

Tests of Model

Correlations between variables. I ran bivariate correlations among all 7 variables to determine if there were any multicollinearity issues and also to identify variables that significantly predict deer hunting participation (Table 2.2). Significant correlations were found between 4 of the 6 predictor variables and total days deer hunted. Age ($r = -.102, p = .032$) was negatively correlated with total days hunted. Rurality ($r = .127, p = .006$), having social support ($r = .191, p < .001$), and involvement ($r = .438, p < .001$) were all positively correlated with total days deer hunted. Among the significant predictor variables, age displayed the weakest correlation with total days deer hunted. Years at current address ($r = -.002, p = .966$) and education ($r = -.069, p = .140$) were not significantly correlated with total days deer hunted. No multicollinearity issues were found.

Table 2.2. Correlations among deer hunting participation, six predictor variables, and the hypothesized interaction.

	Years at Current Address	Education	Age	Rurality Scale	Have Social Support	Involvement	Total Days Hunted Deer
	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)
Years at Current Address	---	-.091 (.053)	.523 (<.001)	.008 (.859)	-.037 (.433)	.031 (.516)	-.002 (.966)
Education		---	-.002 (.960)	-.155 (<.001)	-.095 (.044)	-.107 (.023)	-.069 (.140)
Age			---	-.032 (.510)	-.266 (<.001)	-.103 (.032)	-.102 (.032)
Rurality				---	.062 (.189)	.123 (.008)	.127 (.006)
Have Social Support					---	.430 (<.001)	.191 (<.001)
Involvement						---	.438 (<.001)

Initial Moderation Regression Model. Hierarchical regression was used to examine social support as a moderator of involvement and deer hunting participation. To control for the main effects of the independent variables, years at current address, education, age, rurality, involvement, and the potential moderator of having social support were entered in the first step of the regression (Aiken & West, 1991). The two-way interaction term between involvement and having social support was entered in the second step. The change in R^2 was assessed to determine whether the moderation effect was significant.

The resulting multiple regression model for step 1 explained 18.5% of the variance in total days deer hunted (Table 2.3). Years at current address and education did not produce significant Beta values and therefore did not significantly contribute to the model. Although

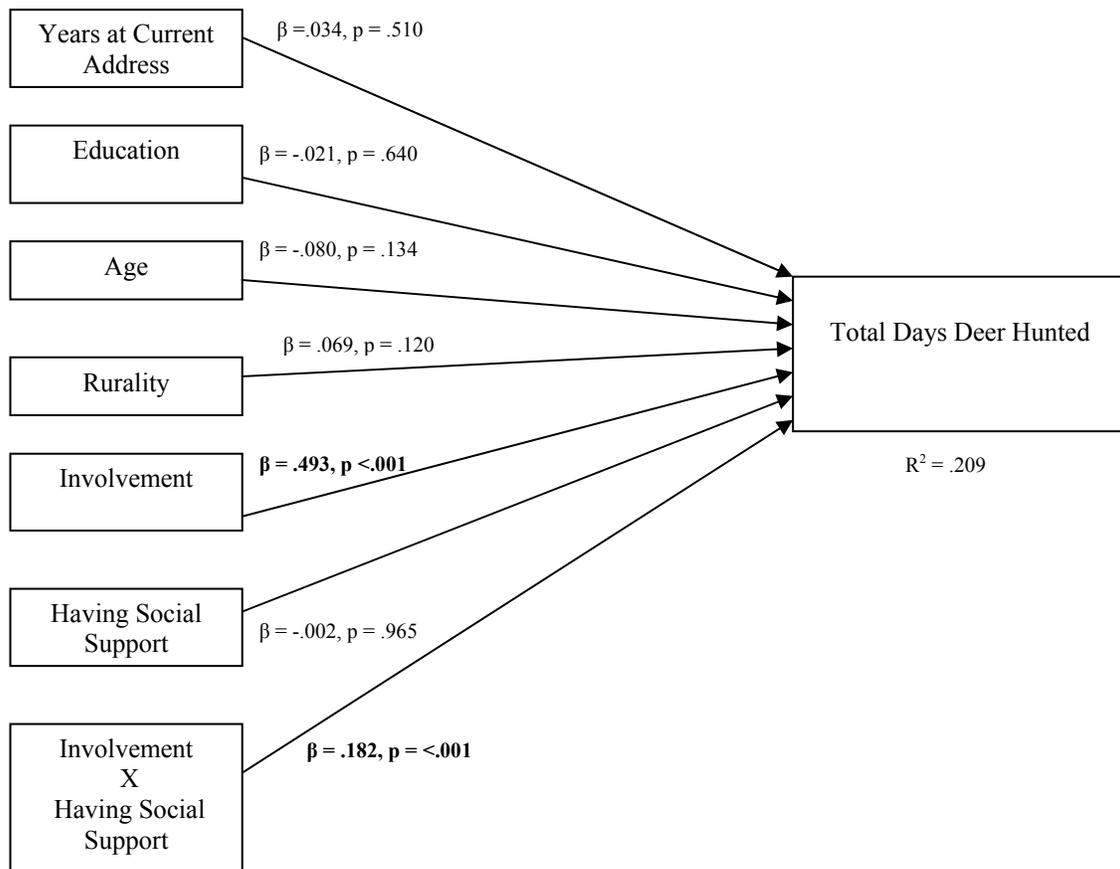
significant correlations had been found for age, rurality, and having social support, their respective Beta values were not significant in the regression model. Therefore, no socio-demographic variables predicted deer hunting participation in this study. Involvement was the only significant predictor of total days deer hunted in step 1 of the regression model suggesting that as involvement increases, the number of days spent deer hunting also increases.

The addition of the interaction between involvement and social support in the model resulted in a significant change in R-square and helped explain an additional 2.4% of the variance in total days deer hunted (Table 2.3, Figure 2.2). Positive Beta values were found for the main effect of involvement (.493) and the interaction between involvement and having social support (.182). Although the interaction was significant, the main effect of having social support was not. These results suggest that rather than influencing participation directly, having social support moderates the relationship between involvement and total days deer hunted.

Table 2.3. Hierarchical regression of the effects six factors and the interaction between involvement and having social support on deer hunting participation.

Hierarchical Step	Independent variables	Beta	T	p	r	R ²	F (p)	R ² Change (p)
1						.185	15.790 (<.001)	
	Years at Current Address	.024	.457	.648	.022			
	Education	-.028	-.611	.541	-.030			
	Age	-.069	-1.291	.197	-.063			
	Rurality	.070	1.562	.119	.076			
	Involvement	.411	8.333	<.001	.378			
	Having Social Support	-.028	-.554	.580	-.027			
2						.209	15.688 (p< .001)	.024 (p<.001)
	Years at Current Address	.034	.659	.510	.032			
	Education	-.021	-.469	.640	-.023			
	Age	-.080	-1.502	.134	-.073			
	Rurality	.069	1.559	.120	.076			
	Involvement	.493	9.145	<.001	.409			
	Having Social Support	-.002	-.044	.965	-.002			
Involvement x Having Social Support	.182	3.531	<.001	.171				

Figure 2.2. Regression model of the effects of six factors and the interaction between involvement and having social support on deer hunting participation.



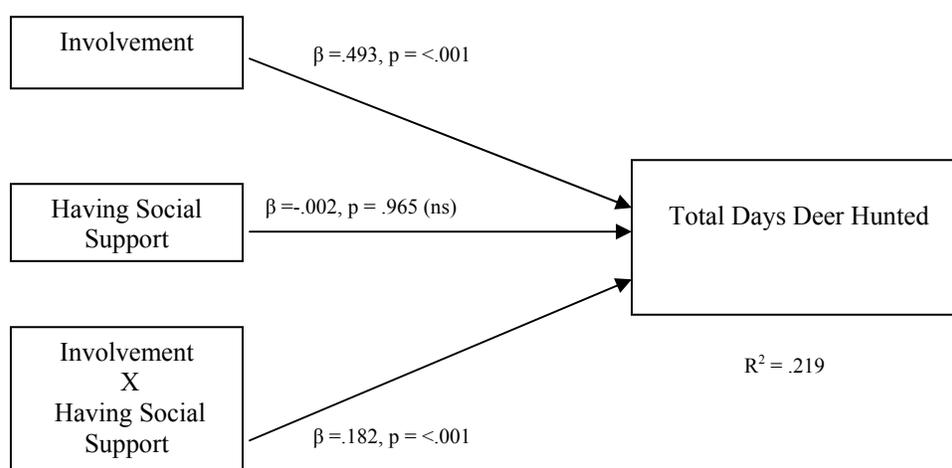
Final Moderation Regression Model.

Non-significant variables were removed in the reduced model to clearly illustrate the moderator effect of social support on involvement and total days deer hunted. The resulting moderation model explains 22% of the variance in total days deer hunted and clearly illustrates the significant interaction between involvement and social support (Table 2.4, Figure 2.3).

Table 2.4. Hierarchical regression for moderating effect of having social support on involvement and deer hunting participation.

Hierarchical Step	Independent variables	Beta	T	p	r	R ²	F (p)	R ² Change (p)
1	Involvement	.411	8.333	<.001	.378	.193	55.528 (<.001)	
	Having Social Support	-.028	-.554	.580	-.027			
2	Involvement	.493	9.145	<.001	.409	.219	15.688 (p< .001)	.026 (p<.001)
	Having Social Support	-.002	-.044	.965	-.002			
	Involvement x Having Social Support	.182	3.531	<.001	.171			

Figure 2.3. Moderating effect of social support on involvement and total days deer hunted.



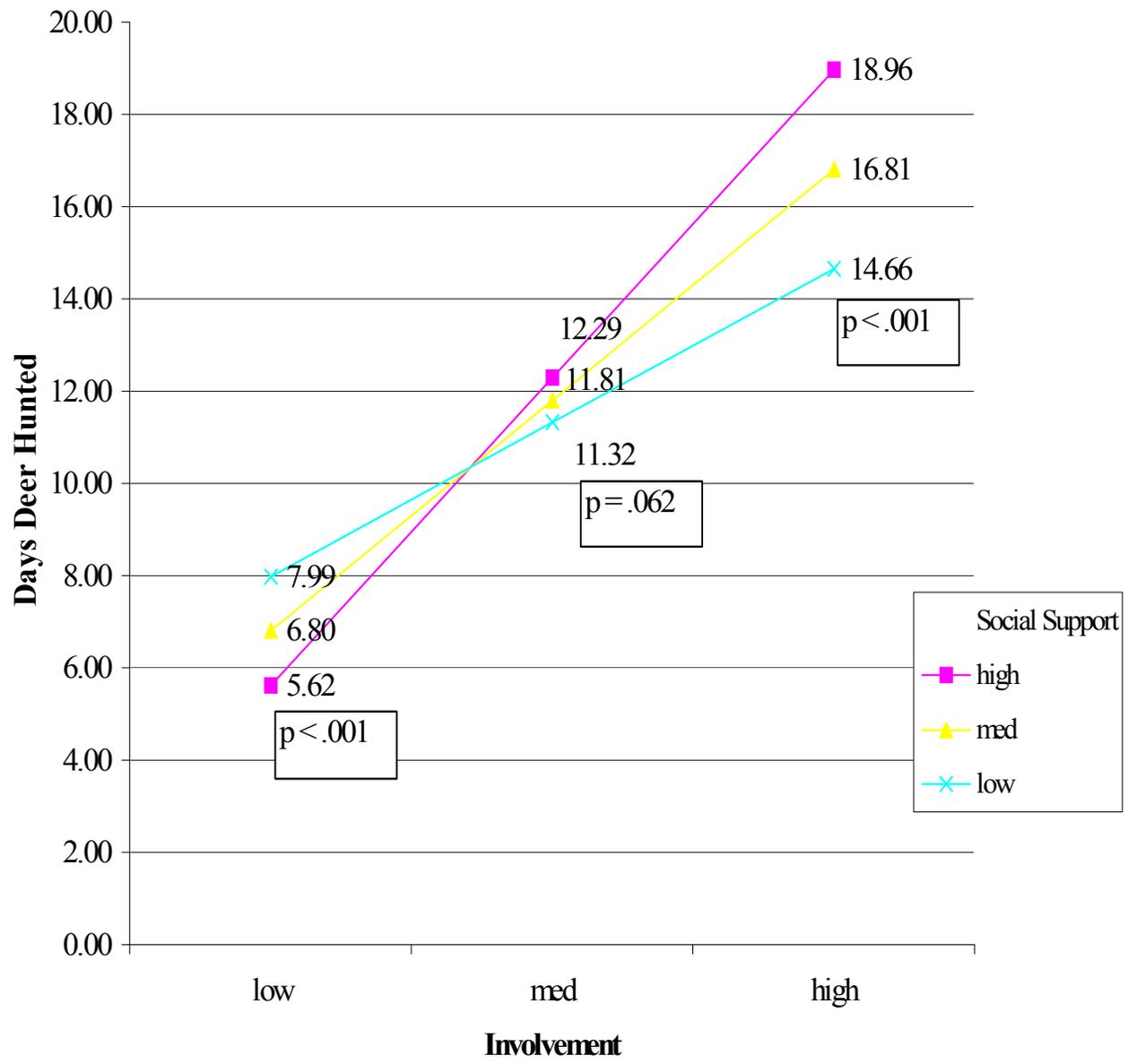
Interpretation of Moderator. Based on the regression analysis alone, only the main effects of involvement and social support can be interpreted. Since there was not a significant main effect for social support, I can conclude that as involvement increases, so does the number of days spent hunting deer. Although the interaction is significant, the Beta value alone does not allow for interpretation of the moderator effect (Jose, 2007). In order to interpret the interaction, I plotted simple regression lines for predicted number of days of deer hunting by hunters with low, medium, and high levels of involvement as moderated by social support. The slope for each regression line was also tested to determine if they were significantly different from zero (Aiken & West, 1991). To plot the regression lines and test the slope, I used the statistical program, ModGraph (Jose, 2007), which generates the cell means necessary for graphing the interaction based on the regression output.

The significant main effect of involvement can be seen in the upward slope of all three lines on the graph (Figure 2.4). Regardless of social support, low involvement hunters hunted deer the fewest days and high involvement hunters hunted the most days. The moderating effect of social support can be seen in the differing slopes of the three lines. Among deer hunters in my sample, involvement level had the greatest influence on predicted number of days spent hunting under conditions of high social support, as represented by the line with the greatest slope. In contrast, involvement level had the least influence on predicted number of days spent hunting under conditions of low social support, as represented by the line with the least slope. In fact, low involvement hunters with high social support are predicted to spend *fewer* days hunting deer than low involvement hunters with low social support.

However, the slope of the regression lines is more meaningful in interpreting the interaction than the predicted means (Aiken & West, 1991; Jose, 2007; Kim et al., 2001;

Catanzaro & Laurent, 2004). Analysis of the regression lines showed that the slope was greatest for high levels of social support. Increasing involvement led to the largest increase in number of days spent deer hunting under conditions of high social support and the smallest increase in number of days spend deer hunting under conditions of low social support.

Figure 2.4. Social Support as a Moderator of Involvement and Deer Hunting Participation ^a.



^a Slope for regression lines: High = 8.94, Medium = 6.98, Low = 4.99

When interpreting interactions, Jose (2007) acknowledges there is ambiguity and suggests looking for the “fan effect” or the place where the regression lines begin to diverge. In this graph, the regression lines diverge at the low-medium level of involvement. The divergence of the means at low-medium involvement is greater than at high involvement, indicating that the effect of social support is greater at low-medium levels of involvement than high levels of involvement. To summarize, the number of days spent deer hunting increased at a greater rate under conditions of high social support, particularly once hunters reached low-medium levels of involvement.

Discussion

Hunting participation is vital to the management of white-tailed deer in North America. As hunting participation continues to decrease, it will be important for resource managers to understand the factors that contribute to hunter retention. Hunting participation, like hunting satisfaction (Hendee, 1974), appears to be influenced by multiple factors. While the socio-demographic factors explored in this study have been examined before, social support and involvement are less understood and minimal literature exists regarding their relationships to hunting participation. Studies have anecdotally found that social support and involvement are important predictors of hunting participation (Decker & Connelly, 1989; Enck et al., 2000; Purdy et al., 1989). However, few have focused solely on the role these factors play in explaining and predicting continued participation.

If social support and involvement were studied in the context of hunting we may be able to better explain why some hunters continue to participate while others quit. For example, is a hunter who is highly involved more likely to continue hunting than one who is not? Moreover, is high involvement enough to foster continued participation by itself or is its predictive ability

influenced by other factors such as social support? This study was designed to identify factors that contribute to deer hunting participation and to gather additional evidence for the influence of factors such as social support and involvement. The resulting model should not be considered complete but should be used to broaden the foundation for future research on the development of a more comprehensive model of hunting participation.

Summary of Relationships

Step 1 of the hierarchical regression model showed that involvement was the only variable with a significant main effect for predicting deer hunting participation. Years at current address and education were not correlated with total days deer hunted and therefore did not significantly contribute to the model. Although age, rurality, and social support were correlated with total days deer hunted, their non-significant Beta values indicated they also did not significantly contribute to a model that included involvement. Step 2 of the hierarchical regression model included a two-way interaction term to test the moderator effect of social support on involvement in predicting total days deer hunted. Results showed a significant main effect for involvement as well as a significant moderation effect of social support. Overall, the moderation regression model helped explain approximately 22% of the hunting participation model. While this is not a large contribution, the magnitude is similar to that found in other studies (e.g., Barro & Manfredi, 1996).

The results of Step 2 in the hierarchical regression model indicated that rather than influencing participation directly, having social support moderated the relationship between involvement and deer hunting participation. These results are consistent with the literature which suggests that social support is a predictor of continued involvement and that these two factors may be better predictors of continued participation when considered together rather than

separately (Iwasaki & Havitz, 2004). The significant main effect of involvement is also consistent with the literature which suggests that, in general, higher involvement leads to increased participation (Gahwiler & Havitz, 1997; Shamir, 1988). However, when interpreting moderation analysis, the main effects of the independent variables are not as meaningful as the interaction (Jose, 2007).

Graphical representation of the moderation analysis helped to further explain the nature of the moderation interaction. The graph showed that the slope of the regression lines was greatest for high levels of social support at all levels of involvement. This suggests that the predicted number of days spent deer hunting increased at a greater rate under conditions of high social support compared to low or medium levels of social support. According to Jose (2007), the place where the regression lines diverge indicates where the effect of the moderator is the greatest. Based on this model, the regression lines begin to diverge at the low-medium level of involvement. This suggests that the predicted number of days spent deer hunting increases at a greater rate under conditions of high social support once hunters reach low-medium levels of involvement. From a management perspective, my results suggest that efforts to increase social support for deer hunters may lead to increased participation by hunters with medium to high levels of involvement but may lead to *decreased* participation by low-involvement hunters. This counter-intuitive finding presents managers with a difficult challenge and suggests that the role of social support is unexpectedly complex.

Previously, I noted that social support begins to have its greatest influence at low-medium levels of involvement (Jose, 2007). Why does social support not have such a strong an effect at low involvement levels? One explanation may be that other factors are more predictive of deer hunting participation among low-involvement hunters. One promising area to explore is

the influence of constraints on hunting participation. According to Jackson (2005, p. 3), constraints are “factors that limit the formation of leisure preferences and/or inhibit or prohibit participation and enjoyment in leisure”. Constraints identified by hunters include: time, fewer opportunities, availability of game, declining interest, dissatisfaction with regulations, and change of residence (Purdy et al., 1989; Wright et al., 2001). If constraints are too difficult to negotiate, individuals may reduce involvement or cease to participate (Wright et al., 2001). Perhaps hunters may have low involvement because they are unable to negotiate constraints that prevent them from participating. As a result, even high levels of social support may not be enough to increase hunting participation. However, once some of these constraints are overcome and hunters reach the low-medium level of involvement, then social support may have more influence.

Future Research Needs

Although previous research suggests that residential stability may directly impact hunting participation, my results did not confirm this relationship (e.g., Burch, 1969; Decker et al., 1984; Purdy & Decker, 1986; Stokowski, 1990; Zinn, 2003). Because residential stability was measured simply as the number of years respondents lived at their current address, I was unable to consider the distance respondents moved between current and previous residences. Without a measure of distance moved, relocation may have had limited validity in predicting hunting participation. A more comprehensive measure of residential stability would provide increased validity to the measure. For example, the number of years a respondent lived at their current address could be enhanced by assessing the extent of relocation that has occurred by taking into account how far the individual moved.

Measuring deer hunting participation by using the total number of days deer hunted can also be problematic. Hunting participation levels are likely to change from year to year and are affected by numerous factors that need to be accounted for when measuring participation (Wright et al., 2001). This study was also a first attempt at developing and measuring a social support scale in the context of predicted hunting participation. Although this scale was reliable, future research should focus on developing and refining scales to capture social support and its dimensions more completely. Specifically, measures should be developed that differentiate between direct and indirect social support in order to explore the influence of different types of social support on involvement and hunting participation.

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Orientation to Chapter 3

This chapter is a manuscript that will be submitted to *Leisure Sciences* or *The Journal of Leisure Research* for publication. The purpose of this manuscript is to explore whether participation in one activity comes at the expense of another or if certain types of activities afford others. A two-phase study was used to test the relationship between participation in hunting and other activities. Phase 1 used a quantitative survey to test the relationships between age, involvement, hunting participation, and participation in other outdoor activities. The research questions examined were:

- RQ1. Does participation in one activity, such as hunting, come at the expense of another activity?
- RQ2. Do certain activities afford participation in other activities?

Findings suggested the need for further information about participation in multiple activities. Therefore follow-up qualitative interviews were used in Phase 2 to gather in-depth information about the relationship between hunting participation and participation in other activities as well as perceived constraints to participation.

CHAPTER 3
DO MULTIPLE OUTDOOR ACTIVITIES
COMPETE WITH OR REINFORCE EACH OTHER?
EVIDENCE FROM HUNTING

Abstract

Researchers have suggested that increased participation in one activity comes at the expense of another. However, there is little empirical evidence supporting this assertion. A two-phase study was used to test the relationship between participation in hunting and other activities. Quantitative data from Phase 1 suggested increased participation in multiple activities can occur. Hunting participation had a significant positive correlation with participation in other outdoor activities. Hierarchical regression analyses revealed that increased hunting participation is predicted by higher levels of hunting involvement and increased participation in consumptive/hunting-related and motorized activities. Age and participation in non-consumptive activities had significant positive correlations with hunting participation but their contribution to the hierarchical regression model was weak and non-significant. Qualitative interview data from Phase 2 provided additional insight into the complexity of participation in multiple activities. Findings suggested that hunters participated in a wide variety of consumptive/hunting-related and non-consumptive activities. Level of involvement seemed to influence the types of activities chosen where avid hunters tended to participate more in a cluster of consumptive/hunting-related activities. The majority identified minimal competition with other activities for reasons such as seasonality and equal enjoyment. Factors that influence recreation activity choice were family, friends, and prior obligations. Overall, data suggested that some activities may complement

rather than interfere with each other. Future research is suggested to identify activities that can afford participation and act as gateways to other activities.

Introduction

Much of the literature on activity participation focuses on participation levels within one activity. For example, activity participation was found to increase with level of involvement and increased specialization within that activity (Havitz & Dimanche, 1999). But what happens when an individual participates in more than one activity? Researchers suggest that participation in multiple activities may cause reduced participation in any one activity (Scott & Shafer, 2001). This assertion is based on the premise that multiple activities are competing for an individual's time and resources. Therefore, increased participation in one activity is likely to come at the expense of other activities (Scott & Shafer, 2001). Nonetheless, the question remains does participation in multiple activities always have this effect?

Using hunting as an example, some argue that competition with other activities reduces hunting participation (Wright et al., 2001). However, this relationship may be influenced by an individual's preference to participate in other activities (Wright et al., 2001). So if an individual prefers to continue hunting, will participation in other activities result in decreased hunting participation? Among hunters there is limited empirical evidence supporting this assertion. In fact, a study by Zinn (2003) found that hunting participation was positively related to participation in other non-consumptive and consumptive outdoor activities. His findings did not support the theory that participation in multiple activities reduces participation in others. Instead, groups of activities may sometimes complement rather than compete with each other (Zinn, 2003). Therefore, when considering relationships among multiple activities, it may be important to identify activities that reinforce each other and those that inhibit each other. To test Zinn's (2003) findings, I designed a quantitative study that focused on gathering empirical evidence regarding participation in hunting and other outdoor activities. Results were consistent

with Zinn's findings and suggested the need for additional qualitative data to provide more detailed examples of how participation in other activities relates to hunting participation. The results of both studies are reported here.

Literature Review

Participation in Outdoor Activities

At least 90% of Americans participate in outdoor recreation each year (Cordell, 2004). However, specific outdoor recreation trends differ depending on the type of activity. For example, hunting participation is on the decline but participation rates in other consumptive activities, such as fishing, are relatively stable (Brown et al., 2000; Kelly & Warnick, 1999). However, participation in many non-consumptive outdoor activities has been increasing rapidly (MacFarlane, 1994). For example, non-consumptive activities that experienced increased participation rates between 2000 and 2001 included: walking, wildlife viewing, bicycling, hiking, picnicking, birdwatching, developed camping, and non-pool swimming (NSRE, 2005).

Many people participate in multiple activities (Carothers et al., 2001). Therefore, it is likely that some of these activities will compete with each other at times while others may occur simultaneously and/or help to reinforce participation. From the perspective of hunting participation, competition with other activities may or may not be an issue. Hunting is a seasonal activity and participation can only occur legally within the established dates of the season. Therefore, participation in other outdoor activities may not interfere with hunting participation if those activities occur during other times of the year. Correlations have been found between hunting and other activities, such as fishing, wildlife viewing, and gathering (USFWS, 2002; Zinn, 2003). Among those who participated in hunting in 2001, 71% fished and 62% participated in wildlife viewing activities (USFWS, 2002). While hunting, fishing, and gathering

are clearly consumptive activities, some researchers have expanded this category to include “abusive” or high impact activities such as snowmobiling (e.g. Geisler et al., 1977) and riding off-road vehicles (e.g. Theodori et al., 1998). Because some of these activities are not consumptive by definition, Theodori et al. (1998) re-named this category as “moderate-to intensive resource-utilization activities.” Likewise, activities that were traditionally defined as non-consumptive were renamed as “appreciative-to slight resource-utilization activities” and included activities such as picnicking, camping, birdwatching, hiking/backpacking, and mountain biking (Theodori et al., 1998). This categorization of activities was used as a basis for classifying activities in this study.

Leisure Repertoire

A leisure repertoire is “all activities a person considers potentially usable during his daily leisure” (Iso-Ahola, 1980, p. 141) and is a representation of what people value (Mobily et al., 1991). Activities become part of one’s leisure repertoire when they are meaningful and when there is perceived competence and psychological comfort (Mobily et al., 1991). In other words, individuals will choose activities they are comfortable with because they can do them well and will therefore do them often (Mobily et al., 1991; 1993).

The size of an individual’s leisure repertoire is highly variable and is influenced by factors such as age and education. An individual’s leisure repertoire typically reaches its peak in early to middle adulthood and then begins to decline (Iso-Ahola, 1980). This decline is attributed to a reduction in leisure resources, such as skills and energy, causing participation in fewer activities and lower levels of involvement (Iso-Ahola, 1980). Higher levels of education help to increase the depth and breadth of leisure repertoires by exposing individuals to

knowledge and skills associated with a wide variety of activities (Kelly & Warnick, 1999). With more activity choices and trends toward increased availability of recreation resources, it is likely that individuals may increase their leisure repertoires more easily than in the past (Kelly & Warnick, 1999).

Broader leisure repertoires not only increase the number of activities to choose from, they also help increase physical health and perceptions of health (Payne et al., 2006). However, the number of activities is not always indicative of the quality of leisure behavior. Identifying an individual's leisure style through the types of activities they participate in can be a more useful way of understanding their leisure behavior (Payne et al., 2006). As a result, it may be possible to use leisure styles as a way to group activities that complement or compete with each other.

It is important to point out that some individuals participate in a variety of activities and some focus on only a few, while others fall somewhere in between (Iso-Ahola, 1980). Robinson and Godbey (1997) found that the more activities an individual is involved in, the more likely they are to take on even more. Their research with time diaries has shown that an increasing percentage of people fit this profile and try to include more activities into their lives (Robinson & Godbey, 1997). Although this may help to broaden one's leisure repertoire, trying to maintain participation levels in all activities may have serious implications such as increased stress and reduced enjoyment (Robinson & Godbey, 1997).

Constraints and Leisure Affordance

Constraints are "factors that are assumed by researchers and/or perceived or experienced by individuals to limit the formation of leisure preferences and/or to inhibit or prohibit participation and enjoyment in leisure" (Jackson, 2005, p. 3). Constraints to participation are

always present and may eventually limit interests in the activity (Jackson, 2005; Wright et al., 2001). However, constraints do not always lead to cessation. Jackson (2005) states that people will often negotiate leisure constraints in order to continue to participate even if participation levels differ from what they would be without constraints. For example, if an activity is valued as important and central to one's lifestyle, an individual may increase efforts to maintain desired levels of participation (Wright et al., 2001). In fact, some research suggests that people with more constraints are often the ones who participate more (Jackson, 2005). Therefore, constraints may mediate the degree to which individuals participate in an activity but successful negotiation of these constraints can promote continued and consistent levels of participation (Wright et al., 2001).

While constraints tend to negatively influence leisure participation, leisure affordances are "conditions that can promote and support satisfying leisure styles" (Mannell & Kleiber, 1997, p. 345). It is important to note the complexity of the relationship between constraints and affordances because they are not simply polar opposites of each other (Jackson, 2005). Affordances are often defined by constraints but do not necessarily help to overcome them (Jackson, 2005). Essentially, affordances are the available physical and social resources that can help facilitate leisure participation (Jackson, 2005). They are also based largely on an individual's perceptions and therefore can mean a variety of things to different people. As a result, individuals may or may not use affordances available to them (Jackson, 2005). The most common factors associated with leisure affordance, which may also act as constraints, are time and resources. However, increased familiarity with leisure activities also affords participation (Mannell & Kleiber, 1997). This suggests that participation in certain activities may help promote participation in others. While leisure affordance is usually not discussed from this

perspective, it would be useful to explore because it could help identify gateway activities that could be used to foster participation in other forms of recreation and leisure. This would be particularly useful in promoting activities that are experiencing low participation rates or those that could increase physical health and well-being.

Age

Age has been linked to both the leisure repertoire and hunting participation literature. Therefore, it was included in this study to help explain its effect on participation in hunting and other outdoor recreation activities. Overall, leisure participation decreases with age (Iso-Ahola, 1980; Iso-Ahola et al., 1994). However, the literature suggests there is a tendency toward stable participation in some activities across the life span, particularly those that are centered around the home or media (Iso-Ahola et al., 1994; Scott & Willits, 1998). Conversely, participation in outdoor and mechanized recreation usually declines with age, particularly among activities that require physical exertion and higher levels of involvement (Gordon et al., 1976; Iso-Ahola et al., 1994). Studies have shown there is about a 60% decrease in outdoor recreation participation from the ages of 20 to 75 (Gordon et al., 1976). In fact, once individuals reach their 60's, participation in most physical activities decreases at a greater rate (Iso-Ahola et al., 1994). To compensate for this decrease, activities are often substituted in order to facilitate continued leisure participation (Iso-Ahola, 1980).

Consistent with trends in leisure and recreation, hunting participation has been shown to decrease with age (Decker et al., 2001). However, the average age of hunters is increasing and there is low recruitment of young hunters. A possible explanation for the increase in the average age of hunters is the possibility of higher participation levels among older hunters. As people

age, there are other situational changes that occur such as changes in the family structure and the amount of free time (Iso-Ahola et al., 1994; Scott & Willits, 1998). Older adults may have more opportunities and fewer constraints than younger people and therefore may have higher levels of participation. This may be particularly true among older adults who hunted when they were young because research shows that the number of people who continue participating in a leisure activity increases with age (Mannell & Kleiber, 1997). However, while participation in some physical/outdoor activities, such as hunting, may continue across the life span, there is likely a point when participation decreases as factors such as health, mobility, and key social relationships are disrupted.

Involvement

Involvement, like age, has been linked to both the leisure repertoire and hunting participation literature. Therefore, it was also examined within the context of participation in hunting and other outdoor recreation activities. Involvement is defined as “an unobservable state of motivation, arousal, or interest toward a recreational activity or associated product” (Gahwiler & Havitz, 1997, p. 6). In recreation, involvement reflects the extent to which we devote ourselves to an activity that is important to us and results in a desire for participation that is “enduring and sustained over time” (Funk et al., 2004; Gahwiler & Havitz, 1998; Kyle & Chick, 2004). Involvement may also be viewed as a personal attachment to an activity where continued involvement would be equated to permanent attachment (Schuett, 1993).

Findings from the recreation literature suggest that, in general, higher involvement leads to increased participation (Gahwiler & Havitz, 1998; Shamir, 1988). However, some researchers suggest that increased participation in one activity often comes at the expense of another (Scott

& Shafer, 2001). In fact, Kelly & Warnick (1999, p. 23) state that “alternative activities are in direct competition for time and other resources.” As a result, some individuals may choose to focus on one activity. Some suggest that performance pressure or large investments may also be reasons for focusing on one activity because cessation could result in penalties such as loss of identity, friendships, and/or lack of money or skills to pursue other interests (Scott & Shafer, 2001). Therefore, as an activity becomes central to an individual’s life, there may be less room for participation in alternative leisure activities (Iso-Ahola et al., 1994; Scott & Shafer, 2001). As a result, individuals may be forced to choose one activity at the exclusion of others in order to increase their level of involvement (Brown et al., 2000; Kelly & Warnick, 1999).

Study Overview

Some researchers argue that competition with other activities reduces hunting participation (Wright et al, 2001). However, Zinn (2003) found a positive relationship between hunting participation and participation in other activities. Because of the discrepancy that exists between Zinn’s (2003) findings and assertions in the literature, I chose to explore multiple activity participation in more detail. My goal was to identify whether participation in one activity does in fact come at the expense of another activity or if certain types of activities afford others. I also chose to explore the roles that age and level of involvement have on participation in outdoor activities. These relationships were tested within the context of hunting participation. Phase 1 involved the administration of a quantitative mail survey to gather basic information from Pennsylvania hunters about participation in hunting and other outdoor recreation activities. The purpose was to test the relationship between hunting and other outdoor activities while controlling for the possible effects of age and involvement. Phase 2 utilized semi-structured

telephone interviews to explore hunters' participation in outdoor activities. The purpose was to identify other activities hunters participated in and their perceived influence on respondents' hunting participation.

Phase 1 Methods

Sampling Design and Procedure

The sample population was adult (18 years old and older) Pennsylvania hunting license holders from the 2002-2003 license year. To offset low hunting license sales among Pennsylvanians younger than 25 (Rosenberry, personal communication, 2004), and to obtain adequate numbers of younger hunters in my sample, I stratified my sample into two age groups: young adult hunters, 18 to 24 years old, and mature hunters, 25 years old and older. For each stratum, a minimum target sample size of 300 was chosen in order to estimate population characteristics with a margin of error of 6 percent at a 95 percent level of confidence and to provide adequate response numbers for statistical tests. Based on response rates for comparable mail surveys to similar populations (e.g., Zinn, Manfredo, & Barro, 2002), a 10 percent undeliverable rate and a 50 percent response rate were estimated. On this basis, a sample of 700 license holders in each age group was needed. However, the sample size for each age group was increased from 700 to 900 because of concern that mailing of questionnaires near the beginning of fall hunting seasons had the potential to reduce response rates (Rosenberry, personal communication, 2004).

Samples were drawn by the Pennsylvania Game Commission biometrician with the approval of the PGC Commissioners (Rosenberry, personal communication, 2004). Names of hunters were obtained from a primary sample that was originally hand-drawn from paper license records and then entered into a Microsoft Excel spreadsheet. The primary sample consisted of

16,919 names of hunters that had been drawn for possible use in an annual survey of game harvest in 2002/2003. The primary sample included 1,830 hunters between the ages of 18 and 24, and 15,089 hunters over the age of 25. Due to the disproportionate number of hunters over the age of 24, the sample was stratified to obtain an adequate age distribution among respondents. To draw the sample for the present study, birth dates were used to separate the original sample into two age groups—those who were 18-24 in the 2003/2004 license year and those who were 25 and older in the same year. Then random numbers were generated to draw samples from the two age groups.

Measurement of Variables and Questionnaire Development

Variables. I calculated age as a continuous variable by asking respondents the year they were born. I used an 8-item index to assess the level of hunting involvement among respondents (Table 3.1) (Miller et al, 2003). Responses to each item ranged from 1 (strongly disagree) to 5 (strongly agree). I combined the 8 scores to create an involvement index which also had values ranging from 1 (low involvement) to 5 (high involvement). The involvement index had a high level of reliability (Cronbach's alpha = 0.87).

I measured hunting participation as a continuous variable that was derived from adding up the total number of days hunted for eight different species/seasons during the 2003/2004 hunting season (Table 3.2). To assess participation in other activities, I asked respondents to indicate how many days they spent participating in a variety of non-hunting outdoor activities during 2003 (Table 3.2). I added up the total days participated in all activities in order to compare total outdoor recreation participation against total hunting participation. Categories

within the outdoor activities were also created to compare consumptive/hunting-related, non-consumptive, and motorized activities (Table 3. 2).

Table 3.1. Composite variable to measure involvement.

	Mean ^a	SD	Alpha
Involvement Items	3.7	0.9	0.87
Hunting is one of the most important activities in my life.	3.8	1.2	
I would rather go hunting than any other recreation activity.	3.5	1.3	
Hunting is a test of my skill.	4.2	1.0	
If I cannot find anyone to hunt with me I often go alone.	3.8	1.5	
Hunting determines much of my lifestyle.	3.7	1.2	
I spend a lot of time before the season scouting areas I will hunt.	3.5	1.2	
I plan my vacation time around hunting.	3.6	1.4	
I spend a lot of time in the off-season planning for the hunt.	3.5	1.2	

^a Mean was calculated on a scale ranging from 1 = strongly disagree to 5 = strongly agree

Table 3.2. Composite activity participation variables.

Composite variable	Mean	SD	Median
Component variables			
Total days hunted	18.9	18.5	14.0
Days hunted deer- regular firearms	5.9	4.0	5.0
Days hunted deer- archery	7.0	9.3	3.0
Days hunted deer- muzzleloader	1.8	3.2	0.0
Days hunted bear	0.6	1.2	0.0
Days hunted turkey	4.1	5.7	2.0
Days hunted waterfowl	1.0	4.0	0.0
Days hunted other migratory and upland birds	1.4	3.9	0.0
Days hunted small game	4.9	6.5	3.0
Total days other consumptive and hunting-related activities	31.2	53.6	14.0
Fishing	15.0	26.6	0.0
Gathering wild foods or foliage	1.2	8.00	0.0
Target shooting	15.0	34.2	4.0
Total days motorized activities	0.5	0.6	0.0
Driving ATVs or off-road vehicles	9.8	27.9	0.0
Snowmobiling	1.3	6.4	0.0
Total days non-consumptive, non-motorized activities	45.4	103.7	13.0
Backpacking	1.3	6.9	0.0
Bicycling	5.9	27.2	0.0
Camping	5.5	15.2	0.0
Canoeing, kayaking, and/or sailing	1.4	5.3	0.0
Cross-country skiing or snow-shoeing	0.5	4.4	0.0
Day-hiking and/or overnight hiking	4.2	18.0	0.0
Motorboating and/or water-skiing	2.6	13.7	0.0
Nature photography, drawing, etc.	1.7	12.7	0.0
Picnicking	2.3	7.5	0.0
Sightseeing or viewing scenery	8.0	24.6	0.0
Watching birds or other wildlife	14.5	56.3	0.0

Questionnaire Development. The items used in this analysis were part of a larger questionnaire used to assess the future of hunting in Pennsylvania (Appendix A). The mail-back questionnaire and supporting documents were developed by reviewing the hunting retention literature and related questionnaires from studies in Pennsylvania (Stedman et al., 2004; Zinn, Manfredo, & Barro, 2002); Illinois (Miller et al., 2003); South Dakota (Gigliotti, 2000); and Colorado (Zinn, Manfredo, & Barro, 2002). Comments on drafts were received from representatives of the Center for Rural Pennsylvania and incorporated into the final version.

Survey Administration. The mail questionnaire, cover letters, thank you/reminder postcard, and follow-up contact card were submitted and approved by the Internal Review Board (IRB) at Penn State University and California University of Pennsylvania. The study was formally approved on July 12, 2004, and designated #19140 by the Penn State IRB. Questionnaire booklets, outgoing envelopes (9x12), postage-paid business reply envelopes (6x9), and thank you/reminder postcards were professionally printed. The questionnaire was printed on 8.5 x 11 paper with an illustrated cover and instructions inside the front cover. To facilitate tracking questionnaires for the young adult hunter sample and the mature hunter sample, they were printed in different colors. Administration of the mail questionnaire followed Dillman's Tailored Design Method (2000) with three mailings sent to each potential participant at 10-day intervals: 1) a questionnaire and cover letter, 2) a thank you/reminder postcard, and 3) a replacement questionnaire and cover letter (Dillman, 2000). Data collection began on August 9, 2004 and returned questionnaires were accepted through November 15, 2004.

Data Analysis

Although data were collected for two age groups, the purpose of stratified sampling was to obtain an adequate age distribution among respondents. For statistical analyses, data from the two age groups were combined, thus allowing age to be treated as a continuous variable. This was necessary in order to test the independent variables simultaneously as predictors of total days hunted. Quantitative data analyses were used to determine the relationships among age, hunting involvement, hunting participation, and participation in other outdoor activities. Initially, correlations were run to determine significant relationships among the variables. Multiple regressions were also used to predict hunting participation from age, hunting involvement, and participation in other outdoor activities.

Phase 1 Results

Response Rates and Non-response Analysis

Response Rates. During August and September, 2004, I mailed questionnaires to 900, mature hunters, 25 years old and older and 900 young adult hunters, 18 to 24 years old. Ninety-two questionnaires for mature hunters were undeliverable, and 368 were returned resulting in a response rate of 45.9%. Eighty-eight questionnaires for young adult hunters were undeliverable, and 215 were returned resulting in a response rate of 27.5%. Response rates were low compared to typical response rates for similar studies. Therefore, a non-response check was conducted in order to determine if any differences existed between respondents and non-respondents. Ninety non-respondents from each sample were interviewed via telephone using selected questions from the original questionnaire (Appendix B). Statistical analyses were performed to determine if there were significant differences between respondents and non-respondents.

Non-Response Analysis. Among mature hunters, respondents and non-respondents were similar. The only difference was that respondents had lived at their current address longer than non-respondents. On average, respondents had lived at their current address for 23 years while non-respondents had lived at their current address for 16 years ($F = 9.64, p = .002$). Among young adult hunters, there were no statistically significant differences between respondents and non-respondents.

Profile of Respondents

Among all respondents, 93% were males and the average age was 42 years old. Ninety-seven percent were Caucasian and, on average, had completed high school with some additional college or technical school training. Over 80% currently live in rural areas and had lived at their residence an average of 20 years. On average, respondents were moderately involved with hunting (mean = 3.7; scale from 1 = low involvement to 5 = high involvement) where 53% rated their involvement as moderate to high (≥ 3.75) (Table 3.2). Respondents hunted approximately 19 days during the 2003/2004 hunting season and spent an average of 31 days participating in related consumptive activities, 0.5 days participating in motorized activities, and 45 days participating in non-consumptive activities (Table 3.2). Overall, hunters spent an average of 90 days participating in outdoor activities other than hunting. The five most common activities hunters participated in were fishing, target shooting, sightseeing or viewing scenery, camping, and driving ATVs or off-road vehicles (Table 3.3). Aside from hunting, the modal number of other outdoor activities was 3 and the median number was 4 (Table 3.4).

Table 3.3. Hunters' participation in other activities

Activity	%	n
Consumptive-Hunting Related	82.2	460
Fishing	64.2	353
Target shooting	63.6	350
Gathering wild foods or foliage	11.6	64
Motorized	36.9	203
Driving ATVs or off-road vehicles	33.6	185
Snowmobiling	10.9	60
Non-Consumptive	77.5	426
Sightseeing or viewing scenery	46.2	254
Camping	44.9	247
Picnicking	32.2	177
Bicycling	26.2	144
Watching birds or other wildlife	24.9	137
Day-hiking and/or overnight hiking	22.7	125
Canoeing, kayaking, and/or sailing	20.9	115
Backpacking	11.1	61
Nature photography, drawing, etc.	7.8	43
Cross-country skiing or snow-shoeing	4.4	24

Table 3.4. Number of other outdoor activities hunters participate in

Number of Activities	%	n
0	10.7	59
1	8.4	46
2	9.5	52
3	15.3	84
4	12.4	68
5	10.9	60
6	9.5	52
7	5.6	31
8	5.1	28
9	3.6	20
10	4.4	24
11 or more	4.7	26

Correlations between variables

I ran correlations among age, hunting involvement, and three activity variables to identify significant relationships (Table 3.5). Significant correlations were found among several variables of interest. There were negative correlations between age and consumptive/hunting-

related activities ($r = -.128, p = .004$); age and motorized categories ($r = -.397, p < .001$); and age and total days hunted ($r = -.127, p = .004$). Hunting involvement was positively correlated with consumptive/hunting-related activities ($r = .210, p < .001$); and total days hunted ($r = .458, p < .001$). Consumptive/hunting-related activities were positively correlated with motorized activities ($r = .214, p < .001$); non-consumptive activities ($r = .386, p < .001$); and total days hunted ($r = .333, p < .001$). Motorized activities were positively correlated with non-consumptive activities ($r = .089, p = .037$) and total days hunted ($r = .208, p < .001$). Non-consumptive activities were also positively correlated with total days hunted ($r = .108, p = .011$). No significant correlations were found between age or involvement with regard to non-consumptive activities.

Table 3.5. Correlations among age, hunting involvement, other recreation activities, and total days hunted.

	Age	Hunting Involvement	Consumptive/ Hunting-related Activities	Motorized Activities	Non-Consumptive Activities	Total Days Hunted
	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)
Age	---	-.052 (.243)	-.128 (.004)	-.397 (<.001)	-.033 (.456)	-.127 (.004)
Hunting Involvement		---	.210 (<.001)	.076 (.079)	.049 (.252)	.458 (<.001)
Consumptive/ Hunting-related Activities			---	.214 (<.001)	.386 (<.001)	.333 (<.001)
Motorized Activities				---	.089 (.087)	.208 (<.001)
Non- Consumptive Activities					---	.108 (.011)

Regressions

I ran hierarchical regression analysis to measure the significance of change in R-square values when each predictor variable was added to the model (Table 3.6). In hierarchical regression, predictor variables are entered based on their level of importance where the most important predictor is entered first. To control for the contribution of age and involvement, they were entered in Step 1 of the hierarchical regression. Based on theory and previous research, predictor variables were entered in the following order: age and involvement, consumptive/hunting-related activities, motorized activities, age, and non-consumptive activities.

The R-square values for each of the five predictor variables were significant ($p < .01$). Age, involvement, participation in consumptive/hunting-related activities, and participation in motorized activities explained approximately 28% of the variance. The changes in R-square in each of these steps were also significant ($p < .001$) where the largest change occurred in Step 2 with the addition of participation in consumptive/hunting-related activities (Change in $R^2 = .055$).

Although participation in non-consumptive activities was significantly correlated with total days hunted, the change in R-square was not significant. Therefore, participation in non-consumptive activities did not significantly contribute to predicting total days hunted. These results indicate that when controlling for age and involvement, participation in consumptive/hunting-related activities and participation in motorized activities are the best predictors of hunting participation in this model. Specifically, as participation in these activities increases, so does hunting participation.

Table 3.6. Hierarchical regression analysis predicting hunting participation with participation in other outdoor activities, controlling for age and involvement.

Hierarchical Step	Independent variable	Beta (p)	r (p)	R ² (p)	Change in R ² (p)
1	Age	-.100 (.013)	-.123 (.003)	.209 (<.001)	
	Involvement	.388 (<.001)	.446 (<.001)		
2	Consumptive/ Hunting-related Activities	.242 (<.001)	.331 (<.001)	.264 (<.001)	.055 (<.001)
3	Motorized Activities	.135 (<.001)	.225 (<.001)	.279 (<.001)	.015 (<.001)
4	Non-Consumptive Activities	.002 (.962)	.118 (.004)	.279 (<.001)	.000 (.962)

Phase 1 Discussion

Results showed that as hunting participation increased, so did participation in other outdoor activities. Consumptive/hunting-related activities, however, had a stronger correlation with hunting participation than did participation in motorized or non-consumptive activities. Results from the hierarchical regression analyses revealed that when controlling for age and involvement, increased hunting participation is predicted by increased participation in consumptive/hunting-related and motorized activities. The bivariate correlation between total days hunted and total days of participation in non-consumptive activities was significant and positive. However, hierarchical regression demonstrated that after accounting for relationships between hunting and (a) other consumptive/hunting related activities and (b) hunting and motorized activities, non-consumptive activities did not significantly improve the overall model.

The literature suggests that increased participation in one activity may result in decreased participation in another (Scott & Shafer, 2001; Wright et al, 2001). However, Zinn (2003) found that hunting participation was positively related to participation in other outdoor activities and

results from my study provide additional evidence that supports Zinn's (2003) findings. Since there is a discrepancy between assertions in the literature and empirical evidence for the effects of participation in multiple activities, more data is needed in order to better understand this complex relationship.

Phase 2

There are several aspects of activity participation that were left unresolved based on the results of Phase 1. Issues of particular interest are: 1) the extent to which different outdoor and non-outdoor activities complement or interfere with each other, 2) the level of satisfaction individuals have with the amount of time they have to participate in different activities, 3) which activities they prefer to participate in, and 4) how involved they are in different activities. Therefore, a second phase was designed to gather additional information to explore participants' perceptions of relationships among outdoor activities.

The purpose of Phase 2 was to use telephone interviews to gather information about hunters' participation in outdoor recreation activities that might occur in conjunction with and/or separate from hunting. Specifically, the information collected in this phase of the study was used to identify major themes that emerged from the interviews. The value of qualitative research is its focus on more in-depth information. Qualitative research is "designed to understand human behavior through an individual point of view" (DeRuiter & Donnelly, 2002, p. 255) and also helps "gain insight into cognitive processes that underlie quantitative research" (Manning et al., 2005, p. 205). Therefore, qualitative research can be complimentary when used to further explain quantitative findings.

Phase 2 was based primarily on two research questions. First, does participation in one activity, such as hunting, come at the expense of another activity? For example, if an individual

participates in other activities will they take away from the time the individual has to participate in hunting? The other research question used to guide this phase of the study was whether certain activities afford participation in other activities. In other words, are there activities that help individuals participate in hunting?

Phase 2 Methods

Phase 2 was designed to further explain the results of Phase 1 by using telephone interviews to gain “insight into the cognitive processes that underlie” (Manning et al., 2005, p. 205) my quantitative findings about the relationship between hunting participation and participation in other activities. I used interviews to discuss activity participation with hunters and get a sense of how they perceived the interaction between hunting and other activities they were involved in.

Sampling Design and Procedure

I used purposive sampling to select participants with different levels of hunting involvement which enabled me to collect rich information about participation in hunting and other recreation activities (Creswell, 2003; Daigle, 1997). Participants were selected using a standard snowball technique, which involved first asking key contacts in the hunting community to recommend suitable individuals for the study (Babbie, 1998; Gall, 1996) and then asking the key informants to provide additional contacts in order to develop a larger set of potential participants. Rather than identify a specific sample, my goal was to collect data until saturation occurred (Patton, 1990). Consultation with researchers who had collected information from similar populations suggested a sample size of 15 to 20 hunters with diverse characteristics.

Interview Administration

Interview Protocol. The interview protocol was submitted and approved by the Internal Review Board (IRB) at Penn State University and California was formally approved on October 10, 2006, and designated #24188 by the Penn State IRB. The questions used in this analysis were part of a larger set of questions used to assess the future of hunting in Pennsylvania (Appendix C). An interview protocol was developed to guide the interview process and included an overview of the study, key research questions, probes to stimulate further conversation, and places to record respondents' comments to each question (e.g. Daigle, 1997). I used open-ended questions related to three main topic areas including: 1) perceptions and participation in hunting and related activities, 2) participation in other recreation activities, and 3) comparison of activities. Specifically, questions focused on enjoyment and importance of hunting, level of involvement in hunting and other activities, activities as a source of personal identity, classification of activities, and how other activities relate to, compete with, or inhibit hunting participation. A pre-test of the interview questions was conducted with a sample of three hunters resulting in two minor revisions to the interview protocol. First, additional socio-demographic questions and basic questions about hunting behavior (e.g. current and past species hunted) were added. Second, additional probes were developed in order to gather more detail in the event respondents did not provide enough information when responding to the initial questions.

Interview Procedure. Key contacts at sporting goods stores, hunting clubs, and sportsman's organizations provided names and telephone numbers of hunters who would be good candidates for the study. Potential respondents were judged as suitable based on their level of involvement in hunting and were selected to represent low, moderate, and high levels of involvement. Potential respondents were then contacted and provided with an overview of the

study. Only 4 hunters refused to participate in the study because of time constraints in their schedules. Those who chose to participate were scheduled for a telephone interview at a later time. Participants provided additional names of hunters to contact for future interviews. Interviews began on January 19, 2007. Prior to the interview participants were read several paragraphs that outlined the purpose of the study, how the information was going to be used, and the anonymity of their responses. All interviews were recorded by permission of the respondent and participants were asked each question in a consistent manner while allowing for discussion about related topics that arose during the course of the interview (DeRuiter & Donnelly, 2002). I also took notes on each question during the interview. Interviews lasted from 30 to 60 minutes. To preserve confidentiality, each participant was assigned a number, and interview tapes were marked with only that number. All interviews were transcribed by a professional transcriber who typed responses in question and answer format. All information from the tapes and notes were then entered into a database for analysis. Interviews were conducted until themes consistently repeated themselves.

Data Analysis

Interview data were analyzed using content analysis, a technique used to systematically and objectively analyze the content of a form of media (Bailey, 1994). Because this study was designed to be exploratory, the primary goal was to use content analysis to identify themes that appeared in participants' responses. Open-coding was used to categorize responses based on the presence of relevant concepts as they emerged during analysis. Specifically, all responses were reviewed and categorized for each question in order to group similar responses. The initial coder provided definitions and examples to a second coder and discrepancies were reconciled through discussion. A list of codes and illustrative quotes can be found in Appendix D. Responses were

then enumerated to identify themes and unique outliers. These findings are discussed and supported with quotes from respondents.

Phase 2 Results

Participants

During January and February 2007, I interviewed 19 hunters. Although similar themes began to appear by interview number 8, I did not have an adequate distribution of hunters with different involvement levels and therefore chose to continue interviewing hunters. By 19 interviews, I had reached a point where no new information was being collected. Among the participants, there were 12 who classified themselves as “avid” and 7 who classified themselves as “casual.”

Content Analysis

Some themes appeared repeatedly across multiple questions while others pertained only to specific questions. The sample size for this study was small and although I will make mention of the frequency of themes, this is true only for my sample and should not be considered as representative of actual distributions in a population. Responses will be discussed based on the participants’ perceptions of themselves being avid or casual when themes differed between the groups.

Perceptions and Participation in Hunting and Related Activities. Respondents were asked a variety of questions designed to assess the importance of hunting to their lifestyle and their level of participation in hunting and related activities. Several main themes emerged from these questions. The first theme was the importance of hunting as a recreation activity. This

theme was highest for participants with higher levels of involvement. The majority of avid hunters described hunting as being very important to their lives in comparison to other recreation activities. Casual hunters, on the other hand, varied in how they perceived the importance of hunting in their life. Several described hunting as very important to their lives while others placed moderate importance on hunting and talked about using it as a recreation activity or hobby that helped them to get outdoors. For example, one hunter said:

The best way to put that I think, is it is an outdoor activity that I enjoy, but I enjoy many outdoor activities. Hunting is a way of spending time outdoors, which I think is more the goal than killing the animal if that makes sense. I can go on a bicycle ride and see game and enjoy that. I can go fishing and some of the best hunting stories I come up with are things that I see while I am fishing---- about the mink and the turkey and stuff like that. You know it has nothing to do with hunting. I think that hunting has to be considered more of a means to get to a goal and the goal being to get out of the house and do something besides sit on my duff. I do not have to be hunting, but I do have this thing where I do need to be getting out of doors and when I say out of doors, I mean into the woods. Camping, fishing, etc. If it is outside I do it. (H17)

There were also casual hunters who placed low importance on hunting as illustrated in the following quote:

I think that for me if I was told tomorrow that I could not hunt any more, it would not necessarily pose a problem. I like being with my children and it is really great to hunt with them, but if I was told that I was not able to hunt any more, it would not put a major stress on me. (H1)

A second theme that emerged was hunting and related activities as sources of identity for participants regardless of involvement level. When asked, “If someone asked you to explain “who you are,” which activities would you mention and why?”, all participants listed hunting. Even those who seemed to be less involved mentioned hunting as an activity with which they identify. Other common activities mentioned were fishing, archery, being an overall outdoorsman, other sports, and family activities. When asked, “What do you consider as hunting related activities?”, the most common activities listed were target shooting, looking for game or scouting for places to hunt, getting equipment ready for the season, and hiking. Other activities

mentioned less frequently were ATV riding, birdwatching, visiting sporting good stores and fishing. When asked how often they attend events such as target shoots and sportsmen shows, casual hunters tended to participate in a fewer number of these types of events than hunters who classified themselves as avid. The majority of participants also read hunting magazines, looked at their old photos of hunting experiences, watched hunting shows, and shared hunting stories with others. However, casual hunters seemed to participate in these types of activities to a lesser degree than avid hunters.

A final theme that emerged was the use of hunting-related activities as facilitators of hunting participation. When asked what kind of influence hunting-related activities had on their hunting participation, responses were similar among both avid and casual hunters. The most common responses centered around maintaining their interest during the off-season when they could not hunt, learning new techniques, and reflecting on previous hunting seasons. The following quotes help illustrate the final theme:

Oh they have a lot [of influence]. I mean, when I see the different hunting shows or hear the different stories it just kind of gets you excited to get out there and look for new experiences. And when you hear that somebody is using some piece of equipment that has helped them, then you look to see if it is something that you can use. Or if they are using something that is not good, you make sure that you are not using that same thing. (H7)

Well it does not really relate to at all. It just brings back memories or gives me interest in how other people go about their hunting. Like reading magazines and reading about hunts. The stories just more or less bring memories. They do not really relate to how I go about it. (H10)

Participation in Other Recreation Activities. Participants were asked to discuss other recreation activities they were involved in. The main theme that emerged from this line of questioning was that hunters participated in a wide variety of non-consumptive recreation activities regardless of their level of involvement in hunting. The most common activities were fishing, sports, and activities associated with their children. Almost half of the respondents mentioned other outdoor activities, such as gardening, hiking, camping, and wildlife watching;

leisure activities such as going out to dinner, movies, and traveling; and community activities such as youth groups, church events, and professional or sportsman organizations. There was no distinct pattern in frequency of participation in other recreation activities. Many hunters participated in activities weekly but others only participated in them several times a year. The variation seemed to depend on seasonality; type of activity (e.g. sports teams, weekly practices); and weather.

Oh I would say camping we spend probably four weeks total. I mean, just adding together weekends and you know like a week vacation. Probably two or three weeks in the back packing and hiking. You know if you put it all together steady. (H18)

I try not to miss any games. I have coached them for years in soccer and baseball. (H14)

Comparison of Activities. Participants were asked a series of questions to assess the extent to which they participate in other activities and how this influences their participation in hunting. These questions also elicited responses that shed light on ways in which participants were able to maintain involvement in multiple activities.

One main theme that emerged was hunters with higher involvement levels primarily spend more time hunting and participating in related activities relative to the time they spend participating in non-hunting activities. Among avid hunters, the majority spend more time hunting and participating in closely-related activities while others said they try to balance hunting with other aspects of their life and recreation. For example, some hunters said:

I spend less time on other things. I spend less time, less of my personal time, on other recreational activities than I do on hunting. (H12)

Well I try and keep a perspective so that when I am not hunting, that my wife and I do the things that she likes to do, we try and balance our life out that way. For instance, we like to travel. We took one trip and it was purely to go out and explore Native American history, but I also ended up down in Texas hunting hogs and stopping at a lot of sporting goods stores on the way. That was fine with my wife because she also got to do the things that she wanted to do. So we try and balance our lives out. (H8)

Among causal hunters, however, responses were split with some spending more time hunting and participating in hunting-related activities while the rest spend more time doing other activities. One respondent said:

Well, in season I probably devote more time [to hunting], but in the scope of things as far as running and tennis and basketball and other activities it is pretty small on the recreational scale. (H1)

Overall, about half of the respondents were happy with the balance they had between hunting and participating in other activities and the other half wished they could hunt more.

To assess how other activities might influence current hunting participation, participants were asked “In what ways do these activities compete with or interfere with your hunting?” Similar themes emerged for both avid and casual hunters. Overall, limited evidence of frustration or dissatisfaction with the balance of multiple activities was found. Non-hunting activities were sometimes perceived as interfering with hunting participation yet most hunters were able to balance participation in other activities. Among those who perceived competition for time to hunt, it was attributed to meetings and practices associated with teams and professional organizations. For example, one individual involved in leading Boy Scouts said:

They [activities] do compete because of my involvement with the scouts. My other leaders are not hunters and many times they will plan events on weekends during the hunting season and it definitely does interfere with it some. (H18)

The majority of participants, however, said their participation in other activities did not interfere with hunting. One comment reflected the seasonality of hunting, as illustrated in the following statement:

Each one is seasonal, like I will fish the spring and do a little golf and then the summer months it is mostly golf and then in the fall it is the hunting and that becomes full time. (H6)

Several participants said they liked other activities just as much as hunting and were able to find ways to enjoy all of them. For example, one participant stated:

You know, as much as I love the hunting, the other things that I do I enjoy just as much. My wife chose to go to the shore this year with a friend of hers for a week and they went the first week of archery season. I would have preferred that she chose a different week, but I took a couple of days off and went down with her. I do not mind dropping the hunting and doing some other things too. (H15)

Another way of negotiating multiple activity participation was related to scheduling time to hunt around other activities in order to continue participating in both. For example, one hunter said:

They [family activities] do not interfere. I mean, I can make time to hunt. It is important to me, but it is not that important. The kids are more important. (H14)

A second theme that emerged from this line of questioning was the difficulty hunters had in perceiving ways in which non-related activities complemented their hunting participation. Participants were asked “In what ways do these activities complement your hunting?” Fewer than half of the participants thought of ways their other recreation activities complemented hunting. Among those who did, there were several main responses. The most common were to learn about new places to hunt, using participation in another activity, such as a sport, to get physically fit for hunting season, and increased appreciation for hunting. These are illustrated by the following quotes:

At times [fishing spots]. Just being able to see different areas where I might like to go hunt. (H4)

They do not interfere. Actually they help. I want to be in better shape so I can hunt a little harder and not worry about having a heart attack. (H7)

I think I appreciate the time I get to hunt more because I can't get out during times when there are other events I need to be at. (H19)

One final theme that emerged was the influence of family and friends on recreation activity choices. In order to gauge how individuals negotiate participation in multiple activities, I asked them about the factors they consider when choosing to participate in activities they are involved in, including hunting. The overwhelming majority said their activity choices depended on family obligations or the availability of family and friends to participate with them. Other

responses focused on prior commitments or obligations that left participants feeling they had little choice of activity. For example, one participant stated:

Well there are some things that you are obligated to do. When you are going to be part of an organization and do something, you have an obligation to be there and do it. It may not be what you want to do all the time, but that is what you do. Yes, I always love it whenever someone decides they are going to do the road clean up at the Elks on a day that I want to go hunting. So that means that I get to go and walk along a couple of miles and pick up everybody's trash while everybody else is out chasing the critters. You know you just have these obligations and you know you have to place priorities and that situation where you said you are going to do something, you have to do it. (H17)

Phase 2 Discussion

Results from the qualitative interviews showed that the relationship between participation in hunting and other activities is complex. Overall, both avid and casual hunters participated in a wide variety of consumptive/hunting-related and non-consumptive activities. However, avid hunters' non-hunting activities tended to be closely-related to hunting, e.g., fishing, wildlife watching, and sportsman's events, whereas casual hunters' non-hunting activities reflected a broader range that included fishing, children's activities, reading, martial arts, and wood-working. This confirms that participation in activities that are related to hunting may help facilitate hunting participation and may also influence whether a hunter is defined as avid or casual. The findings, however, did highlight that some hunters do try to balance the amount of time they are spending among all activities they are involved in.

About half of the respondents reported balancing hunting and other activities, such as family recreation, and several described how they were able to find ways to participate in all of the activities they were involved in. Although organization meetings or sports team practice accounted for some competition with hunting, many of the participants said their activities varied seasonally so as not to interfere with hunting. Others said they would just find the time to continue participating in a variety of activities, especially those who enjoyed their other pursuits

as much as hunting. However, when confronted with a decision about which activity to choose, the majority cited family, friends, and prior obligations as factors that influence their decisions.

Overall Discussion

Hierarchical regression from Phase 1 demonstrated that when controlling for age and involvement, increased hunting participation was predicted by increased participation in consumptive/hunting-related and motorized activities. Likewise, findings from Phase 2 suggested that participation in activities that are related to hunting may help facilitate hunting participation, particularly for hunters who are highly involved. Although there was a significant positive correlation between hunting participation and participation in non-consumptive outdoor activities, they did not contribute to the overall model. However, Phase 2 found that regardless of involvement level, hunters participated in a wide variety of non-consumptive activities.

Overall, findings from both phases of the study suggested that participation in multiple activities is not always at the detriment of another. This may be particularly true for activities such as hunting that are seasonal in nature. As a result, equal participation in multiple activities may occur with minimal competition. Certain activities may also help to reinforce another, particularly if they are related in some way. For example, activities such as target shooting, scouting for game, and reading hunting material were consistent with affording hunting participation rather than competing with it because they help to increase skill and knowledge. Therefore, it will be useful in future research to identify groups of activities that may be related to each other and that may help facilitate increased and continued participation in an activity.

Robinson and Godbey (1997) found there are individuals who will continue to take on more activities regardless of how busy they are. While these studies can not confirm this per se, the findings are consistent with it. Some hunters focused on multiple activities that were related

to hunting (e.g., target shooting) while others were involved in both hunting and non-hunting activities. Perhaps those who participated in a greater number and/or a wider range of activities fit Robinson and Godbey's (1997) description of a "busy" person who enjoys doing many different things. This has important implications and suggests that participation in many activities may be indicative of a person's leisure style (Payne et al., 2006) rather than involvement level.

While I found evidence that increased participation in one activity does not always inhibit participation in another, there are likely situations when it does. This may be particularly true for individuals who choose to become highly involved in one activity. When individuals choose to make one activity a central part of their lifestyle the pursuit is classified as "serious leisure." Stebbins (2007, p. 5) defines serious leisure as "the systematic pursuit of an amateur, hobbyist, or volunteer activity sufficiently substantial and interesting in nature for the participant to find a leisure career there acquiring and expressing a combination of its special skills, knowledge, and experience." Serious leisure is based on six distinct qualities that include perseverance, a career based on achievements or involvement, significant personal effort, durable benefits, unique ethos, and strong identification with the pursuit (Stebbins, 2002). In the context of hunting, there are individuals who choose to make it central to their lifestyle while others choose to use it merely as a means for relaxation. This distinction may help predict the likelihood of continued participation across the life span of an individual. Those who choose hunting as a serious leisure pursuit are likely to become highly involved to the extent that cessation may be harder than it would for participants who hunt casually.

Conclusions

Theoretical Implications

From a theoretical standpoint, it is simplistic and unwarranted to assume that activities always compete with each other. For example, in both Phase 1 and Phase 2, participation in multiple activities was not found to always contribute to decreased participation. While competition between activities is likely at times, individuals often find ways to negotiate constraints and therefore are capable of finding ways to manage time and resources in order to maintain participation in the activities that are the most meaningful to them (Jackson, 2005; Purdy et al., 1989; Wright et al., 2001). For example, several participants talked about combining family and hunting interests during vacations or choosing activities over hunting because they enjoy them just as much. Therefore, situational constraints should be considered when trying to understand participation behavior because what affects participation in one case may not be the same in another.

Practical Implications

From a practical standpoint, researchers and managers need to be careful to remember that activities may both compete with or complement each other. Suggesting that activities only compete with each other assumes that a variety of activities are incapable of working together to satisfy an individual's leisure needs. For example, hunting and wildlife viewing may complement each other because they can occur simultaneously and/or may help promote an appreciation for wildlife. Target shooting and scouting for game are also activities that complement hunting because they often occur in conjunction with hunting or while preparing for the upcoming season. Likewise, these findings can be extended to other forms of leisure and

recreation. For example, participation in sports and more physical forms of outdoor recreation, such as mountain biking, may complement each other by helping an individual maintain the required physical fitness needed to participate in these activities.

Another way in which activities may complement each other is in the form of initiation into an activity. Perhaps certain gateway activities can be identified that could help promote participation in other activities. For example, there may be specific activities that help individuals adopt a repertoire of physical activities leading to a more active lifestyle. There may also be gateway activities that can help older adults adopt a repertoire of activities that fosters continued participation and social connectedness. Regardless of the activity, researchers and managers are in a position to help facilitate leisure and recreation participation and should do so in a manner that optimizes the benefits of participation in multiple activities.

Implications for Hunting

Although, hunting participation is declining, it may not be correct to attribute that decline to participation in other outdoor activities. My results provide evidence of a positive relationship between participation in hunting and other outdoor activities, particularly other consumptive outdoor activities. These findings may have several implications. For example, participation in one or more consumptive outdoor activities may afford participation in others either because they are related to each other or have similar satisfactions. On the other hand, non-consumptive outdoor activities may also afford participation because they may occur simultaneously (e.g. hiking). These results offer evidence that certain groups of activities may facilitate rather than hinder participation in any one activity. Research suggests that as involvement in any one

activity increases, it will come at the cost of another. However, my findings show that increased levels of hunting involvement continued to afford participation in other outdoor activities.

Even if some activities do not support hunting directly, it does not necessarily mean they conflict with hunting. Hunting is a seasonal activity and participation can only occur legally within the established dates of the season. Therefore, participation in other activities may not interfere with hunting if those activities occur during other times of the year. As a result, other activities may serve as substitutes for hunting during the off-season. If they do occur during the same season, however, they may either support hunting (e.g. target shooting) or meet a need that hunting does not. For example, a need to spend time with family may not be fulfilled if there are no family members to hunt with. Therefore, a hunter may choose to also participate in non-hunting-related activities that are important to family members in order to satisfy that need.

Limitations and Future Research

These studies had several limitations and therefore warrant future research. First, I only looked at specific outdoor activities in the survey. Participants in the interviews were asked to discuss other activities they were involved in but there was no direct link to the list found in the survey. I was also unable to get specific information in the survey regarding other outdoor activities as they relate to hunting. For example, how decisions are made to participate in other activities, what other activities occur in conjunction with hunting, how much time they take up relative to hunting, and whether or not other activities compete with time to hunt. Future research that uses a mixed-method approach should use consistent measures of activity participation if valid comparisons of the data are to be made.

Another limitation was that I did not measure involvement levels in other outdoor activities. Although I found that hunters who were more involved in hunting also participated in multiple activities, I was unable to determine how involved they were in those activities or if those activities even occurred during hunting season. Therefore, as hunting involvement increases, participation in other activities may still exist but the level of involvement could be decreasing. Therefore, another area that should be explored is the influence of involvement level in multiple activities.

While these results are consistent with those found by Zinn (2003), they are contrary to what has sometimes been hypothesized in the literature (Scott & Shafer, 2001; Wright et al., 2001), suggesting a need for further investigation. My results indicate that participation in multiple activities that complement or reinforce each other does not inhibit participation within any one of them. However, I am not suggesting that all activities reinforce or complement each other all the time. In fact, it is likely that some activities must compete with each other at certain times resulting in decreased participation in an activity. What I am suggesting, as demonstrated by my data, is that increased participation in one activity does not always come at the expense of another. The relationship among levels of participation in multiple activities is complex where some activities may reinforce or complement each other some of the time while others may compete with each other. To help understand this, it is important to know which leisure activity is preferred, if this preference changes, and if so, what are the factors that influence activity selection.

Another area necessary for exploration is the nature of the relationships between specific activities. For example, understanding how other recreation activities relate to hunting is important because hunters may be participating in multiple activities at the same time (e.g.,

hunting and hiking). We know certain activities overlap but the relationships between others are much less clear. Understanding the different activities that make up an individual's leisure repertoire will help to better explain the relationships among multiple activities and how they may or may not inhibit participation in one activity. A specific need for future research is the relationships among participation levels in activities that are restricted by seasonal participation (e.g., hunting, skiing, etc.) and those that are not.

A final area that should be addressed in the future is whether or not an activity affords other activities and if there are gateway activities that initiate participation in other related activities. The potential value of this is the ability to identify ways to increase participation in many different kinds of activities. It would be particularly useful in facilitating participation in activities that have experienced a decline or those that promote health and well-being. Overall, this information is important to participation in all forms of leisure and recreation and will help us gain a better understanding of how individuals negotiate their participation in multiple activities.

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Orientation to Chapter 4

This is a manuscript that will be submitted to *The Journal of Wildlife Management* or *Human Dimensions of Wildlife* for publication. The purpose of the study was to examine how social support and involvement influence hunting participation. Findings from the Phase 1 of the study reviewed in the first manuscript (see pages 16 to 52) provided quantitative evidence for positive relationships among social support, involvement, and hunting participation. This study was based on semi-structured interviews to provide a more in-depth understanding of level of involvement, how people interpret social support, whether or not its absence is perceived as a constraint, and relationships among these factors. Several research questions from Phase 1 were addressed further in this study while others focused on topics that were not measured previously. The research questions examined are:

- RQ3. How does participation in hunting and related activities relate to involvement level?
- RQ4. How do direct and indirect social support influence hunting participation?
- RQ5. Is one type of social support perceived as more influential depending on hunters' level of involvement?
- RQ6. Does the importance placed on social support differ depending on hunters' level of involvement?

CHAPTER 4
AN EXAMINATION OF THE ROLE OF SOCIAL SUPPORT
AND INVOLVEMENT IN HUNTING PARTICIPATION

Abstract

Researchers have suggested that social support and involvement may help predict long-term hunting participation. However, little is known about how social support and involvement function or how they relate to each other. In this study, semi-structured qualitative interviews with hunters suggest several important differences among hunters with different involvement levels. As expected, lower levels of involvement were associated with less frequent participation in hunting and related activities, lower importance of hunting, and lower identification with hunting. Higher levels of involvement were associated with more frequent participation in hunting and related activities, higher importance of hunting, and higher identification with hunting. However, not all hunters displayed these tendencies consistently. These findings suggest that level of involvement may interact with other factors when predicting hunting participation. Regardless of involvement level, direct social support from hunting partners seemed to have a significant positive influence on hunters in a variety of ways. Hunting partners provided access to new hunting areas, motivation, and camaraderie. Several hunters said they would hunt less if not for their hunting partners. Indirect social support from non-hunting family and friends was primarily perceived as having no influence on hunting participation. However, some perceived it was easier to participate in hunting as a result of encouragement from non-hunters. Although some findings suggest that social support was related to level of involvement, findings were inconsistent. Future research is needed to examine the role of personality and

hunting style preference on perceptions of social support and their potential influences level of involvement.

Introduction

Hunting is a culturally important activity and traditional form of outdoor recreation that provides opportunities to establish and renew social bonds and intimate connections to the natural environment (e.g., Daigle et al., 2002; Decker et al., 2001). Although absolute numbers of hunters may be stable (Flather & Cordell, 1995), the proportion of the U.S. population that hunts is in an extended period of decline (Brown et al., 2000; Heberlein & Thomson 1992, 1996; Kelly & Warnick, 1999). General population trends suggest declining hunting participation may be related to four major social trends: declining residential stability, urbanization, increasing levels of education, and increasing participation rates for other non-consumptive outdoor activities. While these population-level factors help explain general trends, hunting participation rates are also related to individual-level factors such as involvement and loss of social support networks (Purdy et al., 1989; Wright et al., 2001).

Social support and involvement directly influence hunting behavior, and some research suggests these factors may help predict long-term participation (Decker et al., 2001; Decker & Connelly, 1989; Enck et al., 2000; Purdy et al., 1989). However, the specific roles that social support and involvement play are less understood and research on the topic is nearly non-existent in the literature. The lack of previous work suggests that research is needed to identify how these factors might be linked to hunting participation and to each other (DeRuiter & Donnelly, 2002). Drawing from research about social support and involvement in leisure and recreation, I used semi-structured interviews to gather in-depth information about these social phenomena and their poorly understood relationships to hunting participation. Specifically, I examined hunters' level of involvement, their perceptions about the importance of social support, and the influence that different types of social support have on their hunting participation.

Literature Review

Involvement

In the recreation literature, involvement is measured as a combination of an individual's desire for enduring participation in an activity and its perceived level of personal importance (Funk et al., 2004; Kyle & Chick, 2004; Gahwiler & Havitz, 1998) whereas commitment is the "personal and behavioral mechanisms that bind individuals to consistent patterns of leisure behavior" and is a result of the investment in an activity, such as building social networks (Kyle & Chick, 2004, p. 246). Level of involvement is important to understanding commitment because those who continue to pursue an activity tend to have an ongoing attachment to it (Gahwiler & Havitz, 1998). In fact, findings from the recreation literature suggest that, in general, higher involvement leads to increased participation and/or commitment (Gahwiler & Havitz, 1998; Shamir, 1988). However, Shamir (1988) asserts that continued and consistent behavior (involvement) does not necessarily indicate commitment. Commitment refers to a sense of obligation while involvement reflects the importance of the activity (Shamir, 1988). For example, individuals may be highly involved in an activity because it is important to them but they may not be committed to it. For commitment to occur there needs to be more than valuation of the activity. It requires a large investment of time, effort, and/or money (Shamir, 1988). Research that has been done on commitment relative to hunting participation has found that commitment depends on the degree to which hunters identify with roles, values, and norms of the hunting population (Purdy et al., 1989).

Thus, involvement and commitment are distinct but related (Shamir, 1988). High involvement, with its emotional attachment and activity identification, is a "precondition" for

commitment (Iwasaki & Havitz, 2004). For example, an individual hunter may be highly involved in archery deer hunting because it is important to him or her. But if faced with family-related constraints, he or she may hunt less, demonstrating reduced commitment even though involvement and loyalty to the archery deer hunting remain high (Shamir, 1988). Because involvement is more closely related to actual participation, it is the focus of this study.

Iwasaki and Havitz (2004) propose that social support is a predictor of continued involvement and is important in developing commitment among those who are highly involved in an activity (Iwasaki & Havitz, 2004). This theory was supported in research by Voorhees and Zinn (2007) who found that higher levels of social support lead to greater involvement which results in increased hunting participation. These findings have important implications for understanding hunting participation because they show a direct link between social support and involvement and highlight the importance of social support in fostering involvement and continued participation.

Social Support

Social groups may be more important than individual characteristics in predicting leisure and outdoor recreation participation behavior (Burch, 1969; Dottavio et al., 1980; Field & O'Leary, 1973; Gahwiler & Havitz, 1997; Hibler & Shinew, 2000; Kyle & Chick, 2004; Manning, 1999). In fact, Burch (1969) suggested that an individual's social circles may have a crucial influence on leisure behavior. People generally recreate with other people, creating distinct social groups (Stokowski, 1990). Kyle and Chick (2004) identified how social groups can influence participation by stating that close, relevant others are a source of meaning and they often convey expectations that the individual should continue participating. However, as

Stokowski (1990) notes, a group does not always have to be physically present. For example, even when participation does not involve actual contact with other group members, identifying with the group will likely influence recreation behavior (Stokowski, 1990).

Social support is derived from social groups and helps facilitate recreation activity participation (Field & O'Leary, 1973; Hibler & Shinew, 2002). Limited evidence in the hunting and trapping literature suggests individuals who receive support from social networks continue to hunt or trap (Daigle, 1997; Enck et al., 2000; Purdy et al., 1989). Since there are a variety of ways hunters can receive social support, the question becomes which type of support is the best predictor of participation (Stokowski, 1990).

In general, family and friends were found to be important influences on recreation participation behavior because they help define what is meaningful (Kyle & Chick, 2004; Purdy et al., 1989; Stokowski, 1990). However, there are two possibilities: 1) do family and friends need to act as hunting partners in the field (direct support) to influence hunting participation or 2) can they simply support the activity by encouraging/and or facilitating hunting participation (indirect support)? Direct support, in the form of hunting companions, influences participation by providing opportunities for learning and apprenticeship and also by providing continued companionship and support as individuals continue to hunt (Enck et al., 2000). On the other hand, indirect support is also influential in that it surrounds an individual with others who support hunting without actually participating themselves. For example, a study of families of license-buyers revealed that three-quarters of respondents who didn't buy hunting licenses identified with hunting and provided indirect social support to hunters by participating in hunter-related activities such as eating game, visiting hunting camps, or helping to scout (Enck et al., 2000). Since our understanding of social support relative to hunting participation is limited,

further research is needed on the roles of both direct and indirect social support in promoting hunting participation.

Family and friends have the potential to greatly influence an individual's recreation participation (Stokowski, 1990). Although family and friends influence hunting participation, some research suggests that greater importance is placed on family members. When support is provided by family members, hunters show greater long-term commitment because of the importance the family places on hunting (Purdy et al., 1989). On the other hand, support from friends is generally more important to those who are less committed and who usually participate in hunting to maintain affiliative ties (Purdy et al., 1989). Studies show that new hunters in modern society are more likely to lack a family background in hunting, have lower commitment, and are less likely to continue hunting in the future (Decker & Connelly, 1989). These findings suggest that family social support systems for hunting may be on the decline, resulting in fewer hunters who are committed to continued participation. However, social support from clubs and informal associations might influence hunting participation (Pine, 1984; Stebbins, 2002; Stokowski, 1991).

Research Goals and Objectives

Limited research on the role of social support and involvement suggests they are important in predicting hunting participation. Drawing from Voorhees and Zinn's (2007) findings therefore, my first research question is: How does participation in hunting and related activities relate to involvement level? Social support is important but little is known about how hunters perceive and experience different types of social support or how social support specifically relates to actual hunting participation. Therefore, my second research question is:

How do direct and indirect social support influence hunting participation? My third research question is related to the second: Do hunters perceive one form of social support (direct or indirect) as more influential than another depending on their level of involvement? For example, would the loss of a certain type of support cause a hunter to reduce or cease participation? My fourth research question is: Does the importance placed on social support differ depending on hunters' level of involvement? For example, if a hunter is less involved, would social support have greater influence on participation than it would among highly involved hunters?

Methods

In order to collect detailed information about hunter's level of involvement and their perceptions of social support, I adopted an interpretive approach.

Sampling Design and Procedure

I used purposive sampling to select participants with different levels of hunting involvement which enabled me to collect rich information about participation in hunting and other recreation activities (Creswell, 2003; Daigle, 1997). Participants were selected using a standard snowball technique, which involved first asking key contacts in the hunting community to recommend suitable individuals for the study (Babbie, 1998; Gall, 1996) and then asking the key contacts to provide additional contacts in order to develop a larger set of potential participants. Rather than identify a specific sample, my goal was to collect data until saturation occurred (Patton, 1990). Consultation with researchers who had collected comparable information from similar populations suggested a sample size of 15 to 20 hunters with diverse characteristics. Although efforts were made to interview both male and female hunters, only

males participated in this study. Female hunters identified as potential participants were either unable or uninterested in participating or attempts to contact them were unsuccessful. In addition, two female hunters were scheduled for interviews but when contacted for the interview, were no longer available. Thus, sample size for this study was small and included only males.

Interview Administration

Interview Protocol. The data used in this study were derived from a larger study used to assess the future of hunting in Pennsylvania (Appendix B). An interview protocol was developed to guide the interview process and included an overview of the study, open-ended questions, probes to stimulate further conversation, and places to record respondents' comments to each question (e.g., Daigle, 1997). The open-ended questions were related to two main topic areas including: 1) perceptions and participation in hunting and related activities, and 2) the influence of other people (social support) on hunting participation. Specifically, the questions focused on enjoyment and importance of hunting; level of involvement in hunting and related activities; the influence of hunting partners; family; and friends on their level of hunting participation; who hunters enjoy sharing their hunting experiences with; and the potential influence of changes in family and friend dynamics that might affect future hunting participation. A pre-test of the interview questions was conducted with a sample of three hunters resulting in several minor revisions to the interview protocol. For example, socio-demographic questions and basic questions about hunting behavior (e.g. current and past species hunted) were added. Additional probes were also developed in order to gather more detail in the event respondents did not provide enough information.

Interview Procedure. Key contacts at sporting goods stores, hunting clubs, and sportsmen organizations provided names and telephone numbers of hunters who would be potential candidates for the study. Respondents were judged as suitable based on their level of involvement in hunting (i.e., low, moderate, and high). During an initial contact, I provided an overview of the study and those who chose to participate were scheduled for a telephone interview at a later time. Participants also provided names of other hunters to contact for additional interviews. Interviews began on January 19, 2007. Prior to each interview, the participant was read several paragraphs that outlined the purpose of the study, how the information was going to be used, and the anonymity of their responses. All interviews were recorded with permission, and participants were asked each question in a consistent manner while allowing for discussion about related topics that arose during the course of the interview (DeRuiter & Donnelly, 2002). Interviews lasted from 30 to 60 minutes. To preserve confidentiality, each participant was assigned a number, and interview tapes were marked with only that number. All interviews were transcribed by a professional transcriber who typed responses in question and answer format. All information from the tapes and notes were then entered into a database for analysis. Interviews were conducted until responses consistently repeated themselves.

Data Analysis

Interview data were analyzed using a conceptual approach to content analysis. Content analysis is a technique used to systematically and objectively analyze the content of a form of media (Bailey, 1994). Open-coding was used to categorize responses for each question as they emerged during analysis. Specifically, all responses were reviewed and categorized for each

question in order to group similar responses. The initial coder provided definitions and examples to a second coder and discrepancies were reconciled through discussion. A list of codes and illustrative quotes can be found in Appendix D.

One primary goal was to distinguish between different levels of hunting involvement and to determine if these differences were related to hunters' perceptions of the influence of social support on hunting participation. Therefore, participants were placed into three (low, intermediate, and high) involvement groups for better interpretation of responses. Involvement levels were based on the coding of responses for several components including amount of participation in hunting and related activities, level of self-identification with hunting, and the importance of hunting to their lifestyle. Categorization revealed an individual in the low, medium, and high involvement categories whose characteristics in many ways exemplified the behaviors, experiences, and beliefs of that group. I frame my description of each involvement group around these three exemplars, describing each and then comparing his comments to those of others in his category whose responses either amplify or contrast with those of the exemplar.

Results

Participants

During January and February 2007, I interviewed 19 hunters. Although similar responses began to appear by interview number 8, I did not have an adequate distribution of hunters with different involvement levels and therefore chose to continue interviewing hunters. By 19 interviews, I had reached a point where no new information was being collected. As I examined the data, the majority of hunters tended to exhibit intermediate to high levels of involvement with the exception of one who showed extremely low involvement.

Content Analysis

Low Involvement Hunter (H3). The hunter chosen to illustrate the low involvement category exemplified minimal participation and lower interest in hunting as compared to the other hunters in this study. His participation was so low that he was an outlier when comparing his responses to all others. However, his responses may help us understand why some hunters may have extremely low levels of involvement while still maintaining an interest in hunting. This particular hunter had moved from a town to a rural area eight years ago and had never hunted prior to moving there. Currently he only hunts turkeys and spends just a few days during the season doing so. In fact, when asked to describe himself as a hunter he said:

I really only care to hunt turkeys. I am casual and a recreational hunter I guess would be the word. More than hunting turkeys, I like to get out in the woods and see things, and other people I guess would say the same thing. Casual. Not the most important thing in my life. The world does not stop. (H3)

This particular hunter also spent minimal time participating in hunting-related activities and getting ready for the season as illustrated in the following statements:

I mean very little [related activities] because I am a causal hunter. Other than going to Cabela's and getting some clothing or a different call or reading up on different calls, there is not much at all. (H3)

I don't spend any time preparing for the season. The only other thing I do really is some clay shoots or just recreational shooting. Not much this year or last year. Occasionally I read hunting material, it helps fill the void whether you participate or not. (H3)

These responses were distinct from the responses of all other participants. Regardless of involvement level, all of the other hunters interviewed mentioned a greater amount of preparation and participation in hunting-related activities. The majority of other participants indicated they spent anywhere from a few days to several months scouting for game, target shooting, and preparing their equipment.

Since hunting was not a central part of his lifestyle, the low involvement hunter defined himself primarily by family activities:

I guess I would have to define it more by my family and my kids and the activities that they are involved in more so than myself. They are involved in swim team, physical exercise with them and going to the parks and riding bikes quite a bit. Things like that. (H3)

This was also much different from the responses of other participants in the study, who mostly defined themselves by hunting or other related activities. For example, an intermediate and high involvement hunter said:

I definitely am an outdoorsman. I do enjoy the woods. Yes I mean I am definitely an outdoors person. I do not get as involved as some of the people that I know, but I do enjoy it. Most of them are hunting related like sporting clays, fishing. I also do some wood working and cabinet making. (H4- intermediate)

Oh, all outdoor activities. I like to hike, camp, hunt, fish. Basically all outdoor activities are who I am. (H18- high)

Although the low involvement hunter placed little importance on hunting, he was interested in being able to hunt more and described how he felt about this by saying:

I would like to be involved more because it is relaxing. But I have small kids and family obligations so I don't get to hunt because that is not a priority right now. There is just not enough hours in the day. I figure that it's just that point in my life and in ten years they [the kids] are not going to know who I am so then I will have more time to hunt. (H3)

A desire to hunt more was also seen among half of the other participants regardless of levels of involvement. However, their comments reflected constraints primarily related to work and age rather than family. This is reflected in a comment from a highly involved hunter who said,

I'd hunt more if I could. I kind of feel like I am getting older and I do not hunt as much. I think I could hunt every day if I did not have to work, you know. (H6)

The low involvement hunter exhibited minimal participation and involvement which was somewhat attributed to his change in hunting partners over the years. He talked about how this change affected him,

When I first started it was a young neighbor of ours and he was getting started and so forth. I knew him for years before that, but we just picked up and started going hunting. Then once he got his license and grew up he disappeared on me. That is just the way it is. Then I switched and now it is just different people. And I guess I do not go as much. (H3)

Most other hunters also experienced changes in hunting partners, but only one actually identified this as a reason for hunting less. This particular hunter was highly involved and used to spend time hunting ducks and geese in addition to archery for deer. However, as illustrated by the following comment, he no longer hunts waterfowl as a result of losing certain hunting partners. He stated,

The people I used to hunt with had places to hunt ducks and geese so I don't hunt those species anymore because they were places they took me. (H19)

In order to understand how hunters perceive social support, I asked questions about the influence of hunting partners and other people around them with respect to their hunting behavior. The low involvement hunter identified friends as his primary hunting and scouting partners and perceived hunting as more of a social event. He said he would probably hunt even less than he already does if friends did not go with him.

Yes it is. For me I guess it is just the whole event. You know I do not have a great desire to just kill things. I guess for me it is a social event. If I didn't have them [hunting partners] I probably would not hunt as much, no. (H3)

This response was similar to hunters of other involvement levels who also indicated reduced participation if hunting partners were lost, as illustrated by this high involvement hunter:

I might hunt a little less. There are certain things that I hunt like the two days of bear season every year we hunt with twenty some guys. If I only had two or three guys to do it I would see that it would not happen all of the time. So most of my hunting is alone, but the times that I do hunt with friends, that is just as important as the times that I hunt by myself. If I did not have the friends to hunt those days, I might not hunt at all. (H12)

In terms of telling hunting stories, the low involvement hunter enjoyed sharing them with both family and friends and said,

Just like anything else, you like to share your experiences and I would say it is fairly important, yes. (H3)

This type of response was consistent with other hunters regardless of involvement level. For example, one participant said:

I think it is just to share part of it. We are close so I think we are just sharing a part of our life. You know hunting is important to me and those people are important to me so I think we just share each other's lives. (H2)

Family was a significant influence on hunting participation for the low involvement hunter. Although he said they supported him, they also kept him from hunting because there were not enough hours in the day to hunt and also participate in family activities. However, he looked forward to his kids getting older because he expected they would want to start hunting and that would both encourage him to become more involved and also allow him to hunt more. While the majority of other participants indicated that family constrained rather than afforded hunting participation, one participant shared the perception of the low involvement hunter and said:

So I see now that I have him [son], as long as he is interested in it as a teenager, I do not see that [hunting] waning. Maybe would even increase now that we have time together. (H11)

Overall, the low involvement hunter exhibited minimal participation in hunting and related activities. This was distinct from hunters of other involvement levels who reported higher participation levels. He was also distinct in that all other hunters used hunting as a source of identity except for him. Although the low involvement hunter was the most distinct from other hunters, some similarities did exist. For example, his desire to hunt more was shared with hunters of other involvement levels. Similar to other respondents, he also perceived that social support had a great influence on his hunting participation. Specifically, the loss of direct support and constraints associated with indirect support resulted in reduced hunting participation.

Intermediate Involvement Hunter (H1). The hunter chosen to illustrate the intermediate involvement category exhibited higher levels of participation in archery hunting but did not perceive hunting as important in defining himself or his lifestyle. This particular hunter lived in

a rural area his entire life and had not experienced any changes in his hunting patterns. Currently he hunts primarily deer in archery and rifle seasons. When asked to describe how he identified himself, being a hunter was not at the top of his list,

Well that [who I am] changed quite a bit. I am a tennis player and I enjoy running. Running I do for cardiovascular and for health purposes even though I do enjoy just going out for a run. Tennis I played for a long time and just really enjoyed playing tennis and a good friend of mine and I played doubles together for years and years. So I would say that is it, but I like most sports. You know if you can get me out on the basketball court as well and I like playing basketball with the boys. I would say I really enjoyed archery season this year, but it would be third or fourth as far as my identification. (H1)

With the exception of the low involvement hunter, this response was different from most other participants in that non-hunting related activities were at the top of his list. Other intermediate involvement hunters also mentioned other activities they identified with but most indicated that hunting and related activities were higher on their list. For example, another intermediate involvement hunter said,

Okay I would mention fishing, because I love to fish, both spin casting and fly fishing. I like to hunt and I would say all types of hunting. I would leave it at that. Probably my two other activities one would be reading and the other one would be martial arts. (H2)

This type of response was common among intermediate involvement hunters but was different from high involvement hunters who primarily indicated their identity was derived first from hunting and then from other outdoor activities. For example, one high involvement hunter said,

Well, hunting would be number one as far as my activities. That and then basically anything having to do with the outdoors whether it be bike riding, walking, but hunting is it. That is it. (H7)

When talking about how he would describe himself as a hunter and how other people would describe him, the intermediate involvement hunter said,

Right now I am an avid archery hunter. I enjoy practicing and I enjoy the season when I am out. I have not pulled back my bow yet, but I still really enjoy the season. Given a choice of hunting, I would much sooner hunt with archery. (H1)

I often say I am peer pressured into going out in rifle season because I do not like to be cold, but my children would say that I enjoy archery hunting and I would think that most people who I associate with would. I would also say in between casual and avid. (H1)

Both intermediate and high involvement hunters shared similar responses when asked to describe themselves as hunters. Most responses included some reference to the amount of effort they put into hunting suggesting that participants perceived themselves as conscientious regardless of their involvement level. This is illustrated by the following participants:

I am organized, detail-oriented, serious, I work hard at it. (H11 intermediate involvement)

I think the biggest thing, as an archery hunter you tend to pay a little more attention to detail as to habitat, movement of deer and so on, but not only in that respect. When you archery hunt and need to be more careful with scent and you are willing to take the time to track a deer. So am not quite sure how you would sum that up in a word or a characteristic, but I guess just paying more attention to detail. (H18 high involvement)

As an intermediate involved hunter, the exemplar hunted several times a week during archery season but said he probably only spent ten hours total hunting rifle season. He did not participate much in related activities but did mention he attended a 3-D target shoot and talked about how he enjoyed it. He also spent considerable time preparing for archery season. The following comments reflect his participation in these related activities:

I enjoy how my son set up six or seven targets and we walked around and shot at different distances and at different deer targets or bear targets or groundhog targets and so and so forth. So I enjoy doing that and again probably what I spend most time at as far as hunting is just shooting arrows at a target. (H1)

As far as shooting arrows I probably shoot on average a half an hour a day four to five days a week starting about two months before the season begins and up until the season. I do not practice a whole lot during the season. (H1)

Other intermediate involvement hunters also reported moderate participation in hunting-related activities and preparation for hunting season. For example, two other intermediate hunters said,

Yes I would say sportsmen's shows probably once a year. I shoot sporting clays some times that is probably five times a year whether they are organized or unorganized and just also I am going to say plinking and that is probably several times a year for several hours. Well I don't think I prepare as much as I used to. I tend to do a lot of hunting in the same locations. So although I scout and hunt those areas, I do not think I do as much preparations other than the deer season I would say. Preparing? Ah 15 or 20 hours. (H2)

Yes I do a couple of events a year. I do like the sportsmen's show once every couple of years. To prepare for season, basically I talk to some different people and what they are seeing and how much of something they are seeing. How many deer that they are seeing and their activities. I will spend probably three or four evenings scouting. Of course the practice in the yard with the bow. I usually start the first week of September. So probably total time wise, probably about two weeks. (H4)

In contrast, when the intermediate involvement hunter was asked why he didn't participate in events like sportsmen shows and target shoots he said,

I would say lack of interest would be it. Now that being said, I am kind of fascinated with going to some different shoots with my archery equipment. So I think that I could probably.... I just have not really been asked, but I think I would enjoy that. (H1)

In addition, he did not spend much time reading or viewing hunting material and said that the small amount of time he did participate in these activities was not important and had no influence on his hunting participation. This was similar to other intermediate involvement hunters as illustrated by this comment,

I would not say a whole lot [influence of hunting literature or shows]. Basically you see some of the different techniques and how big the antlers get everywhere else. Stuff like that. (H4)

Regarding the importance of hunting, the intermediate involvement hunter indicated it was only slightly important to him and he said,

I think that for me if I was told tomorrow that I could not hunt any more, it would not pose necessarily a.... I like being with my children and it is really great to do that, but if I was told that I was not able to hunt any more, it would not put a major stress on me. (H1)

Although importance was not high, he did make some effort to organize his life around hunting by setting work schedules in order to have more time in the evenings to hunt after work and even taking a day off now and then. However, he did say he really does not try to organize his life a whole lot to participate. Responses among other intermediate hunters were variable with some placing moderate to high importance on hunting. They also reported varying levels of effort in organizing their lives around hunting. This variability is illustrated by the following comments:

I would just say hunting is very important in the activities in my life. Probably the most important of the other activities. Okay, I schedule a lot of vacation around hunting. The examples would be certainly I am out the first week of deer season and throughout the Fall I also take a couple of days off work whenever I can to hunt. In fact I would think deer season our entire family revolves around deer season at least. (H2)

I would say it [hunting] is right up there. I mean it is not as important as like my job or my family, but it would be like third or fourth. Ah on the scale of one to ten, probably a seven. An example, I'd work a couple of hours extra during the week so I will have Saturday to go. Plan a little bit in advance so I have days that are free to go out. (H4)

Overall, the intermediate involvement hunter was satisfied with the amount of time he spent hunting and participating in related activities. Because he placed greater importance on other activities he was involved in, he said,

If I had a choice I would probably go play tennis if somebody asked me. Well I could be talked out of going out in rifle season just about every day. Archery for the short season that archery is, it would be 50/50 whether I would go play tennis or go hunting. When the season was over I felt satisfied that I spent as much time as I wanted to spend hunting. (H1)

Several other hunters in the study also said they were satisfied with the amount of time they spent hunting. In fact, another hunter said,

Well I am satisfied. I would like to do more, but I am not upset that I can't. I do plenty. I do a lot more than other folks do. (H12)

When the intermediate involvement hunter was asked about hunting partners, he talked about how they changed and the effects they had on his participation,

Well I started off hunting with my brother and my father, then I kind of moved on to hunting by myself and hunting with a friend or two. Then a friend of mine built a camp so that expanded to four or five people that I hunted with. Then my children began hunting so I quit going to the camp and I hunted with my three boys. Presently I hunt with my two oldest sons and we hunt with probably six or eight other people. Primarily the core of people I hunt with are my sons. They are very important and have a lot of influence on me. I absolutely wouldn't do it if they weren't there. (H1)

This type of response was consistent with other intermediate involvement hunters who also indicated that their hunting participation would probably decrease if their hunting partners were lost. For example, another participant said,

Ah a good bit [influence of hunting partners]. Well like my friend has twin boys and if it is really raining, I would question myself as to whether I would want to go, but if they are up for going, we would be going just to get them out there. (H4)

When talking about different aspects of social support, the intermediate involvement hunter identified family as his primary hunting partners. He said they go hunting with him most of the time and that it is important that they go with him. He only scouted with one of his sons and said he would not do it if his son did not. In terms of telling hunting stories, he enjoyed sharing them with family and co-workers and said,

When the family is around because there is always something that is somewhat hilarious that takes place in my life during hunting season. So I always get to tell my stories. That is the immediate family. At work hunting comes up. Most of the people that I work with are also hunters so we talk a little bit about what took place in hunting season. Seldom do I talk outside of those circles. (H1)

Even though he enjoyed sharing these stories with his family, he said it really was not that important and they had no influence on his participation. However, he did mention that it might be important to them because they get to hear about what he did during hunting season, especially when funny things would happen to him.

Other intermediate involvement hunters also reported that family and friends were their primary hunting partners and they shared hunting stories with non-hunting family members. They also provided similar responses to the exemplar indicating non-hunting friends or family did not have much influence on their hunting participation. For example, one participant reported that:

I do not think they influence my hunting participation or at least they do not negatively affect my hunting participation. Let's put it that way (H2)

When thinking about what could happen in the future to change hunting behavior, the intermediate involvement hunter reiterated the influence his family hunting partners have on his participation,

I imagine if my family would not be around that I would probably not participate in hunting. Ah again, I probably enjoy the practice more so than the hunt. I just would not be motivated to hunt either archery or rifle season if my sons were not with me. (H1)

This hunter also shed some light on how the lack of social support has influenced his low participation in hunting-related activities because no one asks him to participate. The following comment suggests the increased direct social support may help increase his participation:

I am kind of fascinated with going to some different shoots with my archery equipment. So I think that I could probably.... I just have not really been asked. (H1)

While other intermediate involvement hunters also indicated they expected to decrease hunting participation in the future with the loss of family, one reported opportunities to hunt more:

I mean as far as in the future, like my friend's kids or I would have kids and we would all be getting together and going out. (H4)

Overall, the intermediate involvement hunter exhibited moderate participation in hunting and related activities. He was distinct from all other intermediate and high involvement hunters in that non-hunting activities were more important in defining who he is. However, he also shared similarities with other intermediate and high involvement hunters who all used characteristics related to effort level to describe themselves as hunters. Hunting was only perceived to be slightly important and this differed among hunters of all involvement levels with some intermediate hunters indicating hunting was just as important to them as it was to high involvement hunters. Similar to respondents in both the intermediate and high involvement categories, he was satisfied with the amount of time he spent hunting. The exemplar's perceptions of social support were consistent with responses from other hunters regardless of involvement level. Specifically, he perceived that direct social support had a great deal of influence on his hunting participation but that indirect support had little influence. In addition, the loss of direct support would likely cause reduced hunting participation.

High Involvement Hunter (H9). The hunter chosen to illustrate the high involvement category exemplified high levels of participation and incorporated hunting into his lifestyle as

much as possible. This particular hunter lived in a developed residential area for eleven years and did not experience any changes in his hunting patterns when he relocated. Currently he hunts primarily archery, bear, and turkey seasons but occasionally hunts rifle deer and small game seasons as well. When asked to describe himself as a hunter and how other people would describe him he said:

I am avid. Archery hunting and 3-D shooting, I live for it. I like to hunt by myself more often I think and I won't take a shot unless I know that I am almost 100% positive that I can take that animal and not lose it. I have learned a lot more in the past couple of years. I mean, I started out by myself and I did not know anything. So I have learned it all really myself and I think that I feel better that I learned it that way. (H9)

Other people would say that, I am always out there. I give it 100% you know. That every year I do succeed, I do harvest something. I am determined, I do not give up. I do not get discouraged if I do not see what I am after. I am there for more than actually the hunt really too. (H9)

These responses were similar to those provided by other high involvement hunters and reflected perceptions of themselves being hunters who were ethical, conscientious, and serious. For example, another high involvement hunter said,

Well as I said I think my life style is hunting. It is part of my heritage. That is who I am. It is not something I do. It is part of who I am. I think others would say I am devoted and I think serious about it. I would hope they would describe me also as ethical and deliberate. (H15)

As a highly involved hunter, the exemplar exhibited very high levels of participation and spent nearly every day during archery and turkey season in the woods. He also participated in a variety of related activities such as 3-D target shooting, sighting in guns, scouting for game, looking for antler sheds in winter, going to sportsmen shows, and checking out new hunting equipment. Preparation for hunting season was also an area where he focused a lot of effort as illustrated in the following comments,

I do a lot more practicing than I did in the past years with my bow now. I have a 3-D target that I shoot in my yard here, you know a deer target. To get ready for season, I go to the range and shoot my muzzleloader and my shotgun and my rifle in. I make sure that I have all of my equipment that I need for the year and I practice all summer, but not as much. I would say probably a month before archery season opens I really start shooting

every day. Like at least twenty minutes and then closer to the season probably an hour to an hour and a half every day, but not straight through. (H9)

In addition to all of the related activities already mentioned, he also spent time every week watching hunting videos and reading hunting magazines and books. These particular activities had a positive effect on his hunting participation,

I would say it [reading and watching videos] helps me out. It teaches me new things and lets me know what I have done wrong or may be doing wrong. You know it gives me ideas to try different things. Important? Yes I would say they are. I am more involved because of them. (H9)

While the exemplar displayed extremely high levels of participation in hunting and related activities, the majority of other high involvement participants exhibited similar behavior indicating they regularly attended a variety of sporting events and spent several months preparing for season. Other high involvement hunters also spent considerable time watching hunting shows and reading hunting literature. However, not all of them perceived an influence of these activities on their hunting participation. For example, one high involvement hunter said,

I think it [reading and watching hunting shows] helps me get interested in hunting. It shows perspective on what others are doing so I can improve my technique. (H20)

While another said,

It probably does not have much to do with it. It just gives me something to pass the time when I cannot be doing the hunting. Does it make me feel connected. Well I would say it is not important. I do them all [reading and watching shows], but they are not really that important to me. (H12)

Because hunting was perceived as very important to the high involvement hunter, he organized much of his life around it. Specifically, he said,

I would say very much so I organize it [my life] around hunting. I like to plan things you know on the off season or if we want to go somewhere, I would rather do it after dark so that if I do want to hunt that day then I can go hunting in the evening if I want to. I can hunt in the mornings all the time because my wife is at work, so that also helps out. (H9)

This was characteristic of other high involvement hunters who also organized their lives around hunting. For example, one participant said,

In the Fall starting in September that is when I start organizing my life around hunting and when I have spare time I am out either if I can go out scouting on properties or looking for property to hunt on or during the season actually out hunting any time there is any spare time that I am not working. The rest of the year out of hunting season, then I do not have any time to spend regarding that. I do have that ability (switch work hours). I will use that more as time goes on, but right now with the job I am in the process of trying to turn things around. So there is a lot of time being involved there, but I do have that flexibility and I do use that when I can. (H7)

Although the high involvement hunter was very satisfied with the amount of time he had to hunt and participate in related activities, he would still like to do fewer things during hunting season in order to be able to hunt more. In fact, he said,

Yes I would like to do fewer activities during hunting season because I love that time of year. I love to be in the woods. When I have to mow my yard in late September when I want to go hunting, it does interfere with it. (H9)

A desire to hunt more was also seen among several other high involvement participants and one hunter said,

I definitely would like to do it full time. Unfortunately I have to work a day job. I would hunt every day if I could. I would probably get burned out sooner or later though. (H5)

When the high involvement hunter was asked about hunting partners, he talked about how they changed and the effects they had on his participation,

I would say yes they [hunting partners] have changed. When I first stated hunting I guess... How should I say this? I guess the group of people that I was with then they were not really good people and then I started going to a church and I started hunting with guys from that church and then I noticed that I started having luck. Then I met other guys hunting that I hunt with still. (H9)

Another highly involved hunter had a similar response and said changes in his hunting partners also had a positive effect on his hunting participation. This particular hunter had started hunting with a teacher and then hunted with his older brother. When his brother moved away he no longer had any family to hunt with because his father never got into hunting. Now he hunts with friends and says he actually hunts more as a result of the changes,

The changes have not really affected it in a negative way, but if anything because I found a bunch of hunters here in Pennsylvania, I actually do it more than I used to. It actually improved it. (H7)

When talking about different aspects of social support, the high involvement exemplar identified friends as his primary hunting partners. He said they go hunting with him about half of the time unless he is hunting private land where no one else is permitted to go. However, he wished he could take them to those places because he enjoys hunting with other people. In fact, he said,

It is the company you know, to have somebody with you. I would rather have somebody with me really. (H9)

This type of response appeared several times among hunters regardless of involvement level and was extended by saying that they were likely to hunt less if not for their current hunting partners.

This attitude is illustrated with the following comments from two hunters:

I would go less if they did not hunt with me. Ah a little bit of it is motivation. Most of it has to do with simply the camaraderie and for me that is part of what the experience is about. Experiencing it with other people. If they are not there, if they are not available today, that is a good day to go to work. (H15)

I might hunt a little less. There are certain things that I hunt like the two days of bear season. Every year we hunt with twenty some guys. If I only had two or three guys to do it I could see that it would not happen all of the time. Most of my hunting is alone, but the times that I do hunt with friends, that is just as important as the times that I hunt by myself. If I did not have the friends to hunt those days, I might not hunt at all. (H12)

On the other hand, several other highly involved hunters said they would go regardless of whether not their hunting partners went. For example, one hunter said,

Ah not too much because even if they would both give it up tomorrow, I would still hunt because of the way I was brought up. I just enjoy it too much to give it up. (H10)

Those who provided different responses mentioned their hunting partners influenced them in ways such as getting them new places to hunt, encouraging them, and helping them to maintain their interest,

Mainly because he [hunting partner] got me connected with some areas that you know if it would not have been for him I would not have them. (H5)

Big time. I mean if there are times where I am kind of hem hawing about getting out because either work is getting in the way or I am just thinking it is just too much hassle, they are there to push me and encourage me to get out there because they know that if I get out there it will change my perspective. (H7)

They help keep me more eager to keep going. If they hunt with you it helps maintain interest. (H20)

The high involvement hunter also indicated that his hunting partners provided a source of indirect social support as well by talking with them even when they weren't hunting together.

This is illustrated in the following comment:

I hunt more by myself now, but I do talk to these guys [hunting partners] every day. You know they let me know how they are doing and we do hunt together some times. I think now I feel like going more than what I did when I first started because I have these people that I can talk to and to go with and I get other places to go that I have not been before. (H9)

In terms of scouting, the highly involved hunter mostly went by himself but also showed interest in scouting with a few friends this year to find new hunting places. In terms of telling hunting stories, he enjoyed sharing them with family and said,

I tell my dad, my wife, my son. My mother and my sisters, brother in law. I tell them because they are interested also in it. They are very important and it makes me feel good you know, that they do care. I would say they have an influence [on my hunting] because if they would not like to eat the harvest, that would influence me because then what would I do with all of it? (H9)

He most enjoyed telling his father and son because,

I can tell that they enjoy it. Even though my dad does not hunt, I can still tell that he gets excited and the questions that he asks me when I am telling him. When the season is in, every time I call my dad he says have you been hunting and did you get anything else? You know, so I can tell that he is interested. (H9)

Even though sharing hunting stories with his family was important, he said he would probably hunt as much even if they were not interested. The majority of other hunters shared similar responses and said that they too would continue hunting even if the people they shared stories with were not interested. However, several indicated that the support of these particular people encouraged them and made it easier to go hunting. The following comments illustrate these perceptions:

Well my family has a lot to do with my participation obviously. As long as the family is supportive, it makes going out that much easier. My wife has a lot of influence. Surprise, surprise. It is because she is encouraging me that I actually get out more than I would without the encouragement. There would be times I would feel guilty getting out and she

actually goes to the other extreme and pushes me to go out because she knows that I enjoy it so much. (H7)

Well she [wife] has a lot of influence in my participation simply because she lets me do it. She knows that I enjoy doing it and she lets me do. So that is a lot of importance. (H13)

When thinking about what could happen in the future to change how the highly involved exemplar hunts, he talked about participating less if he needed to take care of a loved one. He also thought he might be able to hunt even more if he had more money and opportunities,

Like I told you, I do hunt a lot. If I had the money, I would probably take the trips, like out West elk hunting and stuff. So yes, if I could afford it, I would be out there in those other states and I would love to get my wife involved in that too. She would go with me there. She does shoot some, but she does not hunt yet. (H9)

These responses were similar among other highly involved hunters who primarily mentioned caring for aging relatives and other family responsibilities as illustrated by the following comment:

Well I think that anything that would happen would end up resulting in me going less than I do now. You know a health issue with the wife or a situation where I had to be doing something that was more important with the family. It is going to have that affect of cutting it down. Other than that I cannot think of anything. (H17)

Discussion

Summary of Findings

Involvement. Findings from this exploratory study suggest differences among different hunting involvement levels. These differences tended to follow a continuum from low to high participation in hunting and related activities, low to high importance of hunting, and low to high identification with hunting. Although the exemplars were relatively distinct in their differences, not all hunters in the study followed the same trends. Several avid hunters shared some of the same responses as low and intermediate involvement hunters indicating there may be factors other than just level of involvement influencing their participation.

The low involvement hunter spent few days hunting, had minimal participation in related activities, and spent little time preparing for hunting season. Hunting was not a central part of his life and he defined himself primarily by his family and his children's activities. However, he was interested in participating more and looked forward to the future in expectation that his children would want to hunt which would enable him to become more involved. His interest in participating more was shared by other hunters including those who were already highly involved. The difference between them, however, was that the low involvement hunter identified family obligations as a constraint whereas other participants talked about work being the reason they didn't hunt as much as they would like.

The intermediate involvement hunter spent considerable time hunting archery and preparing for the season. He showed an interest in 3-D target shooting but had only participated in one event. Although hunting was described as slightly important, he defined himself more by other sports activities, and said it would not be difficult to give up hunting if he had to. In fact, he stated that he enjoyed practicing archery more than hunting itself. He was satisfied with the amount of time he had hunted because he enjoys participating in his other activities too. This attitude was also shared by other hunters, regardless of involvement level, who made efforts to balance participation in multiple activities.

The high involvement hunter spent the majority of archery and turkey seasons in the woods, participated frequently in a variety of related activities, and put a great deal of effort into preparing for hunting season. Hunting was an important and central part of his lifestyle by which he defined himself and he organized much of his life around hunting by scheduling things during times he could not be hunting. He shared a similar response with the low involvement

hunter in wishing he could hunt and participate in related activities even more. In fact, he said if he had more money and different opportunities, he would start traveling to hunt.

Overall, the results of this study indicated that higher levels of involvement were indicative of greater participation in hunting and related activities, the perception of hunting as a central or important part of lifestyle and less substitution of hunting by other activities. A striking similarity that existed among all three involvement levels was the interest in hunting more and/or maintaining current participation levels despite competition with other activities. This suggests that regardless of involvement level, the participants in this study value hunting as an activity worth pursuing.

Social Support. The low involvement hunter participated less as a result of losing a consistent hunting partner. He usually hunted with friends and valued hunting as a social event. Although his participation was already minimal, he said he would hunt even less if he did not have friends to hunt with. A few other hunters, including some who were highly involved, also shared this response. The low involvement hunter spent some time scouting for game but said it was not important that other people go with him to do this. He shared his hunting stories with family and friends and said they supported him as a hunter but also kept him from participating because of conflicting activities.

The intermediate involvement hunter indicated changes in hunting partners affected who he hunted with rather than the amount he hunted. The changes resulted in him hunting primarily with his sons rather than other family and friends he hunted with prior. Hunting with his sons was very important to him and enhanced his hunting experiences because he enjoyed being with them. Hunting and scouting for game with his sons was so important that he would not

participate if they did not hunt. He enjoyed sharing his hunting stories with family and co-workers but said it was of little importance and had no influence on his participation.

The high involvement hunter attributed increasing participation to changes in hunting partners because they gave him more access to areas and kept him motivated to hunt. He hunted with them about half of the time but wished he could hunt with them more. However, even when not hunting with partners, he indicated they were important sources of indirect social support, as suggested by the value he placed on talking with them frequently. Some of the other highly involved hunters shared responses of the low and intermediate involvement hunters and said they would hunt less if their hunting partners did not go because they enjoy the camaraderie associated with it while others said they would go regardless. The high involvement hunter enjoyed sharing his stories with family but said that he would still hunt even if they stopped listening.

Overall, regardless of involvement level, direct support of hunting partners seemed to have a significant positive influence on the hunters in this study in a variety of ways. Hunting partners provided additional access to new hunting areas, motivation, and camaraderie. Despite involvement level, several hunters said they would hunt less if not for their hunting partners, and at least one hunter found both direct and indirect support from partners. On the other hand, indirect support of non-hunters with whom the participants shared their stories was primarily perceived as having little influence on their hunting participation. However, several did mention that the encouragement they received and the interest in their stories made it easier to go hunting.

Implications

Iwasaki and Havitz (2004) found that social support is a predictor of continued participation. Findings from this study provide additional evidence in support of this theory and suggest that this is true for some individuals. However, the greatest support for this theory was found when looking at direct social support in the form of hunting partners. This has important implications because it suggests that individuals who rely on hunting partners may experience decreased participation if hunting partners are lost. This provides a challenge to managers trying to increase hunting participation because it is not easy to create opportunities for individuals to find compatible hunting partners. Perhaps one way this could be accomplished is through the promotion of hunting clubs, organizations, or sportsman events where people can meet other individuals with similar interests and possibly expand their current social circles. Although direct support seemed to have a greater influence on hunting participation in this study, comments from several hunters suggest that indirect social support was perceived to facilitate hunting participation through encouragement from non-hunters. This has important implications because it suggests that individuals may hunt more when surrounded by those who support their choice to hunt. This also presents a challenge, particularly in urban areas where there tends to be less support for hunting. Overall, the findings of this study are consistent with Iwasaki and Havitz's (2004) theory. However, the findings suggest a more complex relationship and the theory should be extended to acknowledge the difference between the influence of direct and indirect forms of social support on continued participation.

Researchers have reported that social support and involvement are important predictors of hunting participation (Enck et al., 2000; Decker & Connelly, 1989; Purdy et al., 1989). The purpose of this study was to shed light on the nature of this relationship and it is important to

highlight that no clear link was found between level of involvement and social support. High and low involvement hunters alike, commented that lack of hunting partners would reduce their participation. Likewise, several hunters with lower levels of involvement would continue to hunt no matter what. Therefore, other factors must be at work adding complexity to hunting participation. Although the relationship between social support and involvement was not clearly distinguished, the findings of this study are important because they document hunters' perceptions of the influence of social support and involvement on hunting participation. To my knowledge, these factors are not well-documented in the hunting literature. Therefore, this study helps extend current theory about hunting participation by documenting the influences of social support and involvement and serves as a basis for future studies on hunting participation behavior.

Limitations and Future Research

Although I gathered detailed information that could not be easily obtained with quantitative measures, the study had limitations and there is a need for future research. First, the findings from this study can not be used to describe the population of hunters as a whole. However, they provide detailed information that can be used to develop quantitative measures and inform additional research. Since there is limited research on the influence of involvement and social support on hunting, future research should focus on developing quantitative measures in order to draw conclusions about how they affect a representative sample of hunters.

Another limitation is the subjective nature in which involvement level was defined. The literature adds confusion to the definition of involvement because it is sometimes defined as participation. Involvement has both psychological and physical aspects and my definition

incorporated both. In this study, involvement level was defined based on comparisons of participants with regard to their participation in hunting, related activities, and relative importance of hunting to their lifestyle. However, hunters were asked to describe how involved they were and may have perceived themselves as casual or avid based on different criteria. Hunters and researchers may differ in their understandings of involvement and its link to participation. In actuality hunters may perceive themselves as avid but are less so when compared to other individuals. Therefore, future research should focus on defining and measuring involvement in ways that are meaningful to hunters. Improving external validity should increase the reliability of involvement as a predictor of hunting participation.

Another limitation of the study was the way in which indirect social support was measured. Interview questions focused on the importance of non-hunters who the participants shared hunting stories with. Upon completion of the content analysis, it became clear that more information could have been gathered with regard to the role that non-hunters play in facilitating or inhibiting hunting participation. For example, hunters could have been asked how non-hunters facilitate or inhibit their hunting participation. Furthermore, it became evident that some individuals can be important sources of both direct and indirect social support. Therefore, future research should consider other ways in which indirect social support can be measured. When asking about the influence of indirect social support, many participants did not fully understand who these people might be or how they influence their hunting participation. Further explanation and probing was required during this portion of the interviews in order for participants to respond in detail. For example, I often provided examples of common sources of indirect social support in order for participants to start thinking about how non-hunters might influence them. Perhaps future research on indirect social support should begin by explaining

what constitutes indirect social support so that participants are more prepared to provide adequate and meaningful responses.

Although there was some evidence suggesting that the perceived effect of social support was related to level of involvement, findings were inconsistent. For example, lack of direct social support was perceived as negatively affecting participation among several highly involved hunters. Because these findings were inconsistent, future research is needed to study this relationship in more detail. One area that should be explored is the role of personality and hunting style preference. For example, there are likely individuals who prefer to hunt with other people and who place greater value on the social aspects of hunting. Therefore, they may be highly involved because they have a lot of direct social support. As a result, the loss of hunting partners may be perceived as a threat to their level of involvement and participation. On the other hand, there are likely to also be individuals who are more independent or prefer to hunt alone and while they may enjoy having hunting partners, it is not critical to their participation. Because this variability among hunters is likely to exist, further research is needed to identify the potential influence that hunting style preferences have on perceptions of social support.

Findings from this study indicate there are a variety of factors that influence hunting participation including involvement and social support. However, it is also evident their relationships with hunting participation are complex and may be influenced by other factors as well. In the future, involvement and social support should be considered when developing models that predict hunting participation.

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CHAPTER 5

SUMMARY AND CONCLUSIONS

The purpose of this study was to provide insight into how hunting participation may be influenced by residential stability, rurality, education, age, involvement, social support, and participation in other activities. Results of this research were presented in chapters as three different manuscripts. Manuscript one used a regression path model to identify factors that predict deer hunting participation. Manuscript two used quantitative and qualitative data to examine the effects of participation in multiple activities. Manuscript 3 used qualitative data to examine the relationships between involvement, social support, and hunting participation. This chapter summarizes the findings from these articles as they relate to the research questions and hypotheses examined in this study.

Summary of Key Findings

This study addressed five hypotheses and seven research questions related to hunting participation, as measured by total days hunted. Following are the summaries of key findings:

H1. Residential stability will be positively related to deer hunting participation.

Residential stability, as measured by years at current address, was negatively related to total days deer hunted but the correlation was not significant.

H2. Rurality will be positively related to deer hunting participation.

In correlation analysis, rurality was positively related to total days deer hunted suggesting that respondents who lived in more rural areas had higher levels of participation in deer hunting.

However, when included in the hierarchical regression analysis, the Beta value for rurality was not significant indicating it did not contribute to the overall model of deer hunting participation.

H3. Involvement will be positively related to deer hunting participation.

Involvement was positively correlated with total days deer hunted and was the strongest predictor in the hierarchical regression path model. Content analysis of qualitative data also suggested that higher involvement in hunting lead to increased participation in hunting, as well as related activities.

H4. Social support will be positively related to deer hunting participation.

In correlation analysis, social support was positively related to total days deer hunted. In the hierarchical regression path model, however, social support did not significantly contribute to the path model.

H5. Involvement will be moderated by social support in predicting deer hunting participation. Specifically, higher levels of social support will lead to increased involvement resulting in increased deer hunting participation.

The results of the hierarchical regression model indicated that rather than influencing deer hunting participation directly, having social support moderated the relationship between involvement and deer hunting participation. Graphical representation of the moderation analysis showed that the slope of the regression lines was greatest for high levels of social support at all levels of involvement suggesting that the predicted number of days spent deer hunting increased at a greater rate under conditions of high social support compared to low or medium levels of social support. In addition, the regression lines diverged at the low-medium level of involvement

suggesting that the predicted number of days spent deer hunting increased at a greater rate under conditions of high social support once hunters reached low-medium levels of involvement.

RQ1. Are education and age negatively related to deer hunting participation?

Education was negatively related to total days hunted but the correlation was not significant. In the correlation analysis, age had a significant negative relationship with total days deer hunted. However, when included in the hierarchical regression analysis, the Beta value for age was not significant indicating it did not contribute to the overall model of deer hunting participation.

RQ2. Does participation in one activity, such as hunting, come at the expense of another activity?

In correlation analysis, participation in other outdoor activities was positively related to total days hunted. The hierarchical regression analyses revealed that after controlling for age and involvement, increased hunting participation is predicted by increased participation in consumptive/hunting-related and motorized activities. Although the bivariate correlation between total days hunted and total days of participation in non-consumptive activities was positive, the hierarchical regression demonstrated that after accounting for relationships between hunting and (a) other consumptive/hunting related activities and (b) hunting and motorized activities, non-consumptive activities did not significantly improve the overall model. Content analysis of qualitative data showed that hunters participated in a wide variety of consumptive/hunting-related and non-consumptive activities. Several interview respondents described trying to balance the amount of time they spend participating in all activities they are involved in. The seasonality of hunting was also a factor indicating that competition among

activities may not exist if participation in other activities occurs during different times of the year.

RQ3. Do certain activities afford participation in other activities?

In correlation analysis, participation in consumptive/hunting-related activities had a stronger positive correlation with hunting participation than did motorized or non-consumptive activities. Content analysis of qualitative data showed that hunters with higher levels of involvement participated in activities that were more closely related to hunting such as fishing, wildlife watching, and sportsmen events. Hunters who were less involved participated in a broader range of activities that were not necessarily related to hunting such as children/family activities, reading, martial arts, and wood-working. These findings suggest that participation in activities that are related to hunting may help facilitate hunting participation and may also influence how involved an individual becomes in hunting.

RQ4. How does participation in hunting and related activities relate to involvement level?

Content analysis of qualitative data revealed a variety of differences among different hunting involvement levels. These differences tended to follow a continuum from low to high participation in hunting and related activities, low to high importance of hunting, and low to high identification with hunting. Higher levels of involvement were indicative of greater participation in hunting and related activities such as target shooting, scouting for game, and general preparation for the upcoming hunting season. In addition, hunters with higher involvement levels placed greater importance on hunting as a part of their lifestyle and were more likely to find ways to maintain participation regardless of competition with other obligations.

RQ5. How do direct and indirect social support influence hunting participation?

Content analysis of the qualitative data revealed that direct social support of hunting partners seemed to have a significant positive influence on hunters in a variety of ways such as additional access to new hunting areas, motivation, and camaraderie. There was some evidence suggesting that indirect social support in the forms of encouragement and interest helped facilitate hunting.

RQ6. Is one type of social support perceived as more influential depending on hunters' level of involvement?

Content analysis of the qualitative data revealed that regardless of involvement level, direct social support in the form of hunting partners was perceived as more influential than indirect social support. There was some evidence suggesting that lack of hunting partners would cause reduced hunting participation, particularly among low and intermediate involvement hunters. However, this was also true for several high involvement hunters indicating a more complex relationship between direct social support and involvement. Indirect social support of non-hunters was primarily perceived as having little influence on hunting participation and limited information was provided by respondents. However, evidence was found suggesting that hunting partners afforded both direct and indirect support. During the interviews, participants were less likely, or less willing, to attribute non-hunters as potential influences on their hunting participation and several had difficulty understanding how non-hunters could influence their behavior. Perhaps different questions about indirect support might have elicited more information about the role of non-hunters in hunting participation.

RQ7. Does the importance placed on social support differ depending on hunters' level of involvement?

Content analysis of the qualitative data suggested no distinct relationship between importance of social support and level of hunting involvement. Both high and low involvement hunters were equally likely to place high or low importance on social support. These findings suggest there may be other factors that influence hunters' perceptions of the importance of social support.

Conclusions

Overall, the findings of this study both challenge and support the literature on hunting participation and recreation participation in general. Studies have anecdotally found that social support and involvement are important predictors of hunting participation but few have focused solely on the influence of these factors (Enck et al., 2000; Decker & Connelly, 1989; Purdy et al., 1989). Both Phase 1 and Phase 2 of this study provide evidence that social support and involvement are important predictors of hunting participation. The relationship between involvement and hunting participation was more clear and the findings showed that higher levels of involvement are indicative of increased hunting participation. This is consistent with the recreation literature which suggests that, in general, higher involvement leads to increased and continued participation (Gahwiler & Havitz, 1998; Shamir, 1988).

The relationship between social support and hunting participation is less clear. Findings from both phases of the study suggest the social support is an important predictor of hunting participation but that the relationship may be complicated by the influence of involvement. Phase 1 of the study provided evidence in support of Iwasaki and Havitz's (2004) theory that social support is a predictor of involvement and continued participation in an activity. Specifically, I found that higher levels of social support lead to greater involvement which

resulted in increased hunting participation. Phase 2 of the study provided additional evidence of the complexity of the relationship between social support, involvement, and hunting participation. Specifically, it found that direct social support was perceived as more important and influential than indirect social support. However, the influence of involvement was not consistent and hunters of different involvement levels shared similar perceptions of social support. As a result, there may be other factors adding complexity to understanding how these factors influence hunting participation behavior. Although the relationship among these factors is complex, the findings of this study are important because they document hunters' perceptions of the influence of social support and involvement on hunting participation. Therefore, this study helps extend current theory by documenting the influences of involvement and different types of social support and serves as a basis for future studies participation behavior.

Findings from this study also challenge current theory on multiple activity participation which suggests that increased participation in one activity may result in decreased participation in another (Scott & Shafer, 2001; Wright et al, 2001). However, findings from both phases of this study suggest that participation in multiple activities is not always at the detriment of another. Specifically, results suggested that increased hunting participation was related to increased participation in consumptive/hunting-related which may actually afford hunting participation rather than compete with it because they help to increase skill and knowledge. Therefore, current activity participation theory could be extended by identifying groups of activities that may be related to each other and that may help facilitate increased and continued participation in any one activity.

Future Research

There are several recommendations for future research on hunting participation behavior. One important area is the development of more comprehensive quantitative measures of the factors used in this study. Future efforts should consider hunter relocation distance, annual variability in hunting participation, greater differentiation between direct and indirect social support, and a refined measure of involvement. These efforts will help reduce multicollinearity issues and measurement error in predicting hunting participation. Hunters are highly variable in terms of the species they hunt and their methods of take. Therefore, combining everyone together in these studies is a limitation and suggests a need for research that somehow differentiates between different types of hunters and styles of hunting.

This study provided some evidence that the perceived effects of social support were related to level of involvement. However, findings were inconsistent and therefore future research is needed to study this relationship in more detail. One area that should be explored is the role of personality and hunting style preference. For example, some hunters may be less social and prefer to hunt alone while others prefer the camaraderie of hunting in groups. These individual-level factors may help explain the variability that exists among hunters and may have greater influence on perceptions of social support.

A final area that warrants further investigation is the consequence of participating in multiple activities. Contrary to what has been hypothesized in the literature (Scott & Shafer, 2001; Wright et al., 2001), findings from this study suggest that, in some cases, participation in multiple activities may complement or reinforce participation rather than inhibit it. While this was true for the current study, activities may not always reinforce or complement each other. It is likely that some activities must compete with each other at certain times resulting in decreased

participation in any one activity. This variability may be linked to leisure activity preference and future research should consider changes in leisure preference and the factors that influence activity selection. The nature of the relationships between specific activities should also be explored in order to identify how certain activities may overlap or if they are seasonally distinct. Specifically, activities should also be examined as mechanisms for leisure affordance to identify those that might facilitate participation in other related activities.

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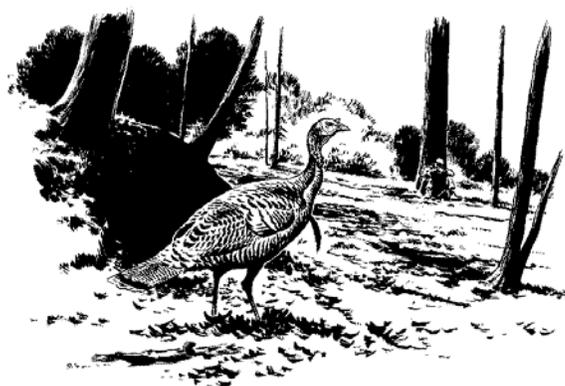
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APPENDIX A

MAIL QUESTIONNAIRE

Pennsylvania Hunter Survey

2004



THE CENTER FOR
Rural Pennsylvania
A Legislative Agency of the Pennsylvania General Assembly



ABOUT THIS QUESTIONNAIRE

Hunting is important in Pennsylvania. Hunting is both a key tool for controlling wildlife populations and a major funding source for protecting wildlife habitat. Furthermore, hunting generates millions of dollars for businesses. Perhaps most important, hunting is a traditional part of life for many individuals, families, and communities.

To help provide for hunting in Pennsylvania's future, Penn State University is sending you this questionnaire in cooperation with the Center for Rural Pennsylvania and California University of Pennsylvania. By completing the questionnaire and returning it to us, you will help us understand hunters' behavior, preferences, and needs.

Your opinion is important to us. We want to hear from *everyone* who receives the questionnaire, not just people with strong opinions about one type of hunting or another. To obtain a representative sample, we worked with the Pennsylvania Game Commission to select names and addresses at random from hunting license records. Completing the questionnaire takes 20-30 minutes.

All your answers will be kept confidential. To help us protect your privacy, do not write your name on the questionnaire.

There is an identification number on your questionnaire so we can check your name off the mailing list when your questionnaire is returned. As soon as the information is collected, we will destroy the list of names.

FILLING OUT THE QUESTIONNAIRE

For each item in the questionnaire, please choose the answer that is most true for *you*. Return your questionnaire in the pre-addressed, postage-paid envelope provided.

THANK YOU FOR YOUR HELP!

For more information about this questionnaire contact:
Chris Voorhees, Project Manager

The Pennsylvania State University
201 Mateer Building
University Park, PA 16802-1307

Phone: (814) 865-5842
E-mail: csl135@psu.edu

Section A: Please begin by telling us a few things about your hunting experience during the 2003/2004 season.
--

1. How many years have you hunted?

_____ Years

2. Are you a member of a hunting camp?

Yes

If Yes, please answer questions 2a and 2b about your hunting camp.

No

If No, please go on to question 3.

2a) What county is your hunting camp located in? _____ County

2b) How long have you been a member of this hunting camp? _____ Years

3. Did you hunt during the 2003/2004 hunting season?

Yes, I hunted at least once during the 2003/2004 hunting season.

If Yes, please go on to question 4.

No, I didn't hunt at all during the 2003/2004 hunting season.

If No, please skip the rest of section A and go directly to Section B.

4. For each of the following game species/seasons, how many total days would you estimate you hunted during the 2003/2004 hunting season? If you belong to a hunting camp, please tell us both the total number of days hunted from all locations and the number of days hunted from your camp. If you do not belong to a camp, you can just leave that column empty.

Game species/season	Total number of days hunted from all locations	Number of days hunted from camp
a) Deer – regular firearms.	_____	_____
b) Deer – archery.	_____	_____
c) Deer – muzzleloader.	_____	_____
d) Bear.	_____	_____
e) Turkey (total for fall 2003 & spring 2004).	_____	_____
f) Waterfowl.	_____	_____
g) Other migratory or upland birds.	_____	_____
h) Small game (squirrel, rabbit, etc.)	_____	_____

7. For each of the following game species/seasons, how many other people did you typically hunt with during the 2003/2004 hunting season? Note: If you did not hunt in one of the seasons, please mark the “Didn’t Hunt” column. Check one box for each hunting season.

Game species/season	Didn’t hunt	Typically hunted alone	Typically hunted with 1-2 others	Typically hunted with 3-5 others	Typically hunted with 6 or more others
a) Deer – regular firearms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Deer – archery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Deer – muzzleloader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Bear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Turkey (fall 2003 & spring 2004).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Waterfowl.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Other migratory or upland birds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B: Please compare your expectations for the 2004/2005 hunting season to your experiences during the 2003/2004 season.

1. Do you intend to hunt in 2004/2005?

Yes

If Yes, please answer the rest of Section B about your expectations for the 2004/2005 season.

No

If No, please briefly explain why, then skip the rest of Section B and go directly to Section C.

2. Compared to the 2003/2004 hunting season, how many days do you expect to hunt each of the following game species/seasons during the 2004/2005 season?

Game species/season	Expect to hunt same number of days	Expect to hunt more days	Expect to hunt fewer days	Didn’t hunt in 2003/04 and don’t expect to in 2004/05	Didn’t hunt in 2003/04 but expect to in 2004/05
a) Deer – regular firearms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you expect a change, why?

b) Deer – archery.

If you expect a change, why? _____

Question 2 continued ... Compared to the 2003/2004 hunting season, how many days do you expect to hunt each of the following game species/seasons during the 2004/2005 season?

Game species/season	Expect to hunt same number of days	Expect to hunt more days	Expect to hunt fewer days	Didn't hunt in 2003/04 and don't expect to in 2004/05	Didn't hunt in 2003/04 but expect to in 2004/05
c) Deer – muzzleloader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					
d) Bear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					
e) Turkey (both fall & spring).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					
f) Waterfowl.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					
g) Other migratory or upland birds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					

3. Compared to the 2003/2004 hunting season, how many other people do you expect to hunt with for each of the following game species/seasons during the 2004/2005 season?

Game species/season	Expect to hunt with same number of people	Expect to hunt with more people	Expect to hunt with fewer people	Didn't hunt in 2003/04 and don't expect to in 2004/05	Didn't hunt in 2003/04 but expect to in 2004/05
a) Deer – regular firearms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why? _____					
b) Deer – archery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you expect a change, why?

c) Deer – muzzleloader.

If you expect a change, why?

d) Bear.

If you expect a change, why?

Question 3 continued ... Compared to the 2003/2004 hunting season, how many other people do you expect to hunt with for each of the following game species/seasons during the 2004/2005 season?

Game species/season	Expect to hunt with same number of people	Expect to hunt with more people	Expect to hunt with fewer people	Didn't hunt in 2003/04 and don't expect to in 2004/05	Didn't hunt in 2003/04 but expect to in 2004/05
e) Turkey (both fall & spring).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why?					
f) Waterfowl.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why?					
g) Other migratory or upland birds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why?					
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you expect a change, why?					

4. What is the primary county where you expect to hunt each of the following game species/seasons during the 2004/2005 season?

Game species/season	Primary county where you expect to hunt	Approximate distance from home	I don't expect to hunt this species/season in 2004/05
a) Deer – regular firearms.	_____	_____ Miles	<input type="checkbox"/>
If this is different from 2003/04, why?			
b) Deer – archery.	_____	_____ Miles	<input type="checkbox"/>
If this is different from 2003/04, why?			

c) Deer – muzzleloader. _____ Miles

If this is different from 2003/04, why? _____

d) Bear. _____ Miles

If this is different from 2003/04, why? _____

e) Turkey (both fall & spring). _____ Miles

If this is different from 2003/04, why? _____

Question 4 continued ... What is the primary county where you expect to hunt each of the following game species/seasons during the 2004/2005 season?

Game species/season	Primary county where you expect to hunt	Approximate distance from home	I don't expect to hunt this species/season in 2004/05
f) Waterfowl.	_____	_____ Miles	<input type="checkbox"/>
	If this is different from 2003/04, why? _____		
g) Other migratory or upland birds.	_____	_____ Miles	<input type="checkbox"/>
	If this is different from 2003/04, why? _____		
h) Small game (squirrel, rabbit, etc.)	_____	_____ Miles	<input type="checkbox"/>
	If this is different from 2003/04, why? _____		

Section C: Please compare your experiences during the 2003/2004 hunting season to your experiences during the preceding *five* seasons.

1. Did you hunt at all during the *five* seasons preceding the 2003/2004 season?

Yes, I hunted at least one of those five seasons.

If Yes, please answer the rest of Section B about your expectations for the 2004/2005 season.

No, I did not hunt at all during those five seasons.

If No, please briefly explain why, then skip the rest of Section C and go directly to Section D.

2. Compared to the 2003/2004 hunting season, how many days did you typically hunt each of the following game species/seasons during the preceding *five* seasons?

Game species/season	Hunted about same number of days	Hunted more days during preceding 5 seasons	Hunted fewer days during preceding 5 seasons	Didn't hunt in 2003/04 but did hunt in preceding 5 seasons	Didn't hunt in preceding 5 seasons but did hunt in 2003/04
a) Deer – regular firearms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				
b) Deer – archery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				

- Question 2 continued ... Compared to the 2003/2004 hunting season, how many days did you typically hunt each of the following game species/seasons during the preceding *five* seasons?

Game species/season	Hunted about same number of days	Hunted more days during preceding 5 seasons	Hunted fewer days during preceding 5 seasons	Didn't hunt in 2003/04 but did hunt in preceding 5 seasons	Didn't hunt in preceding 5 seasons but did hunt in 2003/04
c) Deer – muzzleloader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				
d) Bear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				
e) Turkey (both fall & spring).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				
f) Waterfowl.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				
g) Other migratory or upland birds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If days you hunted changed, why?	<hr/>				

3. Compared to the 2003/2004 hunting season, how many other people did you typically hunt with for each of the following game species/seasons during the preceding *five* seasons?

Game species/season	Hunted with the same number of people	Hunted with more people	Hunted with fewer people	Didn't hunt in 2003/04 but did hunt in preceding 5 seasons	Didn't hunt in preceding 5 seasons but did hunt in 2003/04
a) Deer – regular firearms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				
b) Deer – archery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				
c) Deer – muzzleloader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				
d) Bear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				

Question 3 continued ... Compared to the 2003/2004 hunting season, how many other people did you typically hunt with for each of the following game species/seasons during the preceding *five* seasons?

Game species/season	Hunted with the same number of people	Hunted with more people	Hunted with fewer people	Didn't hunt in 2003/04 but did hunt in preceding 5 seasons	Didn't hunt in preceding 5 seasons but did hunt in 2003/04
e) Turkey (both fall & spring).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				
f) Waterfowl.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				
g) Other migratory or upland birds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If number of people changed, why?	<hr/>				

4. What is the primary county where you hunted each of the following game species/seasons during the preceding *five* seasons?

Game species/season	Primary county where you hunted during preceding 5 seasons	Approximate distance from home	Miles	I didn't hunt this species/season in preceding 5 seasons
a) Deer – regular firearms.	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			
b) Deer – archery.	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			
c) Deer – muzzleloader.	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			
d) Bear.	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			
e) Turkey (both fall & spring).	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			
f) Waterfowl.	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			

Question 4 continued ... What is the primary county where you hunted each of the following game species/seasons during the preceding *five* seasons?

Game species/season	Primary county where you hunted during preceding 5 seasons	Approximate distance from home	Miles	I didn't hunt this species/season in preceding 5 seasons
g) Other migratory or upland birds.	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			
h) Small game (squirrel, rabbit, etc.)	_____	_____	Miles	<input type="checkbox"/>
If this is different from 2003/04, why?	_____			

Section D: The section will help us understand your personal approach to hunting.
--

1. For each statement below, please check one box to indicate if you strongly agree, slightly agree, neither agree nor disagree, slightly disagree, or strongly disagree.

Statements	Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
a) Hunting determines much of my lifestyle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Hunting is one of the most important activities in my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) It is important to me to have hunting partners who want to hunt the same game/seasons I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I have plenty of hunting partners who want to hunt the same game/seasons I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) It is important to me to have hunting partners who want to hunt the same places I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I have plenty of hunting partners who want to hunt the same places I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) It is important to me to have hunting partners who want to hunt the same days and times I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) I have plenty of hunting partners who want to hunt the same days and times I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) I spend a lot of time before the season scouting areas I will hunt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) I plan my vacation time around hunting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) It is important to me to talk with family members about my hunting experiences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Question 1 continued ... For each statement below, please check one box to indicate if you strongly agree, slightly agree, neither agree nor disagree, slightly disagree, or strongly disagree.

Statements	Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
l) I have plenty of family members who enjoy hearing about my hunting experiences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) It is important to me to share the game I harvest with family members.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) I have plenty of family members who enjoy sharing the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

game I harvest.

- | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| o) Hunting is a test of my skill. | <input type="checkbox"/> |
| p) I spend a lot of time in the off-season planning for the hunt. | <input type="checkbox"/> |
| q) It is important to me to talk with friends about my hunting experiences. | <input type="checkbox"/> |
| r) I have plenty of friends who enjoy hearing about my hunting experiences. | <input type="checkbox"/> |
| s) It is important to me to share the game I harvest with friends. | <input type="checkbox"/> |
| t) I have plenty of friends who enjoy sharing the game I harvest. | <input type="checkbox"/> |
| u) I would rather go hunting than any other recreation activity. | <input type="checkbox"/> |
| v) If I cannot find anyone to hunt with me I often go alone. | <input type="checkbox"/> |

2. Please rate how important the following people are as hunting partners for you. *Check one box for each.*

People	Extremely important as a hunting partner	Very important as a hunting partner	Somewhat important as a hunting partner	Slightly important as a hunting partner	Not at all important as a hunting partner
a) Your spouse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Your parent or parents.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Your child or children.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Other family members or relatives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Members of your hunting camp.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Other friends who are 18 and older.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Other friends who are younger than 18.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Others, please specify _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section E: Your access to places to hunt in Pennsylvania.

1. Have you personally ever lost access to land where you hunted in Pennsylvania?

Yes

If Yes, please answer the rest of Section E about access to places to hunt.

No

If No, please skip the rest of Section E and go directly to Section F.

2. For each of the following game species/seasons, tell us if you have ever lost access to private land in Pennsylvania and tell us about where and when it happened.

Game species/season	Check if you ever lost access	Years you had hunted that land	County where you lost access	Year you lost access
a) Deer – regular firearms.	<input type="checkbox"/>	_____	_____	_____
b) Deer – archery.	<input type="checkbox"/>	_____	_____	_____
c) Deer – muzzleloader.	<input type="checkbox"/>	_____	_____	_____
d) Bear.	<input type="checkbox"/>	_____	_____	_____
e) Turkey.	<input type="checkbox"/>	_____	_____	_____
f) Waterfowl.	<input type="checkbox"/>	_____	_____	_____
g) Other migratory or upland birds.	<input type="checkbox"/>	_____	_____	_____
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	_____	_____	_____

2a) If you lost access to private land(s) where you used to hunt, please explain why this happened.

3. For each of the following game species/seasons, tell us if you have ever lost access to public land in Pennsylvania and tell us about where and when it happened.

Game species/season	Check if you ever lost access	Years you had hunted that land	County where you lost access	Year you lost access
a) Deer – regular firearms.	<input type="checkbox"/>	_____	_____	_____
b) Deer – archery.	<input type="checkbox"/>	_____	_____	_____
c) Deer – muzzleloader.	<input type="checkbox"/>	_____	_____	_____

Question 3 continued ... For each of the following game species/seasons, tell us if you have ever lost access to public land in Pennsylvania and tell us about where and when it happened.

Game species/season	Check if you ever lost access	Years you had hunted that land	County where you lost access	Year you lost access
d) Bear.	<input type="checkbox"/>	_____	_____	_____
e) Turkey.	<input type="checkbox"/>	_____	_____	_____
f) Waterfowl.	<input type="checkbox"/>	_____	_____	_____
g) Other migratory or upland birds.	<input type="checkbox"/>	_____	_____	_____
h) Small game (squirrel, rabbit, etc.)	<input type="checkbox"/>	_____	_____	_____

3a) If you lost access to public land(s) where you used to hunt, please explain why this happened.

Section F: This section is about your other outdoor interests and activities. Please estimate how many days during the last 12 months you traveled at least one mile from your home and participated in each activity listed below. If you do not fill in a number, we will assume you did not participate in that activity.

Activities	Number of days	Activities	Number of days
a) Backpacking	_____	j) Motorboating and/or water-skiing	_____
b) Bicycling	_____	k) Nature photography, drawing, etc.	_____
c) Camping	_____	l) Picnicking	_____
d) Canoeing, kayaking, and/or sailing	_____	m) Sightseeing or viewing scenery	_____
e) Cross-country skiing or snow-shoeing	_____	n) Snowmobiling	_____
f) Day-hiking and/or overnight hiking	_____	o) Target shooting (firearms or archery)	_____
g) Driving ATVs or off-road vehicles	_____	p) Watching birds or other wildlife	_____
h) Fishing	_____	q) Other (please specify)	_____
i) Gathering wild foods or foliage	_____	_____	_____

Section G: Please finish up by telling us a few things about yourself. *Remember, all this information is strictly confidential and never linked with your name. We use the information to compare the answers of similar groups of people.*

1. Please tell us a little about where you currently live.

a) Where do you live? Town, borough, or city: _____ County: _____

b) What is your ZIP code? _____

c) How many years have you lived at this address? _____ Years

d) Which category best describes the area?

- Farm or rural area
 Small town (fewer than 10,000 people)
 Large town or small city (at least 10,000 people but less than 50,000)
 Medium-sized city, including suburbs (at least 50,000 people but less than 250,000)
 Large city, including suburbs (250,000 people or more)

2. Please tell us a little about where you lived before living at your current address.

a) Where did you live? Town, borough, or city: _____ County: _____

b) What was your ZIP code? _____

c) How many years did you live at this address? _____ Years

d) Which category best describes that area when you were living there?

- Farm or rural area
 Small town (fewer than 10,000 people)
 Large town or small city (at least 10,000 people but less than 50,000)
 Medium-sized city, including suburbs (at least 50,000 people but less than 250,000)
 Large city, including suburbs (250,000 people or more)

3. Please list the ages of up to 4 male and 4 female children living with you at home?

Male children: 1) _____ 2) _____ 3) _____ 4) _____

Female children: 1) _____ 2) _____ 3) _____ 4) _____

4. What is the highest year you completed in school? *Circle one number.*

Elementary & Jr. High School								Sr. High School or GED				College or Technical School				Graduate, Medical, Law School, etc.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17 or more

5. What year were you born?

_____ Year

6. Are you a man or a woman?

- Man
 Woman

7. What is your ethnic background or the lineage of your ancestors? *Check one box – If you prefer to be more specific, check the last box and fill in the last line.*

- African American or Black
 American Indian or other Native American tribal group
 Asian or Pacific Islander
 Caucasian or White
 Hispanic or of Spanish or Latin American origin
 Other (please specify) _____

8. What was your approximate household income last year?

- Under \$20,000
 At least \$20,000 but less than \$40,000
 At least \$40,000 but less than \$60,000
 At least \$60,000 but less than \$80,000
 At least \$80,000 but less than \$100,000
 \$100,000 or more

THANK YOU FOR COMPLETING A QUESTIONNAIRE!

Please use the enclosed postage paid envelope to return your questionnaire to:

Pennsylvania Hunting Survey
 The Pennsylvania State University
 201 Mateer Building
 University Park, PA 16802-1307



APPENDIX B

NON-RESPONSE TELEPHONE INTERVIEW SURVEY

PENNSYLVANIA HUNTER SURVEY, TELEPHONE NON-RESPONSE CHECK

Introduction: A few weeks ago, we sent you a questionnaire about your hunting experience. I'm calling because we did not receive your completed questionnaire. Would you be willing to answer a few quick questions for me over the phone? Answering will take about 3 or 4 minutes and you must be at least 18 years old to participate. Participation is voluntary, and your answers will be kept confidential. You may stop participation at any time and you do not have to answer any questions you do not want to. Your name and identity will be kept separate from your answers. This survey was reviewed and approved by the Penn State Office for Research Protections (IRB#19140) on (11/22/04). Are you willing to continue?

Background: Penn State University is conducting this survey in cooperation with the Center for Rural Pennsylvania and California University of Pennsylvania. If you have any questions about the survey, call Dr. Harry Zinn [(814) 863-7849]. To verify your rights as a research participant, you can call the Penn State Office for Research Protections [(814) 865-1775]. Would you like either one of these numbers?

Optional: Your answers are important because we want the results to accurately represent Pennsylvania hunters. We need to be able to compare the answers of hunters who completed questionnaires to those who did not.

Thanks for your help, here's the first question...

1. How many years have you hunted? _____ Years

2. Did you hunt during the 2003/2004 hunting season?

Yes, I hunted at least once during the 2003/2004 hunting season.

If Yes, please go to question 3.

No, I didn't hunt at all during the 2003/2004 hunting season.

If No, please skip question 3 and go directly to question 4.

3. For each of the following game species/seasons a) How many total days would you estimate you hunted during the 2003/2004 hunting season? b) What is the primary county where you hunted? and d) How many other people did you typically hunt with?

Game species/season	Total number of days you hunted (all locations)	Primary county you hunted this species/season	Number of other people you typically hunted with
a) Deer – regular firearms.	_____	_____	_____
b) Deer – archery.	_____	_____	_____
c) Deer – muzzleloader.	_____	_____	_____
d) Bear.	_____	_____	_____
e) Turkey (total for fall 2003 & spring 2004).	_____	_____	_____
f) Waterfowl.	_____	_____	_____
g) Other migratory or upland birds.	_____	_____	_____
h) Small game (squirrel, rabbit, etc.)	_____	_____	_____

4. Have you been hunting or do you intend to hunt in 2004/2005? Yes No

5. What is the ZIP code at your current address?		
--	--	--

6. How many years have you lived at this address?		Years
---	--	-------

7. What is the highest year you completed in school? *Circle one number.*

Elementary & Jr. High School				Sr. High School or GED				College or Technical School				Graduate, Medical, Law School, etc.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17 or more

8. What is your ethnic background or the lineage of your ancestors?

- African American or Black
 American Indian or other Native American tribal group
 Asian or Pacific Islander
 Caucasian or White
 Hispanic or of Spanish or Latin American origin
 Other (please specify) _____

9. Which of the following categories best describes your approximate household income last year?

- Under \$20,000
 At least \$20,000 but less than \$40,000
 At least \$40,000 but less than \$60,000
 At least \$60,000 but less than \$80,000
 At least \$80,000 but less than \$100,000
 \$100,000 or more

10. Is respondent a man or a woman? Man Woman

That concludes my questions. Thank you for your help.
--

APPENDIX C

INTERVIEW PROTOCOL

**SOCIAL FACTORS RELATED TO HUNTING PARTICIPATION
VERBAL INFORMED CONSENT FORM**

Hello, [Mr./Ms. _____.] My name is [interviewer] from Penn State University. Your name was provided to me by [Mr./Ms. _____] as a hunter who might be interested in participating in a research study focusing on the things that influence hunting participation. The purpose of this research study is to gather in-depth information about the role of social support, involvement, and participation in other recreation activities as they relate to hunting participation behavior. The interviews vary in length and most are completed in less than 1 hour. If you are interested in participating, would this be a good time to talk, or should I call back at better time?

Before we get started, I need to explain how we use these interviews and how we protect your confidentiality. Then I will ask your permission to tape record your answers.

During the interview, I'll ask about things that might be related to your participation in hunting. I'll ask you to share your thoughts about the influence of people you know, the influence of other activities, and the importance of hunting itself. We will keep all your answers confidential, and we will always store your name and your answers in separate places. I will take notes during the interview, but I'll also run a tape recorder to keep a more complete record. We use the tape recordings to compare the thinking of different individuals. All the names, tapes, and notes will be kept in locked storage at Penn State by Dr. Harry Zinn, the advisor for this research study. Dr. Zinn and myself will access to the recordings which will be destroyed by 12/31/2007. If you like, I can give you Dr. Zinn's mailing address, phone number, and e-mail address. I am the principal investigator for this project and can also provide you with my contact information as well. As soon as we complete the interviews, we'll destroy all records of names and phone numbers. Then, after we finish analyzing people's responses, we'll destroy all the tape recordings and notes.

Your participation is completely voluntary and there will be no compensation for your time. You can refuse to answer any question or stop participating at any time. If you are talking to me on a cordless telephone, you might want to switch to a hard-wired phone. That way, the interview can't be overheard by someone using another cordless phone.

If you don't have any questions, I'll start the tape recorder and ask your permission to start the interview. OK, I have the recorder running. [Mr./Ms.] _____, do I have your permission to go ahead with this tape-recorded interview? (If respondent does not grant permission, ask if he/she would like to talk some other time. If the answer is "No," apologize for the inconvenience and terminate the call.)

Consent given: yes no

Person Obtaining Consent

Date

- How do you prepare for hunting season, and how much time do you spend doing so?
- Do you attend events related to hunting like sportsmen/outdoor shows, workshops, or target shoots?
 - If yes, about how often?
 - If yes, can you tell me the things that interest you in attending this type of event?
 - If no, are there reasons why you are not interested?
- Do you participate in activities that are outside of hunting but related? (e.g. reading hunting magazines, looking at photos of past hunting experiences, sharing hunting stories, watching hunting shows, etc.)
 - If yes, about how often?
 - How does your level of participation in these activities relate to your hunting participation? (e.g. Do they help you stay connected to hunting?)
 - Are these activities important to your involvement in hunting?

Finally, I'd like to talk to you about how other people influence your hunting participation.

Questions:

- Have your hunting partners changed over time?
 - How?
 - Has this affected your participation?
- To help me understand your hunting, I want to ask you about different types of people you hunt with and other hunters you interact with.
 - People who go hunting with you
 - Does this person usually go with you?
 - How important is it that this person goes with you?
 - What kind of influence does this person have on your hunting participation?
 - People who go scouting with you for places to hunt
 - Does this person usually go with you?
 - How important is it that this person goes with you?
 - What kind of influence does this person have on your hunting participation?
 - (Do you belong to a camp or club?) People who go to hunting camps with you or who belong to the same sportsmen organizations/clubs
 - Does this person usually go with you?
 - How important is it that this person goes with you?
 - What kind of influence does this person have on your hunting participation?

- Aside from other hunters, who do you tell about your hunting experiences?
 - Why these particular people/this particular person?
 - How important are those people to you?
 - What kind of influence does this person have on your hunting participation?

- Who do you most enjoy telling about your hunting experiences?
 - What makes telling them special?
 - How important are those people to you?
 - What kind of influence does this person have on your hunting participation?

In closing,

- Please tell me what sorts of things could happen with family and friends in the future that might change the way you hunt or the amount you hunt?
 - Why would that/those changes have that kind of effect?

That completes the questions I have for you. Thank you for your participation and I wish you the best of luck next hunting season.

APPENDIX D

CODING FOR CONTENT ANALYSIS

Interview questions used to assess level of involvement in hunting and other activities.

Question	Code	Illustrative Statement
If someone asked you to explain “who you are,” which activities would you mention and why?	Archery	Archery hunting and 3-D. I live for it.
	Family	I guess I would have to define it more by my family and my kids and the activities that they are involved in more so than myself. They are involved in swim team, physical exercise with them and going to the parks and riding bikes quite a bit. Things like that.
	Farming	I would definitely mention hunting as a big part of my life, I love doing it. Farming. Mainly because I grew up around it all of my life. That is pretty much it.
	Fishing	Okay I would mention fishing, because I love to fish, both spin casting and fly fishing. I like to hunt and I would say all types of hunting. I would leave it at that.
	Hunting	Okay well my number one would be hunting. I was brought up in a hunting family. My father was just like me. He liked hunting before any other sports. I used to fish all of the time. I do no any more. I hardly fish at all. There is not time any more. I like all sports too. Football, but I do not really..... I just watch them on TV. Hunting is still the main sport. I would say I am a sportsman and then they would say well what sport and I would say hunting.
	Singing	Well my first response would be hunting. It is what I really love. I also love singing very much. I do a lot of singing. I love to play golf and sports. I like to watch my grandson play sports and I like sports myself.
	Spiritual/ Religious	Well in the first place I sort of get hung on the word activity because there are I guess three things that really make up who I am and the first in my relationship with my family and my wife and my children.. I mean all that encompasses a husband and wife relationship and a father and children relationship. So I do not know that that is activity as much as it is lifestyle, but that is one thing. My spiritual walk, my faith in God through the Christian faith would be you know much the same kind of answer. I really do not see at this point in my life that hunting is any different than those first two in that it is a core part of who I am. There is hardly a day goes by that I do not think hunting, see hunting, even though I may not actually be out in the field hunting, decisions I make about purchases, about how I take care of my property and all of those things. I usually think about how that relates to my family and

		<p>how that relates to hunting and frequently how that relates to my faith too.</p> <p>Well that changed quite a bit. So identifying what activities and what sporting activities I like the most? I am a tennis player and I enjoy running. Running I do for cardiovascular and for health purposes even though I do enjoy just going out for a run. Tennis I played for a long time and just really enjoyed playing tennis and a good friend of mine and I played doubles together for years and years. So I would say that is it, but I like most sports. You know if you can get me out on the basketball court as well and I like playing basketball with the boys. I would say I really enjoyed archery season this year, but it would be third or fourth as far as my identification.</p>
	Sports	
	Sportsman/ Outdoorsman	Oh all outdoor activities. I like to hike, camp, hunt, fish. Basically all outdoor activities.
If you describe yourself as a hunter, would you say you are avid, casual, or in-between?	Avid	Well I would have to say avid.
	Casual	I would say casual.
	In-between	If I had more time I would be avid, but I guess I would be in between right now.
How would you describe the type of hunter you are?		I do not know. I like to hunt by myself more often I think and I won't take a shot unless I know that I am almost 100% positive that I can take that animal and not lose it. I have learned a lot more in the past couple of years. I mean I started out by myself and I did not know anything. So I have learned it all really myself and I think that I feel better that I learned it that way. I my dad did hunt, but he did not archery hunt like this. Now he does not at all.
	Conscientious	
	Detailed/ Organized	I am organized, detail-oriented, serious, I work hard at it.
	Effort	Ah one who believes that you do your hunting by getting out of your vehicle and getting off your dead butt and getting back into the woods. Not one to be sitting within a hundred yards of the road. Although there are times when I will sit for a considerable period of time. One who tries to preserved the sport. I have done what I could to pass it on to other people that were interested, but that is limited.
	Ethical/ Sportsman	Very sportsman like. Ethical. Law abiding. That is about all I can think of.
	Identity	Well as I said I think my life style is hunting. It is part of my heritage. That is who I am. It is not something I do. It is part of who I am.
	Patient Serious	Patient. Early riser. Those are the main two. I play by the rules. I take it seriously. I don't

How much time do you devote to hunting and hunting-related activities each year?

just go out just to have a good time. I am kind of intense on it. I would not want to go hunting with someone that just wants to you know.... Just out there for the fun of being outside. I want to be out there with some seriousness and looking for the game and looking to be successful.

Half of season I would say when hunting season is in especially archery, I would say archery I spend at least 50% of archery season in the woods. That is the biggest time that I am in the woods. Spring gobbler season that is probably I would say about 25 or 40% of the time that the season is in hunting. That is about the best way I can describe it.

Majority of season Oh goodness. I probably I have a bird dog and I hunt I am off on Fridays and I hunt every Friday and Saturday during the season when the grouse season is in. Deer hunting, I put just about that much time in until I get a deer. If I do not get a deer, I continue to hunt. Oh my. You see I work at it kind of year around. I was just.... If you were not going to call this morning I was looking down the back. I have a stretch where I can look for about a hundred yards and there was something down there moving. I am the kind of person that has to go out and check these things out. I like to go out in March and April and find out where the deer are moving. A lot of times I will even go to these remote areas in March and put out small mineral blocks to supplement especially if can find where the trails are. I will put small block out there that will last up into June or July and will help the does while they are carrying the young and will also help the buck in growing their antlers. So I enjoy doing that and I have an ATV where I ride around the country and I am pretty much on our.... In this area here I can ride free pretty much. So I do go out and do those types of things. In the Fall I am constantly checking places for tree stands and putting stands up and taking them down. Creating habitat. I have a project his Spring where I am planning cover close by the house. Well 100 or yards away where it is a rather open area. I am trying to find trees that will grow in wet areas to provide cover and food for the deer. So these are the things that I stay involved in.

Majority of year From the beginning of archery season to the end of squirrel season, which just stopped. I would say I probably hunted parts of 25 days. I might hunt an hour or two before work and an hour or two after work and call that. You say

Specified #

What do you consider as hunting related activities?

- you hunted that day, but you may have only hunted an hour and a half. Twenty five days out of the whole time.
- ATV riding Hiking and ATV riding. I guess those would be the main things.
- Bird watching Hiking. Bird watching and going out in the Spring before the Spring season and finding turkeys. I have the out door like channel on right now. That is sort of one. I guess my work too because I am in the woods all the time.
- Equipment It is making sure your equipment is in good condition. You know that you have the essentials that you need. You know when you go out to hunt and then it is in good shape. I spend time with that too you know. A lot of times you spend more time with that than what you really realize. You just think over what you have and make sure it is all together. It is there what you will need.
- Fishing Fishing kind of sounds odd, but it's being outdoors and kind of that whole paying attention to the detail thing about the fish and the habitat and that kind of thing. Those are all activities that I kind of relate to it.
- Food plots Ah scouting, hanging tree stands, doing food plot work. Well the food plot work I would have to say I do more than 40 days a year now because my wife and I just bought a property where we have our own non-commercial regulated shooting grounds. So I pretty much hunt every weekend. Saturdays and Sundays because we are not bound by the season and bag limits.
- Hiking Yes scouting that would be the biggest one. Hiking. I mean that is included in scouting, but I usually do not hike through the mountains without any other reasons, but look for a decent area to hunt. Spot lighting. Farming hopefully a little bit more. Yes that is about it.
- Scouting Things like scouting, getting equipment ready, things like that.
- Sporting good stores Practicing archery and actually going to the store and buying supplies and that is kind of related I would imagine.
- Target shooting Ah like 3-D shooting. Sighting in my guns. Practicing you know shooting my bow.
- Tree stands I would say like hanging tree stands. Scouting. I keep trail cameras out in the woods just about year around. So I am constantly checking them.

Are you satisfied with this amount of time or would you like to be involved more or less?

More

No I definitely would like to do it full time. Unfortunately I have to work a day job.

Satisfied

Well I am satisfied. I would like to do more, but I am not upset that I can't. I do plenty. I do a lot more than other folks do.

How does the amount of time you spend hunting and participating in related activities compare to the amount of time you spend doing other recreation activities?

More time hunting

I have more time I think devoted to hunting than I do anything else during the season. My wife would say the same thing. Too much. I mean it.

Balance activities

Well I try and keep a perspective on it. For instance we like to travel. When I travel my binoculars always go with me and I like the scenic routes as does my wife. So I try and keep a perspective so that when I am not hunting and my wife and I do the things that she likes to do, we try and balance our life out that way. Yes in the back of my mind you know we took one trip and it was purely to go out and explore a Native American history, but I also ended up down in Texas hunting hogs and stopping at a lot of sporting goods stores on the way. That was fine with my wife because she got to do the things that she wanted to do. So we try and balance our lives out.

More time other activities

Well in season I probably devote more time, but in the scope of things as far as running and tennis and basketball and other activities it is pretty small on the recreational scale.

What other recreation activities do you participate in? How much time do you spend in each of these activities?

Community

Activities with our youth group and sports. About 6 hours per week.

Dinner/Movies /Travel

Movies, concerts, eating out, traveling. Well by the week, my wife and I usually go out to the movies at least once a week. Christmas we went four times, but that was because there were things out that we wanted to see. That is unusual. Yes so usually if you count travel time, we are putting in three to four hours a week going to the movies. We eat out a lot partly because of our work schedule and because there is only two of us. So you know I would say we and it is sort of a recreational thing too. So I would say we eat out four or five hours a week and that is not counting eating out during the work day.

Family

I am single. No kids so occasionally I will spend time with family and my nephews. I would say one or two evenings a week and usually some time on Saturdays or Sundays.

Fishing

I like to fish some. I do not do it as much as I used to.

	Gardening	I like to work in the garden and I have a fishpond also that I like to play with in the yard. More in the better weather.
	Hiking	Hiking, activities with my son, and fishing. Sporadic throughout the year.
	Sports	Tennis, basketball Well running in season and this has been kind of an odd year, but I would normally run five days a week. During the tennis season I would probably play tennis twice a week. I play a little racquetball. I would problem play racquetball once a week. I play softball for the church softball team. That is ten weeks. I play that once a week.
	Sportsman Organization	I am also involved with my local sportsmen's club and that averages counting a league that I am usually in, well that averages I would say three hours a month. Actually some years it is more than that.
	Wildlife Watching	Fishing and bird watching. I do less of that than hunting.
In what ways do these activities compete with or interfere with your hunting?	Enjoy other activities also	I would say other than work no. You know as much as I love the hunting, the other things that I do I enjoy just as much. My wife chose to go to the shore this year with a friend of hers for a week and they went the first week of archery season. I would have preferred that she chose a different week, but I took a couple of days off and went down with her. So you know my family might not be a quick to say that, but I would say they do not interfere. I do not mind dropping the hunting and doing some other things too.
	Meetings/ Practices	They do compete because of my involvement with the scouts. My other leaders are not hunters and many times they will plan events on weekends during the hunting season and it definitely does interfere with it some
	Schedule time to hunt	They do not interfere. I mean I can make time to hunt. It is important to me, but it is not that important. The kids are more important.
In what ways do these activities complement or add to your hunting?	Find new places to hunt	At times. Just being able to see different areas of where I might like to go hunt.
	Greater appreciation	I think I appreciate the time I get to hunt more because I can't get out during times when there are other events I need to be at.
	Physical fitness	I think running helps. I also lift weights so I try to keep myself somewhat in shape so obviously those activities help me climb trees and help me walk mountains and so on and so forth.
How do you choose which activities to participate in?	Availability of family and friends to hunt	Well at lot of times it has to do with my buddies.

	Family obligations	Family first. How much is it going to interfere with what is going on with the family? Then the other thing that influences me is you know what my friends are going to be doing. Are they going to be hunting or are they going to be doing other things.
	Prior commitments	I think it depends on what my commitment is. I am not saying that I have not skipped out on some of those things to go hunting, but it depends on how demanding I need to be there at the time. That is always a variable. There are times when I need to be there and I am committed and that is where I have to go then. Whether I have killed my deer yet or not or my turkey or whatever. I will tell you what
	Season success	actually personally I have changed that a lot. As I starting to say no to some of the other activities so that I can be hunting more.
	Weather	Mostly because of weather.
Would you rather do fewer activities and spend more time hunting instead? Why or why not?	Hunt more	Yes I would like to do fewer activities during hunting season because I love that time of year. I love to be in the woods.
	Satisfied	Ah, I do not know. That is a hard question for me. Yes I am satisfied with the time that I have. I really am. I do not need to spend more time hunting than I do.
How would you describe the importance of hunting in your life as compared to other recreation activities?	High	I guess it is very important because it is something that has been going on in my family for many, may years and I want to continue the heritage. I want to continue it as well as have my kids continue it.
	Intermediate	I would miss it if it was taken away but it is not the driving force in my life. So somewhat important.
	Low	I think that for me if I was told tomorrow that I could not hunt any more, it would not pose necessarily a problem. I like being with my children and it is really great to do that, but if I was told that I was not able to hunt any more, it would not put a major stress on me.
To what extent do you organize your life around hunting?	Don't	I don't.
	Family schedule	Okay I schedule a lot of vacation around hunting. The examples would be certainly I am out the first week of deer season and throughout the Fall I also take a couple of days off work whenever I can to hunt. In fact I would think deer season our entire family revolves around deer season at least.
	Plan off-season	I would say very much so I organize it around hunting. I like to plan things you know on the

		<p>off season or when..... Like if we want to go somewhere, I would rather do it like after dark. Like an hour after dark so if I do want to hunt that day that I can go hunting in the evening if I want to. I can hunt in the mornings all the time because my wife is at work. Also that helps out though.</p>
	Vacation	<p>Well if you were to talk to my wife she would tell you that she is a widow in the fall of the year. So that should answer it pretty good. The Fall time of the year is my time of the year and a lot of my vacation time is used for hunting and a lot of things lay when it is hunting season.</p>
	Work schedule	<p>Well during the October Pennsylvania archery season when I am able to leave the office at..... I am supposed to work until 4:30, but as long as I am caught up with my work or I usually start early during the hunting season so I can leave by at least 4:00 so I can hunt every evening or every evening I can possible hunt now.</p> <p>Unfortunately there are times when I do have work that has to be done and I got to skip the evening hunt, but I would say I do just about everything I possibly can to make sure that I can go out every evening. Rarely. Occasionally I will have a commitment with the family or something that I may have to do instead, but I think because I am single I do not have too many other things that I have to be doing.</p>
How do you prepare for hunting season?		<p>I spend a lot of time. I spend a lot of time in the woods, but I work in the woods a lot. We take family hikes and a lot of times the family hikes are places that we will hunt later. We shot the rifles a lot. We shot the bows a lot. Shopping and getting everything ready. A lot of time. I would say nearly half the time I spend hunting, I am doing stuff in preparation.</p>
* This was a matrix of all codes to check off which activities each hunter participated in.	Equipment	<p>Shooting I would say I start to shoot like before archery season, I do a lot of shooting. I mean I shoot on and off throughout the year, but I try to shoot every day about two months before the season. You know more and more as the season gets closer. Then I spend outside of that.... I guess it is all the benefit of hunting, but I mean through the Summer I worked on food plots and planning and stuff like that. Just hanging tree stands.</p>
	Food plots	<p>Basically I talk to some different people and what they are seeing and how much of something they are seeing. How many deer that they are seeing and their activities. I will spend probably three or four evenings scouting. Of course the practice in the yard with the bow. I usually start the first week of September. So</p>
	Scouting	

probably total time wise, probably about two weeks.

Ah, archery season for instance we put about a month of practice in prior to archery hunting and setting stands up and this year we started going to 3 D shoots and getting more practice in. Also shooting our guns. We do a lot of that. That is year around that we shoot our guns.

Target shooting

Well see that is where my grouse hunting comes in when grouse season starts the second week of October, when I am hunting grouse I always pay attention for scrapes and rubs. See where the bucks are hanging out and see how many bucks are around. That is practically important to me. Grouse usually hang out in the same area the deer do.

Tree stands

Ah preparing mainly for archery and tuning up the skills. The skill level of the hunt. You know the archery and the rifle and the shotgun. A little shooting. A little practice. With the bow and arrow I probably practice fifteen or twenty times before the season starts and then continue through the season. Most of the month of August and September at least three nights a week I shoot the bow. Yes and then coupled with scouting and walking the property and putting up tree stands. That is all part of the scouting routine.

How much time do you spend preparing for hunting season?

Before season

Usually a month before archery season comes in. Usually one out of three or four days I am in the woods scouting and going for walks and checking the scenery out. Make sure all of my gear is in check that I have everything I need. For rifle I do not really prepared myself. I just have set stands. I do not really do any scouting. To me it is more of the luck of the draw whether you succeed during rifle season or not. Oh I do not know. Not near enough. Minimal time really. I mean you know if you are participating in all the different seasons you are kind of hunting almost year around. So I try to do some shooting in the off season and stuff like that. So I would consider it minimally. Oh I will start the middle of Summer. I will start shooting my bow and all of that stuff to get that ready and be prepared fro that. So again archery has really changed that.

Not much

Throughout year

Boy it is pretty much an all year, ongoing thing. Just spend as much time out there as I can and when it is over, just start getting ready for the next year. I like to do a lot of spot lighting areas where I hunt. Check out what is going on. Like do scouting. Do a little bit of planting food plots or whatever on private ground. I do

		not hunt too much on private ground. What about sighting in rifles or practicing for like shotgun and that kind of stuff? Oh absolutely. I do practice a lot. Ah it gets more intense before hunting season. It is a lot cheaper to shoot your bow than it is to shoot a gun.
Do you attend events related to hunting like sportsmen/outdoor shows, workshops, or target shoots and if so, how often?	Frequently	During the Summer I would say every other weekend I attend a shoot for archery. During the Fall I am constantly shooting invitational and indoor leagues. I would say once or twice a week or about three months. January, February and March. They have a sportsmen's show down here in Harrisburg once a year. That is about it.
	A few	Yes I do a couple of events a year. I do like the sportsmen's show once every couple of years.
	Not much	I went to one target shoot and that was my son's target shoot. So no I do not go to things of that nature.
	None	I used to but not any more. I used to be heavily involved with organized sportsmen's groups. I served in the officer ranks of the state federation and some other stuff, but I served my time and now I simply hunt.
How often do you participate in activities that are outside of hunting but related such as watching hunting shows, reading hunting magazines, or sharing hunting stories?	Daily	Oh yes. I wish I had 24 hour hunting shows on the TV. Whenever there are other people around that like hunting. Whenever there is a person around that I can talk hunting to, I do. That is the key you know you get some people that do not want to talk about hunting, but the people that I hang out with are all hunters. That is probably what draws us together and the common bond is the hunting more than anything and the stories that go with it. That is what makes hunting that much more fun.
	Weekly	I do not know. I spend some time every week with some of that. The other evening I took two magazines along to work when I knew it was going to be slow and went through them. I have them coming to the house. The hunting magazines. Videos. I have videos that I watch. We have great hunting stories so once a year we talk about hunting stories over
	Occasionally	Thanksgiving or Christmas. I really do not read a whole lot about hunting and I guess I do watch TV a little bit about hunting.
	Not at all	Not very much of that I can tell you because those things.... Probably the most succinct way to put it is the guy just sat there with his gazillion magnum and blasted the day lights out of a critter and he turns to the camera and he whispers. This is hokey. This is crap. The guy usually tries to fall out of the tree watching to see where the buck goes. He does not sit there

How does your level of participation in these activities relate to your hunting participation?

Learning

and say oh I hit it. Well whoopee. We got to get real. Those things are put up and done on game farms where it would be like going over to a friend's place of shooting his prize Holstein. Sorry Charlie.

Maintains interest

Oh yes definitely. If I read something that might sound like a new trick or some new kind of new technique to use, I will be out there giving it a try. It may be a new product that gets good reviews.

I watch them and it just keeps the interest and I cannot wait to go out and go hunting and that kind of thing.

Reflection

I think they help me stay connected. I probably do not read as much "how to's" as much as I like to read nostalgic hunting type stories, which I think in turn lets me probably reminisce about my hunting experiences.

Interview questions used to assess perceptions of social support.

Question	Code	Illustrative Statement
How have your hunting partners changed over time?	Death	<p>Ah yes they have because I have hunted with some elderly gentlemen that have since passed away. My father, now has passed away. I have just started hunting with some other friends that were friends, but I have gotten to be closer friends and now we do a lot more hunting together.</p>
	Family now friends	<p>Like I said I do most of my hunting except for several days in Pennsylvania, I go back home to basically to be with family. So most of my hunting partners would be family. My dad in particular. So when I go hunting in Virginia I do not go to a hunting camp. I go to my parent's house and I eat fried chicken and mashed potatoes and gravy and mom's cooking and if I am not in the woods, I am with my folks. I have had a couple of guys that I hunt with here in Pennsylvania and they have been constant since I moved here.</p>
	Lost friends	<p>I would say yes they have and when I first stated hunting I guess... How should I say this? I guess the group of people that I was with then they were not really good people and then I started going to a church and I started hunting with guys from that church and then I noticed that I started harvesting. I started having luck and then I met other guys hunting that I hunt with still that I have hunted with now for probably.... Some of them that I started hunting with I still do hunt with, but I hunt more by myself, but I do talk to these guys every day. You know they let me know how they are doing and we do hunt together some times like on public land. I have my private land that I hunt on. So yes it has changed.</p>
	Moved away	<p>When I was in high school I had a Sunday School teacher that got me out hunting and my dad was never really in to it. He was just once in a blue moon he might go out with us for deer season, but he was never one to shoot a deer and then for about ten years I really did not do any hunting. Then I did hunt some with my older brother when we were living together in New Jersey and that happened for about five or six years and then he moved away and that is the last time I have done any hunting with any family.</p>
	Now kids hunt	<p>Well I lost.... I started out with father and uncles and now they are either gone or not hunting. Once I sort of got out on my own and starting hunting and met buddies, I am still with them. So it has changed from older family to friends and it is just now starting that it is kids.</p>

	Others now self	I hunt a lot more by myself now but I used to pair up with more people.
	Stayed same	Not really. Not it has pretty much stayed the same.
Has this [change in hunting partners] affected your participation?		Yes I would think my participation probably has decreased I would think. Most of my hunting probably, well let's just say I was a hunting fanatic between the age of let's say 18 and 32 to 35. I mean if you know I hunted.... A lot of that was also my work allowed me to quite early enough in the afternoon that I could leave work and hunt immediately. I think also the location allowed me to also hunt immediately when I got off work. So I think I spent more hours in the field back then.
	Hunt less	Yes I would say ever since I started hunting with this other fellow, I hunt a lot more than I used to.
	Hunt more	The people I used to hunt with had places to hunt ducks and geese so I don't hunt those species anymore because they were places they took me.
	Less access	More so. I hunt more because I am now hunting.... The one guy, well Dale Miller that actually gave you my name. Dale has a place in New York State and I help him work on his place up there and stuff and hunt. So that has kind of broadened my time that I am hunting because number one we can hunt Sundays and we are hunting earlier because we can go to New York State and stuff. So it has definitely increased it.
	More access	My participation in hunting has pretty much remained constant. I mean from the time I was old enough to go on my own even at Penn State like I said, I went by myself if I did not have anybody to go with or if I had somebody to go with great, but I mean it was not going to stop me from not participating by not having somebody to participate with.
	No change	Yes it did. He lived in Virginia and we hunted together. I mean we traveled to Alabama and we of course my son went with me to Virginia a well and since he.... I do not hunt in Virginia any more since he left. That was three or four years ago. Yes that has changed some.
	Place changed	
People who go hunting with you.		I would say my bother most of the time. Every once in a great while I would say like two days out of the whole archery season, I might hunt with one of my buddies. The rest of the time I am alone.
	Alone	The people I hunt with now would be again my father in law, my son and my nephews and to some extent my wife. Yes they hunt with me
	Family	

		mainly deer and turkey. When it comes to small game, I would say it is mainly me and my dog.
	Friends	I mean the majority of them are friends. I do have a couple that I hunt with from work. My friend's kids and my friend's parents and grandparents.
	Friends and family	Friends, but also my dad and brothers.
Does this person usually go with you?	Mostly by self	I would say 75% of the time I am by myself.
	Some of time	Ah I would say it is probably half and half, but maybe even more now going with me.
	Yes	No I typically hunt with somebody. Very seldom do I hunt alone. Some of that is with my wife's request.
How important is it that this person go with you?	Camaraderie	Very important. I think that is all part of it. The story telling and the camaraderie.
	Fun	Yes. It does make the experience much more fun.
	Sharing	I enjoy sharing it with other people. Yes I would say it is important.
	Tradition	Yes it is important. That is part of the tradition of us going together I guess.
What kind of influence does this person have on your hunting participation?	Hunt less	I would go less if they did not hunt with me. Ah a little bit of it is motivation. Most of it has to do with simply the camaraderie and for me that is part of what the experience is about. Experiencing it with other people. If they are not there, if they are not available today, that is a good day to go to work.
	Hunt no matter what	Ah not too much because even if they would both give it up tomorrow, I would still hunt because of the way I was brought up. I just enjoy it too much to give it up.
	Motivation	Big time. I mean if there is times where I am kind of hem hawing about getting out because either work is getting in the way or I am just thinking it is just too much hassle, they are there to push me and encourage me to get out there because they know that if I get out there it will change my perspective.
People who go scouting with you.	Family	My family also goes scouting with me.
	Friends	Ah there is one particular friend of mine. Well he is the son of a friend so he is like 30 and I am 52. So it could be like my son, but since my wife and I did not have children, he is sort of like... My wife kids me that he is my adopted son.
	Hunting partners	Yes the same people that I go hunting with.
	Self	Some of them. There are probably few people who scout with

		me. I would say once in a while my son, but probably myself would go scouting.
Does this person usually go with you?	Sometimes	I would say it depends. Turkey season I scout a lot. It almost wears you out before the season. Scouting for turkeys. The friends that go scouting with you are.... I am more inclined to want to hunt with them than the guys that call on the phone a week into the season and say hey take me turkey hunting. Yes like my brother and I will go out in the woods because I hunt a lot on his ground. We will spend time together you know just like in March we will go out looking for sheds and occasionally my dad will go out with me when I hunt. I probably hunt more in Maryland now than I do in Pennsylvania. So when I do hunt in Pennsylvania chances are one of my friends are with me or my dad or my brother. I have two young nephews that I like to get out in the woods on occasion in the Summer time or whatever.
	Yes	
How important is it that this person go with you?	Enjoyable but not important	Ah not too important, but it is nice to have somebody to talk to and throw ideas back and forth with.
	No	I think it is better that it is a fewer people for scent reasons and what not.
	Yes	It is important they go with me to spend time with them.
Do you belong to hunting camp or sportsmen organization/club?	Do not go	No I don't. We have a place up in Tioga County, but it is not really a camp. It is just my family's place and I go there and stay by myself to hunt. Then I hunt with a couple of guys up there also. Well actually I am in two. I am in a camp that is family and they are all getting older and I am soon probably to be out of it. I am in a new camp with college friends that I will probably be in there until I am an old man. So family and friends.
	Friends and family	
Does this person usually go with you?	No	No we all go out together, but then we hunt separately after we get there. We kind of disperse and have our own stands or our own spots to go to hunt. Ah not on an every day basis, but you know once or twice though the year I hunt with everybody that is involved. It kind of rotates around depending on what species. If I am bear hunting, I will hunt with my brother in law and if I am deer hunting I will hunt with a friend. If it is pheasant hunting, I will hunt with a different set of friends.
	Occasionally	
	Yes	Yes.

How important is it that this person go with you?	Camaraderie	Very important. During bear season it is nice to have the camaraderie of friends. It is more or less getting away and story telling time.
	Enjoyable	Mildly important. I would not say it is critical, but it is nice to have somebody to go with. Well the one fellow I have been hunting with for 30 years. So he is rather important yes. The other one I hunted frequently when I was his son in law and you know I hunt with him generally that is the only time. When we go up for deer season. My sons they hunt with me some times too. They are really just getting back into it. So we will see how that goes, but they are important to me, yes. I would have plenty of people to hunt with if they did not go, but they do. We make our arrangements every year.
	Tradition/ Family	Well I definitely like somebody to go, but there again if nobody wants to go, I will go on my own if necessary.
	Would still go	A good bit. Yes. If didn't belong to it I think it would be a different type of participation. Like I will travel up state for a week. The first week of buck season. I will be hunting every day. Now if I had to stay home, I would probably be hunting like the first three or four days, but I would still be hunting with some of my friends down here. It would probably not be as long or as much.
What kind of influence does this person have on your hunting participation?	Hunt less	I would say I am more inclined to participate when they are at those camps. If somebody calls up and says are you going to camp this weekend, can you go? I will see if I can go. Otherwise I will not even worry about it. Hearing stories keeps you looking forward to hunting and encourages you.
	Hunt more	I would say very little only because it is so..... It is not very often that I even hunt up there so.....
	Encouragement	Yes I would say they influence my participation from the fact that we are talking about hunting and I think especially deer season we start calling each other a couple of weeks before the seasons and making plans. So yes I would say we influence each other there.
	None	None really. Would still go there if the didn't.
	Social	The guys from work. Family members.
Aside from other hunters, who do you tell about your hunting experiences?	Co-workers	My dad. My wife. My son. He does not hunt much though. My mother and my sisters, brother in law.
	Family	A couple of good friends of mine back home
	Friends	

		who I grew up with. They never really got into hunting. Oh yes. My mom. Like the ladies in the family who do no happen to hunt.
Why these particular people?	Enjoyment	Well mainly it is just to share the stories. My wife never hunted, but you know since especially when it comes to the pheasant hunting with our dogs. Our dogs are like our children so she likes to hear the stories about the dogs and things
	Interested	I guess just to share it with them. You know a lot of people that I work with know that I hunt as much as I possibly can and when they know I am going to Maryland or something you know I usually have one or two people ask me how the weekend went or if I was successful or not. I think it is just to share part of it. We are close so I think we are just sharing a part of our life.
	Part of life	You know hunting is important to me and those people are important to me so I think we just share each other's lives.
	Sharing	Jut like anything else, you like to share your experiences.
How important are those people to you?	Care	Yes very. It makes me feel good you know that they do care.
	Don't need to	Somewhat important, but not really important. I do not need to.
	Share life	It is pretty important because these people live with you and you share your life with them.
	They listen	Yes I guess it is important that she would or I would not be telling her. If I am going to tell her I think that I feel that she is going to listen and it is important, yes.
What kind of influence does this person have on your hunting participation?	Allows me to hunt	Well she has a lot of influence in my participation simply because she lets me do it. She knows that I enjoy doing it and she lets me do. So that is a lot of importance. If she didn't want me to do it - Well it would definitely affect the relationship. I am sure it would.
	Share harvest	I would say they have an influence because if they would not like that harvest like to eat it or whatever, that would influence me also because then what would I do with all of it? So yes I would say so.
	Support	I do not know that they have.... Well my family has a lot to do with my participation obviously. As long as the family is supportive, it makes going out that much easier. As far as co-workers go I do not think they have any influence. I just tell them the stories and most people that you work with are anti hunters or you know they just do not like those stories, but that does not influence me at all. If anything it

		<p>may motivate me to get out more.</p> <p>No they don't. What if they were not willing to listen to my stories and stuff like that, would that affect me at all? No it wouldn't. I probably would not tell them any more.</p>
Who do you most enjoy telling about your hunting experiences?	Would still go	
	Co-workers	<p>I do not know. I guess it would probably be co-workers. Definitely other hunters. They are the ones that are more concerned or want to know how you are making out.</p>
	Family	<p>My son. Especially if he is not with me. He can only hunt the first day or two because of school.</p>
	Friends	<p>I do not know. I guess it would probably be co-workers. Definitely other hunters. They are the ones that are more concerned or want to know how you are making out.</p>
What makes telling them special?		
	Enjoyment	<p>Because I can tell that they enjoy it. Even though my dad does not hunt, I can still tell that he gets excited and the questions that he asks me when I am telling him. Then the season is in, every time I call my dad he says have you been hunting and did you get anything else? You know so I can tell that he is interested.</p>
	Interest	<p>Well actually he asks me usually when he walks in the door from school. He will say Dad what did you see today? What did you get? Did you get one or see anything</p>
	Relate to it	<p>Because they can relate to it. I would not tell a non-hunter about the hunting experience. They do not relate well. I mean in the sense that if you have never done it, you do not know the thrill and the chase.</p>
	Sharing	<p>Because we used to hunt a lot together and we no longer do because of our distance apart. So it is the way we can share hunting even though we are not doing it.</p>
How important are those people to you?	Somewhat	<p>I would say it is fairly important. I enjoy the hunt and I enjoy the talking about it</p>
	Very	<p>Oh yes. He is the first person that I always call.</p>
What kind of influence does this person have on your hunting participation?		
	Encourage	<p>My wife has a lot of influence. Surprise, surprise. It is because she is encouraging me to do that I actually get out more than I would without the encouragement. There would be times I would feel guilty getting out and she actually goes to the other extreme and pushes me to go out because she knows that I enjoy it so much.</p>
	Hunt same	<p>Oh I do not need any encouragement. I cannot see where it would have any bearing on me actually hunting it may have bearing on whether I tell them any more stories or not. They might go man would you shut up. I will</p>

		<p>go well okay maybe they do not want to hear the hunting stories. Some people.... There are some ladies here that go oh. So I find pleasure in bringing it up and telling them stories just to get on their nerves.</p> <p>Not much. I mean I think I would hunt regardless of whether I did not have somebody to tell the story to or not</p>
<p>What sort of things could happen with family and friends in the future that might change the way you hunt or the amount you hunt?</p>	<p>Not much</p> <p>Family commitments</p> <p>Health</p> <p>Kids</p> <p>Work</p>	<p>Yes I do. I mean since my children the older they get, the less I am able to hunt. I mean especially with sports and things and their activities and music and things. Yes I have noticed I have really not been able to hunt like I used to. Let me think what else. Plus the college coming and traveling and doing that thing. I do know I am not going to be able to hunt and the fishing will probably come to a halt whenever my son is gone because he is basically the only one that goes fishing with me on the boat. So the boat is probably not going to get used very much after he goes.</p> <p>Well I always tell my fiends I envision myself being in a tree stand when I am 90, but you know the facts of life are if your family is having health problems you got to do what is right. So health could influence it. I happen to have very good health and I do not take any medicine. So as far as I concerned until my health restricts me, I will be participating in this because I get as excited now that near age 73 as I did when I was young and I still enjoy the first, second, third, fourth and all of the days of hunting. So unless family health or overbearing conditions within my family or if something radical would happen, it will not affect me.</p> <p>Well I mean the big thing I guess that is coming is that when my kids are going to get older I am sure they are going to want to be involved and that will then push me to hunt more. That is the major thing.</p> <p>I guess more responsibility in what I do work wise. I work in a family business so you know that is why my dad has so many obligations that unfortunately that is why he cannot spend the amount of time out that I do. So possibly as I get older and take on more responsibility within the business, that may have an impact on how much time I am able to spend hunting.</p>
<p>Why would this change have that kind of effect?</p>	<p>Hunt less</p> <p>Hunt more</p>	<p>As my kids are gowning older and enjoying it and getting out there more, then I am able to get</p>

out more. As kids are going off to college, you know there are fewer things that I have to go to here. You know for them and that allows me to get out more.

Lose
motivation

I think when you lose a hunting partner or a friend certainly to some extent because part of the joy of hunting is sharing that experience with others. If they are not there to share that with you I think that takes some of your drive or some of your thrill of the hunt away. Again just as other activities or people move away or things like that, I think has a negative affect on your hunting. It is hard to find I guess new hunting partners who you A enjoy their company and B to feel safe with.

Style change

Well yes Sarah is 11 and she will be hunting deer with me this year. Samuel is 6. That is going..... I do not know that I would be hunting more, but it is going to change the way I hunt. I will be taking kids hunting and I won't really be hunting myself. I might be doing different kinds of hunting. I will be doing all of those junior seasons and sitting along side them, but I do not know that it is really going to make me be hunting more.

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