

Understanding Hunting Constraints and Negotiation Strategies: A Typology of Female Hunters

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Running head: Female hunter typology

Abstract

This article examined a typology of female hunters, factors constraining participation, and negotiation strategies females used to overcome constraints. A survey of Oregon hunters was conducted in the summer of 2010 to understand hunting characteristics using the 2008 big game license database ($n = 392$). We created a typology of female hunters using a cluster analysis of Recreation Experience Preference items. Four clusters were identified: less-engaged, family oriented, nature-sport, and all around enthusiast. Analysis of variance revealed differences among female hunter segments. Differences existed among the four groups on both constraints and negotiation strategies. One of the notable groups was the family oriented hunter. This type of hunter was the most likely to perceive constraints and the most likely to utilize negotiation strategies to increase their participation in hunting. Findings reveal nuanced differences between types of female hunters. These findings can assist managers with outreach strategies and facilitate future female hunting participation.

Keywords: hunter typology, gender, constraints

Introduction

Female participation in hunting has increased in recent years (USFWS, 2011). While females represent a small proportion of all hunters (11%), this group warrants consideration from wildlife managers (USFWS, 2011). Research on women hunters and the factors influencing their experiences is limited. Understanding females' hunting experiences is important for two reasons. First, women can have an impact on family recreation decisions and influence whether children participate in hunting (McFarlane, Watson, & Boxall, 2003). Second, understanding female hunters provides insight for programmatic and outreach needs. This article examined female hunters and their constraints / negotiation strategies encountered while participating in the activity. Because differences among women may be greater than between males and females (Henderson, 1996) we developed a typology of female hunters to understand the nuances within this hunting population.

Satisfaction with hunting experiences is not solely dependent on game harvested, but rather is a product of multiple factors including perceived constraints (Hammitt, McDonald, & Patterson, 1990; Gigliotti, 2000; Vaske, Fedler, & Graefe, 1986). Constraints are factors perceived or experienced by individuals that limit participation in recreation activities (Jackson, 1997). Research on female specific hunting constraints has received minimal attention. Existing research, however, has shown a link between constraints and participation (Barro & Manfredo, 1996), as well as differences in constraints depending on attitude toward hunting (Backman & Wright, 1993) and type of hunter group (Enck, Swift, & Decker, 1993). Constraints are not insurmountable and can be overcome or negotiated by the participant (Jackson & Rucks, 1995). This article explores the constraints women face and the negotiation strategies they use to overcome them.

Hunter Typologies

Shafer (1969) observed that the “average camper” does not exist. Similarly, not all hunters seek the same benefits or are constrained in the same ways. Hunter typologies have been created to better understand the needs of different segments (Gigliotti, 2000; Manfredo & Larson, 1993; Schroeder, Fulton, & Lawrence, 2006). Typologies categorize hunting characteristics and provide a foundation for informing management policies, and actions.

Some studies have created typologies based on reasons for hunting (Gigliotti, 2000) or preferred recreation experience preferences (Manfredo & Larson, 1993; Schroeder et al., 2006). Typologies have also been used to understand hunter satisfaction and support or opposition for management actions (Gigliotti, 2000; Schroeder et al., 2006). Finally, typologies have assisted agencies in creating tailored programs to meet the needs of their hunting constituents (Schroeder et al., 2006). Manfredo and Larson (1993), for example, found typologies facilitated resource allocation and improved the overall quality of experiences. Gigliotti (2000) showed distinct differences between the user types in harvest success, years of hunting, and overall satisfaction. Similarly, Schroeder et al. (2006) found differences among waterfowl hunter types and their views on certain management actions and their reported satisfaction with the experience.

Constraints and Negotiation Strategies

Constraints limit the formation of leisure preferences and inhibit (or prohibit) participation (Jackson, 2000). Knowing the reasons a hunter reduced or stopped participating can guide management efforts and facilitate future participation. Crawford, Jackson, and Godbey (1991) developed a hierarchical model of intrapersonal, interpersonal, and structural constraints. Intrapersonal constraints occur within an individual and inhibit or prevent participation. Examples include lack of confidence in hunting, lack of skill, and feeling unwelcome in the activity. Interpersonal constraints exist between individuals and other groups. Examples include

family obligations, not having people to hunt with, and people not accepting recreation choices. Structural constraints are concerned with the external environment and tend to be factors that natural resource managers can influence. Examples include lack of game, lack of hunting facilities, and cost and time limitations.

The literature has focused on factors that facilitate or constrain hunting participation (Backman & Wright, 1993; Barro & Manfredi, 1996; Enck, Swift & Bryan, 1993; Miller & Vaske, 2003; Schroeder, Fulton, Lawrence & Cordts, 2012). For example, demographic shifts, experience use history, social upbringing, and satisfaction with previous hunting seasons all have been shown to influence participation (Brunke & Hunt, 2008; Enck et al., 1993; Miller & Vaske, 2003; Zinn, 2003). Notable constraints also include hunting conditions and other obligations such as work or family (Schroeder et al., 2012; Vaske & Miller, 2003).

Constraints are often examined in conjunction with negotiation strategies. Research indicates constraints are not insurmountable obstacles and can be negotiated through to increase participation (Scott, 1991). Negotiation strategies are different ways individuals alter or change their behavior to overcome a constraint and maintain or increase participation in activities (Jackson & Rucks, 1995). Individuals work through constraints both cognitively and behaviorally. Behavioral strategies may consist of changes in time management, acquiring new skills, management of finances, or creating and maintaining personal relationships. Cognitive strategies can include rationalizing poor experiences as favorable or regulating emotions to match the actual experience. Knowing which strategies are most likely to be used can assist managers with facilitating hunting experiences for female hunters.

Researchers have sought to understand how negotiation strategies relate to constraints (Hubbard & Mannell, 2000; Son, Kerstetter, & Mowen, 2008; Wilhelm Stanis, Schneider & Russell, 2009). Few studies, however, have focused on negotiation strategies in the context of

hunting. Recently, Schroeder et al. (2012) applied a constraints negotiation model to hunters and found support for the use of negotiation strategies to predict hunting participation. The authors used additional measures to understand participation including involvement and motivation constructs. Involvement directly affected participation while motivations were mediated by involvement. Understanding negotiation strategies is equally as important as understanding constraints.

Gender, Hunting, and Constraints

Gender research in recreation / wildlife related activities has increased over the past two decades (Coble, Selin & Erickson, 2003; Henderson, 1996; Jackson & Henderson, 1995; Johnson, Bowker & Cordell, 2001; Shaw, 1994; Schroeder, Fulton, Currie & Goeman, 2012; Toth & Brown, 1997). Researchers have recognized women differ in their experiences and suggested that the uniqueness of the female experience should be examined independently rather than as a comparison to males (Henderson, 1996). This call for gender research has expanded into traditionally male-dominated activities such as hunting (Larson, Stedman, Decker, Siemer, & Baumer, 2014).

Females' constraints to leisure have dominated the literature. Research indicates women have reduced amounts of leisure time and face more constraints than males (Shaw, 1994). This has been attributed to women's conceptualizations of leisure (Henderson, 1996) and the pressure of putting family before self (Shaw, 1994, 1985). Other constraints females tend to encounter are lack of facilities and programs, fears of violence and body image, and perceptions of not feeling they have the right to leisure (Shaw, 1994).

Women now participate more actively in outdoor recreation (Schroeder et al., 2012). Research regarding females and constraints in traditionally male dominated outdoor pursuits, however, is limited. Thomas and Peterson (1993) studied women who participated in a workshop

about hunting and fishing and found constraints on all levels of the hierarchical model.

Constraints such as fear of fitting in and lack of training were identified. Females also indicated they did not have many women role models and social pressures kept them from participating. Lack of information and suitable equipment also ranked high among the structural constraints.

Other studies have addressed constraints for females in hunting and found similar results. For example, women have described fears of causing harm to others, fear of negative opinions about their choice in activity, and poor behavior from other hunters (Duda, 2001). Lack of social support from family and friends was also cited as a major constraint (Martin & Miller, 2008). Other constraints include not having a hunting companion, lack of skill and training, and limited time (Adams & Steen, 1997; Martin & Miller, 2008).

Study Purpose

We explored the influence of constraints on female hunters and their negotiation strategies. Women hunters are not a homogenous group. Motives, constraints, and negotiation strategies may vary widely depending on the type of experience females are seeking. To understand this diversity we created a hunter typology based on preferred recreation experiences and compared constraints and negotiation strategies across different types of female hunters. The typology was created using methods similar to Schroeder et al. (2006) and Manfredo and Larson (1993) by using the Recreation Experience Preference (REP) scale (Manfredo, Driver, & Tarrant, 1996). Using desired experiences for developing the typology allowed for the categorization of women based on reasons for hunting and the benefits they seek during their experience and addressed three research questions:

1. Based on Recreation Experience Preference items, are there different types of female big game hunters?
2. Do female hunters differ in their perceived constraints to hunting?

3. Do female hunters differ in their use of constraint negotiation strategies?

Methods

Sampling

A random sample of 750 female big game hunters were surveyed in Oregon during the summer of 2010. Respondents had purchased a hunting license from the Oregon Department of Fish and Wildlife (ODFW) in the 2008 season and were over 18 years of age. The sample of female hunters was stratified by license type including deer hunters (70%), elk (15%) and bear (15%) hunters.

Study Design

This study was part of a larger effort to understand all big game hunters in Oregon, including males; however, analysis here focuses solely on female respondents. The questionnaire was designed and pre-tested in 2010 and included demographic questions, hunting season characteristics, and constructs such as satisfaction, constraints, motivations and others. The design followed the Dillman Tailored Design Method (2000). Four mailings included: a pre-survey letter, full survey mailing (with printed questionnaire, cover letter and prepaid reply envelope), reminder postcard, and second full survey mailing. A total of 750 addresses were used and 65 were undeliverable. The response rate for female hunters was 30% ($n = 200$). A non-response bias check was not conducted due to cost limitations.

The Recreation Experience Preference (REP) scale was used to measure motivations (Driver et al. 1996). For this study, 22 items were used that dealt specifically with hunting and outdoor recreation (Table 1). Examples of these items include: “to be in nature,” “to bring meat home to my family, and “to get away from the regular routine.” The items were measured on a 1 to 5 scale, where 1 equaled “not at all important” and 5 equaled “extremely important.”

Constraints were measured using items from the literature (Crawford & Godbey, 1987; Hubbard & Mannell, 2001; Hudson, 2000). A total of 29 items (Table 2) were selected to fit the activity of hunting and represent areas of structural, interpersonal, and intrapersonal constraints. Examples of items include “lack of game,” “can’t afford to hunt,” and “fear of harming someone.” Items were measured using a 1 to 5 scale, where 1 equaled “strongly disagree” and 5 equaled “strongly agree.”

Negotiation strategies (19 items) were selected from previous research by Hubbard and Mannell (2001). Negotiation strategies included items such as “I try to find people to hunt with,” “I fit my hunting around other commitments,” and “I budget money so I can hunt more” (Table 3). Negotiation strategies were asked using a 1 to 5 scale, where 1 equaled “strongly disagree” and 5 equaled “strongly agree.”

Data Analysis

A K-means cluster analysis was used to segment female hunters. Exploratory factor analysis was conducted on the 22 REP items to reduce the data and determine experience domains. Reliability analysis was used to assess the factors. Cronbach’s alpha was used to assess the internal reliability of each new variable; a value of .65 or higher was considered to be acceptable (Cortina, 1993). The factors then served as the input variables for the cluster analysis. K-means clustering was used based on simple Euclidean distances.

Following cluster definition, a series of descriptive statistics were used to compare the characteristics of each cluster. Variables such as days in the field, type of hunting, and demographic items were used to understand differences in the typology. Analysis of variance was used to examine the differences in mean values for constraints and negotiation strategies between hunter types. The Levene’s test of equality of variances was used to determine if variances differed significantly ($p < .05$). The Tamhane’s T2 post hoc test was used for variables

where the variances differed between groups. If no differences existed between variances, the Bonferroni post hoc test was used to determine the significant differences between group means. Effect size was measured to examine the strength of relationship between variables (Vaske, 2008). According to Vaske (2008) a minimal relationship is an effect size (Eta) of .10 or less, a typical relationship is an effect size of around .24, and an effect size of .37 can be considered substantial.

Results

Respondent Characteristics

A majority of respondents lived in a rural setting (59%), followed by a town (19%), city (12%), or suburb (9%). Most of the female respondents were married (71%) and self-identified with the race of White (91%). Female respondents had varying levels of education with 38% having a high school level or lower, 36% with some college, 20% completing college, and 4% having a graduate degree. Household income levels also varied with 26% making \$39,999 or less annually, 40% making between \$40,000 and \$79,999 annually, and 16% making \$80,000 or more annually.

Recreation Experience Preference Items

REP items were assessed to understand the reasons why females hunt (Table 1). The results indicate “to be outdoors” ($M = 4.30$), “to enjoy nature” ($M = 4.23$) and “to bring meat home” ($M = 4.11$) were all major reasons for females to participate in hunting. Results of the factor analysis yielded five REP dimensions including nature and relaxation, deer management, social reasons, for challenge and sport, and family reasons (Table 1). The lowest reliability was for family reasons ($\alpha = .65$); we considered this acceptable due to the unique nature of the sample and the associated REP items (family reasons) and smaller number of items (Cortina, 1993). All other reliability alphas were considered acceptable and ranged from .76 to .89.

Table 1 about here

Experience Types

Based on the cluster analysis, four experience types were identified: the less-engaged hunter, family oriented hunter, nature-sport hunter, and all around enthusiast hunter. The following is a description of each hunter type.

Less-engaged hunter - The less-engaged hunter reported low mean values across all of the experience outcome variables (Table 4). This type spent on average 13 days afield in 2008. The less-engaged hunter was similar to other types with regards to age. Many tended to hunt with rifles (81%) and about 12% hunted with a shotgun, bow, or muzzleloader (Table 5). This group also spent little time preparing for the hunting season, with an average of 19 days prepping each year.

Family oriented hunter - The family oriented hunters attached the most importance to the family and social reasons and were relatively less interested in relaxation and nature. This type was less interested in deer management and challenge or sport (Table 4). This group tended to hunt the fewest days, averaging around 12 per year. Similar to all groups, the average age was about 50 years old. In the family oriented group, 80% hunted with a rifle and 22% hunted with a bow. This type tended to spend a lot of time preparing for hunting, with an average of 26 days (Table 5).

Nature-sport hunter - In the nature-sport type, hunters primarily participated to relax and enjoy nature (Table 4). Although this group was interested in social reasons, they also indicated hunting for challenge and sport was important. This type tended to spend many days afield, with close to 18 days hunting per year. Over 90% hunted with rifles and 11% hunted with bows and shotguns. This type spent an average of 18 days prepping for the hunting season (Table 5).

All around enthusiast - This hunter rated all categories of experience outcomes high and enjoys all aspects of hunting. It is important to note that this is the only category that rated deer management high among the experience outcomes (Table 4). This type spent an average of 14 days hunting per season. This group followed a similar age profile as the other groups, with the average age being 51. A majority hunted with rifles (89%), while 12 % hunted with bows and shotguns. This group spent an average of 21 days preparing for the hunting season (Table 5).

Table 2, 3, 4 &5 about here

Hunter Constraints and Negotiation Strategies

Overall, females did not report high levels of constraints. The family oriented group tended to report the highest levels of constraints across all items. Only five of the hunting constraints differed significantly across the experience types (Table 2). The group that tended to stand out the most was the family oriented hunters. In the structural domain, “inadequate hunting areas” was significantly different between the less-engaged hunter and the family oriented hunter ($F = 3.08, p < .05, \eta = .16$). In other words, the less-engaged hunter was less likely ($M = 2.00$) than the family oriented hunter ($M = 2.73$) to perceive there were not enough hunting areas. The item “sites are closed when I want to visit” revealed a similar relationship, with the family oriented hunter reporting a higher mean ($M = 2.62$) than the less engaged hunter ($M = 1.79$) ($F = 4.98, p < .05, \eta = .20$).

Differences were also documented in the interpersonal and intrapersonal domains. The constraint item “health of someone I like to hunt with” was significant ($F = 5.78, p < .01, \eta = .21$). The family oriented hunter was likely to report the constraint “health of someone I like to hunt with” more than any other type. The family oriented hunter also reported a significantly different mean for the items “fear of crime” ($F = 5.15, p < .05, \eta = .20$) and “fear I might harm someone in the field” ($F = 4.72, p < .05, \eta = .19$). Similar to the other constraint items, the

family oriented type tended to report a significantly higher mean. The effect sizes for the significant constraints items ranged from a minimal relationship to a typical relationship.

Female hunters reported a high use of negotiation strategies (Table 3). Many of the strategies with high mean values were in the time management domain, with specific items in the other domains standing out. Across the hunter typology, 12 negotiation strategies differed significantly among groups. For example, there were three significant items in the time management domain. The less-engaged hunter was significantly less likely to use the strategies “I try to plan ahead so I can hunt” ($F = 9.14, p < .001, \eta = .38$), “I try to fit my hunting around my other commitments” ($F = 4.10, p < .001, \eta = .28$) and “I set aside time for hunting” ($F = 11.39, p < .01, \eta = .39$).

In the interpersonal domain, there were three significant item variations. The family oriented hunter was more likely to use the strategy “I try to meet with people with similar interests” than any other group ($F = 8.29, p < .001, \eta = .38$). The family oriented hunters ($M = 4.07$) and all around enthusiasts ($M = 4.01$) were more likely to use the strategy “I try to find people to hunt with” than the less-engaged hunters ($M = 3.25$) and the nature-sport hunters ($M = 3.14$) ($F = 6.66, p < .001, \eta = .34$). The family oriented type ($M = 4.07$) reported a significantly higher mean for the strategy “I arrange rides to and from hunting locations for myself” than the less-engaged hunter ($M = 3.06$) ($F = 2.97, p < .05, \eta = .21$).

All three items in the financial resources domain were significant and followed a similar relationship within the typology. The family oriented hunter was significantly more likely than the less-engaged hunter to use the strategies “I try to budget my money so I can hunt more” ($F = 5.97, p < .01, \eta = .33$) and “I save money so I can hunt more” ($F = 4.27, p < .01, \eta = .27$). The family oriented type ($M = 3.51$) was also significantly more likely to use the strategy “I try to cut

back on spending in areas so I can hunt” compared to the less-engaged hunters ($M = 2.29$) and the nature-sport hunters ($M = 2.70$) ($F = 6.16, p < .01, \eta = .31$).

In the skill acquisition domain, there were three significant items. The less-engaged hunter was significantly less likely than any other type to use the strategy “I hunt regardless of injury or poor health” ($F = 6.50, p < .001, \eta = .30$). The family oriented type was significantly more likely to use the strategy “I try to improve my skills” compared to the three other types. The all-around enthusiasts ($M = 4.23$) also reported a significantly higher mean than the less-engaged hunters for “I try to improve my hunting skills” ($M = 3.48$) ($F = 14.11, p < .001, \eta = .36$). The family oriented hunter ($M = 3.84$) reported a significantly higher mean for “I hunt with people who have more skills so I can learn from them” than the less-engaged hunter ($M = 2.96$) ($F = 3.60, p < .05, \eta = .22$). Overall, the effect sizes for the significant negotiation strategies were evaluated as minimal relationships to typical relationships.

Discussion

Research on gender and leisure has increased over the past two decades (Henderson, 1996; Shaw, 1994). Limited research, however, has focused on women in wildlife related activities, specifically hunting. The research that does exist has moved our understanding of females and hunting into the forefront (Martin & Miller, 2008; Schroeder et al., 2012; Thomas & Peterson, 1993). In this article we examined constraints and negotiation strategies and how they differ for hunter types to help managers find ways to grow their female hunter population. This exploratory study should serve as a guide for future research and management efforts.

Overall, constraints were not rated high across all the items and types of hunters. This may be due to the fact that this sample of women had already purchased a hunting license and have been finding ways to successfully negotiate through constraints. One constraint that was relatively strong across all of the hunter types was lack of time, which is consistent with past

research (Schroeder et al., 2012; Shaw, 1994; Vaske & Miller, 2003). This is not a unique finding and there is little managers can do to change this. Scouting, travel to and from hunting locations, and actual time in the woods can be a real constraint for females. Just under half of the sample resided in suburban or city environments, which may be an influencing factor on the time constraint. Travel to and from hunting locations may be difficult for some females and weighing into their decisions to participate in hunting. Additionally, the time invested in a hunt compared to the likelihood of a successful harvest may also be a consideration. When given the option to hunt or do something else, females may be considering the time it takes to hunt and opt for less time consuming forms of recreation.

The results confirm that structural constraints strongly limit women from hunting. In particular, women are constrained by sites being too crowded, inadequate hunting areas, lack of game, sites being closed when they want to visit, complex rules and regulations, and not being able to afford to hunt. Again, location and proximity of hunting locations may be playing a role in some of these constraints. Women who live in urban or suburban areas may not have easily accessible hunting locations in their community or have a longer distance to drive to hunting properties. Hunting can be an expensive activity requiring several large gear purchases including firearms and ammo, hunting clothes, appropriate footwear, and more. If a female does not have this equipment it can take several years to acquire it all and may be leading to the perception that they cannot afford to hunt. Additionally, different times of the season and locations could impact the type of equipment that is needed. Managers may have some control over these factors and should consider finding ways to reduce these constraints for females. For example, since all types of female hunters cited “complex rules and regulations” as a constraint, simplification of hunting regulations by managers may help increase participation.

Negotiation strategies were used by our respondents to overcome constraints. Given the fact these women had already bought a hunting license, it is no surprise they are using negotiation strategies. Time management strategies were rated the highest across the sample. This suggests women are juggling life commitments with their desire to hunt. How females arrange hunting in their life is unknown and future research should examine specific details of time management strategies. Women also reported using skill acquisition strategies, most notably improving hunting skills. Since there are no women specific hunting programs in Oregon (e.g. Becoming an Outdoors Woman), females may be looking toward family members and friends to gain the skills they need to succeed in the field. This finding complements other constraints studies where females indicated lack of skills was preventing them from participating (Duda, 2001; Martin & Miller, 2003; Thomas & Peterson, 1993).

Results are consistent with studies that examined negotiation strategies as a predictor of overall participation in outdoor recreation (Schroeder et al., 2013; White, 2008; Wilhelm Stanis et al., 2009). Wilhelm Stanis et al. (2009) found time, financial, and skill strategies were all strong predictors of participation for park visitors. In White's (2008) study, relations (interpersonal coordination) was a strong predictor of negotiation strategies and participation. These results are consistent with our findings. However, Schroeder et al. (2013) suggested that differences in activities and populations may have an effect on the negotiation process. Future research should consider testing similar constraint negotiation models to see if differences do exist for female hunters.

Results yielded four clusters: less-engaged hunters, family oriented hunters, nature-sport hunters, and all around enthusiast hunters. The family oriented hunter reported a high mean value for items associated with family reasons for hunting. This suggests that some females view hunting as a family activity rather than an individual activity. In general, family oriented hunters

tended to report the highest constraint levels and were the most likely to utilize negotiation strategies. While some women might enjoy the sport with their family, there can also be more constraints when you add more people to the mix. Not only does a woman have to organize her own hunting gear, but she may also be organizing her family's gear, too. Other tasks like meals and transportation may be falling on women as well, thus resulting in a higher perception of constraints among the family oriented hunters. These women are also employing a higher degree of negotiation strategies. Females may be depending on their families to help reduce the time it takes to get out in the field. They may also be utilizing their family to help with skill improvement or sharing equipment with each other.

Managers may want to consider family oriented messaging when developing marketing strategies and programs for this segment. Females tend to make recreation decisions for their families (Mcfarlane et al., 2003); thus efforts to engage family oriented female hunters may encourage more entire families to hunt. In previous research, women have cited family demands as a potentially constraining factor (Shaw, 1994). Family oriented female hunters may prefer to involve their families as a means of overcoming this constraint; however, more research is needed to confirm this idea. To assist, managers might consider allocating resources to accommodate the unique needs of hunting families. For example, managers might consider developing family-friendly hunting areas that are sectioned off from regular game management areas and have increased safety and regulations, providing opportunities to meet other families who hunt, or family hunting licensing structures.

The nature-sport hunter reported high scores on outdoors and relaxation/escape. Although this group is interested in the challenge of hunting, they also see hunting as a way to be in nature, relax, and spend time with family and friends. This group was somewhat constrained and reported relatively high use of negotiation strategies. These women may be the most like

traditional hunters where there is a large emphasis placed on the challenge of harvesting game. While there is an emphasis with some women on family, others may see hunting as a way to personally challenge themselves. Since this group is high on challenge and sport along with social reasons, it may be important for managers to provide experiences that allow for these competing outcomes. Women oriented programs like *Becoming an Outdoors Woman* may potentially fill a niche for some hunters in this segment. These types of programs provide a social environment to learn and practice hunting activities, while still providing challenge. Oregon currently offers a wide variety of education and hunting opportunities; however, there are no female-specific programs.

The all-around enthusiast reported high mean values on all of the experience outcomes including deer management. This type of hunter showed loyalty to the activity and enjoyed all aspects of hunting. They hunted to be with family and friends, to enjoy nature, for the challenge, and to help manage deer populations. The all-around enthusiast was likely to use negotiation strategies and often reported similar results as the family oriented hunter. This type of hunter is not a surprise; in fact other studies have reported an all-around enthusiast type (Gigliotti, 2000; Manfredo & Larson, 1993). This group will likely continue to be engaged in the activity regardless of outreach. However, outreach strategies designed for other segments will likely reach all-around enthusiasts as well.

The less-engaged hunter tended to report low mean values on all the experience outcomes. This type of hunter is consistent with previous research where authors found support for the “occasionalist” (Bryan, 1977; Manfredo & Larson, 1993) or the less-engaged hunter (Schroeder et al., 2006). This group of hunters spends the second lowest number of days hunting than other groups and people in this group may be more likely to drop out of the activity and not continue to hunt in the future. This type of hunter may be the female that tried the sport for a

season, but did not generate enough interest to continue. It is unclear if there is anything managers can do to generate interest from this group.

Management Implications, Limitations, and Future Research

Typologies can be beneficial in developing programs and strategies to increase hunting participation; however, there is some concern over the ability to use typologies to implement management actions (Schroeder et al., 2006). Typologies are meant to help guide current and future management actions and to make incremental changes for the future. It is unrealistic to expect natural resource management agencies to instantly develop, for example, family focused programming; this takes financing and time. However, there are simple changes that may be made without large financial or time commitments. For example, youth-focused hunting programming might be opened up to the family unit and marketing of hunting could extend beyond sportsman magazines and include family oriented publications.

This study has several limitations that should be noted. We had a relatively low response rate and did not evaluate non-response bias. Results are also based on subgroups of individuals ranging from 33-56 respondents. Thus, results should be interpreted with caution and not used to generalize to the Oregon female hunter population. Finally, this study explored only women hunters and no comparisons were made to male hunters; this may reduce the ability to compare to other general hunter population studies.

In the future, researchers interested in studying female hunters should consider exploring other variables of interest such as satisfaction, involvement in the sport, self-efficacy, and social support. Studies of satisfaction are popular with natural resource managers and, along with data on constraints, can provide guidance on how to improve hunting experiences. Understanding both behavioral and psychological involvement in hunting can indicate which hunter types are more likely to continue participating and help managers efficiently focus their recruitment and

retention efforts. Social support and self-efficacy may be antecedent factors contributing to a woman's ability to negotiate through constraints and may provide insight into hunter typologies.

Future research should also consider comparing female typologies with male typologies to see where differences exist, creating a holistic understanding of hunter types and why participation is constrained more generally. Other research should examine hunters regardless of gender and the role of constraint negotiation. Understanding males, youth, and older adults may help managers find ways to promote and enhance hunting opportunities.

Future research efforts should extend beyond just hunters and explore the constraint negotiation process of women in other outdoor recreation activities like fly fishing, whitewater boating, and horseback riding among others. This can provide insight into the constraint negotiation process of specialized outdoor activities and assist with our understanding of how women negotiate through their constraints.

These findings are a starting point for understanding differences among female hunters. Additional research is needed to understand what types of programs may help with recruitment and retention. Future research should consider females who currently hunt and those who are either just beginning or have an interest in hunting but have not yet started. Understanding these groups may allow managers to create strategies for engaging more females in the activity in addition to retaining those currently participating. Maintaining and increasing participation in hunting will require engaging all segments of the hunting population, including females with various skills, experiences, and motivations.

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Table 1.

Summary of Experience Preference items and reliability alphas for REP domains

Experience outcomes (n = 195)	<i>Factor Loading</i>	<i>Scale M/ Item M</i>	<i>SD</i>	<i>α</i>
Nature and relaxation	-			.89
To be outdoors	.75	4.30	.924	
To enjoy nature	.77	4.23	1.02	
To experience natural surroundings	.78	3.88	1.18	
To get away from the regular routine	.73	3.78	1.15	
For relaxation	.75	3.78	1.21	
To improve my health	.44	3.11	1.25	
To experience solitude	.70	3.02	1.50	
For mental health	.58	2.94	1.46	
Deer management	-			.88
To help control the spread of CWD	.81	2.46	1.38	
To control the number of game in the herd	.86	2.40	1.29	
To control the male to female deer ratio	.82	2.26	1.28	
Social reasons	-			.82
To be with others who enjoy the same things as you	.75	3.67	1.21	
To be with my friends	.77	3.51	1.33	
To do things with members of your group	.77	3.22	1.37	
For challenge and sport	-			.76
To develop my skills	.42	3.62	1.16	
For physical exercise	.49	3.56	1.21	
For challenge or sport	.73	3.46	1.33	
To share my skill and knowledge with others	.42	2.68	1.32	
To harvest a trophy deer/elk	.71	2.48	1.38	
Family reasons	-			.65
Bringing meat home for my family to eat	.70	4.11	1.16	
For family recreation	.64	3.78	1.26	
To bring my family closer together	.65	3.40	1.42	

The above items were measured with a 5-point scale ranging from 1 (not important) to 5 (extremely important)

Table 2.

Constraint Items by Hunter Typology

Constraints	Less-engaged	Family oriented	Nature-sport	All around enthusiast	F-value	η
Structural constraints						
Sites are closed when I want to visit ¹	1.79 ^a	2.62 ^b	2.00 ^{ab}	2.12 ^{ab}	4.98*	.20
Inadequate hunting areas ¹	2.00 ^a	2.73 ^b	2.34 ^{ab}	2.54 ^{ab}	3.08*	.16
Lack of game	2.98	3.49	3.08	3.29	1.88	.12
Sites are too crowded	2.19	2.73	2.41	2.76	2.81	.15
Complex rules and regulation	2.35	2.66	2.03	2.61	3.18	.16
Can't afford to hunt	2.30	2.54	1.94	2.15	2.86	.15
Conflict with other users	1.47	2.05	1.76	1.85	3.20	.16
Lack of transportation	1.27	1.74	1.45	1.40	3.88	.17
Lack of training facilities	1.29	1.53	1.26	1.26	2.25	.14
Sites are too far away	1.70	2.06	1.66	1.85	2.01	.13
Lack of time	2.29	2.70	2.38	2.39	1.39	.10
Childcare needs	1.22	1.44	1.39	1.40	0.58	.08
Lack of information	1.36	1.62	1.48	1.53	1.02	.10
Interpersonal constraints						
Health of someone I like to hunt with ¹	1.58 ^a	2.26 ^b	1.76 ^{ab}	1.60 ^{ab}	5.78**	.21
People don't accept my outdoor preferences	1.38	1.72	1.44	1.37	2.86	.15
Family responsibilities	1.92	2.21	2.12	1.85	1.62	.12
I don't feel like other hunters accept me	1.17	1.36	1.13	1.21	1.78	.12
Lack of hunting partners	1.71	1.87	1.64	1.61	1.10	.10
Intrapersonal constraints						
Fear of crime ¹	1.19 ^a	1.71 ^b	1.42 ^{ab}	1.39 ^{ab}	5.15*	.20
Fear I might harm someone in the field ¹	1.11 ^{ab}	1.44 ^a	1.29 ^{ab}	1.10 ^b	4.72*	.19
Poor physical health	1.60	1.82	1.68	1.49	1.54	.11
Lack of skill	1.41	1.64	1.40	1.40	1.15	.11
I have more important things to do	1.84	1.60	1.69	1.52	1.41	
Fear of outdoors	1.07	1.27	1.07	1.63	2.13	.13
Fear I might injure myself	1.14	1.43	1.22	1.20	2.90	.15
I like to do other things	1.57	1.53	1.43	1.57	0.79	.05
Fear of getting lost in the woods	1.38	1.65	1.28	1.46	1.28	.16
I don't like to do things outdoors	1.14	1.24	1.13	1.07	1.27	.10
Unwelcome feelings from rangers	1.30	1.63	1.31	1.32	2.70	.15

The above items were measured with a 5-point scale ranging from 1 (not important) to 5 (extremely important)

¹Means with different superscripts are significant at $p < .05$ based on Tamhane's T2 method

² Means with different superscripts are significant at $p < .05$ based on Bonferroni method

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 3.

Negotiation Strategy Items by Hunter Typology

Negotiation strategies	Less-engaged	Family-oriented	Nature-sport	All around enthusiast	F-value	η
Time management strategies						
I try to plan ahead so I can hunt ¹	3.80 ^a	4.70 ^b	4.41 ^b	4.55 ^b	9.14***	.38
I set aside time for hunting activities ¹	3.54 ^a	4.65 ^b	4.09 ^{ab}	4.47 ^b	11.39***	.39
I try to fit my hunting around my other commitments ²	3.22 ^a	4.18 ^b	3.70 ^{ab}	3.84 ^{ab}	4.10**	.28
I hunt close to home	3.77	3.87	3.92	3.37	2.09	.18
Sometimes I do an activity that is more convenient instead of hunting	2.54	2.07	2.24	1.96	1.57	.09
I hunt when the field is less crowded	3.37	4.12	3.80	3.86	2.62	.19
Interpersonal strategies						
I try to meet people with similar hunting interests ²	2.54 ^a	3.85 ^b	2.97 ^a	3.20 ^a	8.29***	.38
I try to find people to hunt with ²	3.25 ^a	4.07 ^b	3.14 ^a	4.01 ^b	6.66***	.34
I arrange rides to and from hunting locations for myself ²	3.06 ^a	4.07 ^b	3.52 ^{ab}	3.66 ^{ab}	2.97*	.21
I participate in hunting with people of the same gender	2.22	2.40	2.29	2.54	0.46	.14
I hunt with people my own age	3.10	3.51	2.87	3.22	2.18	.19
I hunt with people who are more knowledgeable about hunting	3.06	3.87	3.36	3.44	2.63	.20
I join hunting organizations to meet people	1.32	1.62	1.46	1.52	0.67	.14
Financial resource strategies						
I try to budget my money so I can hunt more ²	2.87 ^a	4.00 ^b	3.34 ^{ab}	3.45 ^{ab}	5.97**	.33
I cut back spending in areas so I can hunt ²	2.29 ^a	3.51 ^b	2.70 ^a	2.94 ^{ab}	6.16**	.31
I save money so I can hunt more ²	2.93 ^a	3.88 ^b	3.21 ^{ab}	3.65 ^{ab}	4.27**	.27
Skill acquisition strategies						
I hunt regardless of injury or poor health ²	2.32 ^a	3.68 ^b	3.34 ^b	3.18 ^b	6.50***	.30
I try to improve my hunting skills ¹	3.48 ^a	4.74 ^b	4.00 ^{ab}	4.23 ^b	14.11***	.36
I hunt with people who have more skills so I can learn from them ²	2.96 ^a	3.84 ^b	3.51 ^{ab}	3.30 ^{ab}	3.60*	.22
I take classes to improve my hunting skills	1.38	1.84	1.85	1.71	1.65	.16

The above items were measured with a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree)

¹Means with different superscripts are significant at $p < .05$ based on Tamhane's T2 method

²Means with different superscripts are significant at $p < .05$ based on Bonferroni method

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4.
Final Typology Created from Recreation Experience Preference Domains

Experience outcomes	Experience types (clusters)			
	Less-engaged	Family oriented	Nature-sport	All around enthusiast
	<i>n</i> =33	<i>n</i> =53	<i>n</i> =51	<i>n</i> =56
Relaxation and nature	2.28	3.57	3.80	4.38
Deer management	1.56	1.77	2.01	3.80
Social reasons	1.92	3.83	3.14	4.32
For challenge and sport	2.02	2.72	3.35	4.07
Family reasons	2.64	4.28	3.14	4.54

Table 5.

Descriptive Variables by Typology

Mean value	Less-engaged	Family oriented	Nature-sport	All around enthusiast
Days hunted in field	13.4	12.2	17.6	13.8
Days preparing for hunting	19.0	25.7	18.0	20.8
Age	51.3	49.8	52.3	51.3
Type of hunting equipment (percentages indicating "yes")				
Rifle	81%	80%	91%	90%
Shot gun	8	11	11	13
Bow	12	22	11	13
Muzzle loader	0	2	3	4