EXPLORING THE RELATIONSHIP BETWEEN OUTDOOR RECREATION ACTIVITIES, COMMUNITY PARTICIPATION, AND ENVIRONMENTAL ATTITUDES

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Abstract.—The relationship between environmental attitudes (EA) and environmentally responsible behavior (ERB) has been the focus of several studies in environmental psychology and recreation research. The purpose of this study was to explore the relationship between EAs and ERBs at both a general level and at an activity-specific level using a 2009 survey of motorized recreationists (all-terrain vehicle (ATV) and off-highway vehicle (OHV) riders). Questions to measure general attitudes were adapted from the New Environmental Paradigm (NEP) and activity-specific environmental attitude questions were developed from the literature. The survey also collected information on demographics, outdoor recreation participation, experience use history, and community participation as well as measures of environmentally responsible behavior.

1.0 INTRODUCTION

As public concern about global environmental issues has increased, it has become more important to understand people's attitudes about the environment and the relationship between environmental attitudes and behaviors. While there have been high levels of environmental concern since the 1990s, environmentally responsible behaviors (ERBs) have not been similarly high (Tarrant and Cordell 1997). The question of why people who hold positive attitudes toward environmental protection fail to practice pro-environment behaviors is still unanswered in many contexts. To investigate the formation of attitudes and their relationship to measures of behavioral intention at both the general and activity-specific level, a better understanding of the fundamental concepts is needed. This research offers an initial model that relates several individual characteristics, such as socio-demographics, participation in community organizations, and outdoor recreation activities, with measures of environmental attitudes and behaviors at both general and specific levels (see Figure 1).

2.0 METHODS

2.1 Data Collection

The first portion of this study was conducted in the southeastern quadrant of the Adirondack Park in the summer of 2009 as part of the mail survey portion of the annual Adirondack Visitor Study. Due to a low number of respondents, we subsequently contacted off-highway vehicle/all-terrain vehicle (OHV/ATV) clubs that were active in this area of the park. The North Country ATV Association (NCATVA) was the only club/organization that agreed to participate in the study. We sent the NCATVA 140 survey packets to distribute to active members in the fall of 2009. Completed surveys from the two outreach efforts were combined to create a total sample size of 78 individuals for this study.

2.2 Variables

The survey instrument consisted of six pages and a total of 21 questions. The questionnaire was divided into six sections: (1) outdoor recreation participation; (2) involvement in environmental and OHV/ATV organizations; (3) OHV/ATV ownership and use history; (4) opinions toward the environment and OHV/ATVs; (5) background information; and (6) environmental behavior. Demographic information was only collected for variables that were determined in the literature (Cottrell 2003, Tarrant and Cordell

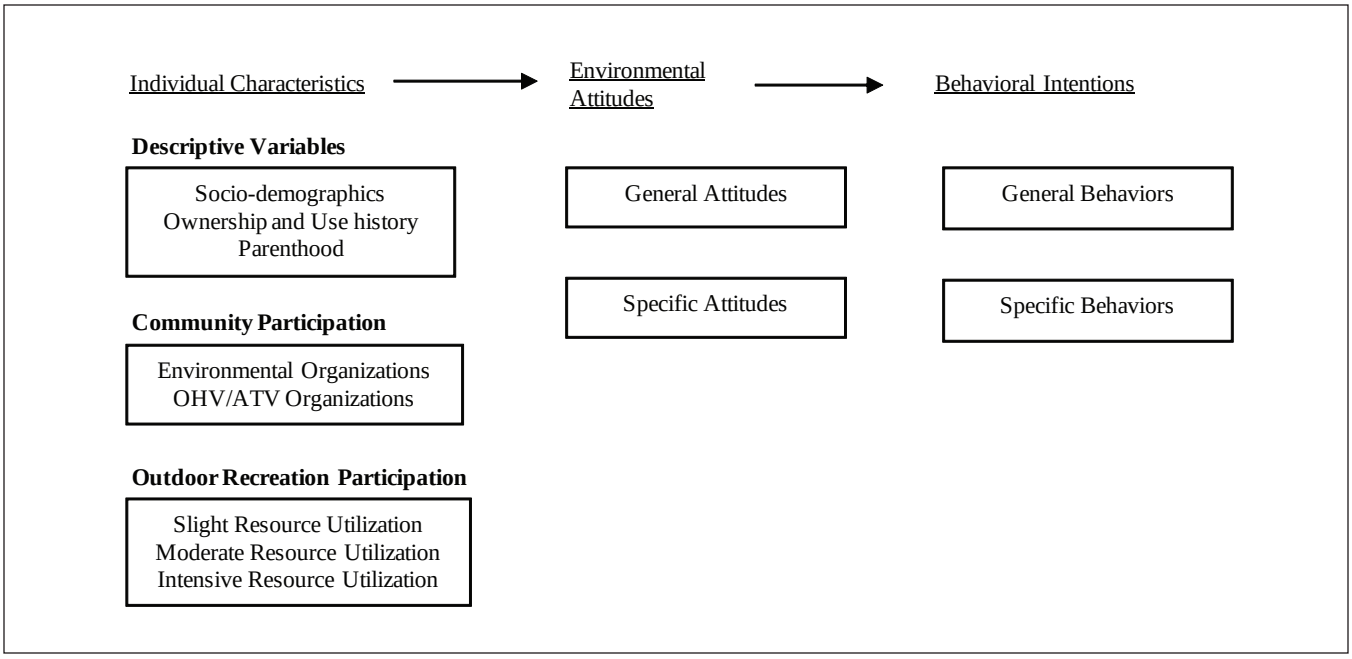

Figure 1.—Proposed model between study concepts–individual characteristics, environmental attitudes, and behavioral intentions.

1997, Thapa and Graefe 2001) to have an effect on either environmental attitudes (EA) or ERB: gender, age, education, political orientation and parenthood (number of children under 18 living in the household).

Outdoor recreation activities were measured using two questions. The first asked "During the last 12 months, did you participate in any of the following activities in the Adirondack Park?" and asked respondents to check the box next to any of 21 activities in which they had participated. There was also space to write in another activity not included on the list. The second question asked participants to write in which of the activities was, in general, their most important recreation activity. This information was used by Thapa and Graefe (2001) to separate respondents into categories for analysis based on the amount of resource utilization for each recreational activity. Thapa and Graefe (2001) used the labels of appreciative, consumptive, and motorized to classify recreation activities. The original labels for consumptive and appreciative typology were developed by Dunlap and Heffernan (1975). Other researchers including Cottrell (2003) and Theodori et al. (1998) used a similar method for organizing activities but employed different labels on activities, separating them by the degree of resource utilization: slight, moderate or intense. This classification was used for the recreation activities in the present study and respondents were separated into three groups (slight, moderate, or intense resource utilization) for analysis.

Involvement in environmental and OHV/ATV organizations was measured using two questions. Respondents were asked to indicate if they actively participated in environmental or conservation organizations and, if yes, they were asked to list the organizations they were involved with at the local, regional, national or international level. A second question asked about their active participation in OHV and/or ATV riding clubs or organizations. The purpose of this section was to investigate whether individuals who were actively involved with an organization that focused on environmental or OHV/ATV riding issues had different attitudes toward the environment and ERBs than those who were not members of a club or organization.

Environmental attitudes were measured using two separate foci: general and activity-specific. General environmental attitudes were measured using the revised New Ecological Paradigm (NEP) scale

(Dunlap et al. 1992) which consisted of 15 items in a 5-point Likert Scale format, ranging from strongly disagree (1) to strongly agree (5). Eight of the 15 items were reverse coded to maintain the directionality of the scale. A higher score indicates a greater agreement with the dominant environmental paradigm, suggesting a greater concern for the environment.

Activity-specific EA were measured using questions from Gray (1985) based on the foundations of attitude theory, and questions regarding OHV/ATV use developed by D'Luchosh (2008). Overall, there were 17 items that aimed to measure the cognitive, affective, and conative dimensions of attitude. Specific attitudes were measured on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. To maintain consistent directionality, six of the 17 items were reverse coded. A low overall score on the scale indicated more OHV/ATV-centric attitudes.

2.3 Analysis

The data from each survey were entered into an Excel spreadsheet and transferred to SPSS v. 13.0 for analysis. All open-ended questions were coded as response patterns emerged. Descriptive statistics were calculated and all variables were checked for normality. Descriptive statistics for outdoor recreation participation were compiled for all of the variables and for each activity group (slight, moderate, intensive). Both of the attitude scales (NEP and activity-specific) were subjected to Principle Component Factor Analysis (PCA) with varimax rotation. Prior to factor analysis, several items on both the NEP scale and the specific attitude scale were reverse coded to maintain a consistent directionality among items. Evaluation criteria included checking scree plots, eigenvalues greater than 1, percent variance greater that 5 percent for any factor, and factor loadings greater than 0.4 for any variable. A Cronbach's reliability coefficient (alpha) of 0.60 or higher was required for a scale to be considered reliable (Tabachnick and Fidell 1996). Statistical tests (chi-sq tests with alpha values < 0.05) were conducted to measure the relationships between individual characteristics and general and specific attitudes.

3.0 RESULTS

Overall, the survey respondent population was 92 percent male and 55 percent were between the ages of 35 and 54. Education level was evenly split between high school education or less (33 percent), individuals with some college or an associate's degree (35 percent), and individuals with a bachelors or graduate degree (32 percent). Self-defined political orientation was predominantly conservative (41 percent), while an additional 44 percent defined themselves as being slightly liberal/conservative. A total of 54 percent of the respondents did not have children living in their households.

Of the survey respondents, 92 percent rode ATVs, mainly for trail and leisure riding, hunting, and utility/work purposes. Over two-thirds (68 percent) considered themselves advanced or expert in their riding ability level. While there were some novice riders who had only been involved with the sport for five years or less (24 percent), the majority of riders had between 11and 30 years of experience. Most OHV/ATV riding took place on club lands (70 percent) or private lands, and the majority of the respondents rode between 0 and 30 days/year or 31 to 60 days/year (37 percent for each). Most households had one or two riders and owned a similar number of OHV/ATVs.

3.1 Outdoor Recreation Participation

For 80 percent of respondents, their main activity was ATV riding, followed by fishing (53 percent), hunting (46 percent), hiking/backpacking (45 percent), and camping (43 percent) (see Figure 2). Approximately 61 percent of the respondents chose an intensive resource utilization activity as their "most important" activity (ATV riding accounted for the majority), 19 percent choose a moderate resource utilization activity (hunting/fishing), and the remaining 16 percent choose a slight resource utilization activity (camping, hiking/backpacking).

3.2 Community Participation

During data coding, clubs and organizations that respondents reported participating in were split into groups (i.e., recreation, local, nature, snowmobile

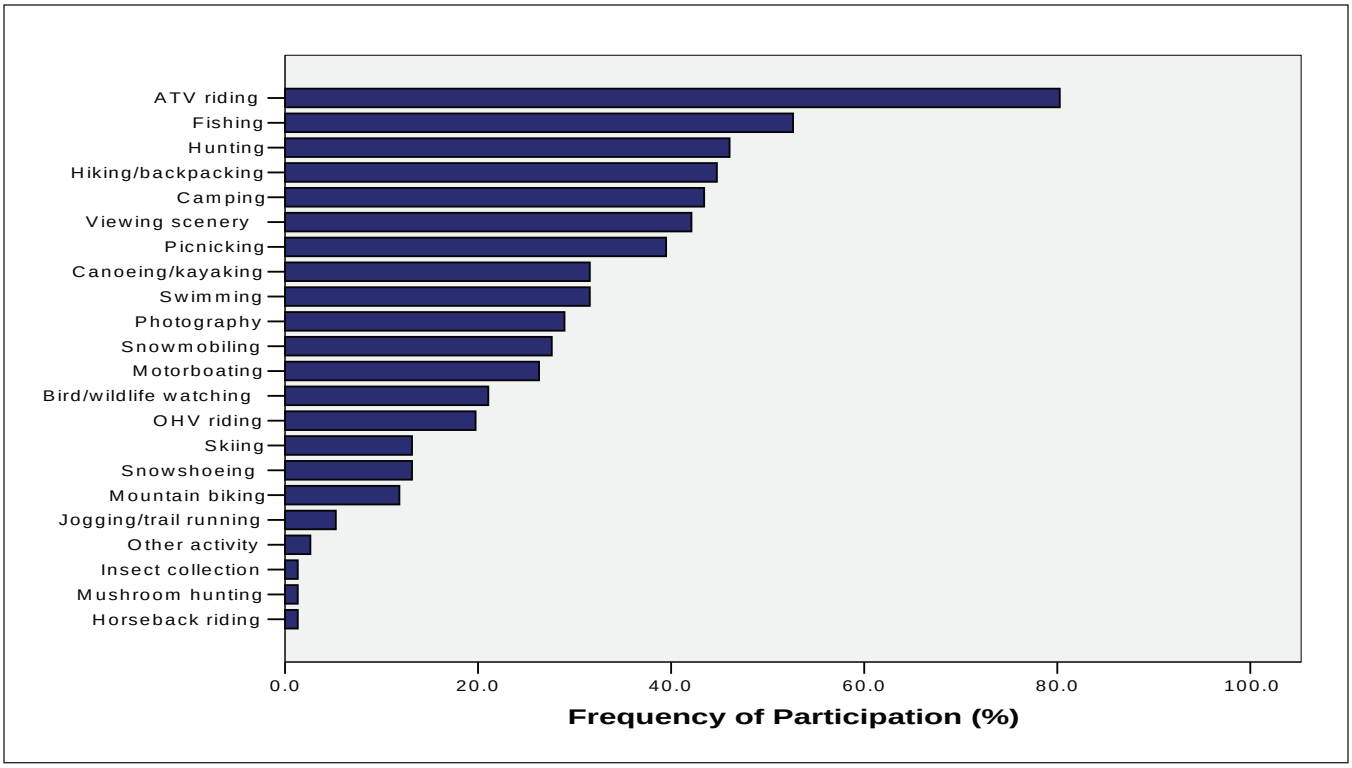

Figure 2.—Respondents' activity participation in the Adirondack Park.

etc.) to better organize the data and observe patterns. Only a small portion of respondents (n = 9) were active in environmental organizations; of these individuals, eight were also members of an OHV/ATV organization. As expected, the vast majority of respondents (94 percent) were active members of an OHV/ATV organization; this classification included not only NCATVA membership but also out-of-state organizations and mountain biking/snowmobiling clubs as well.

3.3 Environmental Attitudes

EAs were split into two categories, general and specific. The NEP was used as a single dimension scale ($\alpha = .84$) and split into three score categories using quartiles for analysis: low, medium, and high. A high score on the NEP indicates that that the individual has a high level of concern about the environment and environmental problems. The highest possible NEP score is a 75; respondents to the 2009 OHV/ATV Recreation Survey had a mean score of 50.39 (med=52, sd=8.127). Nineteen individuals scored in the low group (score of 31-45), 35 scored in the medium group (46-56), and 17 scored in the high group (57-67) (see Figure 3).

The specific EA scale was designed to measure three issues related to OHV/ATV use: (1) creation of new trails, (2) riding where use is prohibited, and (3) environmental and social impacts of OHV/ATV riding. The OHV/ATV-specific scale was also treated as unidimensional ($\alpha = .62$), and like the general scale, was split into three categories for analysis. The low category consisted of 16 individuals (with scores of 34-42), the medium group had 36 individuals (43-48), and the high group had 17 individuals (49-60) (see Figure 4). A high score for this scale represented someone with attitudes that were less OHV/ATV-centric, so respondents were expected to have low overall scores for this measure. The highest possible score for the specific EA scale was 85; survey respondents had a mean score of 45.99 (med=45.50, sd=5.167). Figure 5 summarizes the relationships found in this research.

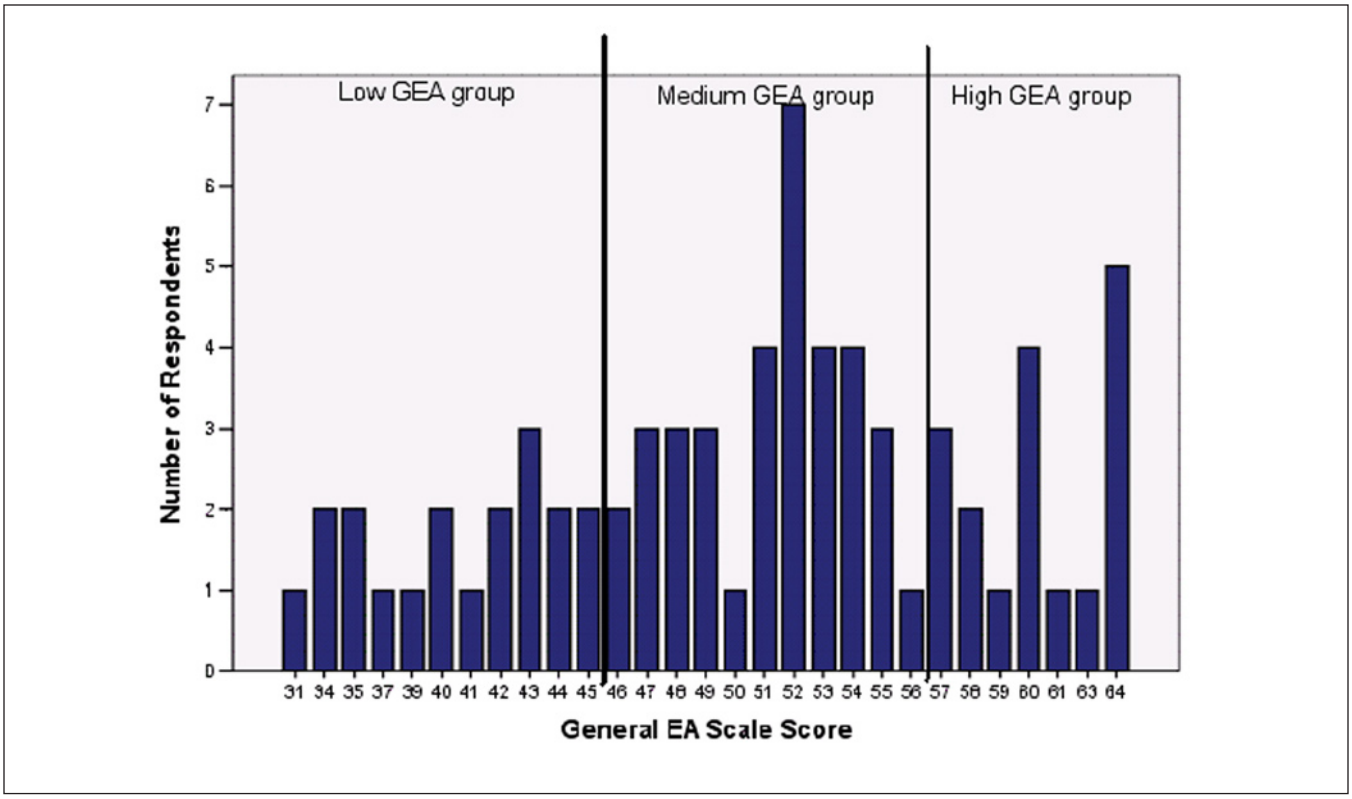

Figure 3.—Distribution of NEP scores for the combined data set.

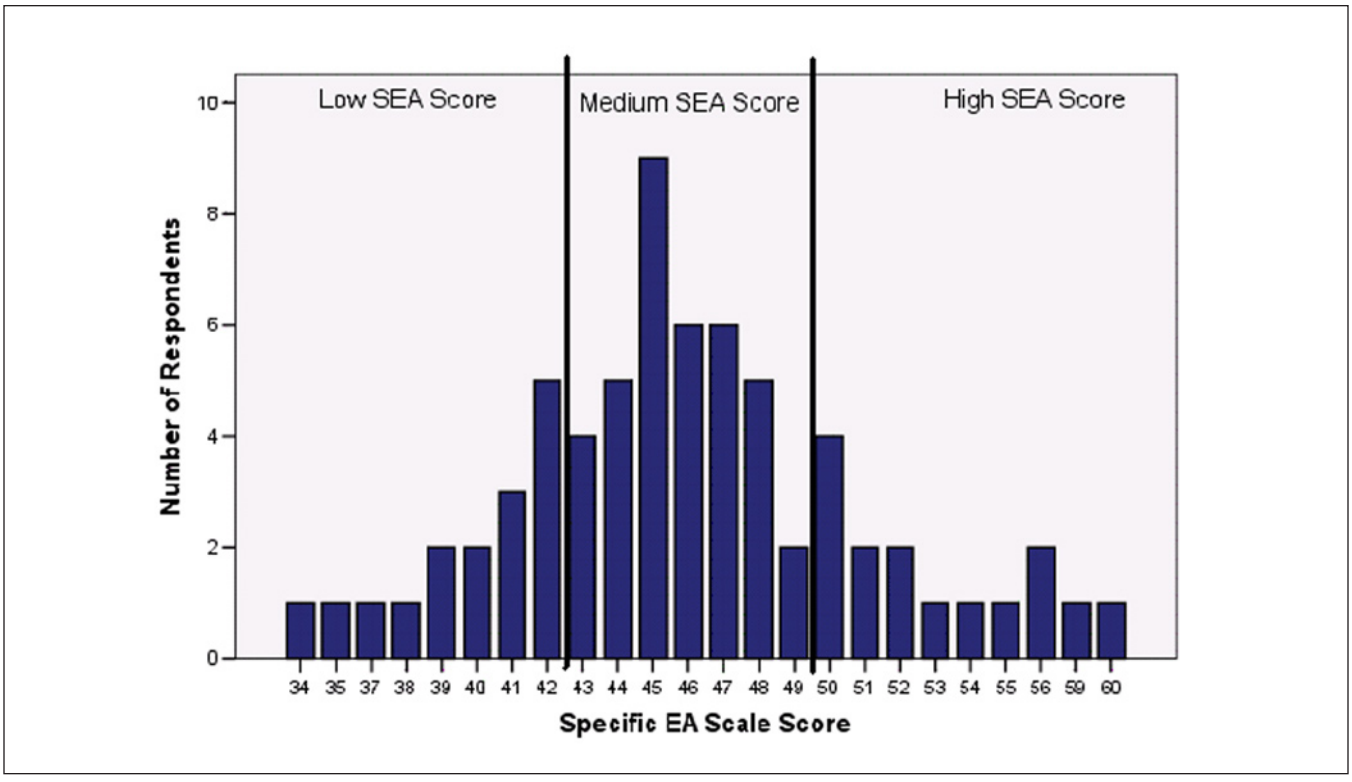

Figure 4.—Distribution of specific EA scores from the combined data set.

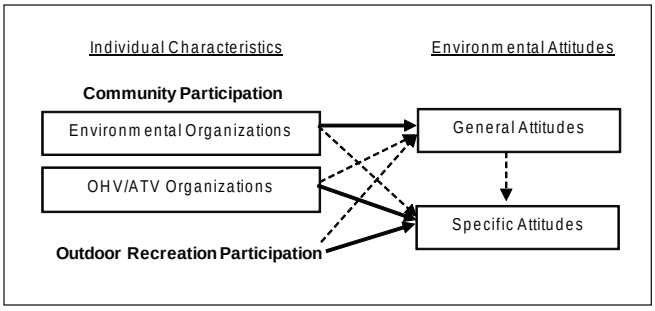

Figure 5.—Significant relationships (chi-sq tests with alpha values < 0.05) observed between study concepts. (Note: significant relationships are represented by thick solid lines; relationships with non-significant associations, but observed tendencies are represented by dashed lines.)

4.0 DISCUSSION AND CONCLUSIONS

This study aimed to explore the relationship between outdoor recreation participation, environmental attitudes, and intended environmentally responsible behavior by examining variables at both general and activity-specific levels. Using a particular recreation group, OHV/ATV riders, we investigated the relationship between outdoor recreation participation, EAs, and ERBs. Previous research has suggested that specific attitudes generally correspond to specific behaviors and general attitudes correspond to general behaviors; however, this study failed to find strong associations between EA and ERB (Figure 5).

Two additional variables were also proposed to have a relationship with EA and ERB: participation in community organizations and parenthood. This study failed to find significant relationships between several of the variables that, from findings in previous studies, were hypothesized to have a relationship with EA and ERB. The lack of associations found could have resulted from several factors including the small sample size for this study.

Outdoor recreation participation was predicted to have a relationship with all measures of EA and ERB. Jackson (1986) found strong support for this trend, stating, "a stronger relationship existed between outdoor recreation and attitudes to specific aspects of the environment necessary for pursuing such activities than between outdoor recreation and attitudes more 'distant' or general environmental attitudes." In this study an increased level of participation in outdoor recreation (mainly OHV/ATV riding) lead to higher measures of specific EA and ERB but had no relationship with general measures of EA and ERB.

There was a positive association between participation in environmental community organizations and measures of general EA and ERB and another between participation in OHV/ATV organizations and activity-specific measures of EA and ERB.

While previous research has found that there is a relationship between parenthood and pro-environmental behavior, this research failed to find a statistically significant association between the two variables. While there was almost an equal split between individuals who had a child living under the age of 18 living in the household and those who did not (46 percent and 54 percent, respectively) there was no difference between these groups with respect to the measures of EA and ERB.

Attitudes are associated with the intention to engage in behaviors; thus, attitudes provide an access point for managerial influence on behavior (Manfredo et al. 1992). While this study did not find significant relationships between EA and ERB, it did find relationships between outdoor recreation participation and community participation. This suggests that providing information about environmental issues and knowledge of how to act may be the most effective way to influence attitudes and increase environmentally responsible behavior. Further studies are needed to replicate this research with a more representative sample of OHV/ATV recreationists. It might be useful to study other motorized recreation groups as well, such as snowmobiling, motor-boating and jet skiing recreationists. In future research, a larger sample size could provide more precise estimates of EAs and ERBs and better test the proposed relationships between variables.

5.0 ACKNOWLEDGMENTS

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