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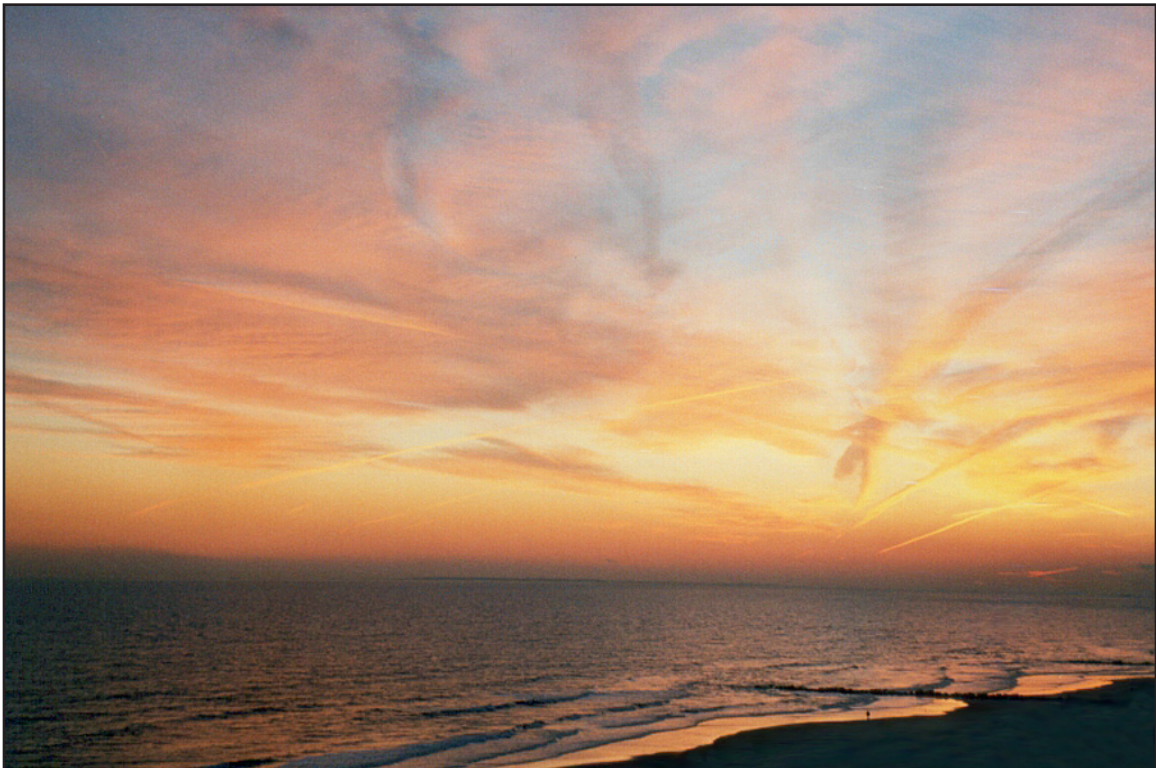
Forest
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Northern
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General Technical
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Proceedings of the 2008 Northeastern Recreation Research Symposium



Northeastern Recreation Research Symposium Policy Statement

The objective of the NERR Symposium is to positively influence our profession by allowing managers and academicians in the governmental, education, and private recreation and tourism sectors to share practical and scientific knowledge. This objective is met through providing a professional forum for quality information exchange on current management practices, programs, and research applications in the field, as well as, a comfortable social setting that allows participants to foster friendships with colleagues. Students and all those interested in continuing their education in recreation and tourism management are welcome.

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PROCEEDINGS OF THE 2008 NORTHEASTERN RECREATION RESEARCH SYMPOSIUM

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YOUTH

THE IMPACT OF A SUMMER EDUCATION PROGRAM ON THE ENVIRONMENTAL ATTITUDES AND AWARENESS OF MINORITY CHILDREN

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Abstract.—The environmental education (EE) of America's youth is a high priority, but the effect of EE on children's environmental attitudes and awareness remains uncertain. This study used a pretest, post-test approach to investigate the impact of a 1-week EE summer program on children from different age groups and ethnic backgrounds. A survey instrument designed to measure children's views of nature was created and validated through a multi-step process, revealing three primary components of attitudes and awareness: eco-affinity, eco-awareness, and content knowledge. Potential EE program effects were examined by comparing subscale scores of participants in a treatment and control group at the beginning and end of a 1-week period. Results suggested that EE programs may benefit older children's eco-affinity and African American children's eco-awareness. This study could be used to generate support for EE programs in underserved populations.

1.0 INTRODUCTION

According to the National Environmental Education and Training Foundation, few American citizens are adequately prepared to face the complex environmental issues of the future (Coyle 2005). This problem is especially evident in children, who increasingly succumb to an affliction known as "nature-deficit disorder" (Louv 2005). Indirect and

vicarious exposure to nature, often achieved through school and the media, are inadequate substitutes for direct encounters with native ecosystems (Kellert 2005). Environmental education (EE) may help correct nature-deficit disorder. Programs that influence the development of environmental attitudes and awareness may help children learn more effectively and build environmental stewardship values from an early age (Evans et al. 2007). Although EE has been hailed as a panacea for many environmental problems, few studies have demonstrated quantifiable impacts of an EE program on children's affective development (Eagles and Demare 1999, Leeming et al. 1993). Additional research is needed to investigate these ambiguous impacts of EE programs on children's environmental attitudes and awareness.

The absence of data regarding EE program effects on minority children, who represent a rapidly growing segment of the U.S. population, is a present concern. Minority children often come from urban neighborhoods where encounters with nature are limited, and this dearth of experience may have a negative impact on their environmental attitudes (Bullard 2006). Additionally, many common assumptions regarding the environmental attitudes and awareness of minorities may be inaccurate (Jones 2002). The development of a reliable method for assessing affective growth sparked by EE might help generate more financial support for programs that enable minority children of low socioeconomic status to experience nature and develop positive environmental values.

In an effort to address growing concerns regarding the role of EE in children's environmental orientation, this study focused on three primary objectives: (1) the development of a reliable and valid survey instrument to measure the environmental attitudes and awareness of children; (2) a comparison of the baseline environmental attitudes and awareness of children from different age and ethnic groups;

and (3) an evaluation of EE program impacts on the environmental attitudes and awareness of children from different age and ethnic groups. An empirical evaluation of EE program effects might yield important information about the formation and development of children's attitudes toward the environment. Furthermore, results could affect the design and scope of future EE programs, especially those focused on underserved populations.

2.0 METHODS

This study involved 190 children participating in summer EE programs and after-school programs in the Athens, GA, area. Data for children in the EE treatment groups were collected from June 18 through August 10, 2007. Data for children in the after-school control groups (ASP) were collected from December 2007 through March 2008. Ages ranged from 6 to 13, but a majority of the participants were between the ages of 8 and 11 (mean age = 9.5 ± 1.44). Children were placed in age group categories (6- and 7-, 8- and 9-, 10- and 11-, and 12- and 13-year-olds) to mitigate unequal sample sizes and developmental differences. Gender and ethnic (African American and white) ratios were approximately equal. A very small number of Hispanic students enrolled in ASP also participated in the study.

Children's environmental attitudes and awareness were measured using a survey consisting of 21 total items: 16 statements with Likert-type responses, four multiple-choice questions, and one open-ended response item. The Environmental Attitude and Awareness Survey (EAAS) instrument was created and modified through a multi-step process that included an in-depth literature review, initial scale construction, pilot testing, scale revision and reduction, and additional refinement. Items from existing scales were adapted to cover general concepts and specific facts related to the environmental education curriculum, creating an efficient and effective modified evaluation tool suitable for children (Leeming et al. 1995, Manoli et al. 2007). The Likert-type attitude scale ranged from "strongly disagree" to "strongly agree" (with numerical response values of one to five for each item). Four multiple choice questions and one open-

ended response item were included to test content knowledge directly addressed by activities in the EE program and to investigate potential links between program-specific knowledge gains and general environmental attitudes. The complete EAAS was intentionally simplified and limited to 21 items to minimize the time burden for survey participants. Surveys were administered in small groups (4 to 10 individuals) and read aloud to improve comprehension and increase the accuracy of responses. Approximately 15 minutes was needed to complete the EAAS.

The reliability and validity of the survey instrument was analyzed using SPSS Version 15. Reliability estimates of internal consistency were measured for the overall population and subgroups using Cronbach's alpha. An exploratory factor analysis (EFA) with oblique rotation was used to identify constructs embedded in the 16-item attitude scale. The validity of the extracted factors was then examined using item analysis, bivariate correlations, and regression procedures. The EFA and validity assessments revealed two underlying constructs for the 16 Likert-type items: eco-affinity and eco-awareness. Using these two components and the content knowledge subscale, we deemed the EAAS ready to measure pretest environmental attitude and awareness score differences between diverse age and ethnic groups. Due to slight deviations from the normal data distribution, pretest scores were compared using nonparametric procedures. A Kruskal Wallis test was used to compare pretest eco-affinity, eco-awareness, and content knowledge scores for children in different age and ethnic groups. Following the pretest, children in the treatment group were exposed to the 1-week EE summer program. An identical post-test was administered on the final day of the program 5 days later. Children in the control group received no EE enrichment during the 1-week period between the pretest and post-test.

The environmental education "treatment" selected for the study was designed by educators at the State Botanical Garden of Georgia and was part of the institution's Garden Earth Naturalist (GEN) curriculum. The GEN program has been used in

summer programs and after-school clubs, and has received positive reviews from both teachers and students. The program helps children identify valuable ecological services provided by “Garden Earth” and understand the importance of these free services by studying, exploring, and enhancing natural habitats on their school sites and in surrounding communities.

Two-way analyses of covariance (ANCOVA) were used to evaluate adjusted mean post-test scores after controlling for initial pretest differences. Separate tests were conducted with post-test scores on each of the different subscales (eco-affinity, eco-awareness, and content knowledge) as the dependent variable and pretest scores on respective subscales as the covariate. Independent variables were the EE treatment (EE program or no EE program) and the potential moderator variables age and ethnicity. Hispanic children were omitted from this analysis because no Hispanics participated in the summer EE program. Preliminary checks were conducted to ensure that the assumptions of reliable covariate measurement, normality, linearity, homogeneity of variances, and homogeneity of regression slopes were not violated. The use of ANCOVA with intact, nonrandomized groups can interfere with statistical inferences, but a comparison of pretest scores between the treatment and control groups confirmed that covariate scores were approximately equal and independent of assigned treatments prior to experimentation. Statistically significant effects were graphically compared using pre-post score changes and adjusted post-test means on the various subscales.

3.0 RESULTS

This section presents the results for each distinct project phase in the following chronological order: constructing the survey instrument, measuring children’s environmental attitudes and awareness, and measuring an EE program’s impact on children’s environmental attitudes and awareness.

3.1 Constructing the Survey Instrument

The overall reliability coefficients for the 16 Likert-type items on the EAAS were high (Cronbach’s alpha

$\geq .749$) across all gender, age, and ethnic subgroups for both the first (pretest) and second (post-test) survey administration. The EFA scree plot indicated that a two-component solution was optimal. On the pretest, the two-factor solution accounted for 44.9 percent of the total scale variance and rotations converged in six iterations. Factor one had an eigenvalue of 5.12 (31.9 percent of the variance) and factor two had an eigenvalue of 2.08 (13.0 percent of the variance). On the post-test, the two-factor solution accounted for 49.2 percent of the total variance and rotations converged in five iterations. Factor one had an eigenvalue of 5.83 (36.4 percent of the variance) and factor two had an eigenvalue of 2.04 (12.8 percent of the variance). Based on item content, the factors extracted in the EFA were named eco-affinity and eco-awareness. Eight items loaded strongly (≥ 0.4) on factor one, while four items loaded strongly (≥ 0.4) on factor two (Table 1). Items with weak loadings were retained for construct validity assessment to ensure that variables were not inaccurately discarded from the analysis.

The convergent and discriminant validity of each factor was confirmed through a bivariate correlation item analysis. Correlations were calculated to measure the strength of the relationship between each item with its own scale (after removing the focal item) and with the other subscale. As expected, items that loaded strongly on the eco-affinity subscale were more closely correlated with other items on the eco-affinity scale; items on the eco-awareness subscale generally converged with other items on the eco-awareness scale. The content validity of the two component model was also verified, as items within each factor were meaningful, logical, and interpretable. Validity analysis suggested that eco-affinity and eco-awareness represented two distinct constructs. The content knowledge section of the survey, featuring four multiple choice and one open-ended question, was also retained as a separate subscale. Overall, the EAAS appears to be a reliable and valid instrument for measuring three dimensions of children’s environmental attitudes: eco-affinity, eco-awareness, and content knowledge.

Table 1. - Rotated pretest EFA loadings for two subscales (n=177; only values > 0.3 are reported)

Item	Factor 1	Factor 2
Eco-Affinity $\alpha=0.852^a$		
I like to learn about nature.	0.790	
I like to read about plants and animals.	0.751	
I would spend time after school working to fix problems in nature.	0.702	
I like to learn about plants and animals.	0.639	
I am interested in learning new ways to help protect plants and animals.	0.636	
I would give some of my own money to help save wild plants and animals.	0.598	
I like to spend time in places that have plants and animals.	0.561	
I would help to clean up green areas in my neighborhood.	0.457	
Eco-Awareness $\alpha=0.720^b$		
My life would change if there were no plants and animals.		0.698
My life would change if there were no trees.		0.673
Plants and animals are important to people.		0.528
It makes me sad to see homes built where plants and animals used to be.		0.415
People need plants to live.		0.359
Nature is easily harmed or hurt by people.		0.354
Plants and animals are easily harmed or hurt by people.		0.335
We need to take better care of plants and animals.	0.328	

^a Cronbach's alpha for eight eco-affinity items

^b Cronbach's alpha for eight eco-awareness items

3.2 Measuring Environmental Attitudes and Awareness

Kruskal Wallis tests indicated significant eco-affinity ($\chi^2_{3,N=180} = 24.6, p \leq 0.000, \eta^2=0.14$) and content knowledge ($\chi^2_{3,N=185} = 11.2, p \leq 0.01, \eta^2=0.06$) differences among children in distinct age groups. Follow-up tests were conducted using Mann Whitney U tests with Holm's sequential Bonferroni corrections to evaluate pairwise differences among the age categories. In general, eco-affinity decreased as children got older (Fig. 1). Content knowledge was lower in the 6- and 7-year-old children compared to the 8- and 9-year-olds ($z=-2.64, p=0.008$) or 10- and 11-year-olds ($z=-3.48, p=0.001$). The extreme variability associated with mean scores for 12- and 13-year-old children was likely a function of the small sample size.

Children's ethnicity appeared to have a significant effect on eco-awareness ($\chi^2_{2,N=182} = 16.9, p \leq 0.000, \eta^2=0.09$) and content knowledge ($\chi^2_{2,N=185} = 43.2, p \leq 0.000, \eta^2=0.24$), but no significant differences were observed in eco-affinity scores ($\chi^2_{2,N=180} = 1.14,$

$p=0.566$). The eco-awareness of white children was significantly higher than African American or Hispanic children (Fig. 2). Environmental content knowledge score ranks were also higher for white children than African American or Hispanic children (Fig. 3). The ranked scores for children in both minority groups, African American and Hispanic, revealed no significant differences on any of the survey variables. The extreme variability for Hispanic children was likely a function of the small sample size.

3.3 Measuring EE Program Impacts on Environmental Attitudes and Awareness

The ANCOVA results suggested that the EE treatment led to a statistically significant positive increase in eco-affinity scores for children regardless of age and ethnicity. The treatment effects on eco-affinity were more pronounced, however, when accounting for age differences ($F_{1,130} = 6.62, p=0.011, \text{partial } \eta^2=0.05$). Participation in the EE program appeared to have the most statistically significant positive impact on the eco-affinity of older children (Fig. 4).

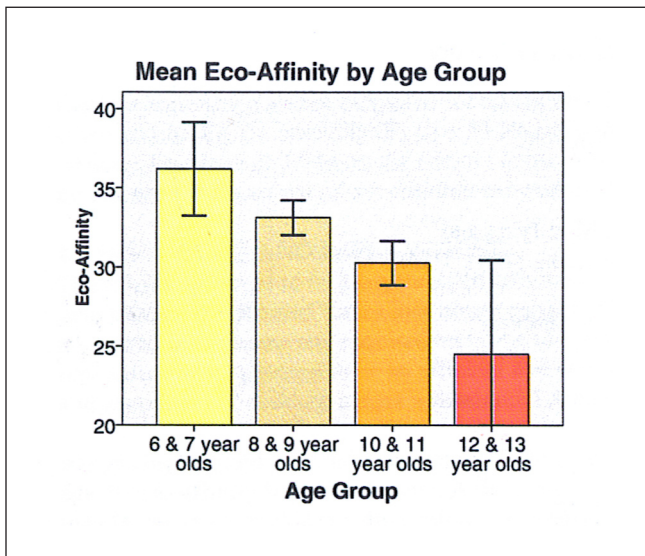


Figure 1.—Mean pretest eco-affinity scores by age group with 95% CI (n=180).

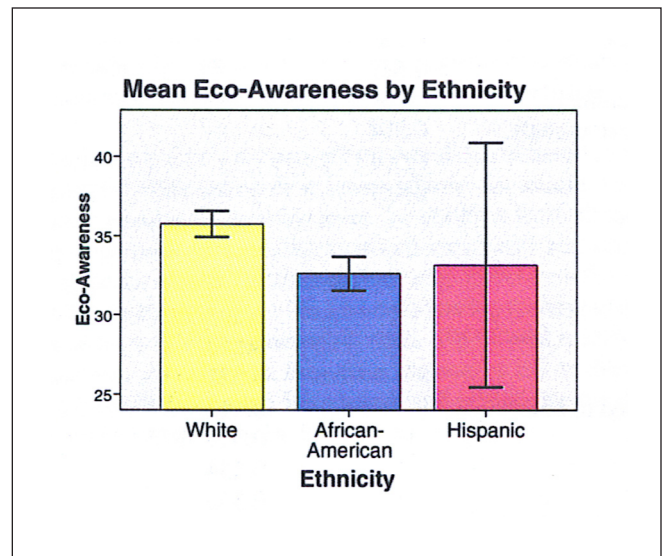


Figure 2.—Mean pretest eco-awareness scores by ethnic group with 95% CI (n=182).

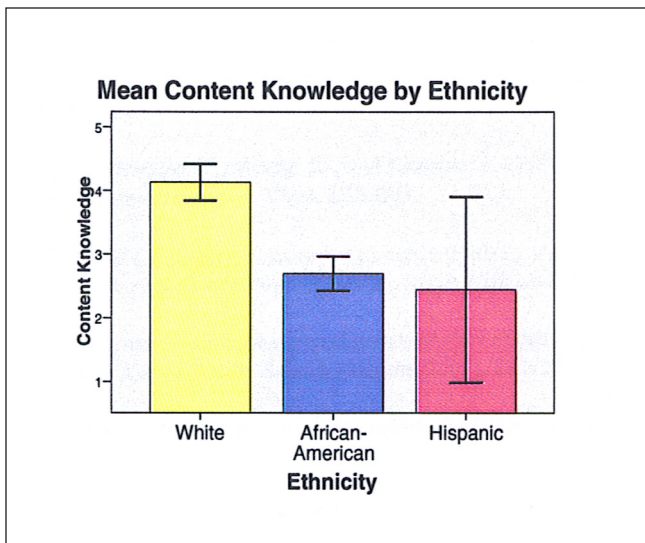


Figure 3.—Mean pretest content knowledge scores by ethnic group with 95% CI (n=185).

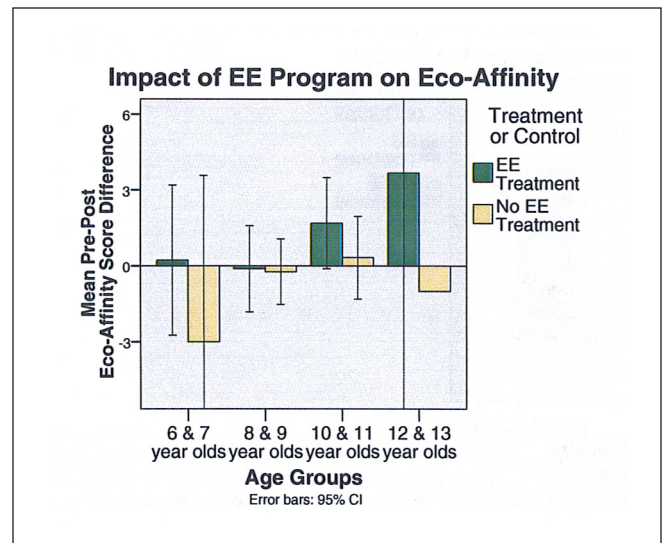


Figure 4.—Mean pre-post eco-affinity score differences for children in treatment and control groups by age (n=139).

The EE treatment had no statistically significant effect on eco-awareness. The interaction term (treatment X ethnicity) also showed no significant differences, but a comparison of adjusted post-test means for African American and white children revealed an interesting trend (Fig. 5). Although the adjusted post-test scores of white children in the treatment and control groups were approximately equal, African American children displayed elevated eco-awareness following exposure to EE.

Content knowledge scores increased for all children after the EE program. The treatment effects were more obvious when accounting for ethnicity ($F_{1,142} = 30.50$, $p \leq 0.000$, partial $\eta^2 = 0.18$). White children continued to score higher than African American children on the content knowledge scale after exposure to EE, but the difference was less pronounced. African American children showed the largest relative score increases (Fig. 6).

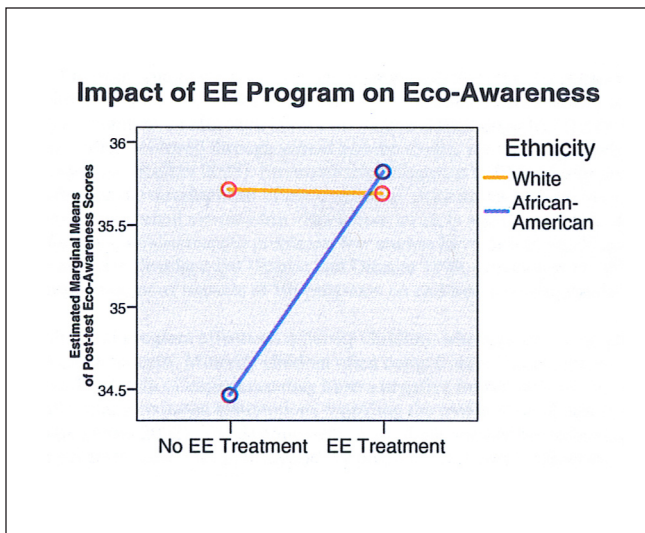


Figure 5.—Estimated marginal means for post-test eco-awareness scores by ethnicity (n=143).

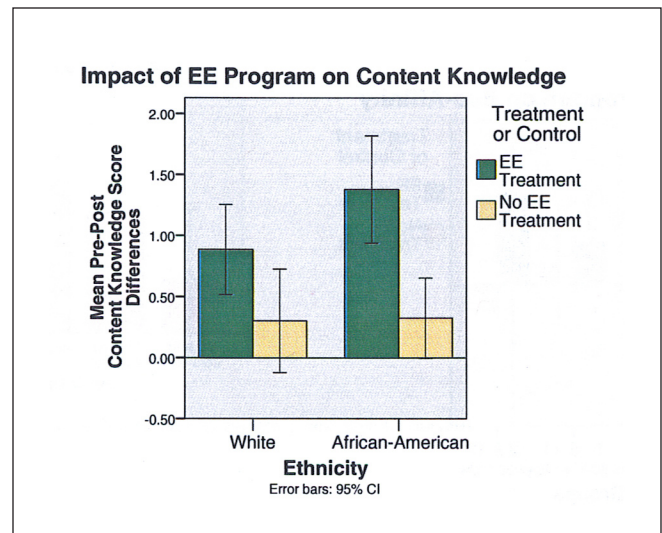


Figure 6.—Mean pre-post content knowledge score differences for children in treatment and control groups by ethnicity (n=149).

4.0 DISCUSSION AND IMPLICATIONS

The EAAS appeared to be a psychometrically sound evaluation tool for use with 6- to 13-year-old children, and may help to meet the demand for an instrument capable of measuring the affective impacts of EE programs. The EAAS contained fewer items and required less time to administer than instruments used in earlier studies. Furthermore, the new instrument appeared to be an efficient and effective method for accurately measuring the environmental attitudes and awareness of children across a substantial demographic range.

Results highlighted two major concerns. Children displayed high levels of eco-affinity before the age of 10, but after age 10 eco-affinity began to decline. A decreased emphasis on outdoor science activities in upper elementary grades may be related to children's diminishing preference for nature (Coyle 2005). Despite research that has revealed equivalent and occasionally elevated levels of environmental concern in adults from minority populations (Mohai and Bryant 1998), this study revealed an eco-awareness and environmental content knowledge gap between African American and white children. Flannery and

Whiting (2003) also noted that wildlife knowledge and attitude scores of fifth-grade students in Texas were significantly greater for white children compared to Hispanics or African Americans. Reduced access to safe, nature-based activities and limited opportunities for positive outdoor experience may constrain the development of eco-awareness in minority children from low socioeconomic status families (Bullard 2006). A 1-week EE summer program could provide a potential solution to both of these problems.

The EE summer program had a positive impact on the eco-affinity of all participants, and seemed to be especially effective for older children who appeared to be losing their innate affinity for nature without positive reinforcement. The EE program also led to significant content knowledge gains for children from all age and ethnic groups. African American children, in particular, showed noticeable increases in eco-awareness and knowledge following the EE program. Based on these results, it appears that all children derive some direct benefits from environmental education. EE programs that promote interactions with nature in a fun and entertaining context may strengthen a child's eco-affinity and build a strong

foundation for a future conservation ethos. Additional research is needed to confirm the utility of the EAAS as an assessment tool, examine the long-term impacts of EE on the environmental attitudes and awareness of children from all backgrounds (including Hispanics), and investigate the relationship between EE program involvement and positive stewardship behavior in children.

5.0 CITATIONS

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VISITOR PERCEPTIONS OF THE BENEFITS OF A LOCAL PARK

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Abstract.—Recent research regarding the perceived benefits of local parks has been limited, posing a problem for recreation and park directors who must promote the value of and gain support for aging park facilities. To collect evidence concerning the value of local parks and the impact of park upgrades, we conducted a study with one local park to (a) document behavioral changes that have occurred as a result of renovation, and (b) determine the perceived benefits of having a community park. Two-thirds of respondents reported visiting the park more frequently since renovations were completed. When asked why they visit the park and what makes it an attractive or appealing place to visit, they indicated that the park has a great atmosphere, is a great place to play, is a “third place,” is a safe play space, reduces playground fatigue, and has meaning for individuals of all ages.

1.0 INTRODUCTION

In the 1800s, a national reform movement led philanthropists and local governments to evaluate inner city urban landscapes that were impacting the safety of children (Addams 1909 cited in “Early history of

playgrounds in the United States” 2008). Initial efforts focused on the creation of playgrounds, which often included “a sandbox or sand pile, a balancing tree, jump standards, a see-saw, a swing frame with sliding poles and ladder, a flying Dutchman, and[/or] a giant stride” (“History of playgrounds” 2008). From the early days of the playground and parks movement, its leaders recognized the enormous individual, social, and economic values of these settings to their local neighborhoods.

Today, more than a century later, neighborhood parks are still regarded as important community assets that offer low- or no-cost, close-to-home recreation for a variety of populations. Specifically, public parks provide Americans with a place where they can be physically active, interact with other people, and achieve “the feelings of relaxation and peacefulness that contact with nature, recreation, and exposure to natural open spaces bring” (Dolesh et al. 2008, p. 2). They also provide green space or a “green infrastructure” (Wolf 2003), which keeps our living environment healthy and allows for the preservation of wildlife habitat. Similarly, Mitchell et al. (2008) argue that playgrounds provide “fun physical training environments” for children and older adults “whilst at the same time providing opportunities for social interaction.” These benefits of public parks and playgrounds would not be realized, however, without proper park design and layout (Yilmaz and Bulut 2007). Indeed, some of the nation’s best and most storied community parks were created by renowned landscape architects and urban planners who pictured them as places where neighbors of different backgrounds could come together as a community and recreate.

While historical evidence suggests that people derive multiple benefits from public parks and playgrounds, there has been limited research regarding the perceived benefits of today’s local parks. Recreation and park directors thus have little guidance as they work to promote the value of and gain support for aging park

facilities. To collect evidence concerning the value of local parks and the impact of park upgrades, our study (a) documented behavioral changes that have occurred as a result of park renovations, and (b) determined the perceived benefits of having a community park.

We used a mix of qualitative and quantitative approaches and interviewed a variety of park visitors (i.e., residents and tourists representing different ages and stages in the life cycle) at one local park in Lewisburg, PA.

1.1 Study Site

The Lewisburg Area Recreation Authority (LARA) Park is a 22-acre multi-generational destination park that underwent a \$2.5 million renovation in 2005. With a matching grant from the Pennsylvania Department of Conservation and Natural Resources and through the combined efforts of Playworld Systems®, local landscaping and construction companies, area engineering firms, and 4 years of assistance from members of the LARA board and community, the Park built a skate park, climbing boulders, multiple playgrounds, a senior wellness path, tennis courts, a basketball court, a pool, and a skating rink. According to then-LARA Director, Greg Weitzel, “[the] Park has been a great example of the health, tourism, and economic development benefits recreation and parks can bring to a community” (cited in St. Clair 2006).

2.0 METHODS

Individuals 18 years of age or older who were visiting the LARA Park in August 2007 were invited to participate in this study. A sampling plan was created to account for variation in visitation across days of the week and times of the day (i.e., 7 a.m. to 7 p.m.). Data collection, which took place on-site and through personal interviews, was conducted by a team of interviewers that had been instructed to randomly select potential respondents at various locations in the park. Individuals who agreed to participate in the survey were asked to answer 13 questions. The first five questions focused on their demographic characteristics (i.e., residence, age, group composition), whether or not this was their first visit to the park, and their knowledge of the recent

park renovation. The last eight questions pertained to perceived benefits of having the park in the community and behavioral changes that may have occurred as a result of the park renovations.

3.0 DATA ANALYSIS

To address our study objectives, we analyzed individuals’ responses to the following open-ended questions: “Have any of the park renovations changed your own (not your children’s) use of this Park? If yes, how?” “Have any of the park renovations changed what you do at the Park with your children? If yes, how?” and “What is it about Lewisburg Area Recreation Authority Park that makes it an attractive or appealing place to visit?”

To manage responses to our open-ended questions we used Huberman and Miles’s (1994) interactive model of data analysis (i.e., data reduction, data display, and conclusion drawing/verification). Data reduction and data display entailed several successive steps. First, two members of the research team independently read through the subsamples of quotes, generated codes, and then compared the codes and their relative representation in the data. Second, the resulting list of codes was refined by having two additional members of the research team independently read through the data and review the codes. Additional verification procedures included identifying the most prominent patterns of data, analyzing clusters of categories, and looking for negative statements that challenged the primary results.

4.0 RESULTS AND DISCUSSION

A total of 142 individuals were interviewed during August 2007. They ranged in age from 18 to 92 (average age = 42, median age = 37). The respondents were primarily female (61 percent), lived in the local area (80 percent), reported visiting the park previously (88 percent), and usually visited the park with members of their family (70 percent).

When asked if and how their behavior or that of their children had changed since the park renovation, a majority (67 percent) indicated that they visited

more frequently and 33 percent suggested they now spent more time using the equipment and facilities. When asked why they visit the park and what makes it an attractive or appealing place to visit, most of their responses were related to six themes: a great “atmosphere,” “a great place to play,” a “third place,” a “safe play space,” “reduces playground fatigue,” and has “meaning for individuals of all ages.”

4.1 Atmosphere

Nearly all of the respondents (94 percent) suggested that the atmosphere of the park led to its appeal. Atmosphere for some meant the design of the park—*“I think in general what they have done with landscaping and [the] playground is reason enough to come here”*—while for others it was the cleanliness of the park, the nicely maintained facilities, the friendliness of the people, the natural setting, and more.

Tucker et al. (2007), among others (e.g., French et al. 2001, Li et al. 2005), found that the physical environment influences adults’ decisions to visit a park. Our results suggest the same. In this study, however, respondents alluded to the overall atmosphere of the park, which included the physical environment as well as other intangible components (e.g., friendliness of people) that make up an experience.

4.2 A Great Place to Play

When asked why they visit the park, nearly all respondents mentioned the importance of the new playground equipment and facilities, including the LifeTrail® for senior citizens, the skate park for teens, and the playgrounds for children of all ages. Additionally, good design and the cleanliness of the park were recognized as assets. According to one respondent, *“[The park] is always very clean. ...it is aesthetically very nice.”* Another suggested, *“[The park] was designed and built for children’s safety.”* Similarly, many individuals recognized, appreciated, and were drawn to the park by the renovations: *“The playground equipment is more interesting [now]. It’s a much nicer environment than back when I used to*

come here and we had a little merry-go-round and some swings and some metal toys that rocked back and forth.”

In a critical analysis of the playground movement, Frost (2006) argued that late 20th-century playgrounds have been criticized for their “cookie cutter or standardized appearance, especially public school and park playgrounds where thousands are collections of massive steel and plastic, brightly colored superstructures, and swings” (p. 3). The same criticism could have been leveled against the LARA Park before the 2005 renovation. Now, after the renovation, respondents talked positively about the introduction of novel equipment and improvements to the overall aesthetics of the environment.

4.3 The Park as a “Third Place”

Parks and playgrounds provide opportunities for people to connect. As one mother noted, *“I think parks are just very important to the community... because of the social networking...”* Parks and playgrounds are also connected to people’s lives (Context® 2008) and serve as a play space for all individuals. As one respondent said, *“[The park] is kinda for all ages, [a] place for teens and little ones, [a] place for everyone.”*

Oldenburg (2001) coined the term, “third place,” to denote “public places that host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work” (p. 16). His work has been supported by Gustafson (2001), who argued that such places as parks become meaningful because of the opportunities they create for people to engage in social interaction. In this study, individuals connected with others while walking through the park, sitting under the pavilions, and watching their children play on the playgrounds. In essence, they were comfortable visiting the park and felt that they belonged to a larger community (Jorgensen and Stedman 2001, Manzo 2005). According to DeGraaf and Jordan (2003), this sense of belonging is important in building the social capital necessary for increasing the perceived quality of life in a community.

4.4 A Safe Play Space

When asked why they visit the Park, nearly all mentioned the safety of the playground equipment and facilities. For example, one individual suggested, *“The equipment is perfect for her age [and] the rubber floors are a great asset.”* Others specifically mentioned the materials used in equipment production: *“The rides themselves...like the sliding board and everything. The paint on it is better because it keeps it from getting heated in the sun...”* Still others took time to address product safety: *“The tarmac stuff... is much better than the wood chips.”*

Cohen and Eimicke (cited in Shing and Marafa 2006) found that safety and cleanliness were important to users of urban parks in New York. Tucker et al. (2007) found the same emphasis on park safety and cleanliness among parents in Ontario, Canada. These findings suggest that the need for a safe, clean play space transcends geographic location or culture. Further, perceived safety appears to affect older adults' willingness to visit local parks (Mitchell et al. 2008).

4.5 Reduction in Playground Fatigue

As early as the 1970s, marketers recognized that the conscious design of space could create certain effects in individuals that would influence their behavior. This observation appears to be true in this study, where many individuals said that they get bored without variety in their park environments and that they visit this park along with others in the community to alleviate that boredom: *“My kids really like [the playground at Hufnagel Park], especially my older kids... They like both of the parks. We just kinda go there for variety.”* Others suggested that modifying activities in park spaces attracts their attention: *“At Hufnagel they [have] a lot of festivals. We go to those...”*

While children are drawn to the equipment, layout, and colors used in facilities (Wall and Berry 2007), Tucker et al. (2007) suggest that parents' preferences for parks also influence visitation. Thus, initiating new programs or modifying the ways in which individuals use equipment and facilities may result in increased park visitation.

4.6 Meaning for Individuals of all Ages

Individuals reported visiting LARA Park for a variety of reasons: to walk their dog; to look around and experience the *“pretty, natural setting;”* to socialize with other people; *“to chill;”* to enjoy *“wide open spaces for the kids to play;”* to *“[use] the playground, but also the exercise equipment for the adults;”* to use the skate park; to participate in *“lots of different activities;”* to share time with the grandchildren or other family members and friends; and more. In addition, they reported that parks offer a connection to the environment/nature and simply the chance to be out in *“...the fresh air.”* These responses suggest that parks are important spaces for children, but they also provide adults with opportunities for social interaction and relaxation.

Godbey et al. (1992) found that Americans receive five types of benefits from local park and recreation services: personal, environmental, social, economic, and family oriented. The importance of these benefits varies at the individual, household, and community level. More recently, Mowen, et al. (2008) found that park and recreation administrators identified *“providing a sense of community”* and *“improving physical and mental health and wellness”* as the most important benefits offered by their agency. Participants in the present study seem to agree with this finding even though they were not asked directly about sense of community or mental health and wellness.

5.0 CONCLUSIONS AND IMPLICATIONS

According to Common Good (2007), *“playgrounds have become boring—stripped of seesaws, swings, and jungle gyms...”* Based on the evidence from this study, that is not the case at the LARA Park. The Lewisburg Area Recreation Authority and its collaborators have succeeded in creating a high quality, multi-generational park that has sparked interest and excitement across various populations. Their success is reflected in the sizeable percentage of study participants who indicated that they now visit the park more frequently and spend more time using the equipment and facilities. Further, families find the

atmosphere in the park appealing and attribute the inviting and comfortable environment to the friendly people, the park design, and the available equipment as well as to the fact that there is something for everyone, regardless of age or ability.

What do these findings suggest for the managers of public parks and playgrounds? First, parks should be maintained and continually upgraded or modernized to respond to changing community tastes, needs, and composition. Second, park spaces should be designed to create opportunities for social interaction among individuals of all ages. Such design is important because mechanical clues (i.e., nonhuman elements such as well designed equipment) must be confirmed by humanic clues (i.e., human elements such as positive interaction with others) if consumers are to be satisfied with their experience (Wall and Berry 2007). Third, managers must remember that public parks and play spaces are part of a larger community landscape and often create a gateway to multiple physical, social, and cultural benefits for visitors. Fourth, safety is a concern. Thus, managers must maintain safety standards for their equipment and design parks and play spaces to minimize the risks to users.

This study represents an initial step in understanding how contemporary park upgrades, renovations, and designs may address today's pressing societal needs. However, given the study's cross-sectional design, the researchers were limited in their ability to gauge use of (and perceptions regarding) this park before the upgrades occurred. Future pre- and post-renovation investigations should attempt to document empirically the impact that major park upgrades have on attracting new users, changing on-site park behaviors, enhancing the park experience, and influencing citizen attitudes about the role and importance of community parks. As North America becomes more urbanized and diverse, park and recreation professionals will be challenged to provide quality "third places" that unite communities and respond to individual, social, and economic concerns. Proactively "raising the bar" by providing high quality facilities that promote community togetherness may elevate the role of community parks in people's everyday lives.

6.0 ACKNOWLEDGMENTS

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HEALTH AND PHYSICAL ACTIVITY

ACTIVE TRANSPORTATION AMONG ELEMENTARY-AGED STUDENTS: WALKING OR BIKING TO AND FROM SCHOOL

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Abstract.—Heightened attention is being drawn to the health conditions linked to physical inactivity, particularly in children. Encouraging students to walk and bike to school encourages them to develop healthier lifestyles and to choose nonmotorized transportation at other times. The Safe Routes to School program, administered by the U.S. Department of Transportation National Highway Traffic Safety Administration, is a new approach to promoting physical activity, health, and wellness in children. Michigan researchers are applying attitude-behavioral models to evaluate relationships among children's beliefs, attitudes, intentions, and behaviors related to walking or biking to school. This paper presents data collected from more than 6,000 Michigan elementary school students in urban, suburban, and rural areas.

1.0 INTRODUCTION AND LITERATURE REVIEW

Professionals in fields related to health, recreation, education, urban planning, and transportation are more clearly identifying major concerns around childhood and adult physical inactivity (a risk factor contributing

to health problems such as obesity, heart diseases, and diabetes) and transportation inefficiencies (mostly dependency on motorized travel in personal vehicles). Addressing these concerns includes promoting healthy lifestyles, active living, nonmotorized transportation, and modifications and improvements to the built environment where children and adults work, live, and play. A national program has been developed to address these concerns and to implement social marketing or programming and infrastructure changes in transportation and the built environment (Safe Routes to School National Partnership 2007). Safe Routes to School is authorized by the SAFETEA-LU¹ transportation legislation and funding. The act focuses on “safe, accountable, flexible, and efficient transportation” in an effort to leave a legacy of coordinated, nonmotorized transportation for future generations. The program is aimed at children in primary or middle schools and seeks to: enable and encourage children of all abilities to walk or bike to school; make these transportation choices safer and more appealing in order to promote healthy lifestyles and active transportation; and facilitate the planning and implementation of Safe Routes to School projects so that traffic around schools, fuel consumption by personal and bus vehicles, and, ultimately, air and noise pollution around schools are all reduced.

Marin County, CA, had one of the first programs in the United States to design a safer walking and biking environment for students and their families (Staunton et al. 2003). A 2-year initiative included social marketing to change attitudes and behaviors and extensive grant writing that secured more than \$2 million for infrastructure changes. The result was a 64-percent increase in walking, a 114-percent increase in biking, a 91-percent increase in carpooling, and a 39-percent decrease in cars with one child being

¹ Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.

transported. Michigan became one of the next places to plan for a statewide program with an 11-school pilot program in 2003 and 2004. In Michigan, special emphasis was placed on identifying differences in attitudes and behaviors among students in urban, suburban, and rural areas so that evaluation findings could better inform program planning, infrastructure investments, and program implementation.

As identified by Zhu and Lee (2008), the opportunity to walk to city schools in low-income urban areas may include more adverse conditions than exist in a suburban or rural setting. In their study of Austin, TX, Zhu and Lee found that Hispanics from low-income households were more likely to live in areas with poor street conditions (i.e., more crime, more motor vehicle accidents, and worse road conditions) than non-Hispanics and people from higher income urban households.

Recently, the Centers for Disease Control (CDC) (2008) and McDonald (2007) reported analysis of the National Personal Transportation Survey data for 1969 and 2001 (the McDonald analysis uses several more intermediate years of data). Both studies reveal dramatic declines in the rate of active transportation to school between 1969 and 2001. Deeper analysis into the causes of these declines has revealed the following: the distance between schools and residences has increased with schools more often being built in less developed suburban and rural areas; and the volume of traffic has increased around schools with parents more often driving children to school rather than allowing them to walk, bike, or ride the bus. McDonald (2007) attributed half of the decline in walking or biking to school to the growing distance between home and school for a greater number of children. The CDC recommends examining school locations, placing a greater emphasis on walkable environments, continuing with traffic engineering that improves safety and reduces accidents, and using Safe Routes to School tools. Such tools include education and encouragement for school administrators, students, and parents, and evaluation of these stakeholders over time to gauge attitude and behavioral changes.

Many program and transportation initiatives to encourage active lifestyles involve recreation-focused solutions. Recreation researchers are increasingly studying linkages between recreation, physical fitness, and other daily activities like traveling to school or work. Edwards (2008) emphasizes that urban recreation offers opportunities to encourage active living and spending more time outside. He claims that building and promoting accessible and safe trails between neighborhoods, parks, schools, job locations, and other community places will give communities a competitive advantage and make them a preferred choice for potential residents. Edwards and Poff (2008) suggest a number of recreation and school strategies to reduce childhood obesity, including improved nutrition and food choices, family-based activities, and school partnerships. They also suggest viewing children as agents of change; children presented with active-living choices can help engage parents and other siblings in healthier lifestyle choices.

This research examined schoolchildren's beliefs, preferred transportation choices, current transportation choices, and intent to walk or bike to school if the route from home to school were made safer. This research shows both motivators and barriers to walking or biking to school. Similarities and differences in these attitude-behavioral measures are segmented across the geographical spectrum from urban to suburban and rural. This baseline data will eventually provide a foundation for program evaluation.

2.0 METHODS

Teachers in classroom settings administered a paper survey to school children. The survey was two pages long and was printed in a child-friendly font. The initial questions were selected or written after an extensive review of community and state-level programs (primarily in the United States), a review by program and transportation specialists in Michigan, and a pilot test in a few elementary classrooms. Revisions were made to the initial questions and questionnaire format based on comments received from reviews and pretesting. The content was adopted from Ajzen and Fishbein's (1980) attitude-behavior

model, but the young age of the respondents required more nominal-type responses and fewer multiple-items to test for reliability.

Preliminary data collection began in 2004 at 11 Michigan schools during a pilot phase of the program. The pilot program produced a toolkit that included the evaluation instruments. An additional 18 schools used the evaluation tools in 2005, 2006, or 2007 to initiate their Safe Routes to School program. The data reflect collection efforts over these 3 years. The 2005 data collection was skewed to urban schools, whereas suburban and rural schools were better represented in the more recent years (Table 1). In fall 2007, university researchers were re-engaged in the program to key the surveys and analyze the data.

This analysis is based on responses from students at 29 Michigan schools, primarily third- to fifth-graders, at the start of their Safe Routes program. The population was 279 Michigan schools that together had 113,584 students registered for the program. The nonprobability sample is 6,244 student respondents from the 29 schools. Student responses were geographically coded at a school level with urban-centric locale codes obtained from the National Center for Education Statistics (www.nces.ed.gov). To ensure that the sample was similar to the population in terms of geographic proportion, population and sample

proportions were calculated (Table 2). No major differences were noted between the population and sample, so the data were not weighted for the purposes of this paper. Next, descriptive statistics and cross tabulations for belief, attitude, intention, and behavior items were calculated with geographic location controlled. Chi-square was used for significance testing, and phi was selected as the measure of association (Sirkin 1995). As a general rule of thumb, values less than 0.2 indicate a negligible relationship, values from 0.2 to 0.5 indicate an important relationship, and values from 0.5 to 1.0 indicate a very strong relationship.

3.0 FINDINGS

The number of boys and girls was equal in the overall sample. It differed across the geographic locations ($\chi^2=10.9, p<.01$), but the difference was negligible ($\phi=.04$). The distance between home and school was found to be significantly different ($\chi^2=490.2, p<.001$) across the three geographic location types, and the strength of the relationship was important ($\phi=.28$) (Table 3). Approximately 4 out of 10 urban and suburban elementary school-aged children lived within six blocks of their schools, whereas about 2 out of 10 rural students lived that close to school. More than half (56 percent) of the rural students lived more than six blocks away from their school, compared to urban (44 percent) and suburban (32 percent) students.

Table 1.—Timing of data collection by geographic location

	Urban	Suburban	Rural
Spring 2004	45%	11%	4%
Fall 2004	19%	11%	19%
Spring 2007	29%	65%	11%
Fall 2007	7%	13%	66%
Total	100%	100%	100%

Table 2.—Population and sample by geographic location

	Urban	Suburban	Rural
Population of registered schools (N=279)	28%	35%	37%
Population of students at registered schools (N=113,584)	27%	38%	35%
Sample of registered schools (n=29)	31%	41%	28%
Sample of students at registered schools (n=6,244)	26%	41%	33%

Table 3.—Distance between home and school by geographic location

	Urban	Suburban	Rural
Less than 1 block	9%	10%	4%
1-3 blocks	15%	19%	8%
4-6 blocks	21%	20%	9%
More than 6 blocks	44%	32%	56%
Don't know	11%	19%	23%
Total	100%	100%	100%

$\chi^2=490.2$, $p<.001$; $\phi=.28$

Roughly 11 percent of urban children did not know how far their school was from their home, compared to 19 percent of suburban and 23 percent of rural students.

Students were asked about a set of social and infrastructure beliefs that would make walking or biking to school better. The top responses for social beliefs were friends to walk with and no strangers along the way. Top responses for infrastructure beliefs were safer places to cross the street, sidewalks all along the way to school, and bike racks or a safe place to leave bikes (Table 4). The chi-square test indicated significant differences between most beliefs and types of geographic locations while the phi test revealed some noteworthy, but weak, associations. The strongest influence of geographic location was the belief that the student lived too far away from school, which is considered an infrastructure concern in terms

of density of development and location of school ($\chi^2=154.4$, $p<.001$; $\phi=.16$). This was the greatest concern for rural students (37 percent). Another belief that was influenced by geographic location was that more crossing guards (not lights) were needed ($\chi^2=111.1$, $p<.001$; $\phi=.13$), particularly with urban and suburban students. Crossing guards are considered a social facilitator because an adult (often a familiar person on a daily basis) is enlisted to help students cross busy intersections.

In a measure of attitudes toward the various transportation modes for getting to and from school, students were asked how they would like to get to school if they had a choice. Walking, biking, and a parent's car were top choices (Table 5). For urban students, biking, followed by someone's car, were top choices. For suburban students, 38 percent chose walking and another 38 percent chose biking. For

Table 4.—Beliefs held about social and infrastructure characteristics of the route to school by geographic location

	Urban	Suburban	Rural	Phi
Social Beliefs				
Friends to walk or bike with ^a	61%	62%	48%	0.12
No strangers along the way ^a	54%	52%	42%	0.10
Parents won't let me walk ^a	25%	23%	28%	0.05
More crossing guards ^a	47%	47%	33%	0.13
No bullies along the way to school ^a	45%	44%	36%	0.08
Infrastructure Beliefs				
Less cars on the roads near school	42%	42%	40%	0.02
Fewer cars in the school parking lot ^a	27%	22%	23%	0.04
Sidewalks all the way to school	44%	43%	46%	0.03
Bike racks/safe place to leave bike ^a	47%	45%	41%	0.05
Better lighting	27%	27%	26%	0.01
Sidewalks clear of snow ^a	43%	44%	40%	0.04
Safer places to cross the streets ^a	49%	50%	43%	0.06
Live too far ^a	25%	20%	37%	0.16

^a χ^2 p -value < .01

Table 5.—Preferred choice, actual behavior, and intent to use modes of transportation to school by geographic location

	Urban	Suburban	Rural	Phi
Preferred Choice				
Walk ^a	29%	38%	23%	0.14
Bike	40%	38%	41%	0.03
Parent's car ^a	35%	30%	35%	0.05
Someone else's car ^a	7%	11%	7%	0.07
School bus ^a	18%	16%	26%	0.10
Actual Behavior				
Walk ^a	16%	30%	7%	0.26
Bike ^b	0%	1%	1%	0.03
Parent's car ^a	48%	40%	33%	0.12
Someone else's car ^a	7%	9%	4%	0.09
School bus ^a	26%	16%	54%	0.35
Intent to Walk or Bike To School if Route Made Safer				
Yes	44%	47%	43%	0.10
Maybe	43%	40%	37%	
No	13%	13%	20%	

^a χ^2 p -value < .01

^b χ^2 p -value < .05

rural students, biking, parent's car, and school bus all received more than 25 percent. The phi values were not greater than the 0.20 mark, but walking ($X^2=131.0$, $p<.001$; $\phi=.14$) tended to be preferred by suburban students more than urban or rural students.

Behaviors were assessed with a question about how students got to school on the day of the survey. Vehicular transportation dominated. Being driven by a parent was the top response for urban and suburban students while riding the school bus was the top response for rural students. Only a few students reported biking to school. The test of association showed that geographic location influenced actual behavior for walking ($X^2=407.7$, $p<.001$; $\phi=.26$) and taking the school bus ($X^2=765.9$, $p<.001$; $\phi=.35$). Suburban students were much more likely to walk and rural students were at least twice as likely to use the bus system. Students were also asked to consider whether they would walk or bike if their route to school were made safer (i.e., the intent of the federal, state, and local funding and program initiatives). Almost 9 of 10 students indicated that they would or might walk or bike if the route were improved. Thirteen percent of urban and suburban students and 20 percent of rural students indicated they would not walk or bike even if route improvements were made.

As a final measure of how behaviors might be changed by the implementation of social marketing and infrastructure programs to make communities more walkable and bike-able, the difference between the preferred choice percent and actual behavior percent was calculated for the five transportation options. Positive scores reflect latent demand for walking, biking, and driving in someone else's car. For urban and suburban students, the negative score for riding in a parent's car indicates that students are being driven to school even though that is not their preferred choice (Table 6). For urban and rural students, scores were also negative for school bus transportation.

4.0 CONCLUSIONS AND DISCUSSION

This study found that elementary-aged students' intentions to be active are much greater than the environments created by community development, planning, and school board decisions have allowed. Trends in school construction have tipped toward building new schools on the outskirts of a community, where land is less expensive and more available (Council of Educational Facility Planners International 2004). Initially, these sites are a great distance from residential areas and are located along rural roads with less traffic engineering (e.g., appropriate stop lights, sidewalks, reduced speeds). Moreover, some school

Table 6.—Differences in preferred choice and actual behavior in modes of transportation to school by geographic location

Difference between percentages shown in Table 5	Urban	Suburban	Rural
Walk	13%	8%	16%
Bike	40%	37%	40%
Parent's car	-13%	-10%	2%
Someone else's car	0%	2%	3%
School bus	-8%	0%	-28%

districts are converting neighborhood schools to grade-specific schools, schools of choice without busing for those who come from out of district, or specialized schools that draw from a larger geographic area. These decisions all potentially reduce walkable environments and increase dependency on motorized transportation.

The present study suggests that infrastructure barriers are higher in rural/suburban areas than in urban areas, possibly because of where newer schools are built. Infrastructure improvements in rural and suburban areas, social marketing programs, and neighborhood-based programs in urban areas could all help to reduce the gap between current walking/biking levels and desired level of activity among elementary-aged students.

It should be noted that school location and infrastructure around the schools in this study may have greatly influenced how students rated their home-to-school environment. Therefore, as more schools are studied, the stability and representativeness of the findings will improve.

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INTERRELATIONSHIP OF MOTIVATION FOR AND PERCEIVED CONSTRAINTS TO PHYSICAL ACTIVITY PARTICIPATION AND THE WELL-BEING OF SENIOR CENTER PARTICIPANTS

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Abstract.—This study investigated the relationship of motivation for and perceived constraints to physical activity (PA) participation and the well-being of senior center participants. A survey instrument made up of modified versions of the Sport Motivation and Perceived Constraints Scales, the Life Satisfaction Index-Z, and the Geriatric Depression Scale was administered at the Cascades, VA, Senior Center. Findings indicate that all perceived constraints (intrapersonal, interpersonal, and structural) were inversely correlated to frequency of physical activity participation. Further, interpersonal and intrapersonal constraints were positively correlated to lack of motivation. Structural constraints were indirectly and inversely related to life satisfaction moderated by frequency of physical activity participation. These results indicate that perceived constraints play a key role in defining PA and well-being.

1.0 INTRODUCTION

The number of older adults in the United States will reach 71.5 million or 20 percent of the population by 2030, due in large part to increasing longevity and the cohort of baby boomers turning 65 in 2011 (U.S. Dept. Health and Human Services, Administration on Aging 2003). This total is more than twice the number in 2000, when people over 65 years represented

only 12.4 percent of the population. This growing population segment will experience an increased incidence of age-related disease and disability. Research has indicated that participation in regular, moderate physical activity in later life can enhance health, including: reduced incidence of physical and mental health problems; delay of functional decline; reduction of chronic disease onset; and stabilization of psychological and physical abilities (American College of Sports Medicine 1998). Further, engaging in active leisure activities in later life has been shown to be a significant predictor of well-being, increased morale, and successful aging (Stathi et al. 2002, Lee and Russell, 2003, Nets et al. 2005).

Despite the number of studies documenting the contribution of physical activity to well-being in later life, many individuals remain inactive. It is therefore necessary to more fully understand those factors which may influence participation in physical activity. Perceived constraints are defined as “factors perceived by individuals to inhibit or prohibit participation and enjoyment in leisure” (Jackson 1991, p. 279) and such constraints to physical activity have been shown to be positively related to motivation and participation in physical activity (Carroll and Alexandris 1997, Alexandris et al. 2002, Alexandris et al. 2003, Cohen-Mansfield et al. 2003, Lees et al. 2005). According to Cohen-Mansfield et al. (2003), health problems, motivation, lack of time, and fatigue are the most common perceived constraints to physical activity among older adults. Lees et al. (2005) determined that fear of falling and lack of interest were significant constraints for elderly nonexercisers. Alexandris et al. (2003) reported that psychological state and accessibility were the major factors constraining recreational sport participation and community-based physical activity of older adults.

Findings from several studies have also supported the theory that motivation operates as a significant mediator of constraints to participation in physical activity (Carroll and Alexandris 1997, Hubbard and Mannell 2001, Alexandris et al. 2002). For instance, health problems can reduce one's ability to engage in physical activity, while also motivating such participation (Cohen-Mansfield et al. 2003). In a study of the process of negotiating leisure constraints, Hubbard and Mannell (2001) identified the strong relationship of motivation, constraints, negotiation, and participation. The authors suggested that motivation was key to negotiation of constraints, as individuals who were more highly motivated to participate expended greater effort on negotiation and increased participation in physical activity. Similarly, Alexandris et al. (2002) determined that perceived constraints (i.e., psychological factors and lack of knowledge) were positively related to lack of motivation and inversely related to intrinsic motivation among an adult population in Greece.

The relationship between intrinsic motivation and physical activity adherence has also been well documented (Clough et al. 1989, Ryan et al. 1997). Intrinsic motivation has been found to enhance well-being (Frederick and Ryan 1993, Guinn 1999, Maltby and Day 2001). In an examination of college students who had been exercising for less than 6 months, extrinsic motivation, depression, and anxiety were found to be high, while level of self-esteem was low. Those who had been exercising for 6 months or more, however, reported higher intrinsic motivation and self-esteem, and lower levels of depression and anxiety. These findings suggest that intrinsic motivation mediated by frequency of participation in physical activity may enhance well-being (Maltby and Day 2001).

The intent of this study was, therefore, to investigate the interrelationship of motivation for and perceived constraints to physical activity participation and the well-being of senior center participants. Figure 1 represents a path model of well-being, graphically depicting the interrelationship of key study variables.

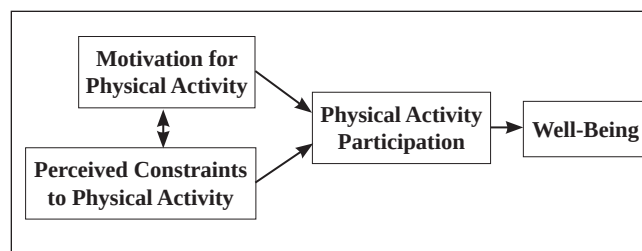


Figure 1.—Path model of motivation, perceived constraints, physical activity participation, and well-being.

2.0 METHODS

2.1 Participants

Eighty-five members of the Senior Center at Cascades, VA (SCC), participated in this study. The SCC is run by the Loudoun County Department of Parks, Recreation and Community Services, Area Agency on Aging.

2.2 Procedure

Data were collected from participants at the SCC using a self-administered survey instrument during one week in summer 2006. All participants were approached upon entrance to the center, and those agreeing to complete the survey chose a comfortable place (e.g., cafeteria, lobby, or classroom) to do so. The researcher addressed any questions or concerns immediately on-site and collected the questionnaire upon completion. Descriptive statistics were calculated for all study variables. A series of bivariate Pearson Correlations was performed to evaluate the direct interrelationships among motivation, perceived constraints, frequency of participation in physical activity at the SCC, and well-being (i.e., satisfaction, depression). The indirect relationships of motivation for and perceived constraints to well-being, as moderated by frequency of participation in physical activity at the SCC, were tested using partial correlation analyses.

2.3 The Survey Instrument

Participants were initially asked about their participation in various structured activities at the SCC and other locations (frequency, satisfaction). The frequency of participation in specific organized physical activity programs at the SCC (i.e., aerobic

class, basic line dancing, beginning line dancing, intermediate line dancing, pickle ball, Tai Chi, yoga, other) were scaled from 0 to 3, where 0 = never participated, 1 = seldom participated, 2 = frequently participated, and 3 = participated during every visit. A total frequency of participation in physical activities at the SCC score was then calculated for each participant as the sum of frequency scores for specified physical activities at the SCC. Total participation frequency scores ranged from 0 to 24 where 0 = never participated in physical activity at the SCC and 24 = participated in all physical activities during every visit to the SCC. Fixed-choice questions were used to assess subject characteristics including age, gender, race or ethnicity, current living arrangements, marital status, and general health condition.

Motivation for participation in physical activity was measured using a modified version of the Sport Motivation Scale (Pelletier et al. 1995), which is composed of three subscales assessing three motivation traits. Twelve items each were used to measure intrinsic motivation (IM) (i.e., IM to know, IM toward accomplishment, and IM to stimulation) and extrinsic motivation (EM) (i.e., identified regulation, introjected regulation, and external regulation). Lack of motivation (amotivation) was assessed with four items. All items were slightly modified to replace the contextual term “sport” with “physical activity.” Respondents were asked to indicate their level of agreement with each statement on a 1 to 7 Likert scale, from 7 = very strongly agree to 1 = very strongly disagree. The overall modified Sport Motivation Scale was found to have high reliability ($\alpha = .91$), while the individual subscales varied (from $\alpha = .64$ [IM Stimulation] to $.88$ [IM to Know]).

Perceived constraints to physical activity were measured using a modified version of the Leisure Constraints Scale (Raymore et al. 1993). Twenty-one statements focused on general perceptions of constraints to participate in a new leisure activity using three subscales: intrapersonal, interpersonal, and structural constraints. For this study, statements

were modified to inquire about constraints to a specific physical activity rather than general leisure activity. Level of agreement with each statement was indicated on a 4-point Likert scale ranging from strongly agree to strongly disagree. The reliability of the scale was later evaluated and the results indicate an acceptable model of leisure constraints (Raymore et al. 1993). Internal consistency of the overall modified scale ($\alpha = .87$) and individual subscales (from $\alpha = .74$ [Structural] to $.86$ [Interpersonal]) was found to be reliable.

In this study, well-being was operationalized as life satisfaction (assessed using the Life Satisfaction Index Z [LSI-Z]) (Wood, et al. 1969) and depression (using the Geriatric Depression Scale [GDS]) (Sheikh and Yesavage 1986). The Life Satisfaction Index Z (LSI-Z) is a shorter version of the original Life Satisfaction Rating Scale (LSR) (Neugarten et al. 1961) and consists of 13 statements with Likert-scale response categories of “agree,” “disagree,” and “not sure.” The range of potential scores is 13 to 26, with a high score indicating high life satisfaction (Wood et al. 1969). The reliability of the life satisfaction scale in this study was $\alpha = .81$. The short-version GDS consists of a 15-item scale; subjects are asked to indicate whether each item describes how they have felt recently. The scale is scored by assigning one point for each “Yes” answer for a negative mood item. Scores of five or more may indicate depression. In this study, the reliability of the GDS was high ($\alpha = .80$).

3.0 RESULTS

Of SCC visitors who agreed to participate in the survey, approximately 78 percent were female. The mean age was 78 years (with a range of 59 to 94 years). Two-thirds of respondents lived independently in houses or townhouses and 47 percent lived alone. The majority were white or Caucasian (73.1 percent), and married (43.8 percent) or widowed (32.5 percent). More than 80 percent of those surveyed reported being in good health with 45 percent having no impairments. Sixty-six percent indicated that they attended the center 2 or 3 days a week and 18.1 percent attended every day. More than 56 percent spent only half a day at the SCC, while 10.8 percent reported staying all day.

Forty-two percent of the subjects reported that they had engaged in at least one organized physical activity program at the SCC. Participants most frequently participated in aerobics class (57.2 percent), followed by intermediate line dancing (25.7 percent), basic line dancing (22.9 percent), beginning line dancing (22.9 percent), Tai Chi (20 percent), pickle ball (8.6 percent) and yoga (8.6 percent).

Respondents indicated very high levels of intrinsic and extrinsic motivation, especially IM accomplishment ($M = 18.5$), EM introjected regulation ($M = 18.5$), IM stimulation ($M = 17.1$), IM to know ($M = 17.4$), EM identified regulation ($M = 16.6$), and EM external regulation ($M = 15.9$). Amotivation was significantly lower ($M = 13.7$). With regard to perceived constraints, subjects indicated that they were most influenced by or experienced the highest level of structural constraints ($M = 18.2$), compared to either intrapersonal ($M = 16.1$) or interpersonal ($M = 15.6$) constraints. The total mean score for life satisfaction was 20.5, indicating high life satisfaction and the total mean depression score for this study was 1.4 ($N = 53$), indicating very low depression. These findings indicate an overall sense of well-being among subjects.

The intercorrelation of frequency of PA participation, motivation, perceived constraints, and well-being is presented in Table 1. The frequency of physical activity at the SCC was not significantly correlated with life satisfaction ($r = -.01, p = .934$) or depression ($r = .14, p = .315$). Intrinsic motivation was found to

be significantly positively correlated to frequency of participation in physical activity at the SCC ($r = .38, p = .014$), and amotivation was found to be significantly inversely correlated to participation in physical activity at the SCC ($r = -.42, p = .008$). Extrinsic motivation, however, was not correlated to participation in physical activity at the SCC ($r = .18, p = .299$). All perceived constraints subscales were found to be significantly and inversely correlated to frequency of physical activity participation at the SCC [intrapersonal ($r = -.41, p = .004$), interpersonal ($r = -.49, p = .000$), and structural ($r = -.53, p = .000$)]. In the interrelationship between motivation and perceived constraints, amotivation was found to be significantly and positively correlated to interpersonal ($r = .46, p = .005$), and intrapersonal constraints ($r = .34, p = .044$).

The indirect relationships among motivation and well-being, moderated by frequency of physical activity participation, are noted in Table 2. Amotivation was found to be significantly related to well-being; specifically, amotivation was inversely related to life satisfaction ($r = -.40, p = .023$), and positively related to depression ($r = .50, p = .004$), moderated by frequency of physical activity participation at the SCC. Table 3 presents the indirect relationships between perceived constraints and well-being as moderated by frequency of physical activity participation. Structural constraints, in particular, were found to be indirectly and inversely related to life satisfaction ($r = -.34, p = .044$), moderated by frequency of

Table 1.—Intercorrelation of frequency of physical activity participation, motivation, perceived constraints, and well-being

Variables	1	2	3	4	5	6	7	8	9
1. PA frequency	--								
2. Intrinsic Motivation	.379*	--							
3. Extrinsic Motivation	.181	.857**	--						
4. Amotivation	-.420**	-.164	.226	--					
5. Intrapersonal Constraints	-.406**	-.254	-.025	.338*	--				
6. Interpersonal Constraints	-.491**	-.056	.107	.461**	.264	--			
7. Structural Constraints	-.527**	-.255	-.111	.181	.408**	.446**	--		
8. Life Satisfaction	-.012	-.041	-.230	-.352*	-.118	-.269	-.328*	--	
9. Depression	.142	.018	.181	.397*	.242	.131	.113	-.586**	--

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 2.—Partial correlation between motivation and well-being moderated by frequency of physical activity participation at the SCC

Variables	Life Satisfaction	Depression
Intrinsic Motivation	-.035	-.044
Extrinsic Motivation	-.217	.142
Amotivation	-.400*	.499**

* Correlation is significant at the .05 level (2-tailed)

** Correlation is significant at the .01 level (2-tailed)

Table 3.—Partial correlation between perceived constraints and well-being moderated by frequency of physical activity participation at the SCC

Variables	Life Satisfaction	Depression
Intrapersonal	-.134	.320
Interpersonal	-.234	.114
Structural	-.337*	.075

* Correlation is significant at the .05 level (2-tailed)

** Correlation is significant at the .01 level (2-tailed)

physical activity participation at the SCC. Further, there were no significant interrelationships among intrapersonal and interpersonal constraints, life satisfaction, and depression.

4.0 DISCUSSION AND CONCLUSIONS

Perceived constraints were a key factor in the interrelationships among motivation, frequency of participation in physical activity at the SCC, and well-being. All perceived constraints subscales were significantly and inversely correlated to frequency of physical activity participation. Figure 2 illustrates the significant direct and indirect relationships among key study variables.

This study's findings support previous research suggesting that intrapersonal and structural constraints, such as a lack of interest, fear of injury (Cohen-Mansfield et al. 2003, Lees et al. 2005), psychological state, and accessibility (Alexandris et al. 2003), have the most influence on the physical activity participation of older adults. In this investigation, interpersonal constraints were significantly related to amotivation and frequency of participation in physical activity. The importance of social relationships to the physical activity participation of older adults cannot be overestimated. Cohen-Mansfield et al. (2003) noted that unmarried individuals who are more in need of social contact and social reinforcement are constricted

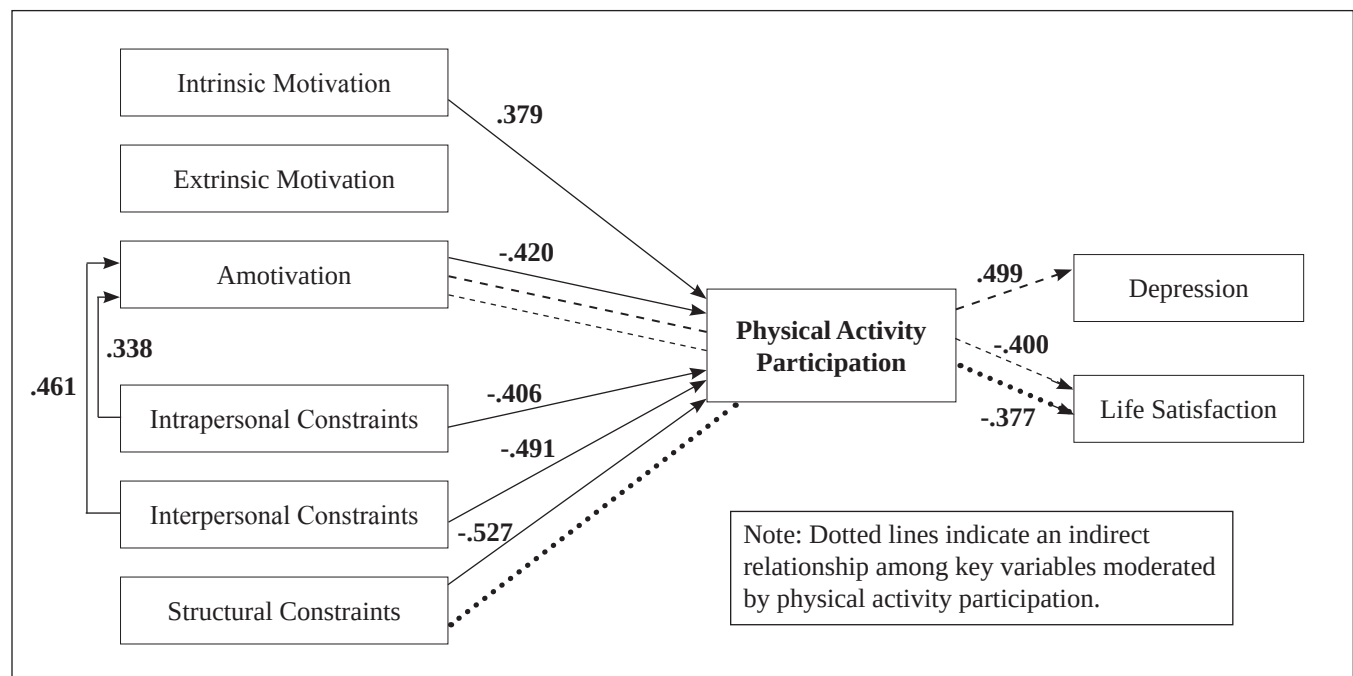


Figure 2.—The interrelationship of motivation, perceived constraints, physical activity participation, and well-being.

from participation in physical activity. Moreover, Pettee et al. (2006) found that married individuals were more likely to participate in physical activity than their single counterparts. Finding a partner or friend with whom to participate in physical activity may be difficult, as illustrated by the large number of participants in this study who lived alone (44 percent), or were widowed (18 percent) or divorced (31 percent).

Constraints alone, however, may not limit or exclude participation. Motivation appears to be an essential element of participation and, ultimately, well-being. Previous research has supported the theory that intrapersonal dimensions and structural constraints are significant predictors of amotivation (Alexandris et al. 2002), and that older adults' health problems may influence their motivation to participate in physical activity (Cohen-Mansfield et al. 2003). For example, Hubbard and Mannell (2001) suggested that strength of motivation was key to negotiating constraints and thereby increasing participation in physical activity.

Another important finding of this study was that amotivation was directly and inversely correlated with participation in physical activity, indicating that individuals who have higher amotivation participate less frequently in physical activity than those with lower amotivation. Amotivation was also indirectly and inversely related to life satisfaction and indirectly and positively related to depression, moderated by frequency of participation in physical activity. This relationship indicates that individuals who have higher amotivation to participate in physical activity have overall lower well-being when mediated by a lower frequency of participation. This result supports previous research showing that individuals who have lower self-determined motivation generally report a less positive feeling of well-being and those who have higher self-determined motivation to participate in

physical activity have higher psychological well-being (Maltby and Day 2001). Overall, these results indicate that perceived constraints play a key role in physical activity behavior. Overcoming such constraints may reinforce motivation to participate and increase activity engagement.

The findings of this study can therefore be utilized to encourage participation in physical activity to enhance the well-being of older adults. Two findings, in particular, are worth considering for the development of physical activity programs for older adults at senior centers or other recreation agencies: overcoming perceived constraints and reinforcing self-determined motivation. First, older adults who perceive that their participation in activities is constrained by others, such as a spouse or partner, may be less motivated to participate in physical activity. Changes in social relationships in later life (e.g., living alone, the death of a spouse, relatives, or close friends, or lack of communication due to sensory disabilities) may influence seniors' perceptions of constraints to participation in physical activity. Thus, recognizing the influence of a spouse, partner, friends, and neighbors will enable programmers to develop better methods for enhancing social relationships among older adults. Second, the absence of motivation must also be addressed as it negatively affects the well-being of older adults. Senior and recreation center staff may need to encourage participation in physical activity for those who appear unmotivated. Programs or workshops should be designed to facilitate discussion of the benefits of physical activity. The older adults in this study reported that the most frequent reason for visiting the senior center was to join in social activities – meeting people, eating lunch, and participating in other social or cultural programs. As previously noted, social relationships are crucial to negotiating constraints to activity participation among older adults.

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WILDLAND URBAN INTERFACE

VISITOR PERCEPTIONS OF AND SUPPORT FOR MANAGEMENT ACTIONS AT AN URBAN NATIONAL HISTORIC SITE

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Abstract.—This study examined visitor use patterns, perceptions of crowding, and preferences for mixed-use management plans for the Kennesaw Mountain Road at Kennesaw Mountain National Battlefield Park (KMNP) outside Atlanta, GA. Survey data showed significant differences between first-time visitors to KMNP and repeat visitors. Most felt that the road should have open access to all users and 81 percent thought that other road users did not interfere with their enjoyment of the park. Most also felt that there was enough room on the road for all types of activities. Half of the respondents supported the idea of offering an annual entrance pass costing \$20 per vehicle while 36 percent opposed the introduction of any visitor pass. Discussion focuses on efforts to manage increased and diverse visitation while maintaining the integrity of the park's historic and natural resources.

1.0 INTRODUCTION

This paper reports on the second phase of a research project examining visitor use patterns, perceptions of crowding, preferences for proposed management plans for a mountain road, and preferences for proposed fee structures at Kennesaw Mountain National Battlefield Park (KMNP) outside Atlanta, GA. Information on the first phase of the research and on KMNP is available in Strack and Miller (2008). In brief, KMNP was the site of an 1864 Civil War battle in which 5,350 soldiers were killed. The 2,888-acre park today has earthworks, cannon emplacements,

monuments, and interpretive information about the battle and its context in the Civil War. It is also a very popular outdoor recreation site with an extensive network of trails that are used for walking, running, horseback riding, cross country skiing, and a variety of other activities. KMNP was visited by more than 1.3 million people in 2007, making it the second most visited national battlefield in the country, behind Gettysburg National Military Park (Natl. Park Serv., n.d.). An inherent conflict exists between the National Park Service's dual missions of preserving the park's historical features and providing outdoor recreation opportunities for large numbers of visitors.

2.0 METHODS

Data for this study were obtained via intercept survey of a random sample of 1,088 visitors at KMNP between February and September 2007. The population for this study consisted of individuals over 18 years of age who were visiting KMNP for at least one type of use. Data were stratified by days of the week and hours of the day, and by sites within KMNP. Visitors were approached, informed of the intent of the survey, and told that participation was voluntary and that their answers would remain confidential. Visitors who agreed to participate in the survey were handed a questionnaire and a letter from the supervisor of KMNP explaining the purpose of the study. If visitors were unable to complete the questionnaire right away, they were given the options of returning it to a staff member at the information desk in the Visitor Center or mailing it to the researchers at the University of Georgia. Survey distributors were students from the University of Georgia wearing hats and vests that identified them as National Park Service (NPS) volunteers.

An intercept survey was deemed appropriate for this study because it allowed the researchers to address complicated issues and gather more data than might have been possible by telephone or mail survey.

Since visitors to the park come from throughout the United States and beyond, an intercept survey ensured capturing the appropriate sample frame. The survey instrument was designed in cooperation with NPS staff at KMNBP following guidelines for the modified Dillman (2007) approach.

3.0 RESULTS

3.1 User Characteristics

Of the 1,088 visitors who completed the survey, the mean age was 42 years old and 60.7 percent were male. Respondents were asked how many minutes they drove that day to get to KMNBP; the mean reported driving time was 19 minutes, indicating that most visitors live in the local area or are staying nearby during their visit. More than 85 percent of respondents indicated this was not their first visit to KMNBP. Eighty-one percent indicated their main reason for visiting the park that day was for a fitness activity (including walking/hiking, running/jogging, bicycling, and walking their dog), while only 12 percent indicated that they were visiting to learn about the Battle of Kennesaw Mountain or the Civil War.

3.2 User Preferences

Visitors who had been to the top of Kennesaw Mountain were asked to respond to a set of questions specifically pertaining to Kennesaw Mountain Road (MR), which goes to the top of the mountain. The NPS staff at KMNBP are considering several options for managing the various types of users (pedestrians, bicyclists, motorists) on the MR. Respondents were asked to select their preferred management alternative from three choices, or to provide their own recommendation. The proposed management alternatives provided to survey participants were as follows:

- Option 1: Improve/reroute the trail to the top of the Mountain to make it accessible, and reserve the road for motor vehicles and bicycles.
- Option 2: Allow all current users on the Mountain Road, but separate different types of uses by time of day.
- Option 3: Prohibit personal vehicles and provide daily shuttle service to the top of Kennesaw

Mountain, allowing pedestrian access daily and bicycle access Monday through Friday.

None of these options was preferred by a majority of survey respondents; 38 percent chose option 3, 31 percent chose Option 1, 14 percent chose Option 2, and 16 percent offered their own suggestions. Option 1 was generally favored by first-time visitors, while Option 3 was most favored by returning visitors. Examination of option preference by frequency of visit found significant differences ($\chi^2 = 14.91$, $p < 0.01$) between first-time visitors and repeat visitors. Repeat visitors had a stronger preference for keeping vehicles off the road, whereas first-time visitors had a stronger preference for reserving the road for vehicles. The differing preferences among user types are shown in Figure 1.

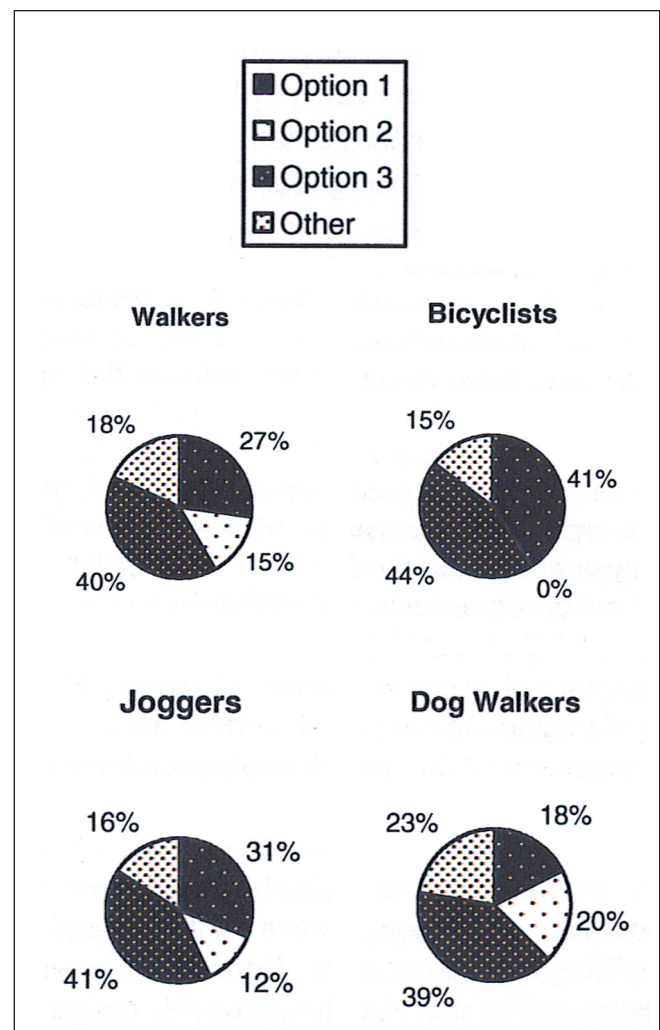


Figure 1.—Preferred management options by user type (respondents could choose more than one use).

Respondents were asked to respond to a series of statements regarding Kennesaw Mountain Road by circling a number on a 5-point Likert-type scale (1 = “strongly disagree,” 3 = “unsure,” 5 = “strongly agree”). Most visitors (81 percent) disagreed with the statement that other visitors on the road interfered with their enjoyment of Kennesaw Mountain, and 65 percent agreed that the MR should be open to all visitors, regardless of type of use. A majority (65 percent) disagreed that there were too many different types of activities allowed on the MR, but 22 percent responded that they were unsure about this statement. Fifty-eight percent of visitors surveyed agreed that there was adequate room on the MR to allow for a variety of activities, while 20 percent were unsure. About 71 percent disagreed that the number of pedestrians on the MR made it difficult for them to take part in their activities.

The U.S. Congress recently passed legislation permitting National Park Service sites to collect daily and/or annual entrance fees; between 80 percent and 100 percent of those funds can be used for improvements in the parks where they are collected. Under this law, KMNBP would be permitted to keep all of the funds raised through daily or annual visitor passes to improve services and facilities in the park. The research survey informed respondents about this law and asked them to choose one of four potential fee options. The options were:

- Option 1: Daily entrance pass costing \$5 per person if entering by foot, bicycle, or bus

- Option 2: Daily entrance pass costing \$10 per vehicle (excluding buses)
- Option 3: Annual entrance pass costing \$20 per vehicle (or per family if not entering by vehicle)
- Option 4: I would not be willing to pay for any entrance pass

Fifty percent of the respondents indicated they were willing to pay a \$20 annual fee, but 36 percent of visitors responded that they were not willing to pay any fee. Differences in fee options were noted between first-time visitors and more frequent visitors (Fig. 2).

Visitors who responded that this was not their first visit to the park were asked how often they visited. Preferred entrance pass options were analyzed in relation to frequency of visits to KMNBP; the preference for the \$20 annual fee increased with frequency of visit.

Respondents were asked to evaluate selected park facilities and services available at KMNBP on a 4-point unilateral scale ranging from “Poor” to “Excellent.” Overall, the majority of visitors rated the facilities at KMNBP as “Good” or “Excellent,” with the exception of “Number of Parking Spaces,” which received a “Poor” or “Fair” rating from 52 percent of the visitors. Respondents were asked which parking areas they had used that day as well as, “Is the place you are now parked the first place you tried to park today?” Seventeen percent of respondents answered that this was not the first place they had tried to park that day. Visitors who parked on the shoulder of Old

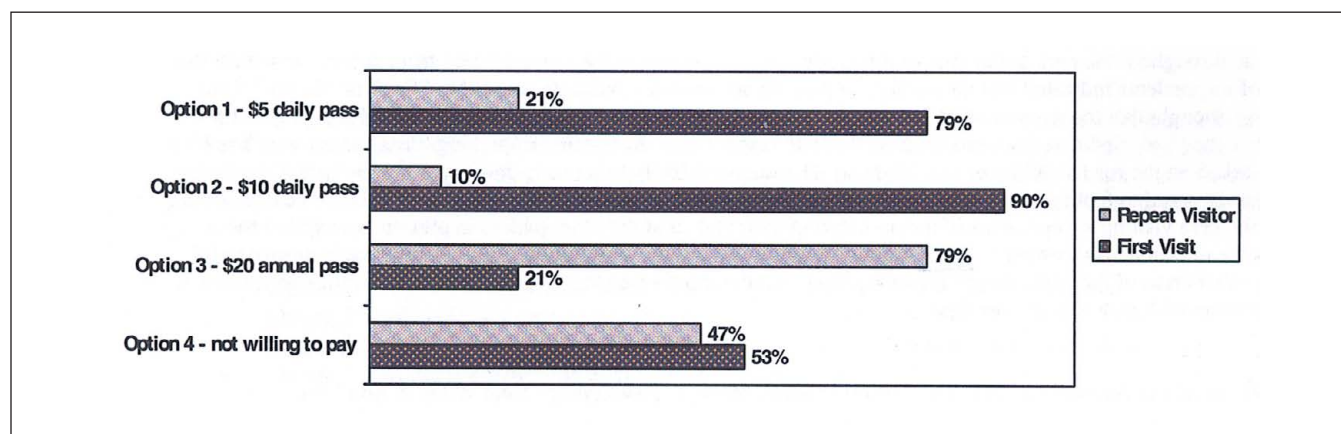


Figure 2.—Preferred entrance pass options (by frequency of visit).

Highway 41 and at Kolb Farm reported higher rates of trying to park elsewhere than visitors at other locations. Most visitors rated parking availability at the Illinois Monument (64 percent) and Kolb Farm (63 percent) as “Good” or “Excellent.” Parking along Old Highway 41 was rated “Poor” by 33 percent of respondents, the lowest rating among the sites listed. Overall, ratings of parking quality were lower among visitors who had had trouble finding parking that day.

4.0 DISCUSSION AND CONCLUSIONS

Regarding management options for the MR, visitors would prefer to have pedestrians and personal vehicles separated by some means; 69 percent of respondents chose either Option 1 (“Improve/reroute the trail to the top of the Mountain to make it accessible, and reserve the road for motor vehicles and bicycles”) or Option 3 (“Prohibit personal vehicles and provide daily shuttle service to the top of Kennesaw Mountain, allowing pedestrian access daily and bicycle access Monday through Friday”) as their preferred option. Option 2 (“Allow all current users on the MR, but separate different types of uses by time of day”) was the least popular option with a 14-percent selection rate. Similarly, only 16 percent of respondents indicated that they would prefer some other option not listed.

First-time visitors to the park overwhelmingly chose MR management Option 1 over the other options provided, whereas more frequent visitors were more evenly split between Options 1 and 3. Walkers, joggers, bicyclists, and dog walkers all chose Option 3 as their most preferred management option. None of the bicyclists chose Option 2, which was the least popular option for each group with the exception of dog walkers, who chose this option approximately as frequently as Option 1.

The majority of respondents indicated that other users did not interfere with their enjoyment of the road, that the road should be open to all users, and that there is enough room for all types of activities on the road. Responses to all six statements regarding users on the MR indicated that the majority of visitors do not have problems with anyone on the road. Although

crowding is currently an issue in terms of safety and management of the road, it does not appear to be an issue with those visitors who were surveyed.

Regarding the proposed user fees at the park, the most popular option was a \$20 annual vehicle pass. The only exception was among people who visit the park about once a year – for them, the \$20 annual pass was the least preferred option and the majority responded that they would not be willing to pay a user fee at all. Overall, the least popular option was the \$10 daily pass. Including a shuttle fee as part of the entrance fee was also not a popular option, as 64 percent of respondents indicated that they would not support an annual entrance pass that included an extra \$5 for the shuttle bus, as opposed to an additional charge to ride the shuttle. This lack of support for including the shuttle fee was most likely due to the high proportion of visitors who do not currently use the shuttle services.

Parking was an issue throughout the park at the time of this study, but perceptions of the issue differed from site to site within the park. Two-thirds of respondents indicated that the number of parking areas/spaces available was either “Fair” or “Good.” Only 15 percent of visitors thought that the number of parking areas/spaces was “Excellent.” Visitors who indicated that they did not park in the first place they had tried that day were twice as likely to respond that the number of parking areas/spaces was “Poor.” Visitors who had parked on the road shoulder of Old Highway 41 were most likely to indicate that it was not the first place they had tried to park that day, and to feel that the number of available parking areas/spaces was “Poor.” It should be noted that some respondents possibly were visiting several areas of the park during their visit, and therefore parked in other places within the park. However, as the question was worded “... *tried* to park” (emphasis ours) the assumption is that visitors made unsuccessful attempts to park in other areas of the park. Given the safety issue and the impact parking availability has on visitor perceptions, it is likely that the problem will grow worse over time.

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THE SPATIAL RELATIONSHIP BETWEEN EXURBAN DEVELOPMENT AND DESIGNATED WILDERNESS LANDS IN THE CONTIGUOUS UNITED STATES

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Abstract.—Public lands provide recreational opportunities and preserve historic and ecological values. Increases in low-density residential development in the contiguous United States pose a threat not only along the boundaries of national parks and forests, but also around uniquely valuable Wilderness areas. Development within and around protected lands can affect land management and landscape ecology by fragmenting forest and wildlife habitat, diminishing air and water quality, and limiting recreational opportunities and access. Exurban and rural sprawl particularly affects wilderness areas because land development is inconsistent with the nature of wilderness and its associated values. This research uses U.S. Census and land ownership data to identify National Wilderness Preservation System (NWPS) units with exurban or urban housing densities and large amounts of surrounding private land. Identifying NWPS units within 10 miles of the Wilderness boundary that are most likely to experience housing density increases will assist in the management and protection of these valuable lands.

1.0 INTRODUCTION

Public lands preserve historic and ecological values while also providing unparalleled recreational opportunities. However, increases in low-density residential development in the United States pose a threat along the boundaries of the nation's public lands. This threat affects not only national parks and forests, but also uniquely valuable Wilderness areas¹ that make up the National Wilderness Preservation System (NWPS) (Cordell et al. 2005, Stein et al. 2006). Wilderness areas are in a unique category of federal land protected through the 1964 Wilderness Act, which expressly prohibits human modification of the landscape. Though Wilderness areas are managed by one of four agencies (Bureau of Land Management [BLM], Fish and Wildlife Service [FWS], Forest Service [FS], or National Park Service [NPS]), all Wilderness areas are part of the National Wilderness Preservation System (NWPS). These lands preserve inimitable research and recreational opportunities; provide sources of ecological and biological diversity; and offer oft-perceived aesthetic, existence, bequest, and intrinsic values (Cordell 2005, Noss 1991).

Wilderness areas are particularly affected by exurban and rural sprawl because land development clashes with the nature of wilderness and its associated values (Cordell et al. 2005). Development within and around protected lands can affect both the ecology and management of these ecosystems by increasing forest and wildlife habitat fragmentation and reducing air and water quality. Land ownership patterns may also affect recreational opportunities and access. Thus, housing density increases near Wilderness areas are incompatible with wilderness values and pose challenges to the management of these areas.

¹ Capitalization of "Wilderness" denotes federally designated units of the National Wilderness Preservation System in keeping with the current literature.

1.1 Background

To accommodate an increasing human population, housing density is expected to rise in many areas of the United States, adding to the overall trend of urbanization (Cohen 2003, Theobald 2005). Similarly, America's proclivity for exurban and rural growth results in a "development footprint" that is unequal to population increase. Exurban and rural development disproportionately increases road density per housing unit and contributes to forest fragmentation (Hammer 2003, Theobald 2005). The effects of such low-density development are reflected in both the ecology of the local system and people's enjoyment of the landscape.

Increases in population, housing, and road density together create a marked effect on natural areas (Cordell and Overdevest 2001), often with negative ecological implications. Of primary concern are impacts resulting from development and subsequent fragmentation including critical wildlife habitat loss, a decline in biodiversity, introduction of invasive species, microclimate changes, influences on air and water quality, alteration of nutrient flow, modification of migration patterns, and risks associated with wildfire (Arnold and Gibbons 1996, Debinski and Holt 2000, Radeloff 2005, Riitters 2002, Schueler 1994). Additional effects include a decline in the manufacture of forest products and reduction of recreational opportunities (Stein et al. 2005).

The pressures of human development and private land ownership within the protected landscape add difficult and sensitive aspects to the duties of land managers. Fragmented land ownership patterns create a challenge for managers of public lands as they strive to protect natural and historic values and maintain access for recreation. The term "backcountry sprawl" describes the housing development increase within and near national forests and parks (Russell 2006). A 34-percent increase in the amount of developed land in the United States between 1982 and 1997 is projected to be followed by a 79-percent increase by 2030, almost doubling the total developed land base (Alig 2003). More than 44 million acres of private forests in the contiguous United States are expected to undergo an

extensive rise in housing density in the next quarter century, enough to substantially affect the borders of national forests and grasslands in America (Stein et al. 2005). Implications for public lands include direct pressures related to population and economic growth, as well as recreational demands; indirect pressures will result from inconsistent use of neighboring lands (Cordell and Overdevest 2001). However, national forests and grasslands are not the only protected lands at risk from development along the borders; housing density will likely increase in and around Wilderness areas as well (Cordell and Overdevest 2001).

Without current measures of housing density near NWPS boundaries and landscape-level land cover change to identify areas of primary concern, land managers cannot effectively plan for NWPS areas. Housing density calculations are expected to identify Wilderness areas experiencing the greatest risk of development in the near future. By merging U.S. Census data with known factors affecting development, this study will provide a method for ascertaining which protected areas are most at risk, thus targeting locations where action is most necessary and improving strategies for conservation and protection (Theobald 2003). An understanding of the implications of private land development on the surrounding protected landscape is necessary to preserve the natural resource values currently afforded by America's public lands.

1.2 Study Area

The NWPS comprises 704 federally designated Wilderness areas (Wilderness Institute 2008). The contiguous United States contains 652 individual units of the system (Fig. 1); nearly 107.5 million acres (2 percent of the contiguous U.S. land area) in 44 states are protected as Wilderness (Hendee and Dawson 2002).

2.0 METHODS

Quantification of sprawl near Wilderness areas in the continental United States includes a) determination of current housing density at 0.5-, 3-, and 10-mile distances of NWPS boundaries and b) calculation of

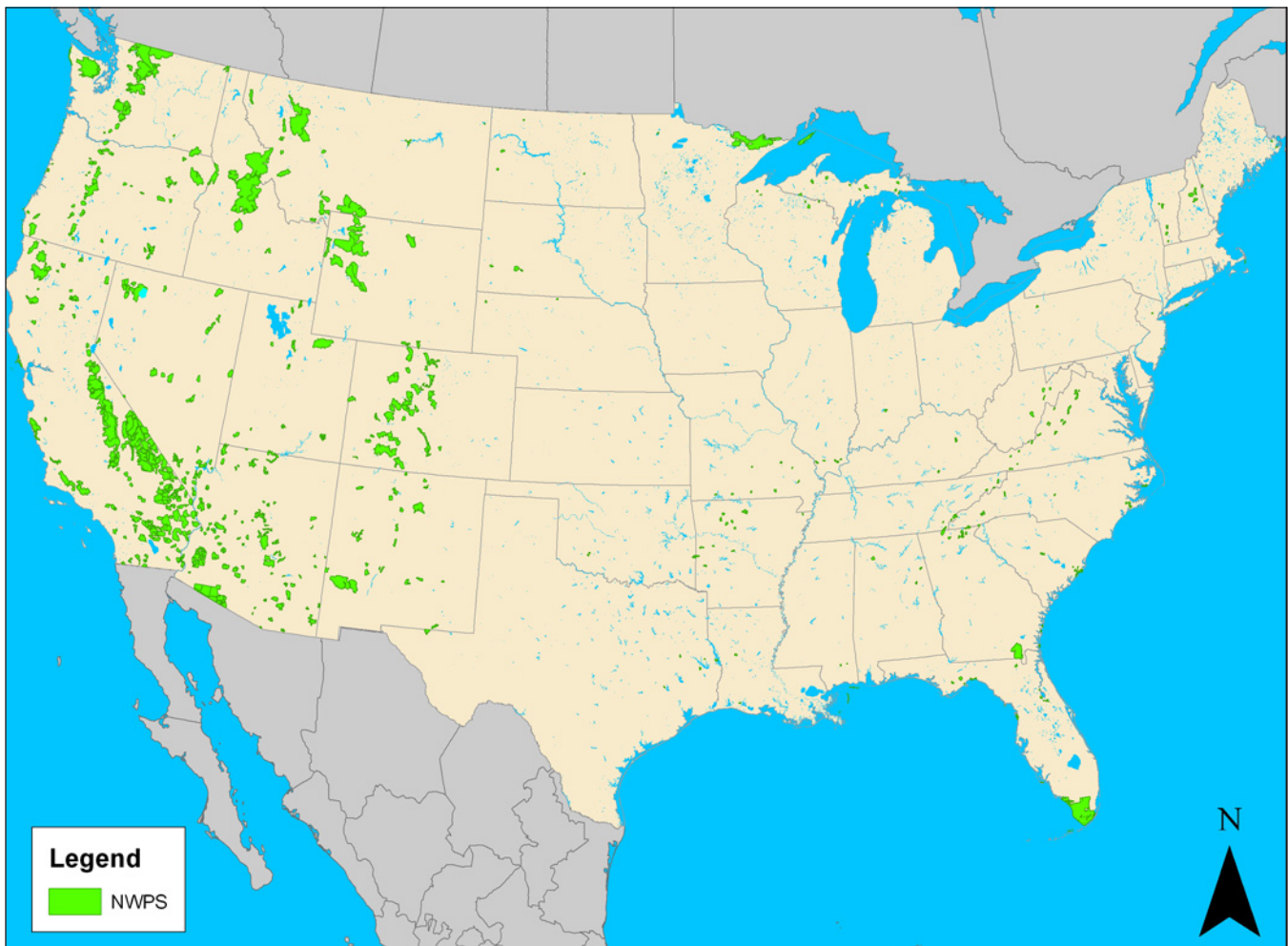


Figure 1.—The National Wilderness Preservation System in the contiguous United States.

the amount and percentage of developable land within 0-, 0.5-, 3-, and 10-mile distances of NWPS lands. Wilderness areas experiencing the greatest likelihood of development are predicted to be positively correlated with exurban or urban housing densities and the presence of nearby private land.

2.1 Analysis

Geographic data known as shapefiles were acquired from National Atlas, U.S. Census Bureau, U.S. Department of Agriculture, U.S. Department of the Interior, and the U.S. Geological Survey and imported to a Geographic Information System (GIS). The accuracy of the shapefiles varies between sources and the finest-scale data for each parameter was used in the final analysis. Geographic data exist for Wilderness areas greater than 640 acres and designated

prior to 2004 – a total of 600 NWPS units. For each Wilderness area, buffers were created around the Wilderness area (WA) itself, a 0 to 0.5-mile buffer from the border of the WA, a 0.5- to 3-mile buffer of the border of the WA and a 3- to 10-mile buffer from the border of the WA. These buffers represent straight-line distance from the NWPS border and are analogous to a radius, except that NWPS areas are irregularly shaped (Fig. 2). Additional analysis was conducted on all land within a 10-mile buffer of NWPS area boundaries.

Urban and suburban housing densities are defined as having 64 or more housing units per square mile. Exurban housing densities have 16-64 units per square mile) while rural areas contain less than 16 units per square mile (Stein et al. 2006, Theobald 2005). A

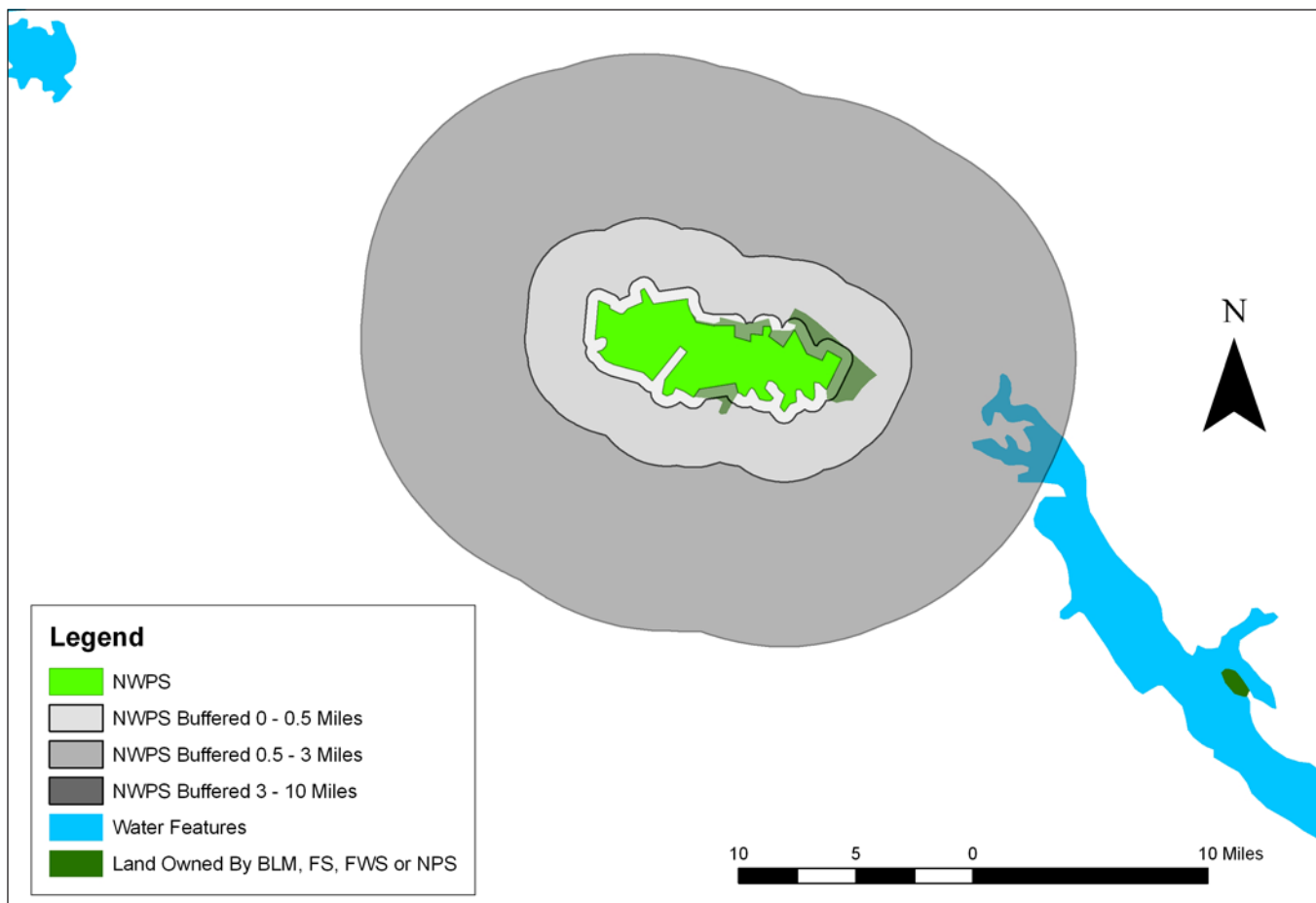


Figure 2.—Example of buffer construction for Congaree National Park Wilderness Area, South Carolina.

database of NWPS units that intersect Census block groups at urban and exurban housing densities was created in ArcGIS by assigning urban, exurban, and rural housing density categories to all Census block groups in the contiguous United States. Those NWPS lands that intersect Census block groups for each housing density category were selected by location. Additionally, all Census block groups that intersect with Wilderness boundaries or within a 10-mile buffer of NWPS lands were exported for further analysis.

Land ownership has a substantial role in the likelihood of development of a particular parcel. Areas excluded from potential development in this study include all water features and land owned by BLM, FWS, FS, or NPS. Surface ownership files including information regarding inholdings were utilized for BLM and FS, but the remaining agencies have geographic data for the administrative boundaries only. Thus, the actual amount of developable land may be underestimated.

State lands and conservation easements were not included because the data are not available nationwide. For each buffer distance, the amount and percent of nonfederal land for each protection category within each buffer was calculated.

3.0 RESULTS

The results were organized according to each parameter: Census data and land ownership.

3.1 Wilderness and Census Data

Of the 600 NWPS units in the contiguous United States for which geographic data were obtained, 489 were completely surrounded by land in the rural housing density category. Forty Wilderness areas contain part of a Census block group at urban housing densities while 99 NWPS units intersect with Census block groups at exurban housing densities. Note that 28 Wilderness areas intersect with both urban and exurban Census block groups.

Census block groups from the year 2000 intersecting NPWS buffer were analyzed. Of 1139 Census block groups intersecting a Wilderness area boundary, 70 block groups were at urban housing densities and 142 block groups were at exurban housing density. The remaining 927 block groups were below the rural housing density threshold. Average housing density for all Census block groups was 15.77 units per square mile. Median housing density was 3.63 units per square mile with maximum housing density reaching 1743.59 units per square mile. Minimum housing density was 0.00. The 2000 Census block group population data yielded an average population density of 44.49 persons per square mile. The median population density was 5.73 persons per square mile with a maximum density of 4203.70 persons per square mile and a minimum of 0.00 persons per square mile.

Analysis was repeated for the 11,165 Census block groups intersecting the 10-mile buffer around NWPS lands. Of these block groups, 7,424 were at urban housing density, 1,409 were exurban density, and 2,332 were rural. The average housing density for block groups within 10 miles of NWPS lands was 1161.18 units per square mile. The minimum housing density was 0.00 units per square mile, the median housing density was 458.84 units per square mile, and the maximum housing density was 30,520.83 units per square mile. Population of Census block groups within a 10-mile buffer of NWPS lands yielded an average population density of 2,949.03 persons per square mile. Population density peaked at 76,180.36 persons per square mile for this area. The minimum population density was 0.00 persons per square mile and the median was 1,048.90 persons per square mile.

3.2 Wilderness and Land Ownership

The amount and percent of land within 0-, 0.5-, 3-, and 10-mile buffers of NWPS lands owned by BLM, FS, FWS, or NPS was calculated. For the purposes of this publication, water features and lands owned by the four Wilderness managing agencies are referred to as “protected.” Because the amount of land is primarily a function of NWPS unit size, only percentages will be discussed. Within NWPS boundaries, the percentage

of land that was not owned by the four Wilderness-managing federal agencies ranged from 0.00 percent to 51.37 percent. The median percentage of nonfederal land within NWPS boundaries was 0.34 percent and the average was 2.02 percent.

For a 0- to 0.5-mile buffer of NWPS lands, the average percentage of land per NWPS unit not protected by these four agencies was 20.02 percent. Percentage of nonprotected land varied from 0.00 percent to 98.88 percent with a median value of 12.33 percent. The average percentage of nonprotected land increased to 30.96 percent for the 0.5- to 3-mile buffer. Values for this buffer ranged from 0.00 percent to 100.00 percent nonprotected with a median value of 26.61 percent. In the 3- to 10-mile buffer of NWPS lands, the minimum percentage of nonprotected land is still 0.00 percent with a maximum of 100 percent. Average percentage of protected land in this buffer was 46.79 percent and the median was 47.90 percent.

A 10-mile buffer of individual NWPS boundaries allowed a picture of federal protection at the landscape level. Ranging from 0.00 percent to 96.44 percent unprotected, the percent of nonprotected land within a 10-mile buffer of NWPS lands averaged 35.97 percent and the median was 32.69 percent (Fig. 3). Only three Wilderness areas experience 100-percent protection of the land within 10 miles of their borders: Farallon Wilderness in California, Isle Royale Wilderness in Michigan, and Jumbo Springs Wilderness in Nevada. Of these, Farallon and Isle Royale are completely surrounded by water so the protection is a function of removal from the mainland, not federal land ownership.

Preliminary calculations for each parameter identified 10 NWPS Wilderness areas where less than 10 percent of the land is protected by any of the four Wilderness managing agencies at a distance of 10 miles from the border (Table 1). In these cases, the Wilderness areas are essentially islands of BLM, FS, FWS, or NPS land within a nonfederally owned landscape. Hypothetically, development can occur right up to the edges of these NWPS units.

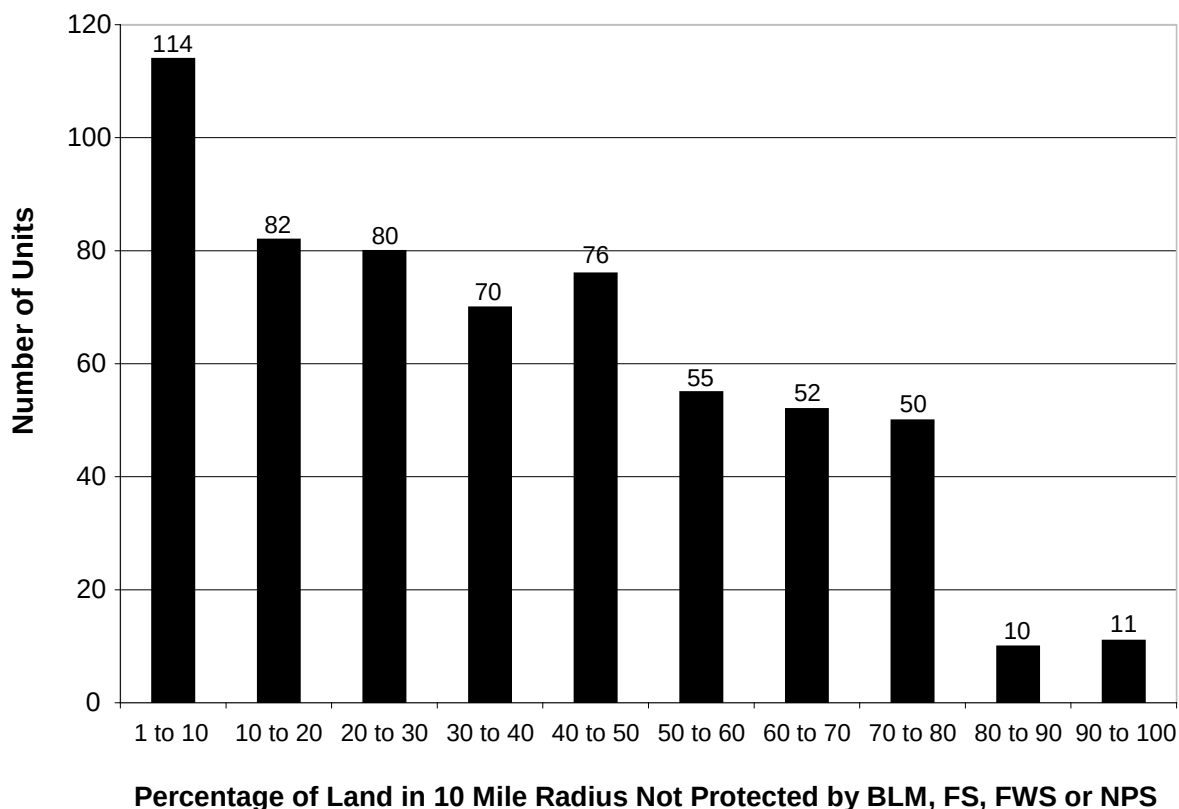


Figure 3.—Number of National Wilderness Preservation System units by percent of land within 10-mile buffer not protected by the four Wilderness managing agencies.

Table 1.—National Wilderness Preservation System lands experiencing the greatest percentage of lands not owned by the four wilderness managing agencies within 10 miles of their border

NWPS Unit	Management Agency	State	Percent of Nonfederal Land
Great Swamp National Wildlife Refuge Wilderness	FWS	NJ	96.44
Coyote Mountains Wilderness	BLM	AZ	96.16
Chase Lake Wilderness	FWS	ND	95.39
Big Lake Wilderness	FWS	AR	95.28
Fort Niobra Wilderness	FWS	NE	93.85
Birkhead Mountains Wilderness	FS	NC	93.80
McCormick Wilderness	FS	MI	93.32
Congaree National Park Wilderness	NPS	SC	93.25
Pinnacles Wilderness	NPS	CA	92.17
Lostwood Wilderness	FWS	ND	90.43

4.0 DISCUSSION AND CONCLUSIONS

Although the majority of NWPS units experience less than 50-percent nonprotected land within 10 miles of their border, those with large reserves of private land may experience housing density increases as Americans search for natural areas to build second, vacation, and retirement homes. Identification of NWPS units with such stores of unprotected land is the first step in protecting areas where additional easements and acquisition may be necessary.

Future research will include creating an overall description of development pressures for each Wilderness area based on an ordinal system ranking each pixel in the landscape on the likelihood of development based on land ownership, distance to nearest road, distance to the nearest urban area, distance to a major city, and land cover change of neighboring pixels. A second tier of protection where housing density increase is unlikely includes land owned by the Tennessee Valley Authority or by the Department of Energy, tribal lands, and Protected Areas of Canada. Though residential development is prohibited on these lands, preservation of Wilderness characteristics is not expressly considered by these agencies and was not included in this report, but future research should include these data. Ideally, future research will include information on state parks and conservation easements as geographic data become readily available. An updated shapefile containing Wilderness areas designated since 2004 is also necessary to complete an up-to-date analysis. Additionally, current GIS data for Alaska, Hawaii, and United States territories is at too coarse a resolution for this particular research goal; thus this study focuses only on the continental United States.

5.0 ACKNOWLEDGMENTS

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***HEALTH AND PARKS,
RECREATION AND TOURISM***

INCREASING WALKING AT THE C&O CANAL NATIONAL HISTORICAL PARK: AN INTERVENTION FOCUSED ON LOCAL EMPLOYEES

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Abstract.—This study sought to increase walking in the C&O Canal National Historical Park (NHP). C&O Canal NHP joined with Georgetown University, George Washington University, and the Georgetown Business Improvement District to target the employees of these businesses. The study was very similar to a multi-worksites employee wellness research program. Volunteer participants formed teams and competed in a 7-week walking challenge. Pre- and post-challenge surveys were used to measure the effects of the interventions, and were distributed to all participants (N = 183) online and through the mail. The program “interventions” consisted of: 1) message fliers delivered via email to half the participants (chosen randomly) every other week; and 2) social support development—through team formation, and the use of a website to track and compare their progress for all participants. Comparisons between these two groups—social support only and social support plus fliers—assessed the impacts from the interventions. Results indicated that the overall walking behavior did not change. Most participants were already active walkers, and overall, walking rates did not increase. However, results indicated that those participants receiving the fliers increased their walking rates by 1 day per week.

1.0 INTRODUCTION

Although numerous studies have shown that physical activity is a critical component of health (U.S. Department of Health and Human Services [HHS] 1996), the proportion of Americans meeting physical

activity standards remains low (U.S. HHS 1995). In fact, 55 percent of Americans do not meet the minimum physical activity recommendations for health, and almost 25 percent are sedentary (Pate et al. 1995).

As part of the increasing focus on improving individual health, the Healthier U.S. Initiative proposed in 2002 by President Bush promoted the use of public lands to improve personal health, by encouraging the use of these lands for physical activity. Based on the recommendations of the National Park System Advisory Board Subcommittee on Health and Recreation (2006), the C&O Canal National Historic Park (NHP) was chosen to participate in a pilot study (as one of seven NPS sites) to examine this link between health benefits and national parks. The purpose of this study was to use messages and social support to increase walking in the C&O Canal NHP by targeting employees who work in one specific area of the park, the Georgetown area of Washington, DC.

2.0 LITERATURE REVIEW

One avenue to address improving health focuses on the use of outdoor recreation resources, such as state and federally managed parks, forests, and other sites, to encourage physical activity. Surprisingly, information is lacking in regards to the empirical relationships between leisure behaviors, natural parks, and physical health, although more researchers have begun to explore these areas during the last decade (Hodges and Henderson 1999, Iwasaki et al. 2001, Ho 2003, Oresaga-Smith 2004). While a great deal is known about the demographics of trail and park users (Giles-Corti and Donovan 2002, Addy et al. 2004, Gordon et al. 2004, Libbrett et al. 2006), as well as the restorative benefits of outdoor recreation (Kaplan 1995), less research has focused on promoting the healthy physical benefits of outdoor recreation areas and the effects of interventions to increase use (Gobster 2005).

2.1 Strategies to Promote Physical Activity

Nonetheless, a variety of strategies have been implemented to promote physical activity in general, and walking in particular. While numerous theories and approaches—including the Health Belief Model, the Transtheoretical Model, Social Cognitive Theory, and Social Marketing—have been used to address factors that predict the intention, implementation, or maintenance of a variety of health-related behaviors, one of the most widely used is the Theory of Planned Behavior (TPB). According to the TPB, a specific behavior is based on a series of connected beliefs. Therefore, in order to attempt to modify or change a person's behavior, it is critical to understand the beliefs related to that specific behavior (Ajzen 1991).

The TPB has been used in many studies that addressed a variety of health behaviors (Stradling and Parker 1996, Povey et al. 2000, Courneya et al. 2001, Reger et al. 2002, Stead et al. 2005). In regards to physical activity specifically, numerous studies have consistently found strong relationships between TPB constructs and physical activity (Goden 1993, Blue 1995, Hausenblaus et al. 1997, Rosen 2000, Hagger et al. 2002). In addition, social support has been noted as an important factor in determining physical activity (Duncan et al. 1993, Carron et al. 1996, Giles-Corti and Donovan 2002, Trost et al. 2002). Developing and providing opportunities for social support in community settings has been recommended as an effective method to promote physical activity (Kahn et al. 2002).

2.2 Study Purpose

This study sought to use theoretically derived messages and social support to increase walking behavior at the C&O Canal NHP (measured using self-report mail-back and online surveys).

3.0 METHODS

3.1 Study Area

The C&O Canal NHP is a 185-mile-long linear park running from Washington, DC to Cumberland, MD. It receives 3 million visitors every year, making it one of the most visited national park areas. With so many

people working and residing near the park, the primary visitation pattern is repeated, short visits. This pattern was an important factor in selecting the audience for this project.

The geographic area of focus for the project was the trail/towpath along the Canal within and just outside the Georgetown area of Washington, DC. Walking was chosen because it is the most widespread outdoor physical activity due to its ease, accessibility, and acceptability (Siegel et al. 1995, Brownson et al. 2004). The overall goals of the project were: 1) to increase park users' awareness of the health benefits derived from recreation in the park; and 2) to increase their use of the park for walking. This study reports only the outcomes related to goal 2—increasing walking in the park.

The park worked with the Georgetown Business Improvement District (GBID) to target the employees of those businesses, as well as Georgetown University and George Washington University employees. The GBID has a membership of about 1,000 businesses in Georgetown, and seeks to collectively market and enhance the Georgetown area as a place for business and a destination for visitors (similar to a Chamber of Commerce). The volunteer participants were the recipients of a multi-component program—derived from using social support, TBP, and the Elaboration Likelihood Model (ELM)—to encourage walking, both in the C&O Canal NHP and elsewhere. This project was very similar to a community or employee wellness program, but more complex because it involved numerous jobsites.

3.2 Data Collection

Onsite interviews and a focus group of GBID employees were first used to elicit beliefs of the target sample regarding walking in the C&O Canal NHP, and the results were used to develop the targeted messages used to motivate participants during the Challenge (Middlestadt et al. 1996, Ham et al. 2007). The program “interventions” consisted of: 1) targeted messages delivered via email fliers to half the participants (chosen randomly) every other

week; and 2) social support development—through team formation, and the use of a website to track and compare their progress for all participants. Comparisons between these two groups, 1) social support only; and 2) social support plus message fliers, assessed the impact from the interventions.

3.3 Focus Groups

During the focus group (held in May 2007), all participants were given a series of questions to be answered individually, followed by a group discussion of the same questions. Using the TPB (Middlestadt et al. 1996, Lackey and Ham 2003, Ham et al. 2007) to guide this phase of the research, interviewers asked participants specific questions related to their: 1) salient personal beliefs and attitudes; 2) salient normative beliefs; and 3) salient perceived behavioral control beliefs. In this study, the specific targeted behavior addressed in the questions was “walking for at least 30 minutes a day, 5 days a week on the C&O Canal NHP trails.”

In addition, nine onsite interviews were conducted in May 2007 with C&O Canal NHP visitors. A convenience sample of individual visitors was approached, and respondents were asked the same series of questions used in the focus groups. The interviewers wrote down the responses verbatim.

Results of the focus group and interviews were combined, analyzed for content, and coded for common themes centered on the three main types of beliefs noted above (Ham et al. 2007). A comparison of the beliefs of both “walkers” (those currently using the C&O Canal NHP towpath to walk for exercise or health improvement) and “nonwalkers” found that the most salient beliefs that should be addressed were: 1) enjoying the view/scenery on the towpath (behavioral belief, which more walkers than nonwalkers mentioned); 2) safety on the towpath (behavioral belief, noted by both groups); 3) having a walking buddy for motivation (a control belief, which more nonwalkers than walkers stated); and 4) lack of time to walk (a control belief, which more nonwalkers mentioned). Four fliers were then developed and sent during the 7-week challenge. These message fliers

targeted the positive and/or negative beliefs associated with raising awareness and encouraging walking for 30 minutes a day on the C&O Canal NHP trails and elsewhere (Ham et al. 2007). Principles from the ELM were also used to help design these targeted messages—specifically by using humor, attempting to make the messages novel and relevant, and targeting both peripheral and central routes to persuasion (Petty et al. 1992).

3.4 Description of the Challenge and Interventions

As noted, the study used social support and team competition, in conjunction with theoretically derived messages, as the two main strategies to encourage the participants to walk. Volunteer teams were organized from the groups noted above and competed against each other to complete the overall goal/challenge: to walk 185 miles (the length of the Canal) in 7 weeks as a team. (If each team member walked 5 miles per week, it would take an average of 7 weeks for the team to reach 185 miles.) Individuals were also encouraged to participate. Teams were encouraged to have five members, which would be the optimal number to ensure that each person walked at least 30 minutes a day in order to reach 185 miles. In reality, teams formed of varying sizes, and competed by comparing average miles per team. In order to track miles, this study used 20 minutes of walking as a measure for 1 mile, based on findings in a variety of studies (Welk et al. 2000, Tudor-Locke and Bassett 2004).

A website and web-log were set up and maintained as a major source of feedback for the participants. They uploaded their miles to chart their progress and compare it against other teams (similar to the Walk Across Texas program). All teams or individuals were required to register online, and throughout the course of the study were reminded to upload their miles and track their progress on a weekly basis. The website was modeled after the President’s Council on Physical Fitness and Sports site, “The President’s Challenge Physical Activity and Fitness Awards Program,” as well as the “Walk Across Texas” program’s website (Texas AgriLife Extension 1996). As additional incentives, the three teams and individuals with the

most number of average miles walked by the end of the Challenge received gift certificates, and all participants who completed the Challenge received small prizes.

3.5 Data Collection Procedures

This study used a pre- and post-intervention survey to measure changes in self-reported walking rates before and after the program. Both surveys were distributed to all participants (N = 183) online and through the mail. All registered participants were asked to fill out a survey at the start of the challenge in early September 2007, and again at the end in early November. Modifying Dillman's method (Dillman 2007), reminder emails were sent approximately 1 week, and again 2 weeks, after the start of each survey. A second paper copy was sent to nonrespondents after 3 weeks. These survey instruments included questions related to respondents' demographics, awareness and knowledge of importance of health benefits related to walking, self-reported walking behaviors (using separate questions to differentiate between walking in the park and outside the park), and awareness and impact of targeted messages and social support on walking (only on post-intervention survey).

4.0 ANALYSIS

This project used a quasi-experimental research design (pre-test, post-test) to evaluate the results. No control group was feasible to use for this project, so two intervention groups were used. All participants received the social support intervention (teams, weblog, etc.), but only half the participants also received the targeted messages. The data from all online surveys were collected using a Microsoft Access database, converted to Excel, and then imported into the SPSS software package. Mailed-

back surveys were entered directly into the SPSS database.

5.0 RESULTS

The total number of participants was 183, with 39 teams made up of varying numbers of people, and 29 individuals. Ninety-nine participants (including individuals and those on a team) completed the challenge. Ninety-nine respondents returned the pre-challenge survey, for a 54-percent response rate, and 58 participants returned the post-survey, for a response rate of only 32 percent. Forty-one individuals (22 percent) returned both surveys, and most of the paired analyses were conducted on only these 41 participants (except as noted).

The majority of participants (N = 99) were female (77 percent) and the participants' average age was 43 years. The majority were college graduates (73 percent), with 38 percent having a graduate or professional degree. Most participants were white (65 percent) or African American (23 percent).

At the start of the Challenge, most participants were already active walkers, with 86 percent walking 5 or more days per week for at least 10 minutes ($M=5.9$ days); and 85 percent reported they walked for at least 30 minutes on those days ($M=58$ minutes). However, only 44 percent reported walking on the C&O Canal NHP towpath specifically (19 percent reported walking only 1 day per week on the towpath, while 25 percent reported walking 2 or more days per week in the park). Sixty-five percent of the C&O Canal NHP walkers spent at least 30 minutes walking ($M=52$ minutes). At the end of the challenge (N = 58), those figures remained roughly the same (see Table 1).

Table 1.—Walking results, based on all survey respondents

Variable	Pre-Challenge (N=99; Means)	Post-Challenge (N=58; Means)
Number of days walked in general	5.9 days	5.6 days
Number of days walked at the C&O	1 day	1 day
Number of minutes walked per day in general	58 minutes	54 minutes
Number of minutes walked per day at C&O	52 minutes	46 minutes
Percentage walking for at least 30 minutes (each day they walked)	85%	86%

Analysis using paired t-tests (N = 41) found no significant differences pre- and post-challenge between: 1) the number of days walked in general; 2) the number of days walked specifically at the C&O Canal NHP; 3) the number of minutes walked per day in general; or 4) the number of minutes walked per day (Table 2). Thus, the walking challenge did not appear to increase walking rates. The critical p-value for determining significant differences in all statistical tests was $p < 0.05$.

However, analysis using independent t-tests to test for differences between the “fliers and social support” group and the “social support only” group, found that the group receiving the fliers walked approximately 1 more day per week in general, 6 days versus 5 days ($t = 2.646$, $p < .011$). Therefore, the fliers may have increased the number of days the participants walked in general. No differences were found in regards to

the number of days walked specifically at the C&O Canal NHP, the number of minutes walked per day in general, or the number of minutes walked per day at the C&O Canal NHP.

Participants were also asked about their beliefs regarding the motivation effect of the various interventions, as well as the Challenge in general. Overall, it appears that being part of a team and being able to track their progress online provided the most motivation to walk (see Table 3).

Two different questions specifically addressed beliefs regarding whether the challenge increased their use of the C&O Canal NHP towpath. The first asked, “In general, did participating in the ‘Your Towpath to Healthy Living Challenge’ increase your use of the C&O Canal NHP for walking?” and 42 percent responded “Yes,” while 54 percent reported “No.”

Table 2.—Walking results, paired t-tests (N = 41)

Variable	Pre-Challenge (means)	Post-Challenge (means)	t value, level of significance
Number of days walked in general	6 days	6 days	$t = .608$, $p < .547$
Number of days walked at the C&O	1.25 days	1.27 days	$t = .086$, $p < .932$
Number of minutes walked per day in general	64 minutes	60 minutes	$t = .396$, $p < .695$
Number of minutes walked per day at C&O	75 minutes	48 minutes	$t = 2.058$, $p < .079$

Table 3.—Beliefs about motivation and the interventions

	Means (N = 58)	% that “strongly agreed” or “agreed” *
During the past 2 months, just knowing I was part of a team participating in the “Your Towpath to Healthy Living Challenge” motivated me to walk.	3.87	77%
During the past 2 months, being able to track my individual and team progress online motivated me to walk.	3.74	72%
During the past 2 months, actually walking with my team members motivated me to walk.	3.37	54%
During the past 2 months, receiving email fliers about walking in the “Your Towpath to Healthy Living Challenge” motivated me to walk.	2.98	37%
During the past 2 months, participating in the ranger-led walks motivated me to walk.	2.43	9% (agreed, 4 people)
During the past 2 months, listening to C&O Canal NHP podcasts motivated me to walk.	2.24	2% (agreed, 1 person)

*Note: Response scale was a 5-point Likert scale, from 1 = “strongly disagree,” to 5 = “strongly agree.”

The second question asked, “In the last 2 months, has the number of times you walk/run on the C&O NHP towpath increased, and why?” The answer percentages were similar to the first question, with 37 percent reporting an increase, 14 percent reporting a decrease, 33 percent reporting no change, and 12 percent saying they “did not know.” In regards to the open-ended comments (N = 22) that addressed why their walking had increased, 73 percent noted social support related to the team challenge as the reason.

Thus, just over one-third (between 37 and 42 percent) of respondents reported that the Challenge increased their use of the park for walking. Although no statistical significance was found in walking rates in the C&O Canal NHP (Table 2), the results of the two questions above show that about 40 percent believed it did increase their use of the park. Therefore, regardless of actual behavior change, many perceived that their behavior (walking in the park) had changed. In answer to the open-ended question that asked, “What was the most important thing that motivated you to walk...?”, the two most frequently reported comments (N=41) were social support related to the team challenge (34 percent), and the physical health benefits from walking (39 percent). Barriers to walking that were reported in response to an open-ended question (N=49) were lack of time (39 percent), physical limitations or injuries (27 percent), and bad weather (10 percent).

6.0 DISCUSSION

Insufficient evidence was found for the effectiveness of the C&O Canal NHP’s program to increase walking in the park. However, evidence was found that the message fliers may have had a statistically significant impact on walking in general, increasing the average days walked per week from 5 to 6 days. Interestingly, although no significant difference was found in walking rates in the C&O Canal NHP, about 40 percent of the respondents reported that they thought it did increase their use of the park. Social support through the use of teams for the Challenge was reported as the primary motivator to walk. Encouraging people to join teams and engaging in friendly team competition may be an effective way to motivate, and even sustain, walking behavior.

Although this study targeted individuals working near the park, most still chose to walk elsewhere. Unfortunately, the reasons for this preference are not known. Merely providing a place to walk is clearly not enough to get participants to alter their walking behavior, and decisions to walk are generally made by considering numerous factors (e.g., time of day, time allowed/needed to walk, walking buddies, family considerations, having clean/appropriate clothing).

In addition, this Challenge sought to attract and encourage nonwalkers; however, it attracted only participants who were already walking. Thus, little change would likely be noted, since the challenge was not planned for active walkers. However, it did appear to give walkers a new avenue or outlet (the social aspect of the team challenge) and to motivate them in new ways to keep walking. Many noted that just being on a team was the part of this program that motivated them the most. Finally, future research should carefully consider the recruitment methods, in order to attract the most appropriate sample (nonwalkers versus walkers).

Several limitations were associated with this study, particularly the analysis of the paired surveys. The response rate for those completing both surveys was quite low. The small initial sample size and the low response rate on the paired surveys make it inappropriate to generalize the results to other worksites or parks. However, a brief phone survey of a random sample of nonrespondents (N=13) was used to assess potential nonresponse bias, and no systematic bias was indicated. In addition, this project was unable to measure long-term outcomes to see whether the increase in walking due to the fliers was maintained. Future research should attempt to measure both short- and long-term outcomes. This study also encountered a number of problems due to the heavy reliance on the website, including participants’ creating multiple accounts, and surveys that were incomplete due to participant confusion, computer error, or other limitations. Relying on email to contact participants was convenient, but this project may have overused that avenue of communication (i.e., frequent emails may have caused people to disregard them).

One finding from the nonresponse bias check was that participants just wanted to join their team and then walk, and not be bothered with getting frequent emails, or filling out mileage logs or surveys. Similar walking challenges (e.g., “Walk Across Texas”) have found that having an active and committed team captain is critical to the success of logging miles, and that addition might have helped this project as well.

7.0 CONCLUSIONS

In conclusion, this study did not find evidence of the effectiveness of the C&O Canal NHP’s program in regards to increasing active visits to the C&O Canal NHP. However, the message flier intervention had a statistically significant impact on walking. Problems related to low response rates on the surveys limit the ability to make specific recommendations based on the findings. Interestingly, while no significant differences were found in walking rates based on the challenge, about 40 percent of the respondents perceived that it did increase their use of the park. Other lessons learned included: 1) the importance of social support through teams as a motivator; 2) the need to form partnerships with well established or large organizations who can aid in recruitment; and 3) recognizing participants’ needs regarding the use of technology.

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RESEARCH ROUNDTABLE ON HEALTH, PARKS, RECREATION, AND TOURISM

Moderator: Kelly S. Bricker, University of Utah

Research Panel: Jessica Leahy, University of Maine;
Dave Smaldone, West Virginia University;
Andrew Mowen, The Pennsylvania State University;
Chad Pierskalla, West Virginia University.

1.0 INTRODUCTION

Presented by Kelly Bricker

Over the past few years, there has been increased awareness of the connection between health and outdoor recreation and a proliferation of alliances, partnerships, and statewide efforts to promote the health benefits of outdoor recreation (Memorandum of Understanding [MOU] 2002, NRPA 2008). The alliances formed underscore the relevance of outdoor recreation in promoting healthy lifestyles, healthy environments, and healthy communities. As a result, many initiatives are underway to connect the outdoors to a healthier lifestyle. This progressive movement is exemplified by the following cooperative efforts.

In 2002, several federal agencies created a MOU to promote public health and recreation: the Department of Health and Human Services, including the Centers for Disease Control and Prevention (CDC), Indian Health Services, and the Office of Public Health and Science; the Department of Agriculture, including the U.S. Forest Service and the Center for Nutrition Policy and Promotion; the Department of Interior, including the Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, Fish and Wildlife Service, and National Park Service; and the Department of the Army, Army Corps of Engineers. The purpose of the MOU was to establish a general framework for cooperation among these agencies. Through the MOU, they agreed to work together to promote the uses and benefits of the Nation's public lands and water resources to enhance the physical and psychological health and well-being of the American people.

Progress to date includes a range of initiatives and findings:

- The CDC has collaborated with the American Hiking Society to promote trails and health, and to publicize National Trails Day in June 2008;
- A growing body of research has demonstrated that people in activity-friendly environments are more likely to be physically active in their leisure time;
- The National Recreation and Park Association and the Sajai Foundation have joined forces to develop a science-based curriculum called Sajai Wise Kids that teaches children about making healthy nutrition and activity choices.

The roundtable discussion summarized current initiatives related to health, parks, and recreation. The following are examples of other initiatives and programs and how they are transcending boundaries in the formation of new and exciting partnerships.

2.0 HEALTH, RECREATION, AND OUR NATIONAL PARKS

Co-presented by Dave Smaldone and Jessica Leahy

As part of the increasing focus on improving individual health, the Healthier U.S. initiative proposed in 2002 by President Bush promoted the use of public lands to improve personal health by encouraging the use of these lands for physical activity. In 2006, each National Park partnered with a university researcher and a variety of stakeholder organizations to design and implement interventions with one or more of the following three broad goals: 1) to increase park users' awareness of the health benefits derived from recreation in National Parks; 2) to increase healthful recreation/physical activity behaviors in National Parks; and 3) to increase healthful recreation/regular physical activity behavior as a lifestyle at home.

Based on the recommendations of the National Park System Advisory Board Subcommittee on Health and Recreation (2006), seven diverse National Park Service sites (one per region) were chosen for a study on the relationship between health benefits and National Parks. These seven parks were: Cuyahoga Valley National Park (Ohio), C&O Canal National Historical Park (Washington, D.C., area), Acadia National Park (Maine), Point Reyes National Seashore (California), Sitka National Historical Park (Alaska), Timucuan Ecological and Historical Preserve (Florida), and Zion National Park (Utah). The pilot projects are intended to lead to service-wide health and recreation initiatives that are evidence-based and grounded in science. Dr. Ross Brownson of St. Louis University, a leading expert in public health and physical activity, was the National Coordinating Principal Investigator for the seven pilot studies. Funding came from the Fee Demonstration Program for federal agencies (see <http://www.fs.fed.us/passespermits/about-rec-fees.shtml> for information on the Fee Demonstration Program).

In 2006 and 2007, each pilot project site designed a specific intervention plan based on the resources and visitors at that site. All sites have completed individual reports, and a comprehensive final report is in progress. Details will be released when the final report is completed sometime in 2008.

2.1 Update on Four of the National Park Service Pilot Projects

Presented by Jessica Leahy, University of Maine

Four of the seven pilot projects evaluated their pre- and post-intervention designs with the same visitor intercept survey, allowing for cross-site comparisons. A summary follows:

- “Take a Walk in your Park” was the slogan utilized in Sitka National Historic Park, in cooperation with the University of Alaska Southeast. The intervention strategy was a walking tour for cruise ship passengers. To promote the campaign, rangers stood on the dock handing out brochures as cruise ship passengers unloaded.

- Point Reyes National Seashore, in partnership with Dominican University, adopted the slogan, “Take a Walk on the Wild Side.” Their campaign promoted walking and cycling among both visitors and local residents. They used television ads, newspaper ads, brochures, and posters to reach their audiences.
- Zion National Park was evaluated by the University of Utah. Their campaign slogan was “Take a Walk in Zion.” In this locale, the goal was to encourage walking among park bus riders. In particular, the campaign encouraged visitors to walk back to the visitor center after taking the bus one-way into the park. The intervention strategies included posters, maps, brochures, and scripts for bus drivers to read.
- Acadia National Park was evaluated by the University of Maine. The campaign slogan for this park was “Walk the Great Meadow Loop to Health: Pathways to the Park.” The physical activity targeted was walking, and both visitors and residents were target audiences. The intervention strategies included newspaper ads, newspaper articles, brochures, posters, bus placards, events, emails, websites, and television public service announcements.

2.2 Increasing Walking at the C&O Canal National Historical Park: An Intervention Focused on Local Employees

Presented by Dave Smaldone

The C&O Canal National Historical Park project focused on the Washington, D.C., area of the Park and investigated the effects of social support and targeted messages on participants’ beliefs, attitudes, and behaviors. The Park partnered with Georgetown University, George Washington University, and the Georgetown Business Improvement District to target the employees of businesses near the Park. This study was very similar to a multi-worksites employee wellness research program. Volunteer participants formed teams and competed in a 7-week walking challenge. Pre- and post-challenge surveys were used to measure the effects of the interventions, and were distributed to all participants (N=183) online

and through the mail. The program “interventions” consisted of: 1) message “flyers” delivered via email to half the participants (chosen randomly) every other week; and 2) social support development through team formation and the use of a website to track and compare participants’ progress. Comparisons between these two groups—social support only and social support plus flyers—assessed the impacts from the interventions. Results indicated that overall walking behavior did not change; most participants were already active walkers, and overall walking rates did not increase. However, those participants receiving the flyers increased their walking rates by one day per week. Awareness levels also did not change, most likely because participants had a high level of awareness regarding the health benefits of walking and of using National Parks for health reasons at the start of the Challenge.

3.0 THE PARKS FOR PHYSICAL ACTIVITY RESEARCH CONSORTIUM (PPARC) INITIATIVE

Presented by Andrew Mowen

Parks and open spaces are increasingly being acknowledged as a potential asset in promoting public health. A growing body of evidence suggests that parks may play a role in enhancing physical activity levels, but little is known about the nature and extent of this role. There are limited data on the demographics of people who use parks for physically active recreation and the extent of physical activity that occurs in park settings. In addition, park-based physical activity data collection and measurement efforts have been inconsistent and have made it difficult for park managers and policy makers to understand the relative importance of parks and open spaces in promoting physical activity across multiple settings. As such, consistent data collection methods and measures are necessary for comparing physical activity across different types of settings and will help to identify contextual factors that correspond with higher levels of park-based physical activity.

PPARC was formed in early 2007. Initiated by the National Recreation and Park Association, the

PPARC working group comprises scholars and park, recreation, and health professionals who collaborated to create and pilot-test a survey instrument. Questions from this instrument are designed to measure park-based physical activity and barriers to physical activity in park settings, and can be adopted for use in visitor surveys, master planning efforts, and Statewide Comprehensive Outdoor Recreation Plans. Adding these questions into ongoing survey efforts will allow comparisons of findings with the national and state health prevalence data (e.g., Behavioral Risk Factor Surveillance System, National Health and Nutrition Survey). A complete list of PPARC survey questions (both on-site survey and telephone/mail survey) can be found at <www.nrpa.org/content/default.aspx?documentId=6188>.

4.0 MEASURING THE RESTORATIVE CHARACTER OF NATURE-BASED ACTIVITY

Presented by Chad Pierskalla

“[I]n the interest which natural scenery inspires there is the strongest contrast to [the mental fatigue caused by thinking about the future]. It is for itself and at the moment it is enjoyed. The attention is aroused and the mind occupied without purpose” (Fredrick Law Olmsted 1865).

Human-environment interactions have been defined in terms of perceptual intake of information (attention to external stimuli or events over time). As more attention is directed toward the environment, more burden is placed on information processing, contributing to mental fatigue. Ulrich et al. (1991) found that the behavioral responses to this type of taxing situation may include avoidance, alcohol use, and cigarette use. The linkage between stress and drug use was further supported in a 2003 study conducted by the National Center on Addiction and Substance Abuse. It found that high-stress teens (26 percent of all U.S. teens) are twice as likely to smoke, drink, get drunk, and use illegal drugs. Perhaps the most important research linking child performance with the physical environment has been conducted by the Landscape and Human Health Laboratory at the University of Illinois,

Urbana-Champaign. The researchers recommend adding trees and greenery near homes and schools to supplement established treatments and improve the functioning of youngsters with chronic attention-deficit hyperactivity disorder (ADHD) symptoms (Faber Taylor et al. 2001, Kuo and Faber Taylor 2004). ADHD symptoms, including difficulty paying attention or focusing on tasks, affect up to 7 percent of children, yet current treatments, drugs, and therapy may not work in all cases. Although the focus of this presentation is drug-use prevention, it is important to note that many other personal, social, economic, and environmental benefits have been attributed to human-nature interaction studied at the Laboratory.

Many argue that human-nature interaction can help reduce stress, and thus reduce the likelihood of drug use by young people. Providing background support for this proposition, more than 100 studies of recreation experiences in wilderness and urban nature areas indicate that restoration (or stress mitigation) is one of the most important benefit opportunities offered by nature (Ulrich et al. 1991). According to the Attention Restoration Theory proposed by Kaplan (1995), involuntary attention to events that are non-threatening and interesting—and thus *automatically* hold our attention—offer a reprieve from the burden of directed attention (allowing the neurons to restore). That is, recreation is metaphorically similar to sharpening a dull pencil (i.e., drug abuse and addiction prevention through recovery from directed attention fatigue) rather than destroying the pencil and creating a new one (i.e., crisis management). Despite the growing body of knowledge in this area of research, we still do not know what “dose” of restorative nature (quality and quantity) should be recommended for highly stressed young people to minimize their risk of substance abuse. Similar research questions have been addressed for physical activity requirements (e.g., children and adolescents should participate in at least 60 minutes of moderate-intensity physical activity most days of the week, preferably daily). We propose several challenges that must be addressed before fully developing national guidelines for nature exposure as it relates to drug-use prevention. Selected findings from the authors’ own line of research is provided.

Challenge 1: Indicators of restorative benefits must incorporate the measurement of time. As noted by Aiken and his colleagues, “The position taken by transactionalism in the social sciences is that of understanding person-in-environment contexts as a function of particular ongoing transactions between persons and environments...The focus is on change as an integral part of people’s experience. Change is initiated by an event which creates imbalance and transformation” (cited in Aitken 1991). Therefore, measurements such as duration (e.g., 60 minutes), intensity (e.g., moderate intensity), and frequency (e.g., most days of the week) of nature exposure are necessary components of a well written restorative guideline.

We conducted a review of three texts containing 58 research studies on aesthetics or restorative character of the natural environment between 1973 and 2001 that used 60 different methodologies. Seventy-three percent of those studies used photographs or slides and relied heavily on researcher inference to capture the actual content of participants’ experiences over time (Kaplan and Kaplan 1989, Nasar 1992, Stewart and Hull 1992, Sheppard and Harshaw 2001). Comparatively, process-based research is better able to incorporate time into the analysis of perception. A frequently used approach for measuring human experience over time is the experience sampling method (Havitz and Mannell 2005). This approach has been used extensively to measure the quality of the real-time experience by collecting assessments of the present moment. This method is useful because real-time assessment may capture satisfaction as it varies during the experience (Stewart and Hull 1992). For example, Jarman (2005) used a continuous response system (real-time assessment involving hand-held dials) that provided feedback in 1-second intervals to identify the strongest and weakest arguments made by candidates during a 2004 Presidential debate. This Perception Analyzer technology (MSinteractive) has also been employed to measure audience reaction to simulated hiking events on wilderness trail (Pierskalla et al. 2007). In that study, researchers demonstrated that perceived video events (patterns of change) can be counted: the average number of total dial turns

(quantity of events) ranged from 19 to 31 per video clip (or approximately 13 to 21 perceived changes per minute of video) in their study of three wilderness trails (8 trail segments). One-second sampling intervals seem warranted in future studies of nature hiking.

Challenge 2: A global measure of restorative character is needed. Five components of restorative environments have been identified in the literature (Kaplan 1995, Laumann et al. 2001, Herzog et al. 2003, Hammitt 2004) including:

- Novelty: “In these surroundings, I would feel I am in a different environment than usual”
- Escape: “In these surroundings, I would feel away from my obligations”
- Extent: “All of the elements of this scene go together”
- Fascination: “I would feel absorbed in these surroundings”
- Compatibility: “I feel I would be capable of meeting the challenge of these surroundings”

Chang et al. (2007) found a large degree of congruency between post-hoc psychological measures of restorativeness and three real-time physiological responses (muscle tension, brainwave activity, and blood volume pulse). Despite this finding, time was not adequately incorporated into the analysis, which may lack ecological validity. In fact, it would likely be too demanding to ask subjects to respond to all five components of restorative environments at very short time intervals. A global measure of restorativeness, one that simultaneously measures all components of restorative environments in real-time, is needed to better incorporate time into the analysis.

Pierskalla et al. (2007) also used Perception Analyzer to examine the construct validity of a global, real-time measure of restorative character (0=low restorative character to 100=high restorative character) of simulated hiking events. In their preliminary study, they found significant relationships between number of dial turns (real-time) and novelty (post-hoc), average restorative character (real-time) and fascination (post-hoc), average restorative character (real-time) and compatibility (post-hoc), and minimum restorative

character (real-time) and extent (post-hoc). This global measure appears promising and can be used to simultaneously record psycho-physiological indicators of restoration. Packaging and cross-validation of Perception Analyzer and biofeedback equipment in laboratory studies are needed to determine the enduring restorative effect of various doses of nature.

Challenge 3: There is a need to measure the behavioral response to restoration. Psychological and physiological responses to restoration have been documented in the literature. However, more research is needed to better understand the behavioral response to restorative environments – in particular, the reduction in substance use as proposed here.

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***PRIVATE LANDS—
RESEARCH AND OUTREACH***

VALUES AND MOTIVATIONS OF PRIVATE FOREST OWNERS IN THE UNITED STATES: A FRAMEWORK BASED ON OPEN-ENDED RESPONSES IN THE NATIONAL WOODLAND OWNER SURVEY

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Abstract .—The National Woodland Owner Survey (NWOS) is a recurring and comprehensive national survey of private forest landowners in the United States, and is a social complement to the U.S. Forest Service Forest Inventory and Analysis program's biologic resource inventory. An open-ended question in the NWOS explores private forest owners' motivations and values related to their woodland. This paper describes the system of values and motivations that emerged from analysis of responses to the open-ended question. Respondents expressed diverse and multidimensional motives. Six broad categories and 30 subcategories of motives and values emerged from the analysis. The broad categories were environmental values, recreation, investment/income, non-instrumental values, home/quality of life, and incidental ownership. The breadth and diversity of forest landowner motives pose challenges and opportunities for forestry professionals working with or attempting to reach family forest owners.

1.0 INTRODUCTION

The National Woodland Owner Survey (NWOS) was initiated in 2002 by the Forest Inventory and Analysis

(FIA) program of the U.S. Forest Service, and is a periodic, comprehensive national survey of private forest landowners. The NWOS is a social complement to the FIA program's biologic resource inventory and contacts approximately 6,500 private forest owners from across the United States each year (Butler et al. 2005). The purpose is to provide educators, service providers, policy administrators, researchers, and others interested in family forest owners with an understanding of the following issues: Who are the forest landowners? Why are forest lands owned? How are forest lands used? What are the owners' plans for their forest lands? (Butler and Leatherberry 2004).

The NWOS includes an open-ended question which asks, "What is the main reason that you own woodland in [your state]?" Responses to this question are a rich source of information about private forest owners' motivations and values, but these responses have not previously been analyzed. The overall objective of the broader study of which this paper is a part is to analyze the responses to the NWOS open-ended question in order to shed additional light on private forest-land ownership and explore the relationship between reasons for owning woodland and close-ended responses in the NWOS, analyzing questions such as: Do the motivations for owning woodland vary geographically? What demographic factors are associated with differences in motivations for owning woodland? How are ownership motivations tied to other ownership characteristics (e.g., tenure of forest ownership, size of landholdings, and forest management practices)?

The focus in this paper is on one aspect of the broader study: describing the system of values and motivations that emerged from analysis of the open-ended responses in the NWOS. Diverse and multidimensional motives were expressed by respondents. The diversity

and breadth of forest landowner motives pose challenges and opportunities for forestry professionals working with or attempting to reach family forest owners.

2.0 METHODS

The NWOS is implemented annually, with survey cycles for individual states ranging from 5 to 10 years. The annual design means that each year, a randomly selected portion (10 to 20 percent) of the full sample of private forest owners in a state is contacted. See Butler et al. (2005) or www.fia.fs.fed.us/nwos for a copy of the survey instrument and details on developing the survey, the sampling design, implementation, and statistical estimation procedures.

This paper discusses a preliminary analysis of responses to the NWOS open-ended question about a landowner's main reason for owning his or her woodland. The data analyzed in this paper were collected from the 15,440 family forest owners who participated in the NWOS in the United States between 2002 and 2006.

A variety of approaches to analyzing textual data have been used in natural resources (see Bengston [2000] and papers cited therein). In this study, the open coding method was used to identify ideas and themes expressed by respondents, an approach that is well suited to capture rich themes and uncover unanticipated issues. Briefly, this method involves a careful reading of the textual data (or in this study, a random sample of the data due to the unusually large volume of text), developing a draft outline of recurring themes, reconciling differences between the outlines of the different analysts, and cross-referencing each theme back to the original text. See Strauss and Corbin (1998) for details on the open coding method.

Responses to the open-ended question ranged from single words (e.g., "hunting," "firewood,") to in-depth descriptions of multiple motivations and deeply held forest values. Many respondents listed multiple motivations and values, even though the question asked for the "main reason" for owning their

woodland. We coded the first three reasons if they mentioned that many. Some responses consisted of blended or intermingled reasons for owning forestland, rather than listing discrete reasons. In these cases, the response was coded for each of the individual reasons. For example, the response "investment for children" was coded as both Investment and Family Heritage / Legacy, and the response "For the beauty of God's creation" was coded for both Aesthetic value and Spiritual / Religions value.

3.0 RESULTS AND DISCUSSION

NWOS respondents revealed a wide range of values and motivations for owning forest land. As shown in Figure 1 and described in this section, six broad categories emerged, with 30 subcategories of specific values and motivations.

3.1 Environmental Values

First, a variety of values and motivations related to protecting the forest environment or certain benefits directly provided by forest ecosystems was mentioned by some landowners as a motivation for owning their land. This broad value category contained the following four dimensions or subcategories that were coded separately:

Environmental Protection includes wide-ranging expressions of the importance of environmental protection, preservation, conservation, or stewardship of the land. Examples include: "I am a steward of the land, not just an owner," "to protect it from being destroyed," "to help preserve America," "holds world together," "reforestation, have planted 1800 seedlings."

Owning woodland to *Stop Development* consisted of expressions of the desire to stop irresponsible or encroaching development by maintaining undeveloped forest, or the view that the woodland serves as a buffer between the landowner and nearby developed land. In some cases, stopping development may serve to protect more fundamental values, such as quality of life, privacy, or conservation. Examples include: "Much of the development in my area is irresponsible

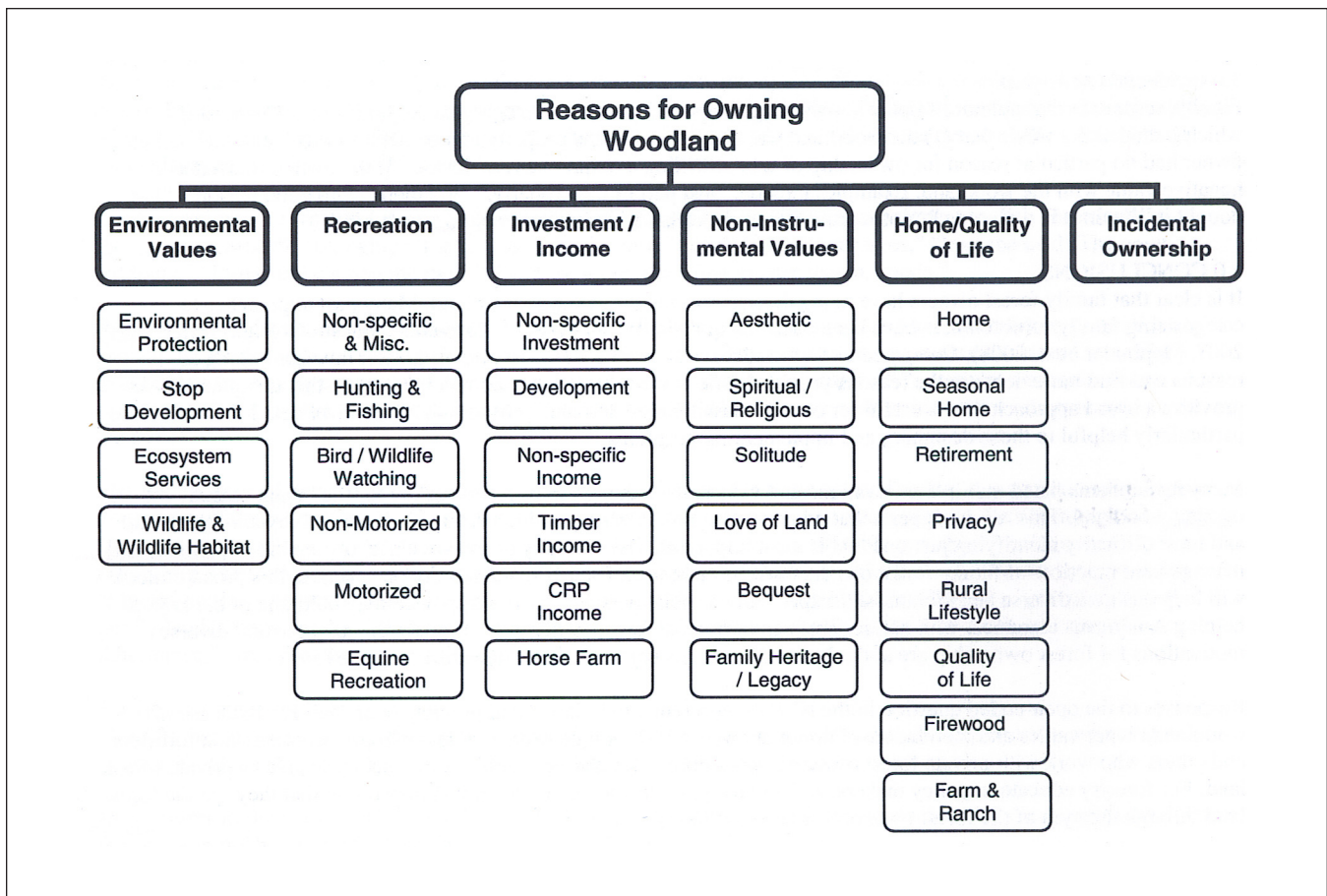


Figure 1.—Private landowners' reasons for owning woodland.

and I want to do my best to preserve natural habitat,” “Keep people from putting houses on it,” “Privacy, to keep it away from developers and other environmental rapists,” “We like woodland and it makes us sad how it’s all being developed.”

Regarding *Ecosystem Services*, a variety of tangible ecological benefits that woodlands provide are included in the subcategory of woodland values, such as providing a windbreak, shade for cattle or a home, soil stabilization and preventing erosion, clean air and water, flood control, and carbon sequestration. In recent years, the definition of ecosystem services has expanded to include all direct and indirect benefits and values of the environment (e.g., Millennium Ecosystem Assessment 2005). We have chosen a narrower and more traditional approach to defining ecosystem services. Examples of expressions of

Ecosystem Services include: “weather barrier,” “shade and coolness, comfort,” “aid soil conservation, stabilizes stream bank,” “I feel by growing trees I am helping to conserve our top soil and to remove the excessive CO₂ from the air,” “its contribution to water supply protection and preservation of air quality.”

Wildlife and Wildlife Habitat includes statements of the significance of specific wildlife species, non-specific references to wildlife, and wildlife habitat and habitat improvement, but no mention of hunting. This category could have been included under *Ecosystem Services*, but was coded separately because it was mentioned so frequently. Examples include: “to provide homes for wildlife,” “like to save it for wildlife,” “wildlife enhancement,” “for birds and animals,” “give the birds and animals a safe haven – all creatures deserve a place in the world.”

3.2 Recreation

Forest-based recreation was a second broad category of landowner values and motivations expressed by NWOS respondents (Fig. 1). This category encompasses six subcategories:

Nonspecific and Miscellaneous recreation is a catch-all category for recreation that does not fit in the specific and more common categories listed below. This category included general mentions of outdoor recreation, such as “recreation” and “personal recreation,” as well as a variety of infrequently mentioned specific recreation activities such as “picnicking” and “shoot skeet and just relax.”

Hunting and Fishing was a frequently expressed motivation for owning woodland and included general references to hunting, fishing, and trapping, and also hunting of specific animals. Examples include: “to have a place to hunt,” “fishing,” “love to hunt,” “hunting deer, small game, turkeys,” “less crowded hunting.”

Bird and Wildlife Watching includes all mentions of watching, viewing, seeing, or enjoying wildlife. Examples include: “bird watching,” “watching wild animals and birds,” “I enjoy seeing wildlife,” “to enjoy wildlife.” General references to “wildlife” were coded as the subcategory *Wildlife and Wildlife Habitat* above rather than here.

Nonmotorized Recreation includes the full gamut of activities such as walking, hiking, snow shoeing, cross country skiing, and bike riding. Examples include: “enjoy walking through the woods,” “love to walk the woods and trails,” “cross country ski,” “riding bikes.”

Motorized Recreation includes the full range of motorized recreation activities, such as “ride motorcycles,” “snowmobile,” “dirt bike riding, 4-wheeler riding,” “ATVing,” “4X4 riding.”

Equine Recreation included general mentions of horses and specific reference to equine recreation, but not descriptions of horse farms or commercial horse operations, which were included as a subcategory

under “Investment and Income.” Examples include: “he has horses,” “for my kids to ride their horses,” “riding our horses,” “enjoy life in the country, have a few horses.”

3.3 Investment / Income

A third broad category of woodland value shown in Figure 1 is “Investment / Income,” which is concerned with present or future monetary gain from forest land ownership. Investment / Income consists of six subcategories:

Nonspecific Investment includes a wide range of general expressions of the importance of woodlands as investments. Examples include: “safest place to put money,” “land is a good investment,” “hedge against inflation,” “college fund,” “good nest egg for future,” “investments for the future – no stocks, bonds, etc., just property.”

Development was a second subcategory of Investment / Income. In most cases, landowners did not specify the type of development they planned for their woodland, but some specified residential, commercial, industrial, or agricultural development. Examples of expressions of this subcategory include: “development property,” “future development,” “industrial site potential,” “purchased for development of a golf course and homesites.”

Nonspecific Income included general references to income generation benefits of woodlands and infrequently mentioned specific sources of forest-based income. Examples include: “to make money,” “livelihood,” “revenue generation,” “income for retirement,” “lease it for cattle grazing,” “income from hunting leases,” “game bird farming.”

Timber Income included all mentions of producing wood for sale or for supplying a family-owned sawmill. Examples include: “Income from timber sales – this land has provided a living for four generations of one family. If you take care of it, it will take care of you,” “supply sawmill,” “to produce project for sawmill to make the economy run,” “timber revenues,” “grow and sell timber.”

Conservation Reserve Program (CRP) Income was mentioned infrequently but coded separately because it is a unique source of income and typically involves reforestation. Examples include: “row cropping ceased so we planted pines on CRP program,” “CRP provided revenue,” “government payment for planting pine trees,” “inherited the land in 1976, was in row crops now CRP pine.”

Finally, expressions of the subcategory *Horse Farm* were rare, but they included: “horse farm,” “horse trails for my horse farm,” “raise cattle and horses,” “part of our horse ranch/farm business.”

3.4 Non-Instrumental Values

A fourth main category was labeled “Non-instrumental Values,” which encompasses a variety of intrinsic or intangible values and psychological experiences and benefits associated with forests. Six distinct types of non-instrumental values were expressed by forest landowners:

Expressions of the *Aesthetic* value or beauty of woodlands ranged from mild (e.g., “like to look at it,” “nice setting”) to deeply emotional (e.g., “of all the land on earth, it’s the most beautiful”). Other typical examples include: “raw beauty,” “I enjoy the beauty of nature,” and “beautiful old oak trees.”

Spiritual / Religious values expressed landowners’ spiritual connection with their land. Examples of this motivation include: “enjoy God’s creation,” “to be close to God’s creation,” “regenerates one’s inner spirit,” “This is where my maternal grandfather bought this land in 1926 – raised several children. I feel this land is sacred ground,” “love of the trees that the Lord was kind enough to let us enjoy,” “it’s a blessing to live in Eden.”

The motive *Solitude*, as expressed by NWOS respondents, encompasses several closely related concepts, including solitude, peacefulness, serenity, tranquility, quiet, refuge, and remoteness. *Solitude* is an inner-directed, frequently cited psychological benefit from nature, and although it can often be experienced negatively (Long et al. 2007), NWOS

respondents expressed solitude only as a positive motive. In contrast to *Solitude*, the subcategory *Privacy* (under the broad category “Home, Quality of Life”) is motivated by separating oneself and one’s residence from neighbors or others. Solitude examples include: “can’t live without trees solitude,” “calming space in our lives, personal refuge,” “quiet peacefulness,” “I like the peace of the woods,” “a get away place that’s quiet, peaceful, beautiful, feel the loneliness of nature.”

Landowners who expressed *Love of Land* or love of place have a deep affective attachment to their forestland. Examples include the following: “I love it and all of nature,” “can’t live without trees,” “love the land! The great outdoors,” “I love and cherish the trees,” “because there is nothing greater than a woods.”

Bequest value refers to passing woodland on as a legacy for future generations. The focus is on future generations in general, rather than a bequest to one’s children or grandchildren. This motivation for owning woodland was deeply held but not frequently expressed. Examples include: “leave for future generations,” “to protect nature for future generations,” “invest for future generations,” “we own woodland because we wish to save it for others to enjoy after we are gone.”

Family Heritage / Legacy was a commonly mentioned motivation for owning woodland, and contains several distinct dimensions: family heritage, family legacy, family general, and inherited. Examples of these four dimensions of *Family Heritage / Legacy* include: “original family homestead,” “Our land is very valuable to us because it has been in our family since 1818. Many of our loved ones for generations are buried here” (family heritage); “pass down to children,” “I might not have money to leave my children but they’ll have land and that’s priceless” (family legacy); “part of family land,” “raise family,” “keeps family together,” “a family retreat” (family general); and “it was part of the inheritance,” “inherited from parents” (inherited).

3.5 Home, Quality of Life

The fifth broad category of responses was termed “Home, Quality of Life.” This was the largest and most frequently expressed value category, and it comprises the following eight subcategories:

Home refers to the current or future primary residence for the landowner. Examples include “home sweet home,” “joins the one acre my home is on,” “possible future home,” “it’s where I live.”

Seasonal Home includes woodland as a setting for a seasonal or weekend home or cabin, or a potential site for a future seasonal home. Examples include: “summer home,” “plan on building a cabin,” “cabin site,” “vacation property,” “summer residence.”

Retirement refers to a current—or more often future—place to retire and live. Examples include: “place to retire,” “future retirement,” “to retire in the woods,” “to live my retired life in the country.”

Privacy was frequently mentioned as a motivation for owning forest land. In some cases, landowners expressing this motive give the impression of being hermits in the woods, e.g., “I really don’t want to see anyone after work,” “I like to be surrounded by forest and to be isolated from people.” Other, more typical expressions of this value included the following: “I like my privacy,” “to be semi isolated,” “no close neighbors, no screaming kids, no barking dogs, peace and quiet.”

Responses coded as *Rural Lifestyle* included the value of living in the country and close to nature, as well as a disdain for urban and suburban life. Examples include: “country life is the best,” “love living in the country and near nature,” “prefer rural vs. city or town,” “woodland is important to our way of life,” “don’t like big city life,” “hate city development.”

Quality of Life is a very broad subcategory of woodland ownership values, and includes non-specific expressions of enjoyment or pleasure (e.g., “for pleasure,” “just to enjoy”), pride of ownership (e.g., “self satisfying to own land,” “joy of owning it!”), general nature appreciation (e.g., “like woodland,” “to

enjoy nature,” “we’ve always been drawn to wooded properties. Quality of life issue”), unspecified personal use (e.g., “personal use,” “private use,” “hobby”), and miscellaneous quality of life (e.g., “quality of life,” “stress management”).

Firewood for heating the landowner’s home was mentioned fairly often as a reason for ownership. Examples include: “heat with wood,” “because we burn wood to heat our home.”

Farm and Ranch is another broad subcategory, with four distinct dimensions: Incidental to farm or general farm (e.g., “it (woodland) was on the farm when I bought it,” “part of our farm,” “farming”), woodland not tillable (e.g., “unfarmable land,” “land too steep to farm”), pasture for cattle (e.g., “to raise cattle,” “part of cattle ranch”), and tree farm (e.g., “tree farm,” “Xmas trees”).

3.6 Incidental Ownership

Finally, responses that did not fit in the above categories were coded in a category called “Incidental Ownership,” which included the views that (1) the woodland was simply part of the property and ownership was incidental, (2) the owner had no particular reason for ownership or was unwilling to express a reason, and (3) the owner associated a negative value with the woodland. Examples include: “just part of the property,” “it’s there,” “no good reason,” “just bought it,” “won it in a divorce,” “not worth clearing, poor land,” “cost too much to take it off.”

4.0 CONCLUSIONS

It is clear that family forest owners have many diverse reasons for owning forest land. Many past approaches to categorizing family forest owners have been based on quantitative analyses of close-ended questions (e.g., Butler et al. 2007, Majumdar et al. 2008). Compared to these approaches, we were able to discern greater nuances among the reasons and find more depth in the reasons provided. The two approaches are complementary in that the quantitative provides a broad approach that is useful for coarser

classification and ours provides the finer-level detail that should be particularly helpful to those designing and implementing programs.

Many respondents listed multiple motivations and values, even though the question asked for the “main reason” for owning woodland. This result suggests that owners often hold a variety of important values related to their forest land and have difficulty identifying just one that is most important. The diversity of forest values, ownership objectives, and management practices of family forest owners must be embraced. From a sustainability perspective, this broad outlook will help ensure a diverse and vibrant landscape. From a social perspective, this approach may hold one of the keys to helping Americans reconnect with nature. From an individual forest owner’s perspective, the multiple and diverse motivations for forest ownership are at the heart of her or his enjoyment and stewardship of the forest.

Responses to the open-ended question in the NWOS represent a rich, large, and previously unanalyzed database of woodland owner values and motivations. Further analysis of this unique source of data will provide extension foresters and others who work with private forest owners important insights and help guide public policy related to private forest land. For forestry educators, policy makers, and service providers to be effective, it is imperative that they see the forest land through the eyes of the forest owners (Butler et al. 2007).

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LISTENING TO YOUR AUDIENCE: DEVELOPING AN EDUCATIONAL TOOL TO ASSIST WITH RECREATION PLANNING ON PRIVATE LANDS

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Abstract.—The Georgia Forestry Commission in conjunction with the U.S. Forest Service instituted the Forest Stewardship Program (FSP) in 1991. A growing component of the FSP is recreation, which is the component least understood by stewardship planners. A survey was developed to better understand the needs of planners with regard to developing forest recreation plans, and the results will be used to create an Internet-based educational resource. Less than half of the forest planners surveyed had experience with writing recreation plans, and only 31 percent had previously written aesthetic plans. The results indicate a strong desire for a database of fact sheets related to all facets of natural resources. Based on the survey findings, the planned tutorial-style Website was changed to a fact sheet database for stewardship planners.

1.0 INTRODUCTION

Management plans have long been used on public lands by resource managers. The National Park Service (NPS) developed the Visitor Experience and Resource Protection (VERP) framework to assist with management on NPS lands (Manning 2001). The U.S. Forest Service (USFS) developed Limits of Acceptable Change to assist with Wilderness Area management (Stankey et al. 1985). Other public agencies use the Recreation Opportunity Spectrum and Visitor Impact Management (Clark and Stankey 1979, Graefe et al.

1990). All of these frameworks deal with managing the impacts of recreation on a resource while ensuring an appropriate experience for the user.

In contrast, private lands have historically lacked management plans. To address this need, the USFS implemented the Forest Stewardship Program (FSP) in 1991, which was authorized by the Cooperative Forestry Assistance Act of 1978. The purpose of the FSP is to better educate nonindustrial private landowners about the benefits of proactive stewardship management plans. The program uses natural resource professionals from a variety of backgrounds to develop comprehensive management plans for private landowners. Participating landowners choose two of five objectives for their land plan, of which one option could be recreation and aesthetics.

In Georgia, urbanization and a growing population are changing land-use patterns statewide. These trends influence where people are moving, especially in relation to forested lands. Many higher-income residents in the South are purchasing forested land for personal recreational pursuits (Cordell and Tarrant 2002). Subsequently, in many cases forested lands are developed as homesites, and management practices that previously occurred on these lands are discontinued. Unfortunately, new landowners often have a limited understanding of forest processes, and their objectives for land management may be very different from the previous landowner's. According to Dangerfield and Newman (2001), these new landowners generally have shorter planning horizons, produce multiple forest products, have different cash flows and income needs, and use the land for multiple purposes. With current and future population increases, changes and implications for land use are of the utmost concern. To help address this concern, the Georgia Forestry Commission (GFC) in conjunction with the U.S. Forest Service instituted the Forest Stewardship Program (FSP) in Georgia in 1991.

The majority of past management plans have focused on timber and wildlife management. However, today more and more landowners are requesting Stewardship Plans with recreation as a major component. Planners in Georgia (who are mostly GFC foresters and forestry consultants) have historically been readily capable of completing plans, especially those concerning forestry and wildlife. As a group, though, they are less familiar with recreation plans. Interestingly, a 1981 survey of Georgia foresters found that they had little interest in continuing education opportunities focused on forest recreation, with the exception of recreation as it related to wildlife habitat management (Hampton and Stauffer 1981). These preferences and resulting areas of training are not consistent with the changing land-use trends in the South, especially on private lands.

To better serve private landowners, GFC is funding work to develop an Internet-based educational resource to assist Stewardship planners in developing and writing sustainable plans for the FSP. The educational resource will encompass many facets of natural resource management but will focus on recreation and aesthetics. Design of the resource will be guided by the results of a survey administered to Georgia forest planners.

2.0 METHODS

A focus group of GFC Forest Stewardship planners was held a month before the survey was conducted. Information from the focus group participants was used to design a survey to better understand the needs of Forest Stewardship Planners. The survey was based on a modified Dillman approach (Dillman 2000) and was designed to be Web-based using Survey Monkey (www.surveymonkey.com). It asked planners about their history and experience with the FSP and recreation, overall comfort levels with recreation and other land-use practices, use of and comfort level with the Internet, and learning preferences. A link for the survey was embedded in an email from the interim director of GFC and sent to each planner's email address. Eight days later a reminder email was sent to those planners who had not taken the survey. Another reminder was sent 2 weeks later, along with a

thank-you note to those who had already participated. Nonrespondents and partial respondents were sent a paper copy of the survey to reduce bias in the sample.

A Likert-type scale was used for five matrix-style questions (for example, 1 = "never heard of it" and 5 = "Use it frequently and can troubleshoot"). The possible answer choices were dictated by question wording and include scales based on relative comfort levels, frequency of use, or level of agreement/disagreement. When appropriate, a nonresponse choice was provided. Most of the questions were close-ended to reduce the respondent's burden. The question about the use of fact sheets was open-ended, as was a final question asking for comments and suggestions.

Preliminary analysis has been completed on 23 surveys (roughly half of the total; three surveys were only partially completed) using SPSS 15.0. Cronbach's alpha was conducted on the overall survey and each section. Principle component analysis was performed on particular scale items using Varimax rotation. Using the output from the principle component analysis, we developed constructs that were interpretable, logical, and meaningful. Cronbach's alphas were again conducted for each construct to ensure reliability and validity. Factor loadings >0.400 were considered to be reliable indicators of an underlying relationship between associated factors (Huck and Cormier 1996).

During fall 2007, an initial website with helpful information for Forest Stewardship Planners was developed using Plone. Plone is an open-source content management system that is used for the current GFC website. The website will be modified based on both the results of the survey and Forest Stewardship planners' needs that were brought up in the focus group.

3.0 RESULTS AND DISCUSSION

Of the 23 planners whose survey responses are analyzed in this paper, each has written a forest management plan, 46 percent have completed recreation plans, and 31 percent have completed aesthetic plans. The mean length of time involved

with FSP was 7.46 years, the average age of planners was 37 (ages ranged from 24-60), and 86 percent were male. On a scale of 1 to 6 (where 1 is “never heard of it” and 6 is “Use most aspects and can troubleshoot”), the best understood computer programs were Microsoft Word (mean=5.43), Microsoft Excel (mean=4.78), ArcView3.x (mean=4.74), Microsoft Powerpoint (mean=4.57), ArcGIS9.x (mean=4.39), Google Earth (mean=4.39), and Adobe Acrobat (mean=4.00). The least understood computer program was Plone (mean=1.09; most respondents had not heard of it).

The overall α for the survey was 0.810, and the α for each component part was between 0.540 and 0.865. Regarding attitudes related to recreation and forest uses ($\alpha = 0.540$), three constructs were determined using five iterations with α 's between 0.671 and 0.726. The three constructs have factor loadings ranging between 0.483 and 0.828. One construct ($\alpha = 0.726$) included positive responses to statements like “recreation planning is mostly trail development,” and “forestry and recreation are not compatible.” Another construct ($\alpha = 0.698$) included responses like “I could use help planning recreation” and “I think it is important for foresters to understand other land uses.” Comfort levels with various land management activities ($\alpha = 0.835$) produced two constructs using three iterations. The α for each construct was 0.823 and 0.764, respectively, and factor loadings were between 0.637 and 0.859. One construct ($\alpha = 0.823$) included activities related to forestry practices like thinning a young pine stand, using herbicides, and prescribing a burn. The other construct ($\alpha = 0.764$) included activities related to creating educational signs and monitoring impacts to trails. Comfort levels with using the Internet ($\alpha = 0.865$) produced three constructs with α 's between 0.720 and 0.906 using five iterations. The factor loadings for these constructs ranged from 0.524 to 0.922. The three constructs can be best understood based on experience with the Internet: average Internet users ($\alpha = 0.906$), who are comfortable using it to email files, stream audio, and find information; more advanced users ($\alpha = 0.906$), who are comfortable using it to find scientific journals and submit forms; and advanced users ($\alpha = 0.720$),

who are comfortable using it to create wiki's and download podcasts.

The focus group was beneficial in suggesting an additional survey question concerning fact sheets that planners would insert in the appendix of Forest Stewardship Plans. Focus group members were ardent about the overall usefulness of these fact sheets. They further implied that an online tutorial-style website related to recreation planning would not be used nearly as frequently as fact sheets. Several planners mentioned how useful it would be to have a single website where information concerning FSP could be found, and where each planner would have equal access to information. Planners overwhelmingly supported this idea. When survey respondents were asked on the survey what fact sheets would be most helpful, they gave a wide variety of answers, including removal of feral cats, native plantings for wildlife, woodland structures, and forestry terminology for landowners. Other answers provided did not pertain directly to subjects of fact sheets, but were related to the utility of having fact sheets widely available to all planners.

Further revisions of the website will be conducted as additional data are collected and analyzed. Currently, the website is being overhauled to make it more consistent with the results of the survey. Central to these improvements is the acquisition of reputable fact sheets, largely obtained from planners and extension websites. Before being loaded to the Internet, each fact sheet will be divided into appropriate subject areas and will be reviewed by someone with expertise in that area. It is hoped that this process will ensure that high quality publications are available for planners, and will minimize time spent searching the Web for appropriate publications.

4.0 CONCLUSIONS AND IMPLICATIONS

The survey was successful in generating new ideas and solidifying previous ideas. Before the survey, the plan was to create an online tutorial related to recreation planning. Following the survey, the focus has changed

to creating a database of fact sheets concerning land management. As previously stated, the purpose of the survey was to develop a widely applicable and usable educational tool. The survey permitted the collection of information related to the planners' needs. Further, the survey helped gather information about planners' attitudes towards land management practices and their use of certain technologies. We hope that the online database will be widely accepted and will be used by Forest Stewardship planners in Georgia with the potential to expand to other southern states involved in Forest Stewardship.

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POSTER SESSION

TOURISM MARKETING: THE BEST THERE IS – A STUDY OF WEST VIRGINIA

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Abstract.—The purpose of this study is to understand and define the “best” marketing practices in the tourism industry for destination marketing organizations and to identify what convention and visitors bureaus in West Virginia are doing to meet these standards. Little research has been conducted on tourism marketing practices; therefore, a standardized list of practices was created using references from major marketing corporations, travel associations, accreditation programs, and universities worldwide. Then quantitative and qualitative research was conducted via telephone and the Internet to collect information from 24 convention and visitors bureaus belonging to the West Virginia Association of Convention and Visitors Bureaus and the West Virginia Division of Tourism. A comparison was made between West Virginia agency practices and the identified best marketing practices. The importance of tourism marketing and its impacts is also discussed.

1.0 INTRODUCTION

As more communities in the United States have recognized the competitive nature of tourism markets, the number of local destination marketing organizations (DMOs) has increased steadily. These organizations often focus on small-scale tourism destinations such as small cities or rural counties. While the growing prevalence of locally based tourism marketing organizations may provide some competitive benefits for small communities, there is growing concern about the quality of the services offered by these organizations. If tourism marketing

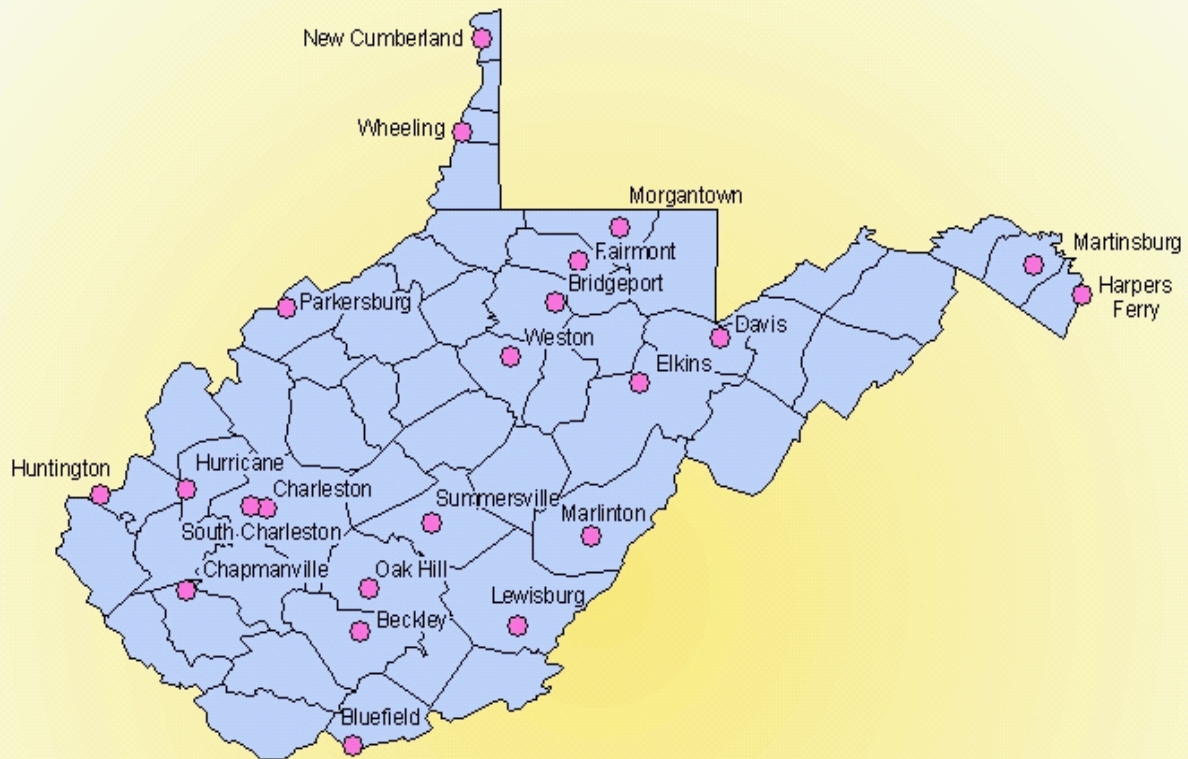
agencies are not well run, they may provide poor information to visitors or waste the money spent for advertising by small tourism companies.

This study addressed the question: “How do the practices of West Virginia convention and visitors bureaus (CVBs) compare to the best standard tourism marketing practices in the world?” Little research has been done on the subject. There is currently no other standardized list of best marketing practices for tourism. Accreditation programs are available to convention and visitors bureaus through travel associations and marketing corporations, but the lists of necessary marketing items they provide are very generic (Destination Marketing Association International 2005, 2008). Case studies of tourism marketing practices and their effectiveness in Las Vegas, NV; Orlando, FL; and Williamsburg, VA, have been conducted by Kotler Marketing Group (Kotler and Monroe 1999); no such studies exist for West Virginia.

2.0 METHODS

Research was conducted first by assessing worldwide tourism marketing practices and then creating a self-defined, standardized “best practices” list. In March and April 2007, convenience sampling was used to administer surveys to the 24 members of the West Virginia Association of Convention and Visitors Bureaus and one additional CVB that belonged to the West Virginia Division of Tourism. These agencies are geographically distributed across the state of West Virginia (Fig. 1). Surveys were completed via telephone interviews, email, and web analysis and consisted of 22 questions with open-ended, Likert Scale, and nominal questions. Each interview took approximately 15 to 20 minutes. Answers to Likert Scale and nominal questions were assigned point values to use when contrasting the different convention and visitors bureaus. Results were then assessed through comparative analysis and composite scores.

Geographic Distribution of West Virginia Convention and Visitors Bureaus



West Virginia Convention and Visitors Bureaus

● Beckley: Southern West Virginia CVB	● Lewisburg: Greenbrier County CVB
● Bluefield: Mercer County CVB	● Marlinton: Pocahontas County CVB
● Bridgeport: Greater Bridgeport CVB	● Martinsburg: Martinsburg-Berkeley County CVB
● Chapmanville: Coalfield CVB	● Morgantown: Greater Morgantown CVB
● Charleston: Charleston CVB	● New Cumberland: Top of West Virginia CVB
● Davis: Tucker County CVB	● Oak Hill: New River CVB
● Elkins: Randolph County & Mountain Highlands CVBs	● Parkersburg: Greater Parkersburg CVB
● Fairmont: Marion County CVB	● South Charleston: South Charleston CVB
● Harpers Ferry: Jefferson County CVB	● Summersville: Summersville CVB
● Huntington: Cabell-Huntington CVB	● Weston: Lewis County CVB
● Hurricane: Hurricane & Putnam County CVBs	● Wheeling: Wheeling CVB

Map Created by Stephanie Young

Figure 1.—Map of West Virginia CVB locations.

Through the surveys, information was gathered about slogans, target markets, visitor brochures, visitor websites, and marketing for both peak season and the off season. Elements of each agency's marketing plan were studied, including updates, vision statements, and the actual wording of the plan. Employee incentives, performance reports, and visitor profiling practices were also examined and advertising claims were assessed for potential falseness. Last, educational programs, community collaboration, and tourism-related activities were considered. People interviewed were usually executive directors, marketing directors, or directors of sales and the length of time at their present positions ranged from 5.5 months to 25 years. Some examples of target market segments mentioned include families, gamblers, skiers, children, shoppers, outdoor recreationists, senior citizens, and history buffs.

Two key phrases used in this research need to be defined:

Destination Marketing Organization (DMO):
a company or other entity involved in the business of increasing tourism to a destination or improving its public image

Convention and Visitors Bureau (CVB): a type of DMO that is a nonprofit organization charged with representing a specific destination and helping the long-term development of communities through travel and tourism strategies. It is usually a membership organization that brings together businesses that rely on tourism and meetings for revenue. It is usually is a one-stop shop for local tourism interests providing a full range of unbiased information and offering most services free to the public.

3.0 RESULTS

3.1 List of 18 standard best tourism marketing practices

- Have key market segments with different goals and strategies for each segment.
- Have a website that markets specifically to their target market segments. The website should be routinely updated and maintained.
- Offer a comprehensive visitors guide and/or brochure and update it at least once per year.
- Keep performance reports on promotion and advertising done via direct mail or the Internet.
- Have a powerful slogan to position themselves well in the eyes of the consumer.
- Have their brand on any products or materials relative to their location.
- Collect data on visitor profiles to be able to meet consumers' preferences and buying behaviors.
- Provide educational programs for members, local residents, businesses, and others to reinforce the image of the destination and to help keep the marketing brand consistent.
- Market to travelers for activities and events both in the peak season and the off season.
- Ensure consistency between tourism demographics and the tourists' needs and wants.
- Strive for innovative and creative marketing campaigns and offer incentive rewards to do so.
- Include a vision statement for the future in their marketing plan and update the plan annually.
- Cooperate and collaborate in marketing plans with everyone involved or potentially involved in tourism in the community.
- Maintain an inventory of attractions, events, restaurants, resorts, and the like in the service area, including those that are not members.
- Routinely survey members to assess the effects of the DMO's marketing efforts.
- Continuously participate in travel associations and tourism-related events such as conferences and travel shows.
- Routinely check to see whether there is consistency between what members actually offer and what they are advertising through the DMO.
- Have all employees of the organization read through the marketing plan every time it is updated to ensure that all employees are aware of new marketing efforts.

3.2 Results of the Survey of West Virginia CVBs

The following statistics compare information gathered in interviews with CVB personnel to the standardized list above of “best” marketing practices.

Eighteen of the 25 respondents said that their CVBs have a slogan and 13 of those also have their brand on all related materials. Ninety-two percent of the CVBs reported having more than one target market segment. Of those 23 CVBs with more than one target market, 10 (43 percent) have different marketing goals and strategies for each target market, but 13 (57 percent) do not (i.e., they market the same way to all travelers). Almost all of the CVBs (92 percent) offer a comprehensive visitors guide or brochure and half of them update it at least once per year. All but one of the CVBs market to tourists for both the peak season and the off season.

The CVB websites are updated with the following frequencies: 28 percent daily; 32 percent weekly; 4 percent bi-weekly; 16 percent monthly; and 20 percent every 6 months or more (Fig. 2). Twenty of the 25

CVBs (80 percent) have a vision statement for the future in their marketing plan. Eighty percent of the CVBs update their marketing plan annually and 60 percent make all of their employees read over the plan each time it is updated. Thirteen CVBs (52 percent) never or rarely offer incentives for employees to come up with new marketing campaigns while six CVBs (24 percent) usually do and six always do (Fig. 3). Seventy-six percent of the CVBs (19 of 25) maintain performance reports on promotion and advertising and 72 percent (18 of 25) collect data on visitor profiles. Eighty percent of the CVBs study tourists’ wants and needs while 84 percent (21 of 25) maintain an inventory of the service area’s amenities.

Of those DMOs that have paying members, only half survey their members about their opinions of the tourism bureau’s marketing efforts. Moreover, false advertising is possible because only 45 percent of the CVBs have someone who checks to see whether member advertisements are consistent with actual offerings. Forty percent of the CVBs never or rarely provide educational programs to the public, private, and nonprofit sectors of the market to reinforce the

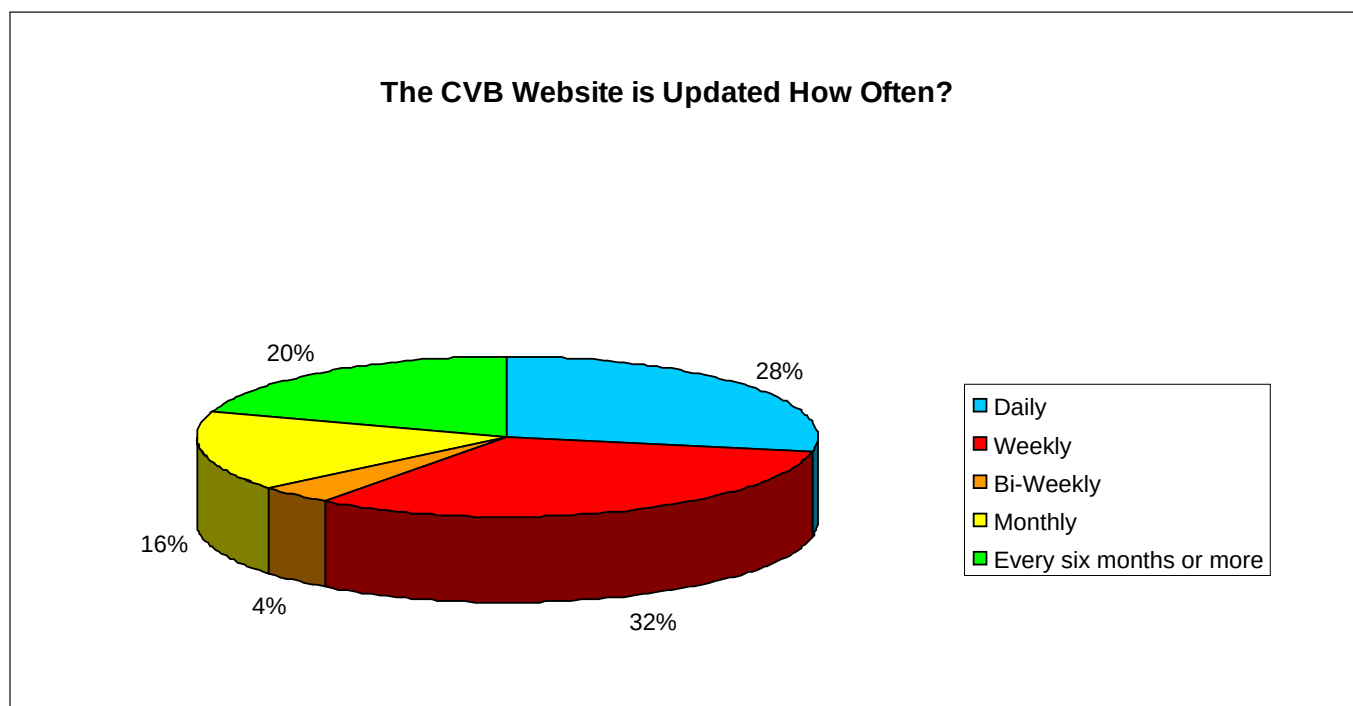


Figure 2.—Frequency of CVBs updating of their websites.

How Often Do CVB's Offer Incentives for Employees to Come Up with New Marketing Campaigns?

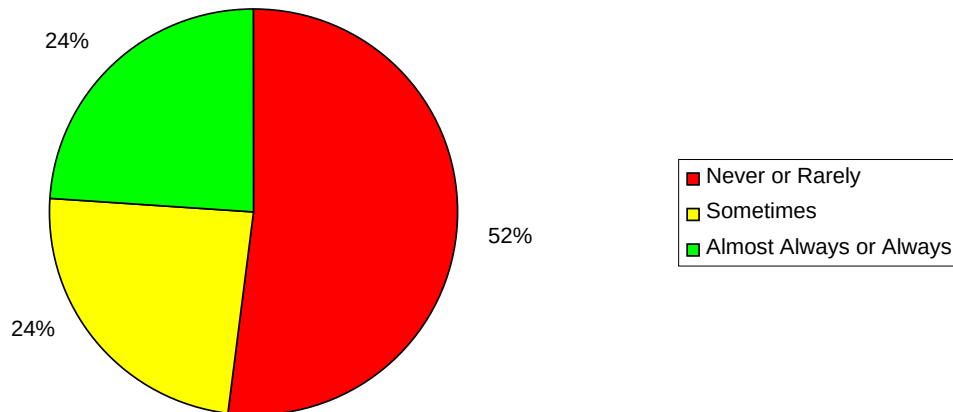


Figure 3.—Frequency of CVBs offering incentives to employees to suggest marketing campaigns.

image of the destination while 56 percent of the CVBs sometimes do. Forty percent of the CVBs rarely work with the community while engaging in marketing efforts, but 60 percent usually do.

Sixteen percent of the CVBs in the survey “sometimes” belong to associations and participate in tourism-related events while 44 percent “often” do and 40 percent “always” do. CVBs were mostly frequently associated or involved with the following professional organizations: the American Bus Association, the West Virginia Hospitality and Travel Association, Destination Marketing Association International, Travel Industry of America, and the Travel and Tourism Research Association.

4.0 DISCUSSION AND RECOMMENDATIONS

West Virginia DMOs are already doing many of the things on the best marketing strategies list – marketing for all four seasons, creating future-oriented marketing plans and updating them annually, maintaining an inventory of area attractions, compiling performance

reports on promotion and advertising efforts, and attending tourism-related events and participating in travel associations – but there is also room for improvement.

A few CVBs are marketing to everyone and have no set target market segments, a practice that defeats the purpose of target marketing. For example, does West Virginia really want to attract young adults looking for nightclubs and a party scene? This would be a poor strategy because West Virginia has few opportunities for this type of activity. Second, most CVBs are failing to use different strategies to reach different types of tourists; for example, visitors traveling to see Civil War sites are going to respond to different messages than are tourists in search of gaming opportunities. Third, websites need to be updated much more frequently to provide timely and accurate information to the wide market of potential tourists than can be reached on the Internet. Fourth, slogans are a staple of marketing strategy, but must be used frequently and consistently on all pertinent marketing materials in order to be effective.

Visitor guides and brochures should be updated at least once per year and many CVBs are failing to do so; if nothing else, prices always change. In addition, CVBs need to begin checking for possible false advertising by looking at what members are offering and making sure that published information is correct and accurate. It is extremely helpful for CVB employees to read through each updated marketing plan so that they are familiar with new campaigns and understand how to sell the destination appropriately. Offering incentives for employees to think creatively about marketing may help foster innovative strategies. Collecting information on visitor demographics and surveying CVB members are two ways to gather information and feedback to improve marketing strategies. Finally, community collaboration and educational programs are key measures because local people are more likely to support tourism initiatives and strategies if they have a say in creating them.

The survey/interview portion of this research relied on the self-reporting of CVB employees about their organization, and survey responses varied considerably across the CVBs in the study. This variability could have been resulted from variation in each organization's size (number of employees), experience level (age of the organization and employees' years of experience), funding (affecting the number and type of marketing initiatives), scope (whether the CVB was marketing for the entire county or just one city), and the experience and length of employment of the person interviewed.

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THE QINGHAI-TIBET RAILWAY AND TIBET TOURISM: TRAVELERS' PERSPECTIVES

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Abstract.—The Qinghai-Tibet railway opened in July 2006 and boosted Tibetan tourism markedly by increasing the accessibility and affordability of travel from China to Tibet. This study evaluates the railway's impacts on tourists' travel decisions and experiences in Tibet. The relative importance of the train journey in comparison with the destination experience in Tibet is also examined. A survey was used to collect the perceptions of 187 travelers on the Qinghai-Tibet train in May 2007. Important destination choice factors for Tibet are identified. The importance of the railway to tourists' destination choice of Tibet and in their overall travel experience of Tibet is confirmed.

1.0 INTRODUCTION

Tibet has long been a desirable travel destination for people from China and elsewhere because of its unique natural environment and cultural characteristics. However, tourism development in Tibet has been hindered by its remote and inaccessible location. Travel to Tibet has increased substantially since the opening of the Qinghai-Tibet railway in July 2006, raising new questions about tourism development, regional economic development, environmental protection, and the preservation of the Tibetan culture. A huge gap now exists between tourism demand and the available supply in terms of facilities, service quality, tourism planning, and experience and capability in tourism management.

This research investigates the Qinghai-Tibet railway and Tibetan tourism from travelers' perspectives by 1) identifying important motivational factors influencing the choice of Tibet as a travel destination; 2) evaluating how the opening of the railway line has influenced tourists' travel decisions and experiences; and 3) examining the relative importance of the train journey itself in comparison with the destination experience in Tibet. The following research questions will be explored:

1. What are the major factors influencing Chinese tourists' destination choice of Tibet?
2. How has the opening of the railway line to Lhasa influenced tourists' destination choice of Tibet?
3. What is the relative importance of the train journey in comparison with the destination experience in Tibet?

2.0 LITERATURE REVIEW

As competition for tourists increases, destinations are challenged to differentiate and position themselves properly to attract more visitors. Therefore, understanding how tourists make destination choices is of critical importance to destination planners, managers, and marketers. The travel decision-making process is a crucial part of the overall travel process, which comprises pre-travel, on-site, and post-travel facets. It involves decisions on whether to go and where to go, leading to actual travel to certain destinations. Choice of travel destination is of primary concern for destination managers and tourism planners and is also the subject of tourism research. Past studies have enhanced the understanding of tourists' decision-making behaviors, and can be used to identify and prioritize the factors influencing the destination selection process. Furthermore, the interrelations between tourists' socio-demographic characteristics, their motivations, and their destination preferences can be measured, with practical implications for destination planning, development, and marketing.

Destination choice is made largely through interactions between destination attributes and individual tourists' motivations (Baloglu and Uysal 1996, Nicolau and Mas 2005). Tourists' socio-demographic characteristics also influence destination choice (Huybers 2003). Other relevant factors are familiarity with the destination, prior travel experience, and expectations and level of satisfaction. Moreover, these factors influence destination choices with different degrees of importance that are specific to each destination and individual tourist.

Transportation provides the essential link between tourists' origins and destination areas, facilitating the movements of travelers with diverse purposes (Page 2005). It also is an integral part of the overall travel experience (Lamb and Davidson 1996, Page 2005). The actual transportation vehicle provides a context and a controlled environment for tourists' travel between destinations and attractions (Page 2005). Although transportation can act as a main focus of the tourists' experiences, it is usually considered a supportive element that is less important than the destination attributes within the overall travel experience. Limited research has concentrated on the importance of the transportation experience in tourism, especially in comparison with the destination experience, or on the role of the journey in tourists' destination choices. Therefore, the relationships between transportation and overall tourist experience, the factors influencing transportation experiences, and the effects of the transportation experience on the overall travel experience need to be further investigated.

Although tourist destination choice has been extensively studied, few researchers have compared the destination choice preferences of pre-trip and post-trip tourists. Furthermore, in this study, a wide range of factors drawn from the literature is addressed, including socio-demographic variables, previous travel experience (first-time or repeat visitor), destination familiarity, expectations and level of satisfaction, and motivations (push and pull factors). This is the first study to focus on the train journey to Tibet from the travelers' perspective. The recent opening of the

Qinghai-Tibet railway provides the opportunity to analyze how the railway impacts tourism development in Tibet and travelers' decisions to visit Tibet, and to examine the relative importance of the train journey in comparison with the destination.

3.0 RESEARCH METHODS

3.1 The Qinghai-Tibet Railway

A direct passenger train connecting Beijing, China, and Lhasa, Tibet, first operated on July 1, 2006. The train journey takes 48 hours from Beijing to Lhasa, via Qinghai. The Qinghai-Tibet section of the railway is 708 miles long, stretching across the Tibetan Plateau from Golmud, Qinghai, to Lhasa. This is the world's highest railway. About 600 miles—or more than 80 percent of the Qinghai-Tibet section of the railway—is more than 13,000 feet above sea level and more than half the length of the railway is laid on permafrost. In addition to Beijing, passenger train services are available to Lhasa from several major cities in China, such as Shanghai, Guangzhou, Chengdu, Chongqing, Lanzhou, and Xining.

3.2 Research Methods

Research by Pike (2006), Bowden (2006), and Seddighi and Theocharous (2002), among others, indicates that a survey can be used to understand travelers' decision-making behaviors and to identify their destination decision set. A questionnaire was chosen for primary data collection in the present research. In addition, the first author's personal observations on the train and at the destination, along with different sources of secondary data, provide complementary information. Two separate questionnaires were designed for train passengers on the outward and return train journeys between Beijing and Lhasa. To maintain the comparability of the pre- and post-visit questionnaires, the majority of questions were the same for both surveys. Changes were made in sections pertaining to the expected versus actual destination experience. The questionnaire was used for both Chinese travelers and those of other nationalities; it was first developed in English and then translated by the first author into Chinese. A pilot test in both English and Chinese was carried out and the final

Chinese and English versions of the questionnaires were developed based on the feedback.

The questionnaire was delivered by the researcher to travelers on the train using a cluster sampling technique. The capacity of the train between Beijing and Lhasa is 936 passengers. The train contains three types of seats: soft sleepers, hard sleepers, and hard seats. The survey was conducted in the hard sleeper cars, which have 60 beds in each car and are the most common type of car on the train (9 out of 16 cars). Thus, travelers in the cheapest and most expensive seats on the train were not interviewed. The survey was conducted from May 13 to May 22, 2007 on train journeys in both directions between Beijing and Lhasa. For each trip, four cars were visited during 4 hours to distribute and collect questionnaires. Eighty-two usable questionnaires were collected on the train from Beijing to Lhasa and 105 usable questionnaires were collected on the train from Lhasa to Beijing. Statistical tests were performed to evaluate the data, including descriptive statistics, independent sample t-tests, chi-square tests, and one-way ANOVA tests.

4.0 RESULTS

Most train travelers (96 percent) were Chinese citizens. Travelers from other countries comprised only 4 percent of the sample, so, international and domestic travelers were not separated or compared in the analysis. No significant differences were found between pre- and post-visit groups in terms of gender, age, place of origin, career, or monthly income. Despite a between-sample difference in education ($p=.044$), a high education level was common for both pre- and post-samples: more than 70 percent of respondents had a university education or above. The data suggest that train travelers to Tibet are from diverse age groups and employment categories, with slightly more males (56 percent) than females, generally high education levels, and monthly incomes that are higher than the Chinese average. These results support Wang's (2006) finding that tourists to Tibet are generally people with a high education level, high income, high consumption level, and comparatively good health. Also in Wang's study, 98 percent of

visitors were Chinese and mostly from north China, and 90 percent were visiting Tibet for the first time, mostly for personal reasons (86 percent) rather than business. Tibet is still a new tourism destination for most visitors. Wang (2006) also found that very few people in China have been to Tibet, but that the majority of them wish to go, which indicates a large potential market for Tibet tourism.

Tourists to Tibet have a distinctive travel pattern due to the characteristics of the destination itself. One feature is that the length of stay (6.4 days for the overall sample) is longer than trips to other tourism destinations in China. For all respondents, the transportation mode for the entire journey was predominantly by train (66 percent). Most of the remainder traveled in one direction by plane (31 percent). Because the pre- and post-visit samples were similar in their demographic and socio-economic features, we may infer that any observed differences between the two groups of travelers with respect to perceptions and satisfactions with the train journey and the destination cannot be explained by those factors.

Respondents' motivations for traveling to Tibet were measured by asking them to rate the importance of several reasons for visiting Tibet on a 5-point Likert scale. No significant differences were found between pre-visit and post-visit samples at the .05 level using independent sample t-tests. Information was sought on both pull and push factors. The former are mainly attributes of the destination. The five motivations categorized as pull factors all received high ratings on importance. In contrast, push factors were perceived to be much less important (as shown in Table 1). Although it appears pull factors play a much more important role in attracting tourists to Tibet than do push factors, the low scores for push factors may be attributed to the fact that the survey was conducted with travelers who had already overcome socio-psychological barriers and decided to travel to Tibet. Thus, generalizations from the results might need further support, perhaps through interviewing potential travelers prior to their decision to visit Tibet.

Table 1.—Analysis of motivation for traveling to Tibet

Motivation		Number of respondents.					Mean	S.D.
		1 *	2 *	3 *	4 *	5 *		
Tibetan culture	a	5	1	24	79	77	4.19	.879
Natural scenery	a	4	0	9	70	103	4.44	.778
Opening of the railway line	a	6	18	22	79	61	3.92	1.060
Novelty of Tibet	a	4	14	34	78	56	3.90	.987
Mysteriousness of Tibet	a	4	13	19	70	80	4.12	.998
Being away from daily routine	b	20	73	45	29	18	2.74	1.146
Learning experience	b	9	46	45	63	23	3.24	1.106
Personal satisfaction / self-esteem	b	18	57	47	41	23	2.97	1.190

* 1: very unimportant; 2: unimportant; 3: neutral; 4: important; 5: very important

a: Pull factors

b: Push factors

Independent sample t-tests and one-way ANOVA tests were conducted to examine the between-group differences in motivations for traveling to Tibet among travelers with different demographic and socio-economic characteristics, such as education, monthly income, gender, age, and origin. In the literature, these characteristics are commonly considered to be personal attributes that influence travel motivations. No significant differences at the .05 level were identified in respondents' motivations to visit Tibet.

Respondents' perceptions of the train journey were explored through statements concerning reasons for choosing the train and satisfaction with the train journey as shown in Table 2. Again, evaluations were elicited using 5-point Likert scales. The view from the train (mean= 4.17) was the most important reason for deciding to travel by train, followed by gradual adaptation to the height of the destination (3.99),

safety (3.65), low price (3.34), desire to relax (3.13), and novelty (2.56). The generally high mean scores indicate that the train journey itself was an important reason for taking the train and was expected to be a positive part of the travel experience. It is perhaps surprising that novelty received the lowest score among the reasons for choosing to travel by train since the railway is new and provides a somewhat unusual travel experience,. Respondents were generally positive about the train journey, but many were not satisfied with the duration of travel (Mean=2.98) although it is inevitable that the journey by train is a long one.

When the satisfaction scores for the train journey were compared for pre- and post-visit travelers, significant differences were found for duration, schedule, service, facility, and view, but not for expenses. With the exception of duration of the journey, which was

Table 2.—Reasons for choosing the train journey to Tibet

		Novelty	Low Price	Safety	View	Altitude Adaptation	Relaxation
N	Valid	184	184	184	184	184	184
	Missing	3	3	3	3	3	3
Mean of Importance		2.56	3.34	3.65	4.17	3.99	3.13
S. D. of Importance		1.222	1.043	1.035	.838	.952	1.194
Importance*	1	40	3	5	2	2	13
	2	63	47	23	8	15	54
	3	31	42	43	15	27	40
	4	38	69	74	90	79	50
	5	12	23	39	69	61	27

* Importance scale: 1 = very unimportant; 2 = unimportant; 3 = neutral; 4 = important; 5 = very important

scored lower by post-visit travelers, high mean scores were recorded on the return journey. The higher satisfaction level (Mean= 4.23) on the views from the train received on the return journey compared with the pre-visit one (Mean= 3.87) were most likely because the most impressive views of the Tibetan plateau were seen at the start of the return journey. On the other hand, on the journey from Beijing to Lhasa, the most attractive views were seen at the end of the journey, after some respondents had already completed their questionnaires. As a traveler in both directions, the first author experienced differences in service on the train between the two journeys. The atmosphere on the return journey was more relaxed because the train staff was more easygoing. Although the facilities were basically the same, the higher service level may have also increased satisfaction with the facilities and the schedule.

Among the total sample of 184 respondents, the majority (N=142) agreed or strongly agreed that the train journey was an important part of the overall travel experience and was generally satisfied with the train journey (N=143). One hundred forty-nine respondents agreed or strongly agreed that a train is preferable to a bus when traveling to Tibet, while 106 respondents preferred the train over air travel. Fifty-two percent of the respondents agreed or strongly agreed that if there had been no train, they would not have visited Tibet. This response demonstrates the train's great importance to Tibetan tourism. However, as the questionnaire survey was distributed only to passengers on the train, it is not possible to apply these statistics to the broad market for travel to Tibet. All respondents had actually chosen the train as their means of transportation to or from Tibet, already indicating their preference for train travel over other modes of transportation.

When comparing the train journey with the destination experience in Tibet, 58 out of 105 (55 percent) respondents agreed or strongly agreed that the train journey was as important as the destination experience in Tibet. However, when rating the best part of the whole trip, 87 respondents out of 102 valid answers (85 percent) considered the destination experience to

be the best part, versus only 15 (15 percent) who voted for the train journey. Therefore, it can be inferred that when visitors are *traveling to* Tibet, the train journey is without doubt an important part of the overall travel experience; nonetheless, the destination, as the objective of the journey, is overall most important to tourists. Therefore, although the Qinghai-Tibet train has better facilities than other trains in China and a route designed for tourism, the quality of the destination is still vital to its success.

Suggestions concerning the train journey, tourism development, and the tourism products of Tibet were solicited in an open-question format in the post-visit questionnaire. With respect to suggestions concerning the train journey, 19 out of 38 comments mentioned that the train journey was too long. However, there are limitations to what can be done about this complaint. Another five respondents suggested that there be more programs or activities for passengers on the train, such as more on-board broadcasting to introduce the landscapes along the railway line, or more sightseeing stops for passengers to take a break and enjoy the views. These appear to be feasible suggestions. It was evident that some passengers felt bored during some of the journey. To the statement, "I do not feel bored during the train journey," only 17 disagreed and another 4 strongly disagreed, together constituting only 21 percent of all respondents. In spite of the above issue, the train journey was generally considered to be good with seven respondents emphasizing their satisfaction with the train journey in the open-ended question. Other minor issues included the difficulty in getting train tickets (two respondents), the need for a nonsmoking car (two respondents), and the safety of passengers' belongings (one respondent).

5.0 CONCLUSIONS

Tibet's culture and natural scenery were identified as the most important pull factors for visiting Tibet. Mysteriousness and the novelty of Tibet were also highly rated as important reasons for visiting, indicating that Tibet is still a new tourism destination for many visitors. Another important factor was the opening of the railway line, which increased the

accessibility and affordability of traveling to Tibet, and was also an attraction in its own right. No difference was identified in travel motivations to Tibet among travelers from different demographic and socio-economic backgrounds.

The relative importance of the Qinghai-Tibet train journey in comparison with the destination experience in Tibet was analyzed quantitatively from travelers' perspectives. Satisfaction with the train journey was high, and most respondents considered the train journey itself to be an important part of the overall travel experience. More than half of the respondents agreed that if there were no train, they would not have visited Tibet. These findings consistently illustrate the great importance of the train to Tibetan tourism. When comparing the train journey with the destination experience in Tibet, about half of respondents agreed that the train journey was as important as the destination experience in Tibet. However, 85 percent of respondents considered the destination experience to be the best part of the trip.

In summary, it can be concluded that for travel to Tibet, the Qinghai-Tibet train, which has better facilities than other trains in China and follows a route designed for tourism, is without doubt an important part of the overall travel experience. Nonetheless, the quality of the destination, as the objective of the journey, is still vital to the success of the train journey in terms of its tourism use.

After the opening of the Qinghai-Tibet railway, tourism in Tibet experienced a marked increase and it is likely to continue to increase. In order to understand tourism issues and to achieve sustainable development in the region, it is necessary to study the impacts of tourism on Tibet from economic, social, cultural, and environmental perspectives. Thus, the positive impacts of tourism could be identified and encouraged, and negative impacts could be controlled and managed. It is important to strive to preserve Tibet's natural environment, local culture, tradition, and religion. It also will be necessary to understand, balance, and manage the impacts to different stakeholders at the destination. This study examined Tibetan tourism only

from train travelers' perspectives, from which only generalizations can be made. Nevertheless, it deepens the understanding of tourism to Tibet.

Several future research opportunities can be identified. First, this study focused on train travelers to Tibet and excluded the perspectives of people traveling via other transportation modes. Future research could collect information on travelers using other means of transportation, especially air, in order to get a more complete view of travelers' perceptions and opinions about Tibetan tourism. Second, this study was developed based on a one-time questionnaire survey of 187 respondents, and the sample size was restricted by the travel time and the train route selected for the study. Therefore, more questionnaire surveys could be conducted at different times of the year during the peak and non-peak seasons and on different train routes to Lhasa. This approach would minimize the possible bias inherent in a single survey and facilitate comparisons between peak and non-peak seasons and among people from different geographical origins taking different train routes. Thus, more complete results could be achieved and practical suggestions on Tibetan tourism development could be derived with more confidence. Third, this study focused on the train journey and just scratched the surface of issues relevant to tourism planning and management at the destination. Therefore, more detailed on-site study of Tibet as a tourism destination could be conducted to better understand issues concerning destination management and operation in Tibet and to provide more information to guide future tourism development.

This study is novel as it is the first one to examine the newly available train journey to Tibet by examining train travelers' perceptions of both the journey and Tibet as a destination. Although it is widely recognized that both the journey and the destination are important in tourism, very few studies have explored the relative importance of the journey in comparison with the destination. Therefore, using train travel to Tibet as a case study, this paper provides a new perspective on the relationship between destination and transportation experiences in tourism.

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LOCAL RESIDENTS' ATTITUDES TOWARD POTENTIAL TOURISM DEVELOPMENT: THE CASE OF ANSTED, WEST VIRGINIA

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Abstract.—The purpose of this study was to understand residents' attitudes toward tourism development in the town of Ansted, WV, using self-administered surveys. The attitude assessment in this study was part of a tourism planning process conducted for the town. The results indicate that perceptions of tourism development among Ansted's residents are generally homogeneous and highly positive. They do not believe that issues normally resulting from increased tourism, such as crowding, increased prices, or pollution would be a problem for the community. Rather, they are inclined to support tourism development for its potential to spur local economic development and provide related benefits. This finding is consistent with the social exchange theory that the more dependent a community is on economic benefits, the more likely it is that the community will support tourism development. The findings of this research will be an important contribution to a plan for sustainable tourism development in Ansted.

1.0 INTRODUCTION

West Virginia is the second most rural state in the United States (West Virginia Department of Health and Human Resources 2007). Rural communities in the state have been struggling to improve residents' quality of life without compromising the appealing features that are associated with rural places. In many parts of the world, tourism has been regarded as an effective means of promoting rural economic development and diversification. However, tourism can also destroy the resources on which its development depends. Community-based tourism planning has been used to solve this dilemma by considering local residents' attitudes toward tourism development during the tourism planning process. The purpose of this study is to understand residents' attitudes toward tourism development and its impacts in rural Ansted, WV. The attitude assessment in this study is part of a tourism planning process being conducted in the town.

Established in 1873, the Town of Ansted, WV, is located along U.S. Highway 60 on a portion of the Midland Trail National Scenic Byway overlooking the New River. The town is rich in Civil War and coal mining history. It has many historic attractions, including Civil War-era buildings, museums, and African-American cemeteries. There are also abundant natural attractions in and around the community, including Hawk's Nest State Park, the Midland Trail National Scenic Byway, and the New and Gauley National Rivers.

West Virginia is one of the most economically depressed states in the country, with a state average per-capita annual income of \$16,477, lower than the national average of \$21,587 (Ansted Blueprint Community 2007). The town of Ansted had a 1999 per-capita annual income of \$15,671 (as reported in 2000 U.S. Census data), which is lower than the state average and much lower than the national average (Ansted Blueprint Community 2007).

2.0 LITERATURE REVIEW

Residents' attitudes toward tourism development have been extensively examined from social, economic, and environmental perspectives. The literature review for this study focuses on the importance of uncovering residents' attitudes toward tourism development during community-based tourism planning and a discussion of previous studies concerning resident attitudes.

Tourism is often characterized by haphazard development that generates unevenly distributed benefits. Such circumstances apply especially to rural communities, in which few residents stand to benefit directly from tourism. Many communities experience economic leakages, in which most of the profits from tourism leave the community. This outflow occurs mainly because those who have decision-making authority over tourism development reside outside the community. This situation can lead to the eventual deterioration and abandonment of tourism destination sites, leaving the local people worse off than before tourism development began (Mitchell and Reid 2000). There is also increasing interest in the social and environmental impacts—both positive and negative—that tourism can bring, especially with respect to environmental and economic sustainability (Allen et al. 1988). Many tourism practitioners and researchers have begun to favor “community-based tourism,” in which communities are placed at the center of tourism planning and management (Mitchell and Reid 2000). Proponents argue that community participation in tourism planning and development is necessary to ensure that the benefits of tourism reach community residents (Simmons 1994). In addition, this type of planning encourages local employment and small business development, which in turn promote higher economic multipliers. A community approach to decision-making also helps to ensure that traditional lifestyles and community values are respected. Community participation also may generate environmental benefits; where local natural resources are essential to tourism, community members would ideally act as stewards in environmental conservation (Campbell 1999).

As discussed above, it is important to understand local residents' attitudes toward tourism development in order to plan and develop tourism in a sustainable manner. Accordingly, local residents' attitudes toward tourism have been widely examined in the literature. Harrill (2004) outlined three types of factors that influence attitudes toward tourism development: socioeconomic factors, spatial factors, and economic dependency.

Previous studies have examined the relationship between residents' attitudes and socioeconomic variables such as gender, income, and length of residence. Findings in these studies are not always consistent. For example, Allen et al. (1993) found that length of residence did not significantly influence attitudes toward tourism development in 10 rural Colorado communities. In contrast, Girard and Gartner's (1993) Wisconsin study, McCool and Martin's (1994) Montana study, and a Virginia study by Williams et al. (1995, cited in Harrill 2004) all found that long-term residents were more supportive of tourism development than short-term residents. In other research, gender has been found to be a more consistent predictor of residents' attitudes toward tourism development. For example, Mason and Cheyne (2000) found that women were less supportive of tourism development than men due to perceived negative impacts like increases in traffic, noise, and crime. Similar findings were also reported by Harrill and Potts (2003) in their study of Charleston, SC.

Several studies have investigated the relationship between locations/activities of tourism development and residents' attitudes, based on the hypothesis that “the closer a resident lives to concentrations of tourism activity, the more negative his or her perception will be of tourism development” (Harrill 2004, p. 253).

Tyrell and Spaulding (1984) found that Rhode Island residents had less favorable attitudes toward the tourism facilities close to their homes because of trash and litter. Gursoy and Jurowski (2002, cited in Harrill 2004) found that residents who used a nearby national recreation area frequently were more strongly opposed to tourism development than residents who

visited less frequently. In addition, Harrill and Potts (2003) found that residents of a neighborhood in a tourism core of Charleston received the brunt of the negative impacts from tourism and were less supportive of tourism development than residents of other communities farther away from the core. Raymond and Brown (2007) used spatial analysis to study Victoria, Australia, residents' attitudes toward tourism development based on their proximity to the development. They found that on surveys most residents offered conditional support for tourism development regardless of how far they lived from the center of the development. However, spatial analysis identified place-specific differences in residents' opinions about what types of tourism development would be acceptable or inappropriate.

Finally, according to social exchange theory, residents' attitudes toward tourism depend largely on how many tourism dollars can be generated and kept in the community (Harrill 2004). In addition, those who think they can benefit from tourism development are more likely to support it. Tyrell and Spaulding (1984) found that Rhode Island business owners and town officials showed stronger support for tourism development than other residents. In a study of the gambling community of Deadwood, SD, Caneday and Zeiger (1991) reported that the more money residents made in tourism-dependent jobs, the less likely they were to identify negative impacts. A study by Husbands (1989) in the Victoria Falls area of Zambia also found that white-collar workers had more positive attitudes toward tourism development than workers in the lower-tier managerial class. However, not all studies support this theory, especially if factors such as tourism-induced environmental deterioration come into play. For example, Liu et al. (1987) found that residents of Hawaii, North Wales, and Istanbul were more concerned about tourism's environmental impacts on their communities than its economic benefits.

3.0 METHODOLOGY

Findings from the literature, including the Tourism Impact Attitude Scale developed by Lankford and Howard (1994), were used to design a questionnaire to administer to Ansted residents. The questionnaire consisted of three sections: 1) perceptions of Ansted as a tourism destination or gateway community; 2) attitudes toward tourism development impacts (economic, environmental, and social); and 3) background information. Participants were asked to answer questions in Sections 1 and 2 using a 5-point Likert scale (1=strongly disagree to 5=strongly agree). In addition, a blank space was provided for open-ended comments about tourism in Ansted.

One hundred and sixty-one copies of the questionnaire were distributed at a community meeting, at town hall, and at the high school (in order to get the input of the younger community members) in October 2007 and during tourism planning activities in November 2007. Eighty-five questionnaires were completed and returned for a 52.8-percent response rate. Data were analyzed by descriptive statistics and t-tests using SPSS 11.5 for Windows.

4.0 RESULTS

4.1 Socio-demographic Information

The survey respondents consisted of an almost equal number of males (50.6 percent) and females (49.4 percent). More than half (53.6 percent) of the participants were over the age of 55. The most common occupation was retirement (35.3 percent), followed by various professions, none of which stood out above the rest. Professional occupations were the most common at 10.3 percent. Most of the respondents (61.4 percent) had a household income between \$20,000 and \$60,000/year (the majority of whom earned less than \$40,000/year). All of the respondents had at least a high school education and 40.4 percent had either an undergraduate or graduate degree. Finally, more than half of the respondents (59.8 percent) had lived in Ansted for at least 15 years and more than a quarter had lived in the town for 35 years or more.

4.2 Perceptions of Ansted as a Tourism Destination/Gateway Community

Figure 1 presents participants' perceptions of Ansted as a tourism destination and/or a gateway community. Responses to all 14 statements concerning the town as a tourism destination and/or a gateway community were highly positive. For instance, the majority of respondents believed communities in the region should attract more visitors (91.8 percent). They also favored tourism development in and around Ansted (89.3 percent) and believed that Ansted could serve as a gateway to surrounding parks and attractions (86.6 percent).

T-tests indicated that there were no significant differences between males and females, between the more and less educated, or between the affluent and the less affluent in their responses to the 14 statements about Ansted as a tourism destination with the following exceptions. Females ($M = 3.68$) were more likely ($p < .003$) than males ($M = 3.02$) to believe that Ansted is already a tourism destination. Respondents who had attended college ($M = 4.52$) were more supportive of Ansted forming partnerships with surrounding communities ($p < .010$) than those

who had less education ($M = 3.92$). Those with an annual income of less than \$60,000 ($M = 3.22$) were more likely to believe that Ansted is competitive with surrounding communities in tourism development ($p < .031$) than those who made over \$60,000 per year ($M = 2.47$).

There were, however, some significant differences between age groups (See Table 1). Respondents age 55 and above were generally more positive in their perceptions of Ansted as a tourism destination than respondents under 55. This observation was especially true in their perceptions of tourism development in and around Ansted ($p < .000$), Ansted's competitiveness with the surrounding communities in tourism development ($p < .001$), and Ansted's potential to become more of a tourism destination ($p < .002$). Despite these differences, both groups were not significantly different from each other in the other five statements: Ansted is already a tourism destination; is visited by a large number of visitors; should be in partnership with surrounding communities in tourism development; should be a political advocate for Hawks Nest State Park; and needs beautification.

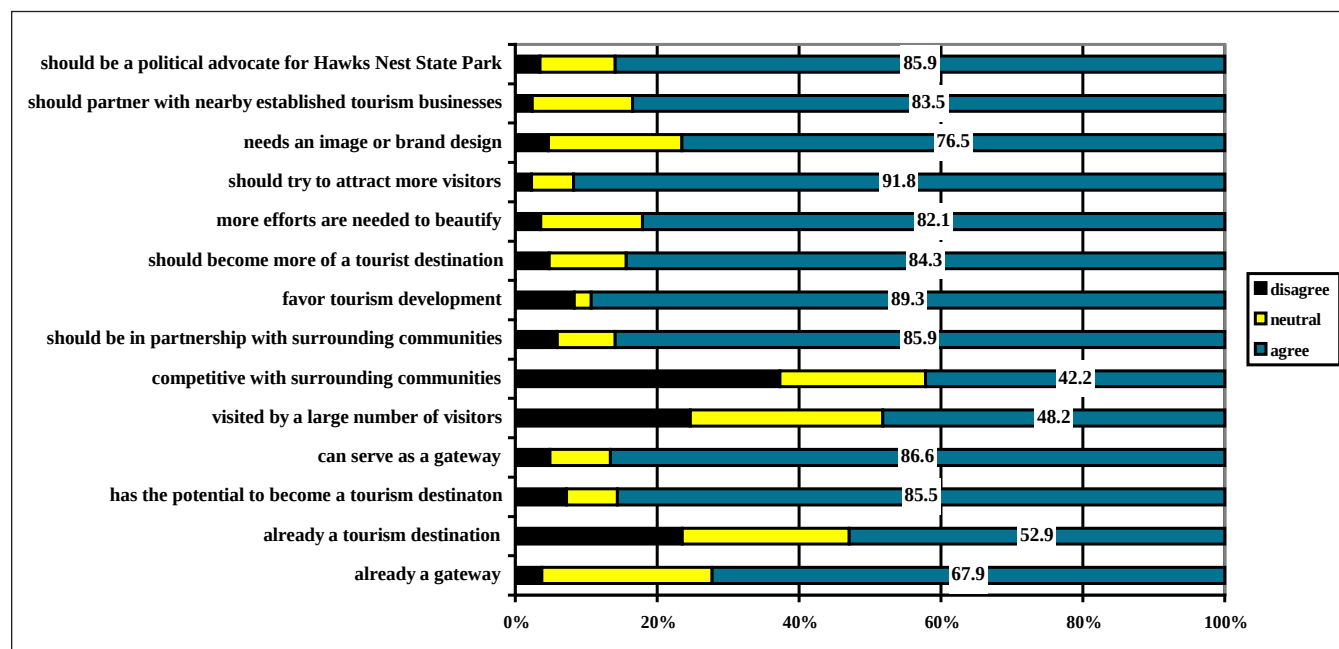


Figure 1.—Perceptions of Ansted as a tourism destination/gateway community.

Table 1.—Differences between age groups concerning perceptions of Ansted as a tourism destination

	Age	Mean	Mean Difference	t	Sig. (2-tailed)
1. Ansted is already a gateway to surrounding parks/attractions	< 55 ≥ 55	3.50 4.18	-0.68	-3.174	.002**
2. Ansted is already a tourism destination	< 55 ≥ 55	3.15 3.49	-0.34	-1.476	.144
3. Ansted has the potential to become a tourism destination	< 55 ≥ 55	4.05 4.67	-0.62	-2.984	.004**
4. Ansted can serve as a gateway to surrounding parks/attractions	< 55 ≥ 55	4.05 4.64	-0.58	-2.945	.004**
5. Ansted is visited by a large number of visitors	< 55 ≥ 55	3.03 3.38	-0.35	-1.614	.110
6. Ansted is competitive with surrounding communities in tourism development	< 55 ≥ 55	2.50 3.41	-0.91	-3.531	.001**
7. Ansted should be in partnership with surrounding communities in tourism development	< 55 ≥ 55	4.15 4.49	-0.34	-1.567	.121
8. I favor tourism development in and around Ansted	< 55 ≥ 55	4.13 4.91	-0.78	-3.934	.000**
9. My community should become more of a tourism destination	< 55 ≥ 55	4.05 4.68	-0.63	-3.141	.002**
10. More efforts are needed to beautify my community	< 55 ≥ 55	4.13 4.48	-0.35	-1.887	.063
11. Communities in this region should try to attract more visitors	< 55 ≥ 55	4.33 4.73	-0.40	-2.635	.010**
12. Ansted needs an image or brand design for tourism development	< 55 ≥ 55	3.95 4.42	-0.47	-2.328	.022*
13. Ansted should partner with nearby established tourism businesses	< 55 ≥ 55	4.10 4.58	-0.48	-2.487	.015*
14. Ansted should be a political advocate for Hawks Nest State Park	< 55 ≥ 55	4.41 4.44	-0.03	-0.164	.870

Note: *p < .05; **p < .01.

4.3 Attitudes toward the Impacts of Tourism Development

The respondents generally had positive attitudes towards the impacts of tourism development (Fig. 2). Concerning economic impacts, 90.6 percent believed that tourism development would provide more jobs for local people, 87.1 percent felt that the tourism industry would play a major economic role in the community, and 82.4 percent supported the development of new tourism facilities. However, only 36.9 percent would support tax levies for tourism development and most of the respondents (73.8 percent) did not want gambling to be a tourist activity near the town.

Regarding social impacts, most of the respondents believed that tourism would produce more cultural events (89.3 percent) and an increase in the quality of public services (58.8 percent). Only 15.7 percent believed that crime would increase as a result of tourism. Similarly, only 27.1 percent thought that tourism would cause crowding problems.

The participants were equally optimistic when responding to statements about tourism's potential environmental impacts on their community. Most (87.1 percent) believed that long-term planning by the town and region could control the negative impacts of

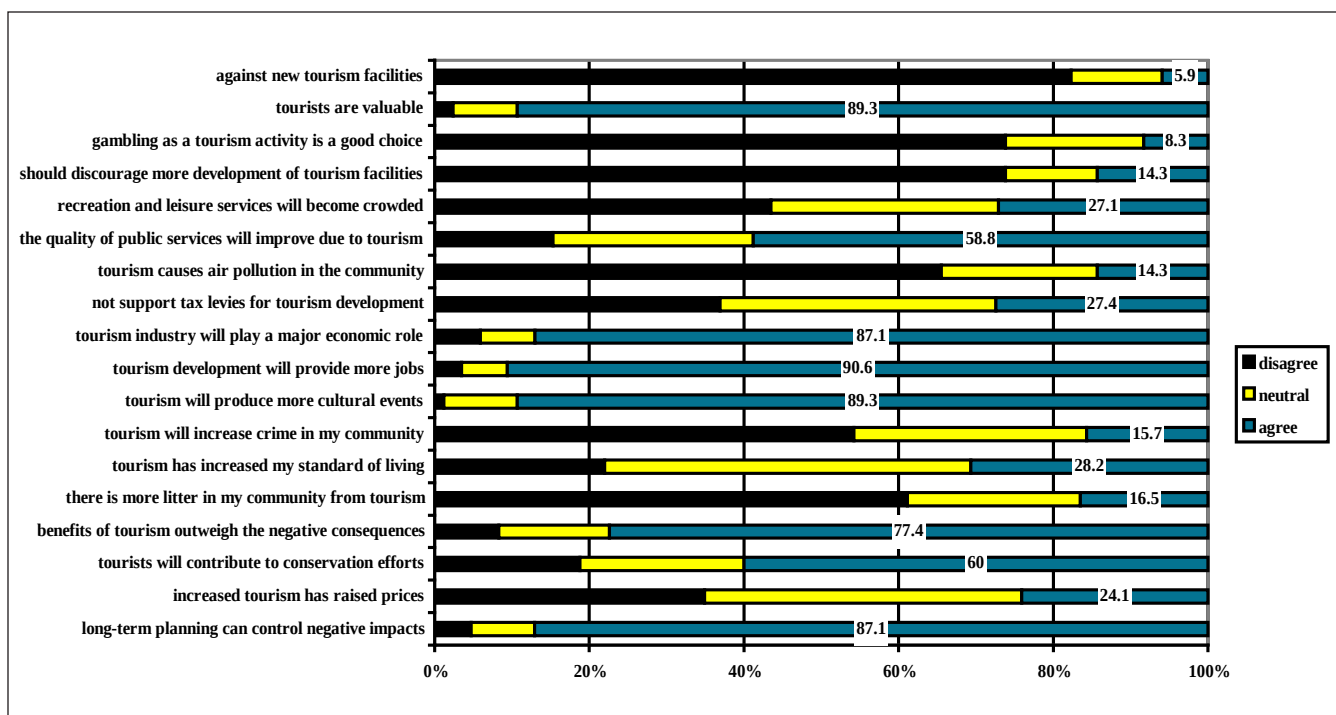


Figure 2.—Attitudes toward the impacts of tourism development.

tourism on the environment and 60.0 percent believed tourists would contribute to conservation efforts in the region. In addition, they did not think that tourism development would lead to increased litter (61.2 percent) or air pollution (82.4 percent). Overall, 77.4 percent of the respondents believed that the benefits of tourism outweigh the negative consequences of tourism development. In addition, 89.3 percent felt that tourists are valuable.

Results of t-tests concerning perceptions of tourism development's impacts are presented in Table 2. There were no significant differences between males and females in their attitudes toward the impacts of tourism development. Moreover, education did not affect participants' responses except for one statement; those residents who had attended college ($M = 4.40$) were more likely than those who had not attended college ($M = 4.04$) to think that tourism would produce more cultural events in the community ($p < .024$). In terms of income, those with higher incomes (\$60,000 or more per year, $M = 1.84$) were significantly less likely than those with lower incomes ($M = 2.51$) to believe crime would increase in the community due to tourism

($p < .029$). In addition, the affluent ($M = 1.80$) were also less likely to feel that there would be more litter in the community as a result of tourism ($p < .019$).

The differences between age groups, however, were again quite prevalent with those age 55 and over being more positive in their attitudes toward tourism development than those under 55. For example, concerning economic impacts and benefits, respondents 55 and over were more likely than their under-55 counterparts to believe that: tourism in the community will play a major economic role ($M = 4.58$ for 55 and over and $M = 4.08$ for under 55, $p < .014$); the community should encourage more intensive development of tourism facilities ($M = 1.60$ for 55 and over and $M = 2.18$ for under 55, $p < .034$); and the benefits of tourism outweigh the negative consequences of tourism development ($M = 4.51$ for 55 and over and $M = 3.76$ for under 55, $p < .001$). In the case of social impacts, those over 55 ($M = 4.44$) believed more strongly than those under 55 ($M = 4.11$) that tourism would produce more cultural events for the community ($p < .025$) and that tourists are valuable ($M = 4.73$ for the former and $M = 4.34$ for the latter,

Table 2.—Difference between age groups in their attitudes toward the impacts of tourism development

	Age	Mean	Mean Difference	t	Sig. (2-tailed)
1. Long-term planning by my town and region can control the negative impacts of tourism on the environment	< 55 ≥ 55	4.10 4.53	-0.43	-2.325	.023*
2. Increased tourism has raised prices in general	< 55 ≥ 55	2.77 2.79	-0.02	-0.098	.922
3. Tourists will contribute to conservation efforts in the region	< 55 ≥ 55	3.21 3.91	-0.71	-3.188	.002**
4. The benefits of tourism outweigh the negative consequences of tourism development	< 55 ≥ 55	3.76 4.51	-0.75	-3.332	.001**
5. There is more litter in my community from tourism	< 55 ≥ 55	2.46 2.20	0.26	1.019	.311
6. Tourism in my community has increased my standard of living	< 55 ≥ 55	2.85 3.09	-0.24	-0.946	.347
7. Tourism will increase crime in my community	< 55 ≥ 55	2.46 2.22	0.24	0.924	.358
8. An increase in tourism will produce more cultural events	< 55 ≥ 55	4.11 4.44	-0.34	-2.287	.025*
9. Tourism development in my community will provide more jobs for local people	< 55 ≥ 55	4.23 4.56	-0.32	-1.864	.066
10. The tourism industry will play a major economic role in this community	< 55 ≥ 55	4.08 4.58	-0.50	-2.519	.014*
11. I would not support local tax levies for tourism development	< 55 ≥ 55	2.90 2.66	0.24	0.832	.408
12. Tourism causes air pollution in the community	< 55 ≥ 55	2.26 1.84	0.42	1.621	.109
13. The quality of public services will improve due to tourism in my community	< 55 ≥ 55	3.46 3.73	-0.27	-1.134	.260
14. Many recreation and leisure facilities will become crowded by tourists	< 55 ≥ 55	2.72 2.58	0.14	0.583	.561
15. The community should discourage more intensive development of tourism facilities	< 55 ≥ 55	2.18 1.60	0.58	2.156	.034*
16. Gambling as a tourism activity is a good choice for Ansted	< 55 ≥ 55	1.68 1.73	-0.05	-0.200	.842
17. Tourists are valuable	< 55 ≥ 55	4.34 4.73	-0.39	-2.275	.026*
18. I am against new tourism facilities, which will attract more tourists to my community.	< 55 ≥ 55	1.72 1.33	0.38	1.852	.068

Note: * $p < .05$; ** $p < .01$.

$p < .026$). Regarding environmental impacts, those 55 and over more strongly agreed than those under 55 that long-term planning by the town and region can control negative impacts ($M = 4.53$ for the former and $M = 4.10$ for the latter, $p < .023$) and that tourists will contribute to conservation efforts in the region ($M = 3.91$ for the former and $M = 3.21$ for the latter, $p < .002$).

Finally, many open-ended comments were written on the surveys. The two main topics were a desire to maintain Ansted's small-town atmosphere and concerns about the negative impacts of nearby strip mining on tourism development and the environment.

5.0 DISCUSSION AND CONCLUSIONS

Residents of the town of Ansted generally held positive views toward initial tourism development in their community. They were more focused on tourism's positive impacts than its negative impacts. In addition, residents' awareness of plans to develop tourism in their community will help them prevent decision-making with which they disagree. In this way, they will be able to maintain ownership over tourism development.

There was a discrepancy between the optimism of respondents age 55 and over and the less positive attitudes of those under the age of 55. This difference may be due to the low representation of respondents in the age 18- to 25-year-old group (3.6 percent) and the 26- to 39-year-old group (7.1 percent). It could also be attributed to a nostalgia that the older generation feels for the town but which the younger generation may lack. Younger people also seem to feel that the town does not have much of an ability to improve and revitalize. Whatever the reasons, it is important that the younger generation, especially those aged 18-25, become more involved with town development planning. If these young people do not feel strongly about Ansted's restoration, it is unlikely that young adults will carry out any tourism planning and implementation. Perhaps a participatory model targeting the 18- to 25-year-old age group could be useful in motivating the younger generation to become more involved in tourism development planning in the community.

As mentioned previously, there is no major concern among respondents about the environmental impacts of tourism development. For example, respondents did not feel tourism would bring more litter or air pollution to the community. This result could be explained by the social exchange theory as discussed above. Similar findings were also reported in Andressen and Murphy's (1986) study of two Canadian communities, where local residents focused on the potential economic benefits of increased tourism and did not think that tourism had created social or environmental problems.

Although the respondents to the Ansted survey believe that the benefits of tourism will outweigh the negative impacts, this response does not mean that negative impacts will not occur. It is important that the community residents recognize these consequences so that they will be able to monitor and attempt to control negative environmental impacts and to plan accordingly if negative impacts are escalating. On a more positive note, the respondents did recognize the importance of long-term planning to control the potential negative environmental impacts of tourism. They also believed that tourists would contribute to environmental conservation efforts in the region.

An interesting finding from this study is that gambling was not regarded as an attractive or appropriate tourism activity. Previous studies have found that casino gambling can be an effective driver of rural economic development in the United States (Reeder & Brown 2005) and that gambling is not strongly opposed in some communities (e.g., Long 1996). This strong contrast suggests that Ansted residents hope to maintain their town's rural atmosphere.

Residents also expressed their wish to maintain their small-town atmosphere in the comments. Small towns are becoming scarce due to urban sprawl and rampant development. The acknowledgement of the value of their small town will greatly benefit the residents of Ansted. They can promote their small town as a unique destination that tourists will want to visit.

This hope was also evident in their comments about outside influences, especially strip mining for coal. If tourists want to come to a small town bordered by beautiful, green hills, they will be sorely disappointed if they come to a small town surrounded by unsightly strip mines. Therefore, the community will need to plan accordingly. Residents may need to engage in dialogue with the coal companies as well as their state representatives in order to stop strip mining or to work out some sort of compromise. If strip mining continues as planned, the community will need to develop a tourism plan that takes the strip mines into consideration. During a conversation with the researcher, one study participant suggested building a

platform for tourists to view the strip mines in order to promote conservation and a grassroots movement against strip mining.

In conclusion, this survey was conducted in conjunction with a tourism planning process and its findings contribute to the understanding of how the community of Ansted, WV, perceives tourism development and its potential impacts.

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TOURISM PACKAGE PREFERENCES OF WEST VIRGINIA STATE PARK VISITORS

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Abstract.—This study was a preliminary examination of the activity and spending behavior of visitors to Pipestem State Park in West Virginia. This state park is being used as a case study area to determine whether a new fish stocking program accompanied by appropriate marketing activities can increase park visitation by anglers and other sports-oriented people. The research was done very shortly after the first stocking activity and reached only 49 visitors, but it does provide a baseline against which to measure the impacts of stocking efforts.

1.0 PURPOSE OF PROJECT

This study is part of a larger project examining the use of targeted fish stocking as an attraction enhancer at select West Virginia state parks. This paper covers an initial phase of research to examine the activity preferences and spending behavior of visitors to Pipestem State Park. The project is funded by West Virginia University Extension Service's Aquaculture Development Program.

1.1 Review of Literature

An extensive body of literature finds that vacationers frequently seek an assortment of activities for their vacation experience. These activity combinations are referred to as packages and packaging is a major element of tourism marketing (Fridgen 1996). Activity packages offer clients better economy, more convenience, and an introduction to unfamiliar activities. Tourism packages allow travelers to arrange several days' worth of accommodations and activities

through a single contact agency. This convenience appeals to many vacationers (Bloomquist and Sem 1994). Tourism service providers may develop activity packages based on consumer demand, availability of facilities and services, or a combination of demand and availability. Benefit packages may also be built around specialized interests or demographic characteristics. Tourism agencies use packages to improve target marketing, to maintain participation levels during off-peak periods, and to capitalize on cooperative efforts with other nearby attractions (Bloomquist and Sem 1994).

Fishing is one of the most popular outdoor recreation activities in the United States. Fishing is especially popular in West Virginia, where the U.S. Fish and Wildlife Service (2007) estimates that more than 21 percent of West Virginia residents participate in fishing. Fishing typically serves as a gateway activity so that many people who take up fishing will subsequently develop an interest in other outdoor sports and activities (Outdoor Industry Foundation 2007). Therefore, promotion of fishing should lead to greater demand for and participation in other outdoor activities.

Preliminary research by Mei, Pierskalla, and Schuett (2006) found six distinct market segments derived from a factor analysis of 27 outdoor recreation opportunities: experiencing nature and adventure; social relaxation; trophy fishing; escape; family; and fishing for food and fun. These market segments reflect the motives of the participants as well as the activity selections that factored together. The study found that though few visitors to West Virginia participated in tourism activity packages, a significant percentage would be interested in doing so.

1.2 Overview of Pipestem State Park

Pipestem State Park is located in southern West Virginia. The park extends over 4,025 acres and

encompasses a portion of the Bluestone Wild and Scenic River. The Bluestone River flows through a gorge that is approximately 1,100 feet deep. A 113-room lodge hotel is the primary feature of the state park. A smaller 30-room lodge along the Bluestone River is accessible only by an aerial tram. The aerial tram system also offers the only convenient access to the river for anglers and the tram system is closed during the winter months (November to late April).

The Bluestone River is primarily a warm water fishery, but the upper and middle sections of the river are heavily shaded with fast-running water. The survival rate of stocked trout in this river is an issue of concern to the overall study.

2.0 STUDY METHODOLOGY

A 16-item survey was administered to 50 randomly selected state park visitors during October 2007. Surveys were administered by four researchers following a scripted protocol and were collected at the main lodge area and at the aerial tram where anglers could access the river. This effort was the first data

collection in a long-term project to assess visitor activity preferences and the role of stocked trout fishing as an attraction for visitors.

3.0 RESULTS

The primary questions on the survey asked about daily activity participation both within the state park and in the local area. Results in the graphs below (Figs. 1 and 2) represent frequency distributions for all activities with more than one positive response.

During the brief study period discussed in this report, visitors to Pipestem State Park were heavily involved in nature observation activities, walking and hiking, golf, and vehicle camping (Fig. 1). Fishing on the Bluestone River was not a common pursuit during the time of this study.

3.1 Experience Quality

The survey asked participants about the “eventfulness” of their day at the state park. Responses to this question used a 7-point Likert scale with “1” representing an uneventful day and “7” representing

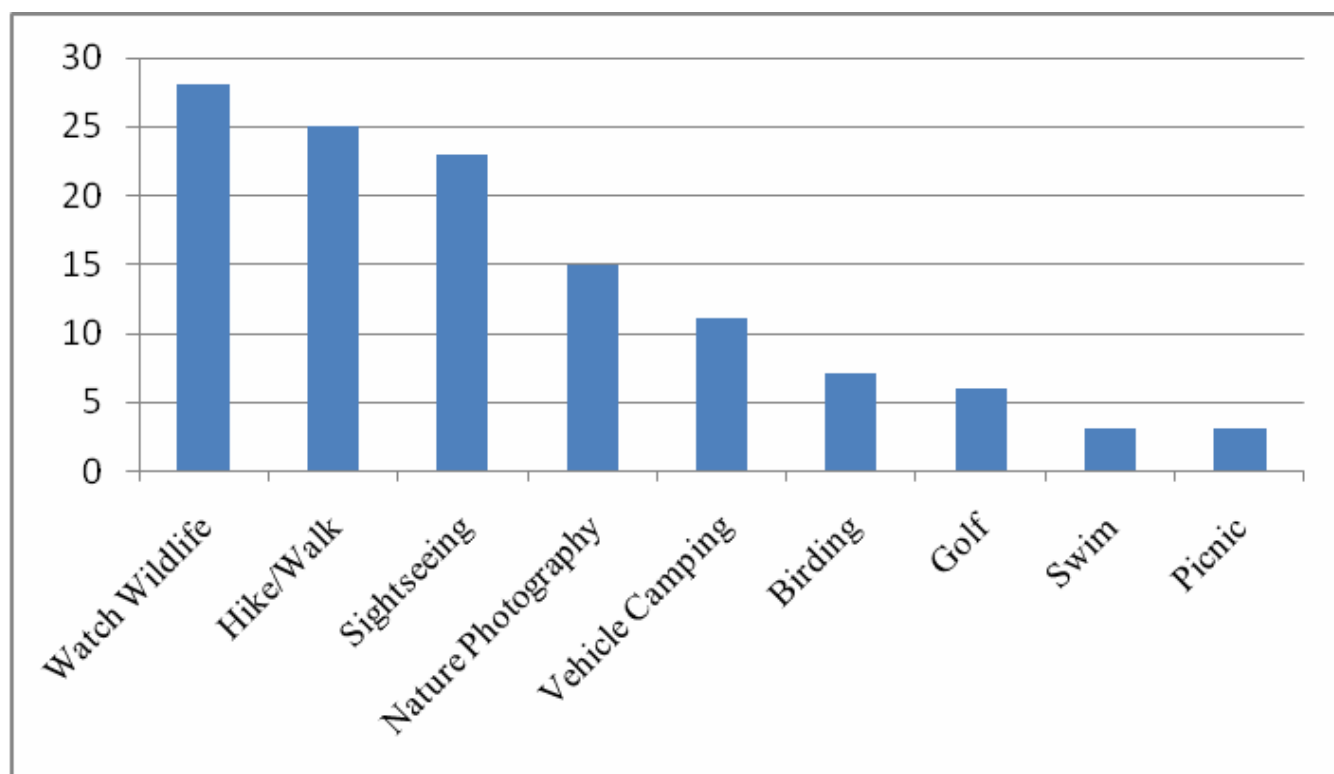


Figure 1.—Frequency distribution of participants' activities in Pipestem State Park.

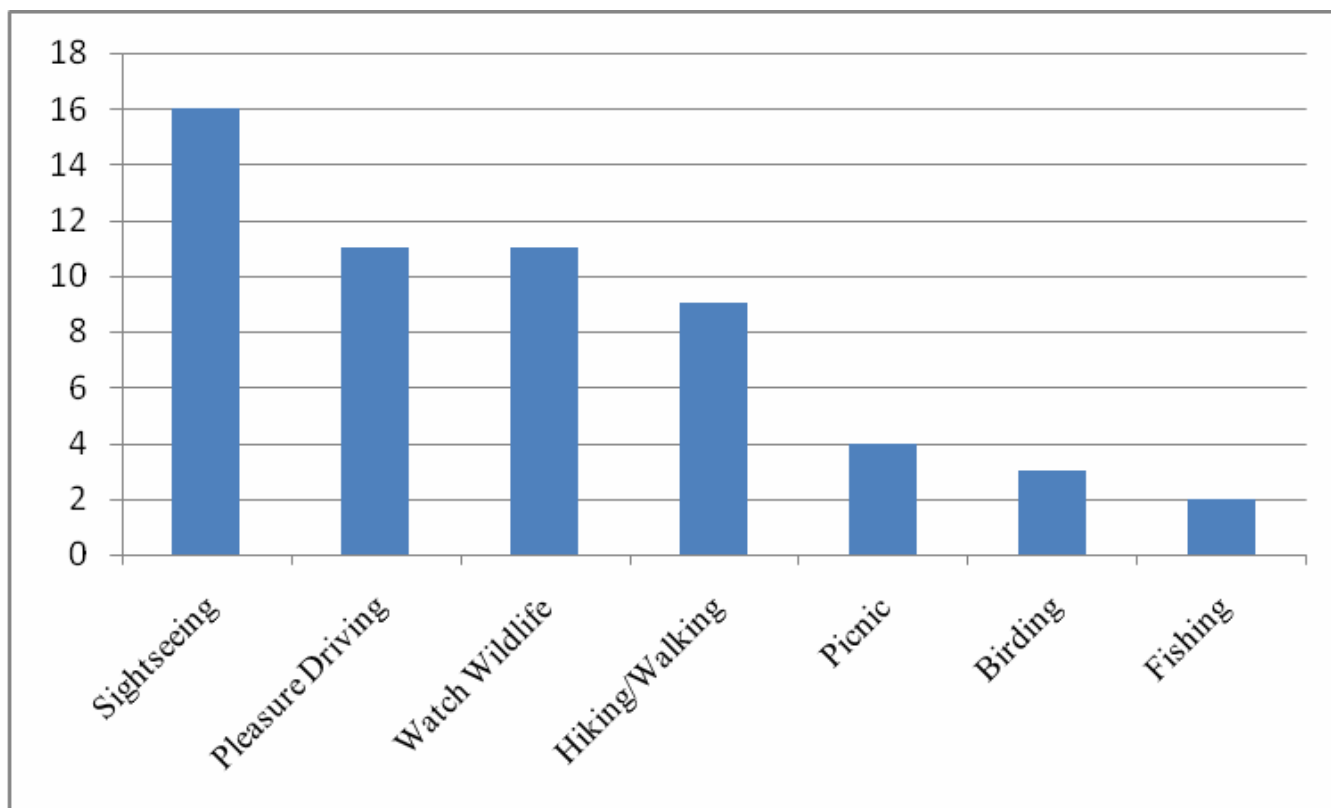


Figure 2.—Frequency distribution of participants' activities outside Pipestem State Park.

a very busy day. Results from this question produce a mean value of 4.84 on the 7-point scale (Standard Deviation = 1.51), indicating that the majority of respondents found their visit moderately eventful.

Participants were also asked to evaluate the quality of their daily recreation experiences at the state park. This question also used a 7-point Likert scale with “1” representing a poor-quality experience and “7” representing an exceptional level of quality. The mean score for this item was 5.39 (Standard Deviation = 1.39), indicating that respondents were very pleased with the quality of their state park experience.

3.2 Visitor Spending

A series of questions asked about participants' daily spending behavior.

Spending by visitors demonstrated a great deal of variability (Fig. 3). While mean spending totals were generally modest (Fig. 4), some individuals spent very freely for such items as guide and outfitter services (Fig. 5). In general, visitors to the park routinely pay

for golf instruction and horseback tours. This pattern suggests that the state park visitor population is able to afford activity packages.

4.0 DISCUSSION

4.1 Marketing

Pipestem State Park is widely known and widely advertised and has long been one of the “flagship” parks in the West Virginia system. Marketing and advertising for the park focus on the scenic location and opportunities for viewing nature and wildlife. The visitors who responded to this survey were seeking and participating in all the activities that are emphasized in the park's marketing. Further research will be necessary to determine the extent to which the park's current marketing drives activity participation. The park's future marketing plan will need to highlight the presence of stocked trout in the Bluestone River in order for the trout to draw visitors and serve as an anchor for activity packages. Such marketing must also be conducted well in advance of fish stocking efforts.

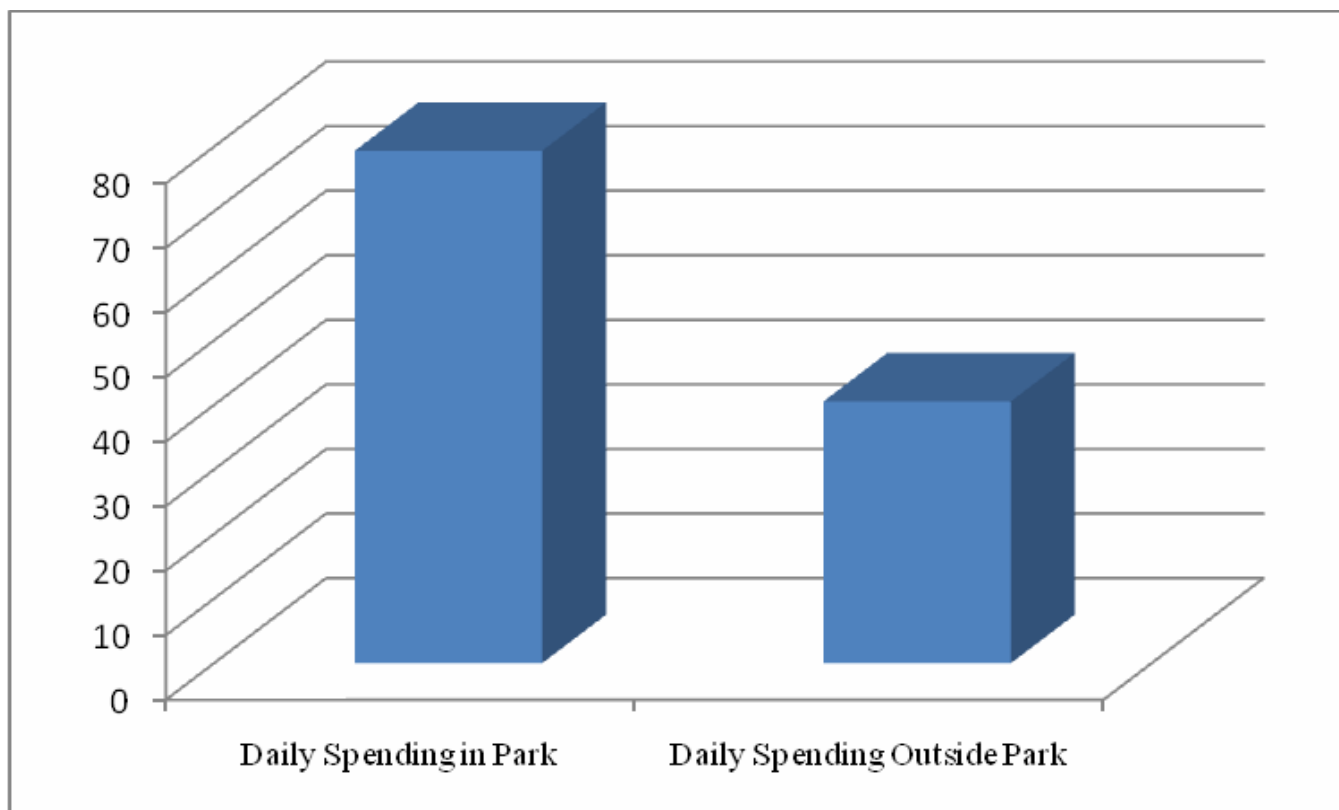


Figure 3.—Daily mean visitor spending. (Spending inside the park: range = \$0 to \$661, standard deviation = \$110.59; spending outside the park: range = \$0 to \$465, standard deviation = \$76.67)

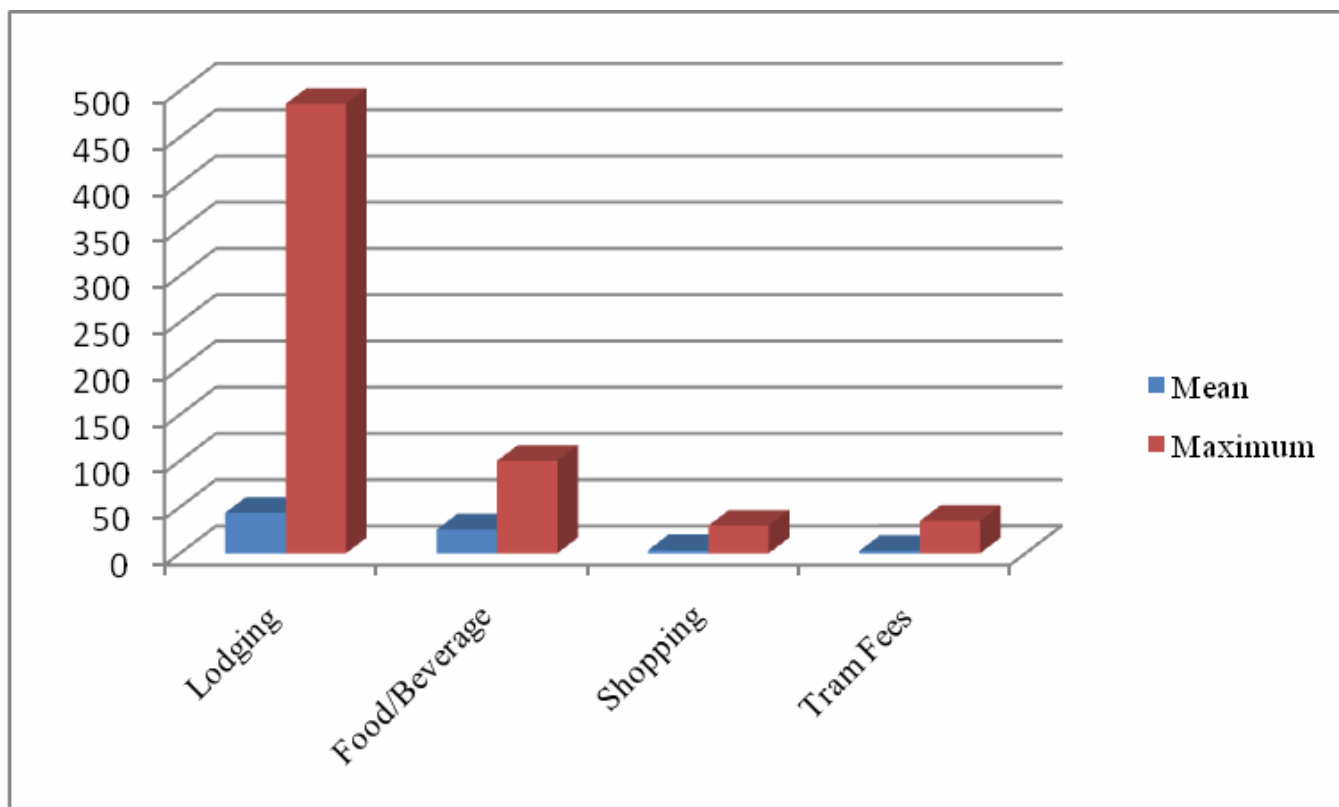


Figure 4.—Mean and maximum spending inside Pipestem State Park by category.

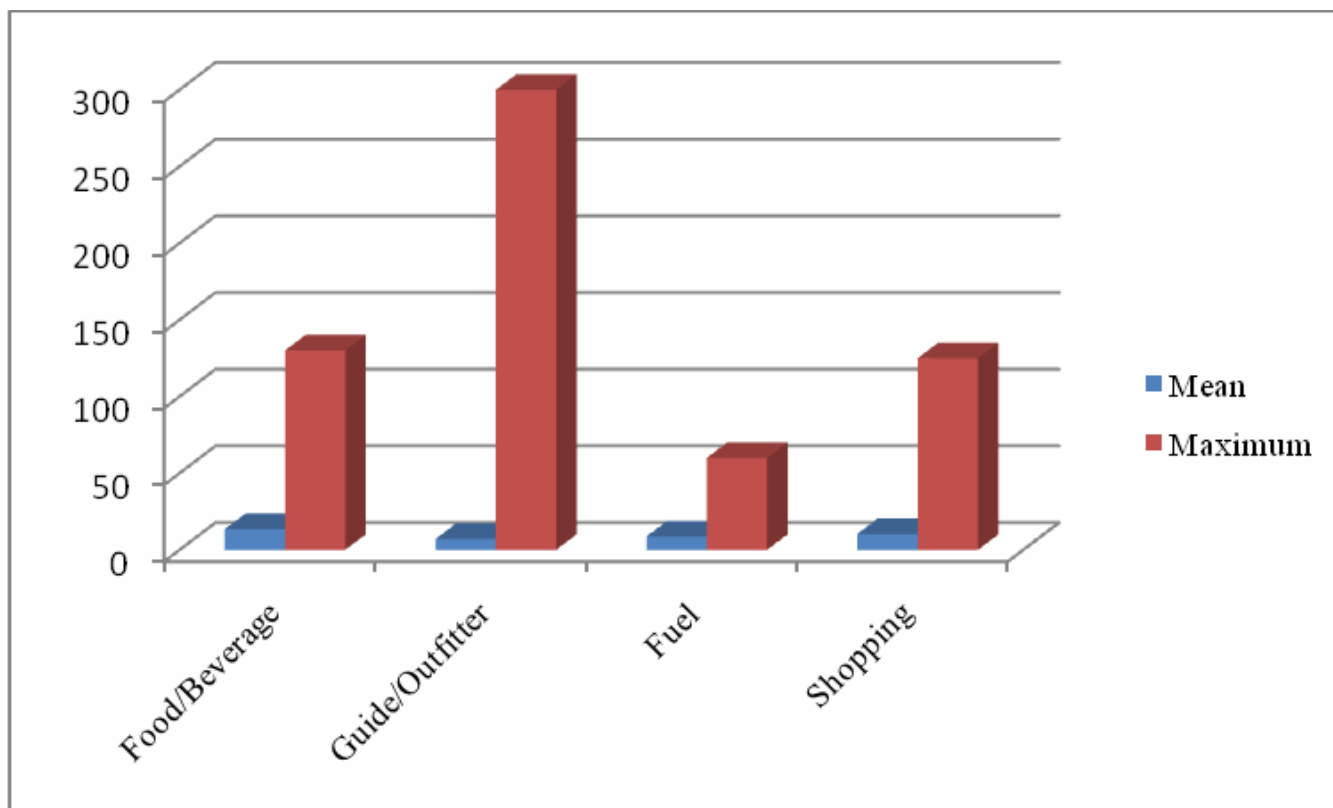


Figure 5.—Mean and maximum spending outside Pipestem State Park by category.

4.2 Seasonality

This survey research was significantly limited by seasonality. The data were collected during a brief period in late October. At this time of the year, West Virginia state parks are extremely popular with visitors traveling the area to see autumn foliage and wildlife. The late-October survey period probably skews the sample away from family-oriented participation and toward an older and less active population. It is possible that future targeted stocking of trout may “broaden the shoulders” of the tourism season by increasing visitation during times when visitor numbers typically tail off. An enhanced marketing effort to make visitors aware of the stocking program will be necessary for this stretching of the season to be successful.

4.3 Timing

Data collection periods were scheduled throughout the daylight hours including very early in the morning. The phrasing of the questions asked subjects which

activities they had participated in during that day only. A better representation of activity participation may have occurred if respondents had been asked about their *expected* activities for the day or their activities during their entire trip, or if data collection had taken place later in the day after respondents had had adequate time to participate in more activities.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This study provides only limited information about the relationship between angling and tourism package preferences at Pipestem. The research timing was less than ideal because it was late in the tourism season and only a few days after the start of a new fish stocking program. This study is most useful as a baseline reflection of late-season visitors’ spending and activity participation trends. Future research can assess the effectiveness of stocked fish angling as a tourism enhancement and package development activity using the baseline data reported here.

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***PARTNERSHIPS, MEMBERSHIPS,
ENGAGEMENT OF THE PUBLIC***

SOCIAL FACTORS SHAPING THE FORMATION OF A MULTI-STAKEHOLDER TRAILS NETWORK GROUP FOR THE MONONGAHELA NATIONAL FOREST, WEST VIRGINIA

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Abstract.—This paper reports the results and management implications of a longitudinal research study examining the social factors affecting the formation of a trails network advisory group for the Monongahela National Forest (MNF) in West Virginia. A collaborative process of creating an MNF trails network with input from local users and stakeholders has been largely unsuccessful to date and the process itself has caused conflicts between land managers and forest users. Based on interviews with U.S. Forest Service personnel and local stakeholders, this paper focuses on social factors influencing the formation of a trails advisory committee made up of local residents and other interested parties.

1.0 INTRODUCTION

There is a growing trend towards collaborative management of public lands in federal agencies. Natural resource interest groups have been growing in number and size and have become more and more knowledgeable about environmental ethics and lobbying techniques since the start of the environmental movement in the 1970s. Decker et al. (2001) describe the trends that indicate further evolution of public involvement in governance and

planning, including continued growth of human impact problems that are often location-specific, citizens' greater expectations for solutions tailored to their communities, and continued decline in agency budgets and personnel. The trend of declining budgets alone creates opportunities for members of the public to volunteer on public lands and to relieve the work burdens of overloaded federal employees. Some may say that volunteers are "worth their weight in gold" because they increase an agency's capacities and take up slack caused by personnel cuts.

This research is part of a multiple-component larger study designed to assist Monongahela National Forest (MNF) managers with their trails planning process by providing them with information about a trail assessment, trail impacts, use of off-highway vehicles, and multi-stakeholder collaboration. The research also examines factors that have facilitated or constrained the formation of a trails network.

The U.S. Forest Service initially contracted with West Virginia University researchers to facilitate a series of meetings with trail stakeholder groups to gather input and support for the development of a comprehensive trail plan for the MNF. The project investigator had both facilitation and capacity-building roles and also worked on collecting relevant data about trail planning and stakeholder collaboration from multiple sources. The main outcome of the workshop was that stakeholders expressed interest in forming a trail network advisory committee to work with the MNF managers on their trail plan and other future planning efforts.

2.0 LITERATURE REVIEW

Collaborative approaches to the management of natural resources have received much attention as land management agencies adapt to a complex society (Schulser et al. 2003). In response to public demands,

governing through collaborative networks has begun to emerge as a new model for government programs worldwide (Goldsmith and Eggers 2004). In addition, the U.S. Forest Service's 2005 and 2008 planning rules are intended to create a more adaptive approach to planning and a collaborative process for creating and implementing management plans with ongoing public input.

Gray (1985) defined collaboration as a pooling of resources by two or more stakeholders to solve a problem that neither can solve individually. Gray (1985) also states that collaboration is an ongoing process rather than an outcome. Other experts have added that a collaborative process involves relevant stakeholders from the outset, provides joint ownership of the process, and allows for consensus building on defining a problem and working toward a mutually understood set of objectives and goals (Yaffee and Wondolleck 1997).

Researchers and managers have identified numerous potential benefits of collaborative planning, such as increased effectiveness of management, greater acceptability of management actions, increased trust, reduced costs, and increased public awareness of conservation issues (Schusler et al. 2003). More recently, Goldsmith and Eggers (2004) provided insight into the trends that influenced the increase in governance by networks: an increase in partnerships and consumer demands, increased integrative services, hierarchical to horizontal structure, and advances in technology that lowered the costs of communication and collaboration.

3.0 STUDY PURPOSE AND METHODOLOGY

The purpose of this study was to examine the social factors that have facilitated or constrained the formation of an MNF trail network advisory group from the perspective of stakeholders and agency personnel. This study represents a formative research approach as it was intended to gain understanding of the issues and provide information that will assist managers in solving problems. Specifically, the following research questions (RQ) were explored:

RQ 1. How does the status of the pending Wilderness Bill influence the group's discussions?

RQ 2. How do the shared values of the individual interest groups influence the collaboration process?

RQ 3. How do the participants' values and attitudes influence the collaboration process?

RQ 4. How does the history of efforts by individual interest groups influence the collaboration process?

RQ 5. How does the relationship with MNF managers affect outcomes?

To examine these research questions, data were gathered through semi-structured interviews, which allowed researchers to view the topics from the participant's perspective (Patton 2002). In addition, qualitative analysis was conducted with participant observation research notes, transcribed audio/visual tapes of meetings and the workshop, data from evaluation surveys of the workshop, and notes from communication media (such as email and phone conversations). Triangulation of data strengthened the study through the combination of the methods (Patton 2002) and enabled the researchers to identify emerging themes (Dempsey 2007).

The data analysis approach was thematic; researchers searched for themes within the text and analyzed core content to determine what appeared to be significant (Patton 2002). Themes were linked with examples and quotes from the text in order to provide a description of the participant's perspective. Table 1 outlines the research questions that were explored during interviews.

Participants in this study had diverse affiliations with interest groups and represented many different kinds of trail users. Face-to-face interviews were conducted with two stakeholders ("Maggie" and "Buddy") and two agency managers ("Sydney" and "Chloe"). Table 2 displays the different affiliations and agency positions of the participants, the diverse activities in which stakeholders participate, and the agency staff members' goals for serving diverse user groups.

Table 1. Interview questions and relevant research questions (RQ)*

	RQ 1	RQ 2	RQ 3	RQ 4	RQ 5
1) I would first like to make sure that I have your affiliations correct.	X				
2) What type of trail user would you describe yourself as?					
3) Tell me about the history of your interest group's efforts regarding trails.				X	
4) What is your reason for participating in the group? (If discontinued participation:) What made you reconsider participating in the group?		X	X	X	
5) What do you feel are the benefits of a collaborative planning process? The challenges?		X	X	X	X
6) What factors or issues will likely encourage or support the formation of the Monongahela NF Trail Network? What factors or issues would likely constrain this process?	X	X	X		X
7) What type of role do you see yourself playing in a multi-stakeholder network? What type of commitment can you give to the network?	X				X
8) In your opinion, should the USFS be a member of the Monongahela NF Trail Network? Why or why not?					X
9) What resources or assistance may be needed to see the formation and success of the Monongahela NF Trail Network? From West Virginia University? From the Monongahela NF?					X
10) Is there anything I haven't asked about that you would like to share about the collaborative planning process?					

* See text for list of research questions.

Table 2.—Stakeholder and agency profile: affiliations and user types*

	Affiliations	User Type
Stakeholders	WV Sierra Club WV Highlands Conservancy WV Mountain Bike Association International Mountain Bike Association Wilderness Coalition WV Horse Council	Hiker Mountain biker Horseback rider Berry picker Cross-country skier Camper
Agency	Forest Supervisor Forest Recreation Staff Officer District Recreation Staff Soil Scientist	Integration of soil data with recreation Integration of soil data with trail design Appropriate use Trail classification

* User types listed in this table represent more than one affiliation.

4.0 RESULTS

4.1 Emerging Themes

A number of themes related to trail use and management emerged from analysis of the interview text including: past efforts, facilitating factors, constraining factors, benefits and challenges of a collaborative process. The following interpretations and examples typify the perspectives of both stakeholder and agency participants. The themes that emerged from the participants' opinions represent important components of the data and allowed for an inside look at aspects of a collaborative process.

4.1.1 Past Efforts

When participants were asked about their past efforts in regards to trail issues on the MNF, a number of them talked about participating in successful collaborative processes that involved cooperation and initiative and produced results from stakeholder input. For example, one stakeholder talked about participating on environmental assessment teams approximately 20 years ago. The stakeholder felt that there was true initiative and interest on the Forest Service's part and that the Forest Service actually took stakeholders' input and used it in the planning efforts. This stakeholder's frustration regarding the current working relationship with the Forest Service compared to 20 years ago was apparent:

"When I was a member of those teams, I really had input. I could see at the end my influence and the decisions that were made, it was a real team effort...and the Forest Service took that advice."

In this case, the stakeholder felt that time spent on the process was justified, that there was a feeling of ownership in the outcomes, and that stakeholders' input and recreational experiences were valued. On several occasions, stakeholders also talked about their input not being taken seriously and feeling like their time was "wasted," which, in turn, added to frustration and potential hesitation to participate as advisors in the future. Essentially, the stakeholders wanted to see that their time and knowledge had an impact, and agency managers understood this expectation as well:

"For me, and most others, it is extra voluntary time taken out of my schedule...needs to be worthwhile for the stakeholders." [From a stakeholder]

"They need to see actual work and planning efforts being conducted...They need to see results of their time and efforts in order for the partnership to survive." [From an agency manager]

The stakeholders also offered explanations for why the Forest Service is not as easy to work with today as it was in the past (e.g., "Collaborative planning is very different today"). In many cases, the stakeholders expressed aggravation with the Forest Service's new organizational structure because it was perceived to have been shaped by political factors and had resulted in staff turnover, a decrease in personnel, and dwindling budgets. It is interesting to note that those same political factors and the related outcomes are driving the trend toward collaborative approaches to management. At the same time, budget and staffing problems also work against developing successful collaborative partnerships. The stakeholders generally felt that it was the Forest Service's responsibility to share information and to engage stakeholders in their management efforts. Information about the interviewees' past experiences made it easier to understand their opinions and frustrations about present factors that may impact the formation of a trail network for the MNF.

4.1.2 Facilitating and Constraining Factors

In general, stakeholders and agency managers need to understand one another's perspectives in order to commit to the partnership. Only then can trust and a relationship begin to develop. Participants were asked what factors they felt might facilitate or constrain the formation of a trail network (Table 3). Again, both groups emphasized the importance of time as a facilitating or constraining factor. Agency personnel generally recognized that as long-time trail users, stakeholders have the "social" knowledge of trails, which is important during trail planning efforts.

Table 3.—Facilitating and constraining factors: stakeholder and agency perspectives

	Agency Perspective	Stakeholder Perspective
Facilitating Factors	Lack of agency resources Trend toward collaborative approaches Stakeholder knowledge Stakeholder demand Need for trail plan	Stakeholder resources and knowledge Positive past efforts Existing stakeholder networks Desire to participate Pending Wilderness Bill
Constraining Factors	FS rules and regulations Time, priorities, other commitments Lack of ability to engage stakeholders FS staff turnover Longevity of network	Skepticism of FS interest, trust Time Lack of consensus among stakeholders FS staff turnover Pending Wilderness Bill

Stakeholders and agency personnel also made comments that reveal a potential lack of general understanding of one another's perspectives. This gap highlights the importance of understanding each participant's comments in the context of his or her previous experiences and general background.

When discussing collaborative processes in general, stakeholders repeatedly emphasized the importance of having willing, representative stakeholders—i.e., having “the right people”—at the table. In general, “the right people” were those who were willing to listen, to support others' interests and needs, and to participate in the planning efforts in good faith. Some people implied that collaboration has to start among the different user groups before the stakeholders enter into a partnership with the Forest Service:

“I am willing to support your interests, if you are willing to be part of the planning process and where your trails will be.” [From a stakeholder]

The pending Wilderness Bill was also discussed in most of the interviews with stakeholders. The Wilderness Bill is generally considered to be a constraining factor in the collaborative planning process in the sense that it is drawing a lot of stakeholder and agency energy and focus away from trails planning. One reason is that the bill is a top priority for many stakeholders and the organizations with which they are affiliated. Second, they see action taking place on the Wilderness Bill and know they can be part of the process, whereas the trail planning

process has been stalled for a long time. These factors are disincentives for stakeholders to put time into trail planning:

“Even after the Wilderness Bill is decided upon, who knows how that will affect interest of the stakeholders regarding participation in this group...It could go either way.” [From a stakeholder]

“I most likely will not come back to this effort.” [From a stakeholder]

Interviewees also mentioned their frustration with the lack of respect between the different user groups. One stakeholder talked about particular groups being uncooperative, inflexible, and unwilling to listen and commented:

“You're going to disagree because of your interest. So what, that is not a reason to segregate.”

Another stakeholder offered an example of the frustration and challenge of working with the Forest Service:

“A good example is when I took the FS supervisor to the Seneca Creek when the engineers had designed all these prefab bridges that they were going to drop down in by helicopter. They were cutting down trees to gain access. I had to take volunteer time to fight that and we fought the EA [(Environmental Assessment)], we fought the decision, and finally I just went in to the supervisor and said, ‘Have

you ever been in there?’ And he had not, so I got him to commit to going on an outing. He finally said, ‘Ya know, I’m beginning to see what you were so mad about here. We don’t need any bridges here’ and he called the district ranger over who was pushing the bridges and the engineers and he read them the riot act... [T]hey were proposing to destroy the beauty of this area to put in a stupid bridge. There was not a bridge put in Seneca Creek after that.”

One constraint that really stood out in the interviews was related to the longevity of a network group. The Forest Service wants to keep the user groups engaged over time, so the agency tries not to overload volunteers and works to maintain partnerships and relationships despite setbacks that may arise. However, sustaining long-term relationships is hindered by turnover among Forest Service personnel, as well as by getting or not getting the “right” stakeholders to the table. In the best-case scenario, participants representing specific user groups can guide other users and volunteer groups to participate in trail maintenance, projects, and programs. An agency manager referred to how people’s interest in the process tends to die off over time:

“We hope that the interest of the group continues, even though there may be some false starts.”

Agency staff also talked about how the local economy influences people’s interest in participating in collaborative processes and how they are unsure about

where to find stakeholders who have the time and motivation to participate in collaborative planning. As one manager stated:

“Currently the local economy is changing and you are observing a shift in the local population...It can further constrain engaging stakeholders.”

4.1.3 Benefits and Challenges

During the interviews, researchers also asked for opinions about the benefits and challenges of collaborative processes from both the stakeholder and agency perspectives (Table 4). Stakeholders most often mentioned conflict elimination as the main benefit of collaboration. Other benefits listed by stakeholders included gaining a better understanding of other user groups’ needs and interests and greater acceptance of management decisions as a result of having the opportunity to contribute to the process. As one stakeholder stated:

“It makes you walk the trail differently when you are able to collaborate with the agency as well as other stakeholders.”

Another benefit from the stakeholders’ perspective was that the agency would not need to contract work out and that the user groups could apply for grants for trail maintenance and projects in general. According to one stakeholder, the collaborative process had not generated benefits for quite some time because of a lack of initiative from the agency, staff turnover, and political issues.

Table 4.—Benefits and challenges of a collaborative process: stakeholder and agency perspectives

	Agency Perspective	Stakeholder Perspective
Benefits	Decrease costs and maintenance Stakeholders can leverage resources Stakeholders can provide knowledge Build and develop relationships --Eliminate conflicts	Informing congressional delegates --politically, very positive Existing stakeholder networks Stakeholders can leverage resources Public input can decrease conflicts
Challenges	Increase interest of user groups Time, priorities, other commitments Longevity of network	Getting the right people to the table Time Frustration due to agency's not showing initiative Majority of efforts going toward pending Wilderness Bill

As previously mentioned, stakeholders identified time (or lack thereof) on the part of both the agency and stakeholders as a major challenge to the collaborative process. Time tends to dictate and impact the overall process and can make or break a successful network partnership. A few stakeholders also felt that the process was unfair to them because of agency staff turnover, the difficulty of keeping the agency on target regarding the overall goals, and the need to avoid political and legal issues which could hinder the progress of projects. As one stakeholder stated:

“Agency personnel need to be willing to listen and represent an initiative or inertia.”

The stakeholders understood the challenge and the importance of getting the appropriate representatives from the different user groups to the table. They talked about the need to represent all users during the process. Otherwise, there would be no reason to convene since there would be no way to successfully assign appropriate use to the different trails without continued conflicts. Furthermore, decision-makers would have no way to know in advance whether management decisions would be accepted and supported.

In discussions with agency personnel about the benefits of a collaborative process, eliminating user conflicts came up again. More specifically, agency personnel acknowledged the value of stakeholders' having a feeling of ownership of the places they used and wanted to protect. Agency employees also mentioned the importance of building relationships with people and organizations that could participate in trail projects as well as planning efforts. Several people said that the collaborative planning process provides opportunities to better understand diverse users' needs, to build consensus about appropriate trail use, and to identify disagreements among the different user groups. Agency managers said:

“User groups know more of what is happening in the field ...”

“Even if the group can take on 25 percent of the issues, it will still help out the Forest Service managers.”

“Collaborative processes can decrease the cost, which is significant due to dwindling budgets.”

Agency personnel identified some of the same challenges in the collaborative process as stakeholders but from their own perspectives. For example, they wanted to be able to “agree to disagree” in some cases in order to allocate appropriate trail use without displacing historic users. This frustration came through from one agency manager:

“Any trail out there is someone's special trail...making it harder to build consensus on appropriate use.”

Another agency manager felt that the collaborative process has the potential to slow down planning efforts but that the outcomes might still be positive in the long run. This observation goes along with comments about the challenge of maintaining the stakeholders' interest in order to progress toward a mutual goal.

5.0 CONCLUSIONS

Overall, one of the main factors that could constrain the formation of a network and alienate volunteers is wasting time. There is also a clear lack of communication between the stakeholders and the Forest Service. At this point, it seems entirely possible that stakeholders will give up on the trail planning process and focus their efforts on other issues because of the lack of results in the planning process to date and poor communication by the Forest Service in the past.

One area that needs further exploration is the agency's perspective on how and to what degree to engage volunteers. Social learning is a key factor in the success of a network and allows all parties to address the goal of eliminating conflict. It would also be interesting to try to get input and recommendations from stakeholders that are known to argue rather than work together. Until the Wilderness Bill is passed, it will also continue to be a big distraction for the Monongahela employees and stakeholders.

It is worth noting that, so far, facilitators have not been successful at keeping the trail planning process moving and making it productive; the role of facilitators in the process needs to be further explored. There may also be as-yet unidentified institutional factors impeding the trails planning process.

This research has provided some information that can help MNF employees and stakeholders better understand each other. The research found in particular that the keys to creating a successful network are: sustaining relationships, keeping communication going, having an effective third-party facilitator, having an agency volunteer coordinator, having technical support from the agency itself, and getting both the agency and the stakeholders to commit to participating in the process.

Further research is needed to identify other factors, such as institutional factors, that facilitate or constrain the formation of a multi-stakeholder trails network group. Future research could also compare the experiences of the MNF staff and stakeholders to other case studies that focus on difficulties with collaborative planning for natural resource management.

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PARTNERSHIPS AND VOLUNTEERS IN THE U.S. FOREST SERVICE

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Abstract.—The U.S. Forest Service often relies on volunteers and partnerships to help accomplish agency goals, particularly in its recreation and heritage programs. Data from agency records and a staff survey suggest that volunteer involvement is a developing area. Ongoing efforts to improve the agency's volunteer management capacity (VMC) would benefit from more attention to the administrative tasks, advantages, and challenges that make partnership-based volunteer programs successful. Partnerships are a significant, but not dominant, part of the agency's volunteer program and involve VMC issues that are similar to those reported for other types of volunteer management, both in this agency and in the nonprofit sector.

1.0 INTRODUCTION

Most natural resource agencies rely on partnerships and volunteers to assist with many tasks for which they lack the expertise, authority, or budget to accomplish. An important part of agency operations and success includes turning to the local community for help in mitigating these deficiencies. However, neither partnerships nor volunteers are “free money” to be added to dwindling budgets. Both depend upon community goodwill and close working relationships. Often, U.S. Forest Service (USFS) employees do not manage volunteers directly, but work with a group or organization that provides volunteers through an event-based or longer-term partnership. Examples include hiking clubs, Scouts, government entities, and community nonprofit organizations that assist the Forest Service in carrying out agency duties, especially in natural resource management and recreation

programs. Nevertheless, the USFS is ultimately accountable for volunteers and the outcomes of its programs.

It is precisely for this reason that more attention needs to be paid to how well such arrangements are managed. Volunteers are at the core of these partnerships and require somewhat different managerial techniques and standards than do employees. They need to be managed appropriately and incorporated into existing operations. For their part, organizational managers must devote attention to acquiring and honing a range of managerial competencies and organizational tasks in order to accommodate volunteers.

1.1 Background

The concept of volunteer management capacity (VMC) is emerging in the broader philanthropy literature. Good work has been done on volunteerism and on partnerships separately (e.g., Macduff 1997, Hou et al. 2003, Woodwell 2003, Hager and Brudney 2004, Urban Institute 2004). Very little primary research work has focused on VMC in natural resource agencies, although volunteerism in public agencies has been studied to some extent (Brudney 1990, Brudney 1999, Absher et al. 2000). The main point to be carried over to this study is that VMC is rooted in the distinction between “having” volunteers and involving them effectively (Brudney 1999). A primary concern is how volunteers are involved so that effective outcomes are realized simultaneously for both the agency and the volunteers themselves. Research suggests that VMC depends upon two related components: (1) administrative funding and agency support for the volunteer program and (2) a set of best practices for involving volunteers (Hager and Brudney 2004, Urban Institute 2004).

More specifically, recent research literature suggests that administrative policies and funding to support volunteer involvement should include a distinct budget

to supply adequate resources for volunteer program administration and an agency staff person or position with designated responsibility for management and oversight of the volunteers. In turn, this funding will underwrite background/training of staff in volunteer administration, time on the job devoted to volunteer administration by the volunteer resource manager, and facilitating paperwork, standards, and practices for use and reporting. The second component of effective VMC consists of implementing a set of appropriate (or “best”) practices to administer or govern the partnership and volunteer program. There are many “best” practices, such as written policies and job descriptions for volunteers, and screening, matching, and placement of volunteers (Hager and Brudney 2004, Urban Institute 2004).

Research results from charities and congregations further suggest that success is associated with having a paid staff member with time devoted to volunteer management, and that more time spent on volunteer management (VM) means fewer problems in recruiting volunteers. Although three in five charities and one in three congregations reported having a VM staff person, the majority of these staff members spent less than 30 percent of their work time on volunteer coordination. Finally, paid staff coordinators and adoption of volunteer management practices are linked to greater benefits and fewer problems with volunteer involvement (Hager and Brudney 2004, Urban Institute 2004).

1.2 Objectives

This paper focuses on managing volunteers in partnership arrangements. The objectives are to review the prevalence of partnerships and volunteerism in the USFS setting, and to present results from a recent VMC survey of USFS staff. Analyses will show the extent to which VMC is occurring in the USFS and provide key comparative baseline data on support and tasks accomplished.

2.0 METHODS

Two sources of information are used in this paper: a USFS database and a VMC survey. Volunteer managers throughout the USFS were asked to report

volunteer hours and associated basic demographic and administrative details, which are available through a centralized database. For this paper, total volunteer hours and type of work done were compiled and analyzed overall and for each region of the agency.

A VMC survey was developed and implemented for the USFS based on research undertaken elsewhere on charitable and religious institutions (Hager and Brudney 2004). A key addition was the differentiation of direct and partnership-based volunteerism as separate managerial tasks. A service-wide survey of all identifiable staff with volunteer management responsibilities was conducted in fall 2006 via official USFS email employing a SurveyMonkey® Web-based questionnaire. After follow-up requests, 158 responses were obtained, yielding a response rate of 62 percent. Although one region did not participate at all and two others did not participate fully, the dataset reports results from at least five individuals for six of the nine USFS regions. The sample represents partnerships and volunteer efforts at different levels of the agency.

Data include basic job information, volunteer management background, and 37 aspects of VMC, including 12 administrative or organizational practices, 14 benefits or advantages, and 11 challenges or disadvantages. The VMC aspects were measured with a simple three-point rating scale of “not at all,” “to some extent,” and “to a great extent.”

3.0 RESULTS AND DISCUSSION

3.1 Patterns of Volunteer Hours in the USFS

Data from the USFS’s centralized reporting system show that nationwide in 2007 there were 2,618,163 volunteer hours recorded across all categories. This is equivalent to 1,477.5 person-years (for comparison, the agency has approximately 22,000 employees). These volunteer hours provide services that would be valued at more than \$55 million at the accepted Independent Sector rate. Although there is variation across the USFS regions with roughly 200,000 to 600,000 hours per region, all regions report substantial volunteer programs.

Field units also report which management activities are being supported by volunteer hours. To be consistent and to avoid duplicate reporting, data are presented only at the regional level. The 13 separate managerial reporting categories were collapsed into four broad program areas: recreation and heritage (R&H), resource management (ResMgt), administration and operations (A&O), and Other. Figure 1 shows that most volunteers are associated with recreation and heritage tasks (82 percent). Each of the other managerial categories represented less than 10 percent. However, there may have been some overlap of tasks in the reporting. For instance, a trail re-building activity or an anti-litter clean-up day at a picnic area may have been categorized as recreation or resource management support, or both. The data were not investigated further to clarify such distinctions and resolve ambiguity.

Survey results showed that both direct and indirect volunteering occurs. Volunteering for the USFS is “indirect” when these volunteer efforts come through an outside group or organization and their leadership assists in various aspects of the on-site volunteer effort. Thus, individual participants may view themselves as volunteering for the outside group, the USFS, or both. It is important to note that in this case USFS employees do not manage these volunteers directly, but work with the group or organization that has the volunteers.

“Direct” volunteering is managed internally. Volunteer activities are managed primarily by agency staff, often on a person-to-person basis. This arrangement was the more prevalent form reported, with many units reporting relatively few partnership-based volunteer hours. More than half (55.9 percent) of the respondents reported that for their field unit less than 40 percent of their total volunteer hours are from partnerships. For 24.7 percent of the respondents, more than 60 percent of their volunteer hours are through partnerships. Thus, about a quarter of the reporting units rely heavily on partnership-based volunteers, but overall the norm for the agency is still direct management of volunteers.

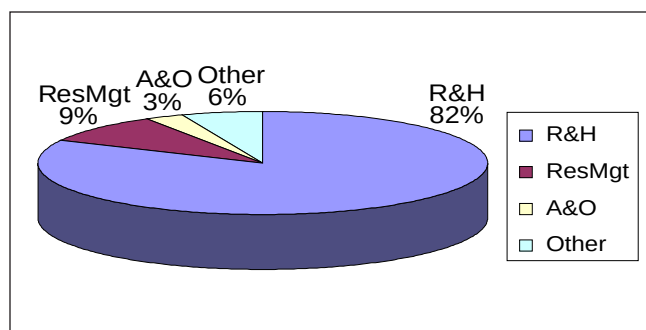


Figure 1.—USFS volunteer hours by program areas in 2007.

Approximately one in five (21.9 percent) of the field personnel reported a budget for administration and management of volunteers through agency partnership. Only 10 percent said they had received any formal education or training in volunteer administration or management at the time they began their volunteer management duties. At the time of the survey, 30 percent said they had had some education or training in volunteer management, so some “on-the-job” education or training does occur. That finding still leaves a large majority without any training and brings into question how to improve agency VMC. This situation is underscored by the time devoted to volunteers: respondents devote on average 15 percent of their time to volunteers, with a median of 10 percent. It would be informative to investigate whether such small amounts of time devoted to volunteer administration are coupled with the lack of training or education, and if that possible association has some bearing on the ability to focus on and to improve VMC.

This pattern of volunteer management in the USFS suggests that there are some strong relationships with local communities and organizations, and that there is a moderately strong reliance on partnerships and volunteers among these respective staffs. Beyond the most active programs, however, it may be an uphill battle to increase resources and competencies in volunteer administration. This circumstance, in turn, may be a reason for partnerships to be valued because under this arrangement many of the volunteer management tasks are left to administrators outside the agency.

3.2 Administrative Tasks, Benefits, and Concerns of Managers

VMC survey results in Table 1 show that staff performs the most recommended or “best” volunteer administration practices “to some extent.” That is, a very high proportion of USFS staff employs recommended volunteer management tasks such as record keeping (96.7 percent), supervising volunteer performance or managing risk and liability (95.1 percent each), volunteer orientation (91.9 percent), screening volunteers (90.2 percent), or volunteer recognition (89.4 percent). Other tasks commonly promoted among nonprofit organization managers were reported less often, such as writing job descriptions for volunteers (74 percent) or training employees to manage volunteers (44.7 percent).

The next section in Table 1 contains the results about benefits and advantages that managers feel partnership-based volunteers offer the USFS. The percentages refer to the proportion that say these apply “to some extent” or “to a great extent.” Examples of the highest-rated contributions are: quality services (91 percent), cost savings (88.8 percent), and providing services (88.6 percent), followed by increased public support (85.4 percent), client satisfaction (84.3 percent), and improved publicity (84.3 percent). These results put a very “public” face on the use of volunteers in the minds of the current partnership-based volunteer managers. Furthermore, note that handling money is decidedly not an important benefit (23.6 percent), with 76.6 percent of respondents saying “not at all.”

Finally, the third section of Table 1 presents concerns and barriers to partnership volunteers. The barriers and concerns that respondents most commonly say exist to “some extent” or “a great extent” are an inability to provide monitoring and oversight (92.1 percent), the need to train volunteers (91 percent), and having the resources to support a partnership volunteer program (91 percent). Lowest-noted or “non-issues” are: confidentiality (25.8 percent) and absenteeism (29.2 percent). Further analysis needs to be done to ascertain whether this pattern is uniform across settings or

Table 1.—Managing partnership-based volunteers: Prevalence of administrative volunteer management practices, advantages or benefits, and barriers or concerns. Percent responding “To Some Extent” or “To a Great Extent”

Administrative practices	Percent
Record keeping	96.7
Supervising performance	95.1
Risk & liability	95.1
Orientation	91.9
Screening volunteers	90.2
Position, skill matching	89.5
Recognition activities	89.4
Recruiting volunteers	83.9
Evaluating performance	74.6
Job descriptions	74.0
Expense reimbursement	68.3
Training employees	44.7
Advantages or benefits from partnerships	Percent
Quality services	91.0
Cost savings	88.8
Providing services	88.6
Increased public support	85.4
Client satisfaction	84.3
Improved publicity	84.3
Advocacy & outreach	79.8
Feedback suggestions	75.2
Helping visitors	74.2
New ideas	74.2
Increased diversity	66.3
Expanding capacity	59.1
Special skills	52.3
Handling money	23.6
Barriers or concerns from partnerships	Percent
Monitoring, oversight	92.1
Training volunteers	91.0
Resources to support	91.0
Agreements, paperwork	79.7
Special training	77.5
Performance reporting	76.1
High turnover	48.3
Poor work	36.0
Unreliability	36.0
Absenteeism	29.2
Confidentiality issues	25.8

is related to some underlying variables of agency support, training, or job status.

4.0 CONCLUSIONS AND IMPLICATIONS

Taken together, these results provide a glimpse into the USFS’s use of partnership-based volunteers and offer implications for improving VMC in this area.

The USFS's reliance on volunteers and partnership-based arrangements is substantial. The findings reveal that the USFS volunteer program is in some ways like other charitable sectors. The data provide specific examples of how partnership-based volunteering is managed today, and invite future cross-sectional and longitudinal analyses. Applying the ideas that underlie VMC seems straightforward and suggests that the USFS will benefit from continued attention to some important aspects of organizational and policy support for volunteer involvement.

The survey also reveals that those respondents who manage partnership-based volunteers are performing many of the accepted "best practices" at least to some degree and have a foundation upon which they can build. In general, the USFS recreation and heritage programs use partnerships and volunteers more than other programs areas. Although VMC is not fully implemented in the USFS, it is fairly robust in terms of the diversity of "best practices" or management tasks being accomplished at least to some extent. The results also suggest that improvements can be made in USFS VMC practices, especially in providing information, training, coordination, and oversight. Community partnerships may be a form of volunteering that is especially valuable to the USFS given the time and resources available. The results from this study provide a useful set of baseline or performance benchmarks for partnership-based volunteering that could be used to gauge progress in the future if studies were replicated. Further, they suggest the importance of developing accountability mechanisms and ongoing training and evaluation practices. In so doing, the USFS will sustain and improve VMC, and the agency will achieve more from voluntary service.

5.0 ACKNOWLEDGMENTS

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AN ANALYSIS OF LOCAL STAKEHOLDER VALUES FOR TROPICAL PROTECTED AREAS IN MADAGASCAR

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Abstract.—The continued delivery of ecosystem services produced in tropical areas is essential to economic prosperity and human welfare. The success of tropical land protection strategies may depend on the input and support of local people, who often have an intimate and dependent relationship with the land. This study uses conjoint analytic techniques to assess and analyze local stakeholder values with respect to establishment and regulation of two large protected areas in Madagascar. The primary focus is on survey design and analytical methods. Preliminary analyses indicate that watershed protection was the most important attribute for local stakeholders and that there are regional differences in the preferences of local stakeholders.

1.0 INTRODUCTION

Natural ecosystems and the biological diversity contained within them provide a range of goods and services that include biodiversity conservation, carbon sequestration, watershed protection, soil formation, and scenic beauty. Economic prosperity and human welfare depend on the continued delivery of these services. Madagascar is one of 18 recognized mega-diversity countries that represent 80 percent of the world's biodiversity and are a high priority for international conservation efforts. The majority of the biodiversity in Madagascar is found in the forests, which are also the direct source of livelihood

for more than 90 percent of the country's population. An annual population growth rate of 3 percent and a subsistence dependency on slash and burn agriculture pressure the remaining forests. As in other developing countries, the standard approach to slow ecosystem degradation has been to establish protected areas and to regulate access. Effectiveness has been limited because establishment of protected areas often takes place at considerable social and economic costs to local communities in terms of access to land, timber, wildlife, and other resources.

Effective management for the provision of ecosystem services must consider tradeoffs over varying geographic and institutional scales (Hein et al. 2006). Local stakeholders may be asked to bear the burden of opportunity costs for protected resources while receiving little benefit. For example, carbon is sequestered at the local level while the benefits are primarily global. Stakeholders at different scales may have different perspectives on the values of ecosystem services based on cultural background, dependency on resources for their livelihood, and other socio-economic characteristics. This disparity often leads to different visions for management and conflicts of interest. Because local people are on site and often have an intimate and dependent relationship with the land, their input and support can be crucial to the success of any tropical land protection strategy. If local residents are not included in the design and implementation of the protection measures, there is a very real threat that protected areas can become "paper" parks with protection falling far below the mandated standards.

This study uses conjoint analytic techniques to assess and analyze local stakeholder values with respect to establishment and regulation of two large protected areas in Madagascar. The Masoala National Park contains 568,000 acres of rainforest and 25,000 acres

of marine park, and the Makira Conservation Site is a 1.1 million-acre tropical forest with many lake and river habitats. Conjoint techniques are well suited for soliciting and analyzing preferences in environmental decisions that frequently entail tradeoffs between costs and benefits that are not represented efficiently in market transactions (Dennis 1998). We used a conjoint ranking survey to elicit local stakeholder values and acceptable tradeoffs for varying levels of four attributes that are related to the protected areas: watershed protection (water quality and quantity), wildlife habitats, availability of opportunities for recreation and ecotourism, and the type and extent of the protection or conservation strategy employed for the protected areas. See Table 1 for a description of the attributes and levels used in the study. Both linear and quadratic effects were estimated.

Although preliminary results are reported and discussed, the primary focus of this paper is on an overview of the problem, survey design, development

of the conjoint or choice model, and analytical capabilities. Future analyses will examine the marginal rates of substitution (tradeoffs) among the attributes at differing values, as well as regional and demographic differences in preferences among stakeholders.

2.0 METHODS

Conjoint analysis, a form of choice modeling, is a technique for measuring psychological judgments that is used frequently in marketing research to measure consumer preferences for products with multiple attributes (Green et al. 1988). Respondents choose between alternative products or scenarios that display varying levels of selected attributes. The utility or preference for each attribute can be inferred from the respondent's overall evaluations. These partial utilities, or partworths, indicate the relative importance of each attribute's contribution to overall preference or utility. They can be combined to estimate relative preferences for any combination of attribute levels.

Table 1.—Attributes and levels

Watershed protection (water quality and quantity)
1. Water quality for irrigation is insufficient and water quality for drinking and downstream fish habitats is bad most of the year over the next 15 years.
2. Every year there is a 2- or 3-month shortage in water supply for irrigation, and water quality for drinking and downstream fish habitats is good all year over the next 15 years.
3. Water supply for irrigation is guaranteed and water quality for drinking and downstream fish habitats is better all year long over the next 15 years.
Wildlife habitat
1. Deterioration of wildlife habitat that protects rare and endangered species.
2. Maintenance of the current level of improvement in wildlife habitat that protects rare and endangered species.
3. High improvement of wildlife habitat that protects rare and endangered species.
Recreation/ecotourism
1. Deterioration/decrease from the current level of tourism revenue.
2. Maintenance of the current level of increase in tourism revenue (10 percent per year) over the next 15 years.
3. 15-percent increase in tourism revenue per year over the next 15 years.
Type of protection/conservation strategy
1. Limited access to forest resources through "transfert de gestion" ^a to COBA ^b but with no government supervision/regulation.
2. Limited access to forest resources through "transfert de gestion" ^a to COBA ^b but with government supervision/regulation.
3. No access/strict government control.

^a "Transfert de gestion" is to transfer management of public forest to local communities. There is new legislation that gives the government authority to enter into contractual arrangements with communities for land management.

^b COBA stands for "communaute de base" in French, which is a community-level forest association. The COBA is made up of local forest users, primarily residents who use forests for firewood, timber, medicinal plants, food, and cultural practices. To be granted a contract, a COBA must have official standing as an association and be sanctioned by the mayor's office.

2.1 Analytical Model

A random utility model is used to explain local stakeholder preferences toward various environmental, economic, and social aspects associated with designation and management of protected areas. When presented with a set of alternatives, individuals are assumed to make choices that maximize their utility or satisfaction. The utility that the i^{th} individual derives from the j^{th} alternative (U_{ij}) can be represented as:

$$U_{ij} = X'_{ij} \beta + e_{ij} \quad (1)$$

where X_{ij} is a vector of variables, which may include transformations of variables, that represent values for each attribute of the j^{th} alternative to the i^{th} individual; β is a vector of unknown parameters; and e_{ij} is a random disturbance, which may reflect unobserved attributes of the alternatives, random choice behavior, or measurement error. In the empirical study under consideration, a respondent's utility level (U_{ij}) for each alternative is not observed, but a ranking (r_j) is observed that corresponds to the order of his or her underlying utilities. The probability of alternative 1 being ranked above other alternatives is:

$$\begin{aligned} P_{i1} &= \Pr(U_{i1} > U_{i2} \text{ and } U_{i1} > U_{i3} \dots \text{ and } U_{i1} > U_{iJ}) \quad (2) \\ &= \Pr[(e_{i2} - e_{i1}) < (X'_{i1} \beta - X'_{i2} \beta) \dots \text{ and} \\ &\quad (e_{iJ} - e_{i1}) < (X'_{i1} \beta - X'_{iJ} \beta)] \end{aligned}$$

Similar expressions hold for each of the remaining alternatives being chosen next in the choice set, and the P_{ij} 's become well defined probabilities once a joint density function is chosen for the e_{ij} (Judge et al. 1985).

McKelvey and Zavoina (1975) developed a polychotomous probit model to analyze ordinal-level dependent variables. They assume that the e_{ij} 's are distributed normally with mean 0 (the variance is standardized to unity), and that the observed variable (Y_{ij} , the ranks for the J alternatives) is related to the true unobserved utilities (U_{ij}) in the following way:

$$\begin{aligned} Y_{ij} &= 0 \text{ if } U_{ij} \leq \mu_{i1}, Y_{ij} = 1 \text{ if } \mu_{i1} < U_{ij} \leq \mu_{i2}, \\ &\dots Y_{ij} = J-1 \text{ if } U_{ij} > \mu_{iJ-1}. \end{aligned} \quad (3)$$

The μ_{ik} 's define the boundaries of the intervals for the unobserved utilities that correspond to the observed ordinal response. Since the μ 's are free parameters, there is no significance to the unit distance between the set of observed values of Y ; they merely provide the ranking.

Estimates are obtained by maximum likelihood and the probabilities entering the log-likelihood function are the probabilities that the observed ranks (Y_{ij} 's) fall within the J ranges defined by $J+1$ μ 's. The parameters to be estimated are $J-2$ μ 's plus the β vector; μ_0 and μ_J are assumed to be negative and positive infinity, respectively. McKelvey and Zavoina (1975) describe the model and maximum likelihood estimators in greater detail.

In the polychotomous probit model, the estimated value ($X'_{ij} \beta$) for an observation determines the position of the mean of the distribution of response categories over the underlying scale. The μ 's delineate ranges in the unobserved underlying variable (utility) that correspond to the observed response categories. The estimated probability that a response will fall in each category or rank in the case under consideration is measured by the area under the normal standard density curve [$f(X'_{ij} \beta)$] and bounded by the respective μ 's. These probabilities can be computed using the estimated model parameters:

$$\begin{aligned} \Pr(Y_j = k-1) &= \Pr(U_j \text{ is in the } k^{\text{th}} \text{ range}) \\ &= F(\mu_k - X'_j \beta) - F(\mu_{k-1} - X'_j \beta) \end{aligned} \quad (4)$$

where k indexes the rankings and $F(\bullet)$ is the cumulative standard density function, assumed normal for the probit specification. Thus, the effect of a discrete change in the level of the n^{th} independent variable (x_{nj}) on the estimated probability that a response will fall within each of the categories (ranks) can be calculated by substituting the estimated parameters (β and μ 's) into Equation 4. In probit analysis the estimated coefficients (β) represent the effect of a unit change in an independent variable on the underlying scale given by $X'_j \beta$. Graphically, this change is shown as a shift in the distribution of

responses over the underlying scale. The effect of that change on the probability of a particular response occurring will depend on the original position as determined by all the estimated parameters and associated variables.

2.2 Survey Design and Administration

A conjoint ranking survey was used to assess stakeholder values. The survey was translated into Malagasy and pretested with park staff from diverse backgrounds. Based on this pretesting, the survey was revised to minimize technical terms and reduce the length of descriptions. The revised survey was administered to individual stakeholders within a group meeting setting. With help from the Masoala National Park and Makira Conservation Site staffs, we selected four villages in which to hold meetings and identified potential stakeholders to invite. Twenty-five people representing different socioeconomic and demographic groups from each village were invited to participate in the meetings. Invitations were sent out by park managers and village leaders with care taken to include as many stakeholder groups as possible (e.g., farmers, fishers, men, women, and youths). In each meeting facilitators gave an overview of the nature and purpose of the survey and a detailed explanation of the choice attributes and levels. Participants had the

opportunity to ask questions or discuss their concerns. Respondents who could not read or write were assisted in a manner that would not influence their choices.

Each respondent ranked nine alternatives, each with one level for each of four attributes. The combinations of attribute levels for the alternatives were chosen using an orthogonal design that allows estimation of linear and quadratic main effects over the entire 81 (3^4) possible attribute combinations, with the least number of choice responses. Table 1 lists the attribute levels and Figure 1 shows a sample alternative. Respondents also completed a series of socioeconomic and demographic questions.

An ordered probit model (described in Section 2.1) was used to analyze the responses to the ranking survey. The dependent variable is the ordinal ranking of the alternatives, which is coded 0 to 9; higher scores are associated with greater utility. The independent variables (attribute levels 1, 2, 3 in Table 1) were coded, respectively, -1, 0, 1 for the linear form and 1, -2, 1 for the quadratic form. This coding scheme maintains the ordinal relationship for the linear term and provides for an orthogonal contrast with the quadratic term.

<i>Alternative #1</i> -----	<i>Packet #-----</i>
Water supply for irrigation is guaranteed and water quality for drinking and downstream fish habitats is better all year long over the next 15 years. Deterioration of wildlife habitat that protects rare and endangered species Maintain the current level of increase in tourism revenue (10% per year) over the next 15 years No access/Strict government control	RANK -----

Figure 1.—A sample alternative.

3.0 RESULTS AND DISCUSSION

The survey was given to 87 stakeholders living in the Masoala and Makira regions. Each respondent ranked nine alternative scenarios for a total of 783 preference rankings. Preliminary analyses indicate that all linear effects were significant at the 5 percent level and the quadratic effect was significant only for the recreation/ecotourism attribute (Table 2). The relative importance scores shown in Figure 2 were computed by dividing the utility range for each attribute by the sum of the utility ranges for all attributes. These scores indicate how important a particular attribute was in the overall preference for alternatives but not whether changes in the level of the attribute had a positive or negative influence on preference. The signs and magnitude of the estimated coefficients or partworths supply that information.

Watershed protection was the most important attribute for local stakeholders. Water is important for domestic use in both regions. In the Makira region, respondents indicated that improved water supply would enhance prospects for agricultural irrigation while those in the Masoala region cited enhanced fisheries as a benefit of an improved water supply.

Changes in opportunities for recreation and tourism were the second most important attribute. The significance and magnitude of the quadratic effect indicate that respondents preferred either to allow tourism to deteriorate or to enhance possibilities for tourism over maintaining the current level of increase in tourism (Fig. 3). Verbal comments and discussions indicated that they felt this way because they see little benefit from the current trend.

Stakeholders clearly preferred a high improvement in wildlife habitat (level 3) but showed only a slight preference between levels 1 and 2. Apparently they were not satisfied with the current trends.

Local stakeholders opposed strict government control and losing all access to protected areas (level 3). Beyond this basic view, initial analyses indicated that there was a marked difference between stakeholders

Table 2.—Parameter estimates for an ordered probit model

Variable	Coefficient	Std. Error	Pr>ChiSq
Linear effects:			
Water	0.717	0.0487	<.0001
Wildlife	0.405	0.0793	<.0001
Tourism	0.267	0.0638	<.0001
Protection	-0.133	0.0646	0.0391
Quadratic effects:			
Water	-0.003	0.0261	0.9136
Wildlife	0.105	0.0693	0.1305
Tourism	0.202	0.0528	0.0001
Protection	-0.063	0.0518	0.2269
Boundary parameters:			
μ_1	-1.5600		
μ_2	-0.9518		
μ_3	-0.5143		
μ_4	-0.1374		
μ_5	0.2227		
μ_6	0.5792		
μ_7	0.9792		
μ_8	1.4889		

Log likelihood = -1,561.

N = 783 (87 respondents, 9 preference rankings each)

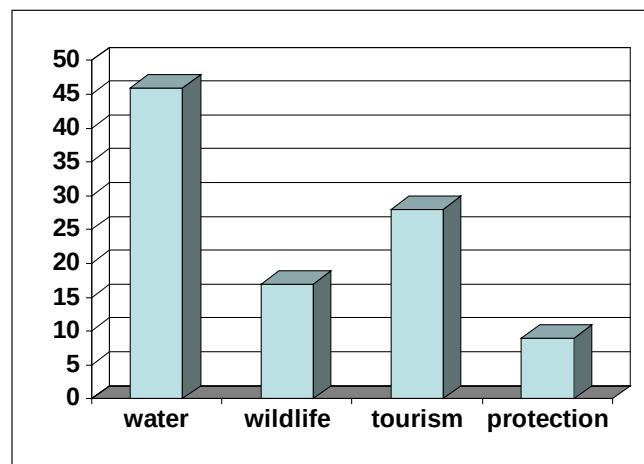


Figure 2.—Relative importance scores.

in the two study regions. The Masoala National Park has been protected for many years and the local people feel that they have seen little economic benefit. In this region stakeholders preferred the least amount of government control to their access (level 1). But in the Makira region, which is not yet a designated national park, local respondents were more willing to accept government supervision of access (level 2) with the hopes that they will see improved economic and ecological benefits as a result of protection.

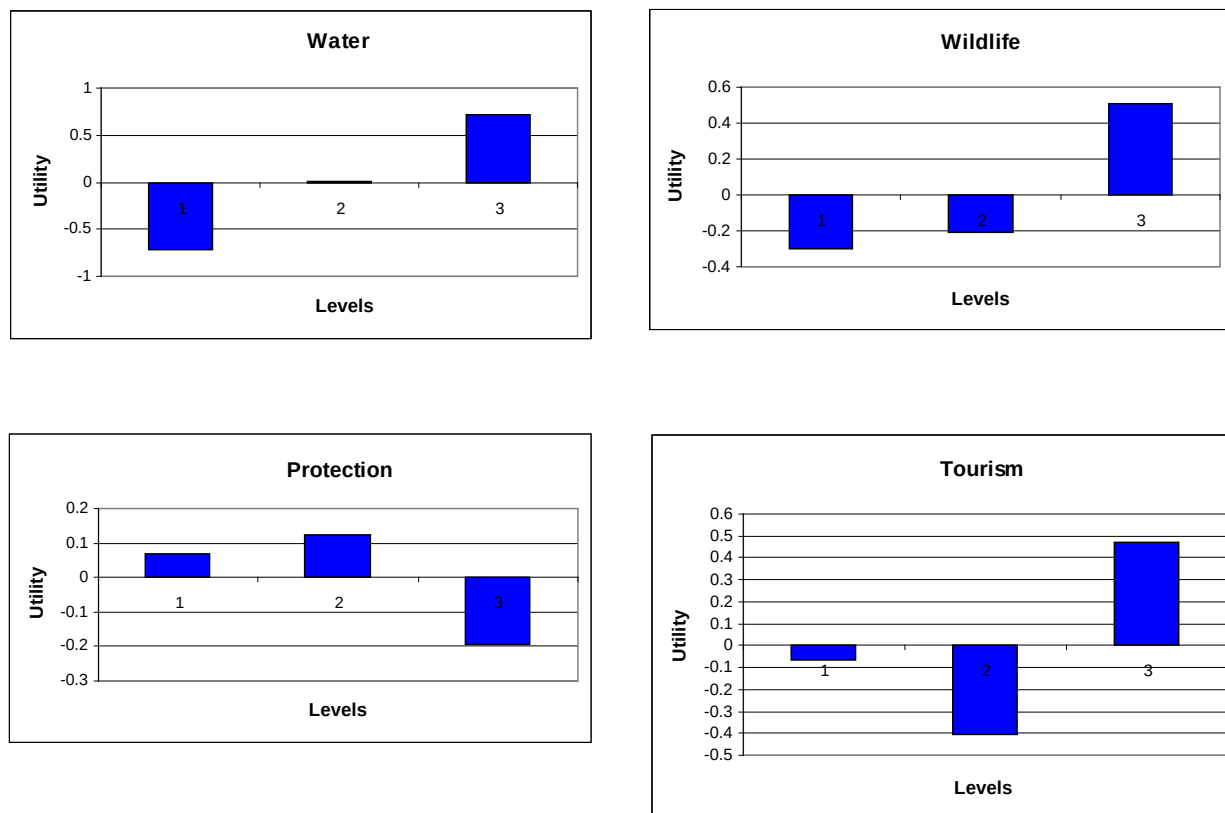


Figure 3.—Partial utilities (partworths) for each attribute level.

4.0 CONCLUSIONS

An understanding and consideration of the values of local stakeholders is deemed important to the ultimate success of protected area management. A conjoint model was given to local stakeholders adjacent to protected areas in Madagascar. Preliminary results indicate a hierarchy of importance in the various attributes associated with protected area management. Water quality and quantity were clearly of the greatest concern to local stakeholders. They were also dissatisfied with current trends in wildlife management

and the economic benefits they receive from ecotourism. Although stakeholders in both regions were against strict government control and losing their access to the protected areas entirely, stakeholders in the Makira region were more willing to accept some government regulation and limits to their access in the hopes of seeing improvements in the quality of their lives from the ecological benefits (primarily improved watersheds) and perceived economic gains that might result from protected areas.

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I WANT TO JOIN THE ZOO!

A CONJOINT STUDY OF MEMBERSHIP PROGRAM PREFERENCES

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Abstract.—Membership programs are an important and often vital element for the success and economic sustainability of leisure and tourism visitor attractions. Unfortunately, very little research is available to guide membership program development and promotion efforts. To address this gap in the research literature, a research project assessed member and nonmember preferences for the different benefits available through a zoo membership program. Using a choice-based conjoint analytic approach (also known as stated preference choice analysis), data were collected during the summer of 2007 from both members (n=1,204) and nonmembers (n=304) of the Brookfield Zoo (located just outside of Chicago in Brookfield, IL). A self-administered survey, conducted both online and on-site at the zoo, was used to examine preferences for eight membership benefit categories, each varying from three to five levels. Analysis of the resulting study data provides information on relative preferences for the eight study factors and suggests several implications for designing and promoting membership packages to current as well as potential zoo members.

1.0 INTRODUCTION

Membership programs play an important and often vital role in the success and economic sustainability of leisure and tourism visitor attractions ranging from history/arts-based organizations, such as historical sites and museums, to nature-based organizations including aquaria, parks, botanic gardens/conservatories, and zoos. Despite the important role that membership programs play in these organizations, very little research is available to guide membership program development and promotion efforts. Of the extant research on membership programs, most attention has been focused on the psychological reasons for joining a membership-based organization (Bigley et al. 1994, Caldwell and Andereck 1994, Slater 2003, Paswan and Troy 2004) or the benefits that are important to current members (Bigley et al. 1994, Caldwell and Andereck 1994). Bhattacharya (1998) also examined the factors impacting behavior that results in lapsed memberships and, most recently, Bosso (2003) analyzed how organizations themselves adapt to the needs and interests of current members.

Research on the importance of specific membership benefits by Bigley et al. (1994) and Caldwell and Andereck (1994) relied exclusively on direct ratings of benefit items. In this approach, respondents are asked to rate the importance of a list of membership package benefits, each taken one at a time. The present investigation is unique in that a less direct choice-based conjoint approach was used to examine the importance of member package elements. In choice-based conjoint analysis (also known as stated preference choice analysis), respondents are presented with a series of choices involving two or more options and are asked to indicate which option they would choose. In each choice set, the available options are described using different levels of the attributes (in this case membership package benefits) of the product in question. The choices made are then used to derive

the importance (or utility) associated with each attribute and attribute level. Since product attributes are considered jointly (i.e., “conjointly”), respondents make choices the way they do in actual market settings, trading off one attribute against another. Conjoint analysis allows researchers to examine consumer preferences for hypothetical alternatives (i.e., product options such as membership package benefits) that are proposed but are not currently available in the marketplace (Morton and Devine 1985). Another advantage is that by including price as an attribute in the study design, the implicit price (i.e., the monetary value consumers would be willing to pay) can be estimated for each level of the attributes included in the design.

2.0 STUDY CONTEXT AND OBJECTIVES

Brookfield Zoo is a large suburban zoo located 14 miles west of Chicago, IL. The zoo is operated by the Chicago Zoological Society and is visited by 2 million people every year, ranking it among the top five American zoos in attendance. The zoo also has a strong membership base of more than 75,000 members and offers an array of benefits across seven different membership levels. The membership benefit packages have changed little over the past few years. Thus, this research focused on determining what would happen if the zoo made changes to the available membership benefit packages. More specifically, the main objective was to understand how current and potential zoo members value specific member benefits and benefit levels (including current and new benefit options).

3.0 METHODS

3.1 Study Approach

Data for the study were obtained from both zoo members and nonmembers using a self-administered survey conducted both online and onsite at the zoo. The questions in the survey were organized in four sections: zoo membership (present/past member status, interest in joining/renewing, membership at other institutions), conjoint task questions, zoo-ographic questions (e.g., zoo visitation behavior, exhibit/attraction use), and respondent demographics.

3.2 Benefits and Benefit Levels Examined

Based on discussions with zoo staff and several pilot tests, the conjoint task questions focused on eight benefit categories from the zoo’s main family membership package: the number of free guest vouchers offered with the membership package; the number of free guests admitted with the member on each visit; price of admission to two interactive child-oriented attractions (the Hamill Family Play Zoo and Children’s Zoo); price of admission to a marine-animal attraction (the Dolphin Show); price of admission to temporary/special exhibits; member-only discounts on food and beverages; member-only discounts in zoo gift shops; and the membership package price (per family for two adults and their children under 18 years of age). Each benefit category had three to five levels. A detailed description of each benefit category and its levels is shown in Table 1.

3.3 Study Design

In choice-based conjoint analysis, paired choice sets are used to elicit respondents’ preferences (Louviere 1988, Louviere et al. 2000). Rather than using a “full-factorial” design, which would have required the use of more than 4000 paired choice sets, an “efficient experimental design” was employed which required the use of only 45 choice sets (Kuhfeld 2005). To make the study more manageable, nine survey versions were used, each requiring the respondent to make a choice from among five choice sets (i.e., pairs of membership package options with the options in each pair labeled Package A and Package B). Each paired choice set included a non-choice option (i.e., “I would not choose either package”) in order to mimic actual market choice behavior (Hensher et al. 2005). An example of a paired choice set used in the study is provided in Figure 1.

3.4 Data Collection Procedures

During June and July 2007, 6,000 Brookfield Zoo members were contacted via email and asked to complete a self-administered online survey; in addition, 508 zoo visitors were intercepted and asked to complete a similar self-administered paper-and-pencil survey. For the online survey, 1000 members

Table 1.—Member benefits and benefit levels examined in the study

Benefit	Levels
One-time-only guest passes (Guest Passes)	1. 8 guest passes 2. 6 guest passes* 3. 4 guest passes
Free guest on each visit (Free Guest Each Visit)	1. One free guest on each visit* 2. No free guest benefit
Admission to the “Hamill Family Play Zoo” and “Children’s Zoo” (Hamill/Children’s Zoo)	1. Unlimited free admission* 2. Member discount on admission 3. No free or discounted admission
Admission to the Dolphin Show (Dolphin Show)	1. 6 free tickets to Dolphin Show 2. 4 free tickets to Dolphin Show* 3. Member discount on Dolphin Show tickets 4. No member benefit
Admission to temporary/special exhibits (Temp/Special Exhibits)	1. 4 free tickets to special exhibit 2. Member discount on exhibit tickets* 3. No member benefit
Member-only discounts on food and beverage (F&B Discount)	1. 10% discount on all purchases* 2. 5% discount on all purchases 3. No discount
Member-only discounts in zoo gift shops (Gift Shop Discount)	1. 10% discount on all purchases* 2. 5% discount on all purchases 3. No discount
Membership package price (Package Price)	1. \$89 2. \$94* 3. \$99 4. \$104 5. \$109

* Current Membership Package Levels

Choice 1 of 5: Suppose that you could only choose from the two membership packages below. Which would you choose? *[Recall that in addition to the benefits listed below, both packages include unlimited free zoo admission for one year, free parking at the main entrance, discounted parking at the south entrance, free Motor Safari tickets, free subscriptions to Zoo Views and member email updates, and discounts on educational programs/lectures.]*

Package A	MEMBER BENEFITS INCLUDED	Package B
6 guest passes	ONE-TIME-ONLY GUEST PASSES	8 guest passes
No free guest benefit	FREE GUESTS ON EACH VISIT	One free guest (with member)
Member discount on admission	ADMISSION TO HAMILL FAMILY PLAY ZOO & CHILDREN’S ZOO	Member discount on admission
6 free tickets to Dolphin Show	ADMISSION TO DOLPHIN SHOW	Member discount on Dolphin Show tickets
4 free tickets to current exhibit	ADMISSION TO TEMPORARY/SPECIAL EXHIBITS	Member discount on exhibit tickets
10% on all purchases	MEMBER DISCOUNT IN ZOO RESTAURANTS	5% on all purchases
10% on all purchases	MEMBER DISCOUNT IN ZOO GIFT SHOPS	10% on all purchases
\$99	MEMBERSHIP PACKAGE PRICE	\$99

☐ Package A
 ☐ I would not choose either package
 ☐ Package B

Figure 1.—Example of a paired choice set for the zoo membership package choice task.

completed the survey by the cutoff date, resulting in a 16.7-percent response rate. Of the on-site survey respondents, 204 were Brookfield Zoo members and the remaining 304 were non-members. Taken together, surveys were obtained from 1,204 zoo members and 304 nonmembers.

3.5 Analytical Model

Data analysis used the Stated Preference Choice Model, an analytical model based on two well-grounded theories: utility maximization and random utility (Louviere et al. 2000). Utility maximization theory indicates that individuals make choices that lead to the highest utility (i.e., satisfaction). According to random utility theory, utility comprises a deterministic component (i.e., the measurable section of the utility estimated by the attributes included in the study) and a random error component (i.e., the effect of unobserved influences by attributes not included in the study) (Louviere et al. 2000). Because of this random error component, utility that is not observed directly can only be estimated using the indirect utility function. A deterministic component can be estimated to represent the vector of coefficients of attribute levels. The indirect utility function of a representative individual on a choice (or purchase) of membership package j can be represented as: $U_j = V_j(A) + \varepsilon_j = \beta A + \varepsilon_j$, where U_j is the utility of an alternative membership package j , V_j is the deterministic component of utility to be estimated, and ε_j is the unobservable error component of utility. Further, β is the coefficient vector (or vector of parameter estimates) to be estimated and A is the vector of relevant attributes that determines the utility derived from each alternative. However, because researchers cannot observe a respondent's utility directly, the probability of choice is used instead. The use of choice probabilities, along with the assumption that the error terms are independently and identically distributed with a type I extreme-value distribution, allows the use of the conditional logit model (McFadden 1974, Ben-Akiva and Lerman 1985) to derive the β estimates.

With this model, implicit prices can be calculated for each attribute level (with all other attributes remaining the same). Implicit price between a coefficient of a

non-price attribute (β_i) and the coefficient representing price is calculated using $-\beta_i/\beta_{price}$ to gauge the magnitude of preferences for each level of an attribute (Bennett and Adamowicz 2001).

4.0 RESULTS

4.1 Respondent Profile

Of the 1,508 respondents, most were female (77.9 percent), were between the ages of 30 and 49 (70.3 percent), and lived in households of three or more (84.2 percent). Most respondents reported having children who were less than 5 years old (55.8 percent) or between 6 and 11 years old (41.2 percent).

4.2 Conjoint Results

As noted above, data were collected from two respondent groups: zoo members and nonmembers. Of the nonmembers, only those that indicated that they had some likelihood of becoming a zoo member were analyzed further. This subgroup, referred to as "interested nonmembers" or the INM group, consisted of 181 respondents.

Conditional logit models were run for two groups: zoo members and INM. Estimation was performed using NLOGIT 3.0. An alternative specific constant (Constant) was used to capture the effects on utility of any attributes not included in the paired choice sets. Dummy variables were assigned to the levels of each study attribute. As indicated in Table 2, the explanatory power of the zoo member model was 0.152 (McFadden's ρ^2 , which is analogous to the R^2 in a conventional regression model). All estimated coefficients were significant ($p < 0.05$), with the signs in the expected direction—i.e., the variables for the benefit items all had positive coefficients reflecting a preference for additional membership benefit levels, while the price coefficient was negative indicating a preference for lower price levels. A comparison of the best versus worst level within each benefit indicated that the Hamill/Children's Zoo benefit (with a coefficient of 1.34) had the largest impact on respondents' preferences, and the Dolphin Show benefit (1.15) had the next highest impact, followed by the food and beverage discount (.89), the free guest

Table 2.—Conditional logit models for zoo members and interested nonmembers (INM)

Attribute	Attribute Level	Zoo-Member Model		INM Model	
		Coefficient	Implicit Price	Coefficient	Implicit Price
Constant ^a		2.3096**		2.2820**	
Guest Pass1	8 guest passes	0.3252**	\$6.41	0.1429	\$4.78#
Guest Pass2	6 guest passes 4 guest passes [^]	0.1701**	\$3.35	0.1507	\$5.05#
Free Guest	One free guest each visit No free guest benefit [^]	0.6729**	\$13.26	0.3440**	\$11.51
Hamill/Childrens1	Unlimited free admission	1.3378**	\$26.35	0.6452**	\$21.60
Hamill/Childrens2	Member discount on adm No free or discounted adm [^]	0.3452**	\$6.80	0.1068	\$3.58#
Dolphin Show1	6 free Dolphin Show tickets	1.1543**	\$22.74	0.6375**	\$21.34
Dolphin Show2	4 free Dolphin Show tickets	0.9310**	\$18.34	0.4518**	\$15.12
Dolphin Show3	Member discount on tickets No member benefit [^]	0.3579**	\$7.05	0.0373	\$1.25#
Special Exhibit1	4 free tickets current exhibit	0.5529**	\$10.89	0.3616**	\$12.10
Special Exhibit2	Member discount exhibit tix No member benefit [^]	0.2195**	\$4.32	0.1138	\$3.81#
F&B Discount1	10% discount	0.8849**	\$17.43	0.4681**	\$15.67
F&B Discount2	5% discount No member discount [^]	0.4454**	\$8.77	0.3057**	\$10.23
Giftshop Discount1	10% discount	0.5416**	\$10.67	0.7345**	\$24.59
Giftshop Discount2	5% discount No member discount [^]	0.4244**	\$8.36	0.4226**	\$14.15
Price	*Per \$	-0.0508**		-0.0299**	
Model Statistics					
Number choice sets		5800		857	
Log L		-5396.12		-806.41	
McFadden ρ^2		0.152		0.079	

** indicates statistical significance at 0.05.

^a Constant is an alternative specific constant.

[^] indicates the base level for that attribute.

indicates Implicit Price estimate is not significantly different from zero.

benefit (.67), the special exhibit benefit (.55), the gift shop benefit (.54), and, lastly, the guest pass benefit (.33).

The explanatory power of the interested nonmember model had a slightly lower goodness-of-fit measure of 0.079 (McFadden's ρ^2). With only a few exceptions, the pattern of results for the INM model was generally consistent with the pattern observed for the member model.

The impact of a level change in each attribute was assessed using implicit price (IP) estimates computed for each attribute level. Analysis of these data, shown in Table 2 and Figure 2, indicates that members

most valued the benefit of unlimited free admission to the Hamill/Children Zoo (with an IP of \$26.35), followed by six tickets to the Dolphin Show (with an IP of \$22.74). Thus, given the base option of no free or discounted admission to the Hamill Play Zoo & Children's Zoo, members were willing to pay \$26.35 for retaining the option of unlimited free admission (Hamill/Children Zoo1). Also, members were willing to pay \$22.74 for six free tickets to the Dolphin Show (Dolphin Show1), compared to the option of no member benefit for this attraction. In contrast, the guest pass benefit was the least valued benefit; members were willing to pay only \$3.35 for six guest passes and \$6.41 for eight guest passes, compared to the base option of four guest passes.

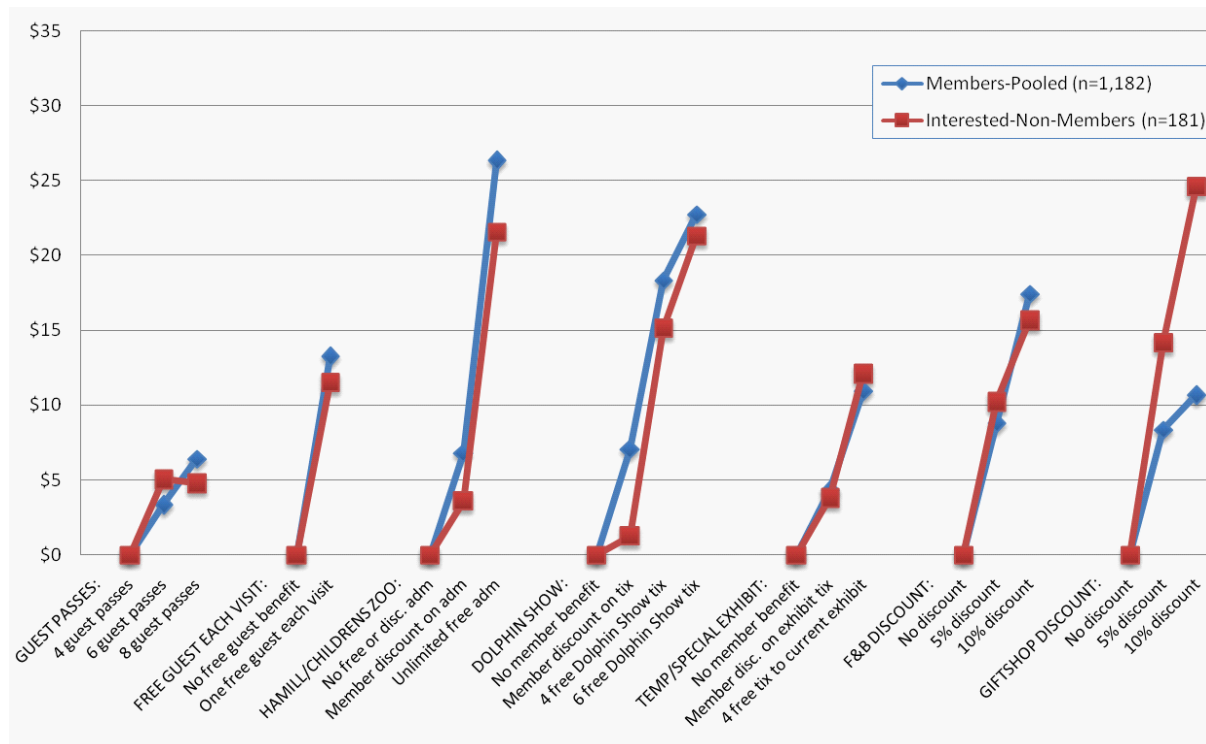


Figure 2.—Implicit price estimates for zoo members and interested nonmembers.

A similar analysis for the interested nonmember group showed that certain benefit levels (e.g., Guest Pass1, GuestPass2, and Dolphin Show3) did not achieve statistical significance. A very surprising finding was that the INM group had the highest IP estimate for member-only discounts in zoo gift shops (\$24.59 for gift shop Discount1 and \$14.15 for gift shop Discount2), compared to \$10.67 for gift shop Discount1 and \$8.36 for gift shop Discount2 for pooled Zoo members. For the rest of the attributes, the pattern of IP values for the INM group was similar to the values for the zoo member group. Another notable finding was that the respondents in both subgroups showed higher IP values for receiving limited vouchers (i.e., free tickets) over unlimited discounts on admission to both the Dolphin Show and special/temporary exhibits at the zoo.

5.0 CONCLUSIONS AND IMPLICATIONS

The results of this investigation provide useful information about the particular membership

package benefits and price levels examined. Current and potential zoo members differed in the value they attached to several of these benefit elements. While further research is needed to assess their generalizability in other zoo and attraction settings, the present study demonstrates the usefulness of using a choice-based conjoint approach to study and develop membership benefit programs, and thus provides a useful complement to prior research reported in the recreation literature.

In addition to the conceptual significance of these results, this study has useful applications for those who manage and develop membership programs for leisure and tourism attractions. Specifically, the finding that both members and nonmembers preferred limited vouchers (i.e., free tickets) over unlimited admission discounts for zoo attractions/exhibits suggests that the practice of offering vouchers should be retained as a component of the zoo's membership packages. In addition, the finding that those in the interested nonmember group had the highest IP for the 10 percent

gift shop discount suggests that nonmembers might be encouraged to become members by appealing to their preference for gift shop discounts, perhaps by offering a gift shop coupon to all new members.

As noted earlier, a key advantage of the conjoint approach is that it allows researchers to examine preferences for current membership packages as well as hypothetical or proposed package options. Although beyond the scope of the present paper, the coefficient estimates from the present study were used to develop an interactive decision support tool (i.e., a spreadsheet model) that allows planners and managers to alter the level of each benefit and examine the impact of these changes on member preferences (i.e., predicted choice probabilities) for alternative membership package configurations. Using this tool, zoo administrators were able to better understand the tradeoffs that members were willing to make (or not make) among benefit package elements and assess the impact on market demand that would result from a change in the set of membership packages offered.

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CROWDING AND CARRYING CAPACITY

INDICATORS AND STANDARDS OF QUALITY ACROSS SPACE AND TIME, AS REFLECTED IN A STUDY IN ACADIA NATIONAL PARK, MAINE

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Abstract.—Recreation indicators and standards of quality may be influenced by: 1) the popularity (or overall use level) of a recreation area and 2) the time of day that an individual chooses to visit a popular site. To examine these connections, data were collected via on-site self-administered surveys at several “high”- and “low”-use sites in Acadia National Park in Maine. Comparisons by location and time were made for several indicator variables, including size of group, length of stay, and number of previous visits, perceptions of crowding at the location, perceptions of problems, and opinions about the park as a whole. Visitor standards for encounters at peak and nonpeak times were also compared. The number of significant differences in indicator variables suggests that recreationists at low- and high-use sites during nonpeak times have different recreation experiences from their peak time counterparts at high-use sites.

1.0 INTRODUCTION

Visits to parks and related areas in the United States have increased markedly in recent decades. With expanding enthusiasm for outdoor recreation has come a growing body of research on the implications of increasing use levels. Questions about how many people and what types of activities can and should be

accommodated in parks without creating unacceptable social and ecological changes have been addressed through carrying capacity frameworks, such as Visitor Experience and Resource Protection (National Park Service 1997), Limits of Acceptable Change (Stankey et al. 1985), and Visitor Impact Management (Graefe et al. 1990). Central to these frameworks are indicators and standards of quality. Indicators are “measureable, manageable variables that help define the quality of parks and outdoor recreation areas.” Standards define “the minimum acceptable condition of indicator variables” (Manning 2007, p. 27).

A subset of research has examined how visitors who are sensitive to crowding cope with increasing use levels. A person may cope with crowding either through behavioral (e.g., displacement) or cognitive (e.g., rationalization, product shift) means. Behavioral coping can take several forms, from going to a different recreation area to spatial and temporal shifts within the same park or protected area (Manning and Valliere 2001, Manning 1997). In this study, possible spatial and temporal displacements were considered by comparing visitors to high- and low-use sites during peak and nonpeak times at a popular national park.

Acadia National Park, located on an island off the coast of Maine, attracts visitors from throughout the world to its rocky shoreline, scenic ocean drive, mountain summits, rare sand beaches, historic structures, carriage roads, and more than 120 miles of hiking trails. While moderate in size, containing just over 47,000 acres of land, Acadia receives more than 2 million recreation visits per year. Visitation is concentrated during July, August, and September (National Park Service 2008).

Acadia contains several well known “icon sites,” including Cadillac Mountain, Sand Beach, and Thunder Hole, which attract thousands of visitors on peak season days. Also within the park are several

lesser known and less visited sites, such as Acadia Mountain and Little Hunter's Beach. During peak season, these alternate sites provide opportunities for lower use recreation. Visitors to these alternate sites may be seeking a different recreation experience from those visiting more popular areas of the park. Visitation at popular sites also fluctuates throughout the day, providing an opportunity to consider how individuals visiting during nonpeak hours (i.e., early in the morning or late in the afternoon) may differ from those visiting during peak daytime hours.

The purpose of this study was to compare visitors based on their spatial and temporal distribution within the park using a carrying capacity framework. The three objectives of the study were to: 1) identify indicators and standards of quality for several locations throughout Acadia National Park; 2) compare indicators for visitors to high-use and low-use sites; and 3) compare indicators and standards for visitors to high-use sites at peak and nonpeak times.

2.0 STUDY METHODS

Data for this analysis were collected from July to August of 2004 and 2005 at 17 sites in Acadia National Park. Questionnaires were self-administered, and included open- and close-ended questions about indicators and standards of quality at each location. Based on discussions with park staff, ten of the 17 sites were identified as "high-use" locations while the remaining seven sites were identified as "low-use" locations. Visitors to each location were surveyed between 9 a.m. and 4 p.m. on pre-selected sample days. At high-use locations, every nth visitor was approached and asked to complete the survey, while at low-use locations a member of each group encountered was asked to participate. Three high-use locations—Ocean Drive, Sand Beach, and Thunder Hole—were also surveyed between 7 a.m. and 9 a.m., and 5 p.m. and 7 p.m. Visitors surveyed during early morning and evening hours were classified as "nonpeak time" respondents; individuals surveyed during the day were classified as "peak time" respondents.

In total, 1,197 questionnaires (72.7 percent response rate) were completed at the 10 high-use locations and

759 (84.7-percent response rate) were completed at the seven low-use locations. At the three high-use locations where visitors were surveyed during different times of day, 387 questionnaires (68.4-percent response rate) were completed during peak hours and 298 surveys (72.1-percent response rate) were completed during nonpeak hours.

3.0 STUDY FINDINGS

3.1 Indicators of Quality

Visitors to the 17 sites were asked about the characteristics of their group, their perceptions of crowding and other problems specific to their location, and their opinions about issues in Acadia National Park in general. Respondents visited Acadia National Park with an average of one to two other people (Table 1). While no differences in group size emerged between those visiting at peak and nonpeak times, respondents at high-use locations came with slightly larger groups than those at low-use sites. Similarly, there were no differences in the amount of time that peak and nonpeak time visitors spent at the three high-use sites. However, visitors to low-use sites stayed at those locations for a longer time than those visiting high-use sites. Visitors to low-use sites reported that they had visited Acadia National Park more times in the past than visitors to high-use sites. In the case of peak and nonpeak time visitors, the opposite finding emerged. On average, those visiting one of the three high-use sites during nonpeak times reported fewer previous visits to the park than those visiting at peak times.

Respondents were asked to rate how crowded they felt at their location on a 9-point scale, with 1 = "not at all crowded" and 9 = "extremely crowded." Overall, visitor perceptions of crowding at their locations were low (Table 2). However, significant differences emerged in both the time and location comparisons. Visitors to high-use sites felt more crowded than visitors to low-use sites. Similarly, those visiting during peak times felt more crowded than those visiting during nonpeak times.

Table 1.—Comparison of visitor characteristics by location and time

	High-use sites	Low-use sites	p	Peak times	Nonpeak times	p
a. How many people (including you) are in your personal group today?	3.10 people	2.84 people	0.000	3.07 people	3.09 people	0.841
b. Approximately how long did you stay at (your location) today?	1.28 hours	1.40 hours	0.035	0.94 hours	0.96 hours	0.849
c. Approximately how many times have you visited Acadia National Park before this trip?*	15.73 times	27.86 times	0.023	20.67 times	6.82 times	0.021

*Responses ranged from 0 to 1,000 previous visits. Two outliers of 2,500 and 10,000 previous visits were removed from mean value calculations. Median values were as follows: high-use sites = 3, low-use sites = 8, peak times = 3, and nonpeak times = 3.

Table 2.—Comparison of perceptions of crowding at sites by location and time

	High-use sites	Low-use sites	p	Peak times	Nonpeak times	p
How crowded did you feel at (your location) today?*	3.05	2.12	0.000	3.50	2.42	0.000

*Mean values based on a 9-point scale, with 1 = “not at all crowded” and 9 = “extremely crowded.”

Survey respondents were presented with a list of potential issues at their location and were asked to indicate the extent to which they perceived them as problems. While several potential problems were listed for each individual site, only three were common across the 17 locations considered in this analysis: 1) difficulty finding a parking place, 2) cars parked illegally, and 3) too many people in this area of the park. Significant differences emerged in five of the six comparisons made (Table 3). Visitors to high-use sites rated difficulty finding a parking place and too many people as larger problems than did their low-use counterparts. Similarly, those visiting during peak times of day perceived greater problems with finding parking, illegal parking, and presence of too many people than did those visiting at nonpeak times.

Visitors were also asked four general crowding-related questions about Acadia National Park. Overall, visitors agreed about conditions in the Park as a whole regardless of the place or time that they were surveyed (Table 4). Significant differences emerged in three cases. Though the magnitude of differences was not great, visitors to low-use sites agreed more strongly than did visitors to high-use sites that the park was generally too crowded and that road and traffic

conditions create a safety hazard. Respondents visiting at peak times agreed more strongly that the park was generally too crowded than did those visiting at nonpeak times.

3.2 Standards of Quality

Respondents at the three peak and nonpeak time sites (Sand Beach, Thunder Hole, and Ocean Drive) were presented with a series of six photographs in which the number of people or vehicles at their location was varied. Respondents were asked to rate the acceptability of each photograph on a 9-point scale ranging from -4 = “very unacceptable” to +4 = “very acceptable.” Visitors were then asked to choose the photograph that showed the use level they 1) would prefer to see, 2) would find so unacceptable that they would no longer visit, 3) thought was the highest level of use that the National Park Service should allow, and 4) thought looked most like the level of use that they saw during their visit.

The series of Sand Beach photographs included 0, 172, 344, 516, 688, and 860 people (Fig. 1). The social norm curve resulting from graphing mean acceptability ratings is shown in Figure 2. For both peak and nonpeak time visitors, acceptability levels decreased as

Table 3.—Comparison of perceptions of problems at high- and low-use sites

	N	Not a problem (%)	Small problem (%)	Big problem (%)	p
a. How much of a problem do you think the following issues are at (your location)? Difficulty finding a parking place					
High-use sites	1133	57.2	29.3	13.5	0.000
Low-use sites	734	63.6	30.5	5.9	
Peak times	492	42.9	38.8	18.3	
Nonpeak times	378	65.6	24.1	8.7	
b. How much of a problem do you think the following issues are at (your location)? Cars parked illegally (on road shoulders, in “no parking” areas)					
High-use sites	620	69.4	23.7	6.9	0.974
Low-use sites	105	70.5	22.9	6.7	
Peak times	229	61.6	26.6	11.8	
Nonpeak times	174	74.1	19.0	6.9	
c. How much of a problem do you think the following issues are at (your location)? Too many people in this area of the park					
High-use sites	1149	62.8	30.3	7.0	0.000
Low-use sites	633	79.5	18.3	2.2	
Peak times	498	55.6	33.5	10.8	
Nonpeak times	365	72.6	22.7	7.1	

Table 4.—Comparison of opinions about issues that apply to Acadia National Park as a whole at high- and low-use sites and at peak and nonpeak times

	High use sites	Low use sites	p	Peak times	Nonpeak times	p
a. I generally found Acadia National Park to be too crowded*	3.56	3.38	0.000	3.68	3.83	0.017
b. There should be a limit on the number of people allowed to use Acadia National Park at any one time	3.64	3.65	0.789	3.55	3.64	0.279
c. Road and traffic conditions in Acadia National Park create a safety hazard	3.64	3.51	0.008	3.69	3.72	0.603
d. The number of people using Acadia National Park is about right	2.44	2.46	0.790	2.36	2.36	0.978

*Mean values based on a 5-point scale, with 1 = “strongly agree,” 2 = “agree,” 3 = “no opinion,” 4 = “disagree,” and 5 = “strongly disagree.”

the number of people in the photographs increased. At the three lowest use levels, there were no significant differences in acceptability ratings between the two groups. At the three highest use levels, however, nonpeak time visitors reported significantly lower acceptability ratings than peak time visitors.

Nonpeak time visitors at Sand Beach indicated that they typically saw fewer people during their visit and

generally preferred to see fewer people than did peak time visitors (Table 5). There were no differences between the two groups, however, in their perceptions of the point at which visitor use should be restricted. Both groups perceived that management action would be needed when visitation reached about 550 people. Similarly, both groups indicated that they would be displaced at a similar point (around 730 people).



Figure 1.—Study photographs showing different use levels at Sand Beach.

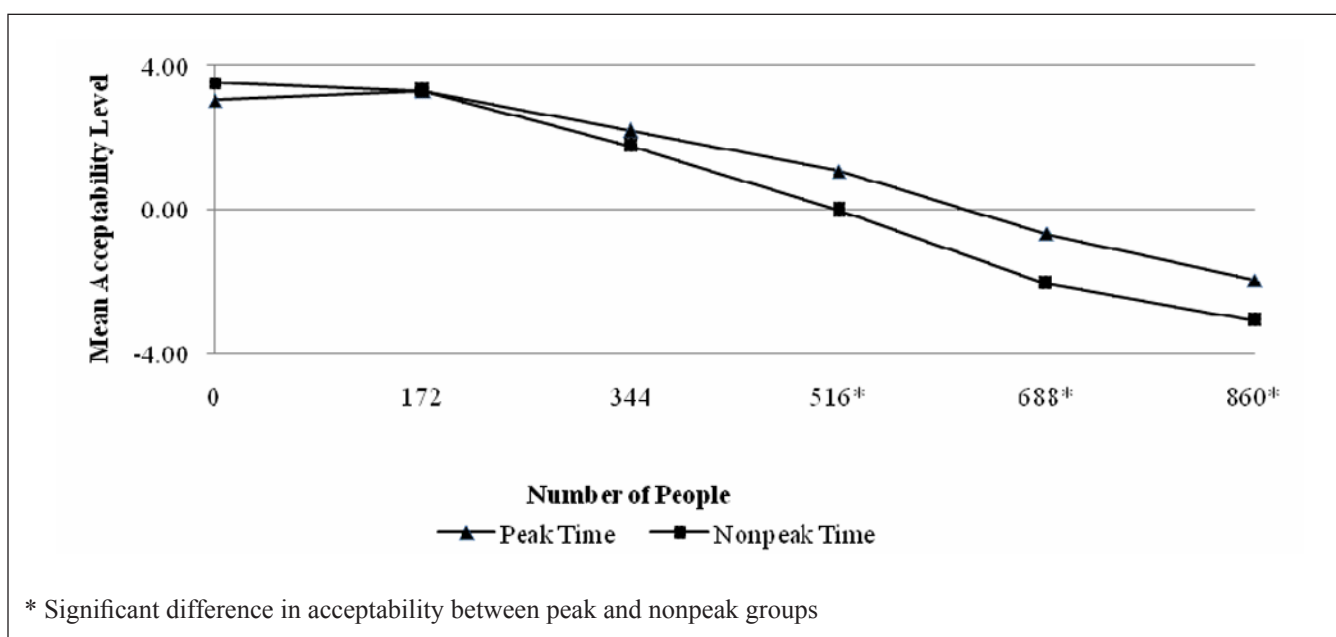


Figure 2.—Social norm curve for number of people at Sand Beach.

Table 5.—Summary of study findings for the three study sites

	Peak Time	Nonpeak Time	p	Peak Time	Nonpeak Time	p	Peak Time	Nonpeak Time	p
	Sand Beach			Thunder Hole			Ocean Drive		
Preference	253	204	0.049	14	13	0.632	5	4	0.360
Acceptability	623	516	--	30	31	--	11	11	--
Management action	542	560	0.522	31	30	0.453	13	13	0.915
Displacement	729	728	0.978	39	40	0.351	16	17	0.603
Typically seen	283	191	0.000	25	18	0.000	7	5	0.001

Numbers represent mean number of people or vehicles in photographs.

Photographs of Thunder Hole showed 0, 9, 18, 27, 36, and 45 people (Fig. 3). The social norm curve resulting from graphing mean acceptability ratings is shown in Figure 4. As with Sand Beach, peak and nonpeak time visitors at Thunder Hole assigned lower acceptability ratings to photographs with greater numbers of people. However, at all six use levels, there were no significant differences in acceptability ratings between the two groups.

As with Sand Beach, nonpeak time visitors to Thunder Hole indicated that they typically saw fewer people during their visit than did peak time visitors (Table 5). However, there were no differences in the two groups in their preference, management action, and displacement ratings. Both groups perceived that management action would be needed when visitation reached about 30 people and perceived that they would be displaced when visitation reached about 40 people.

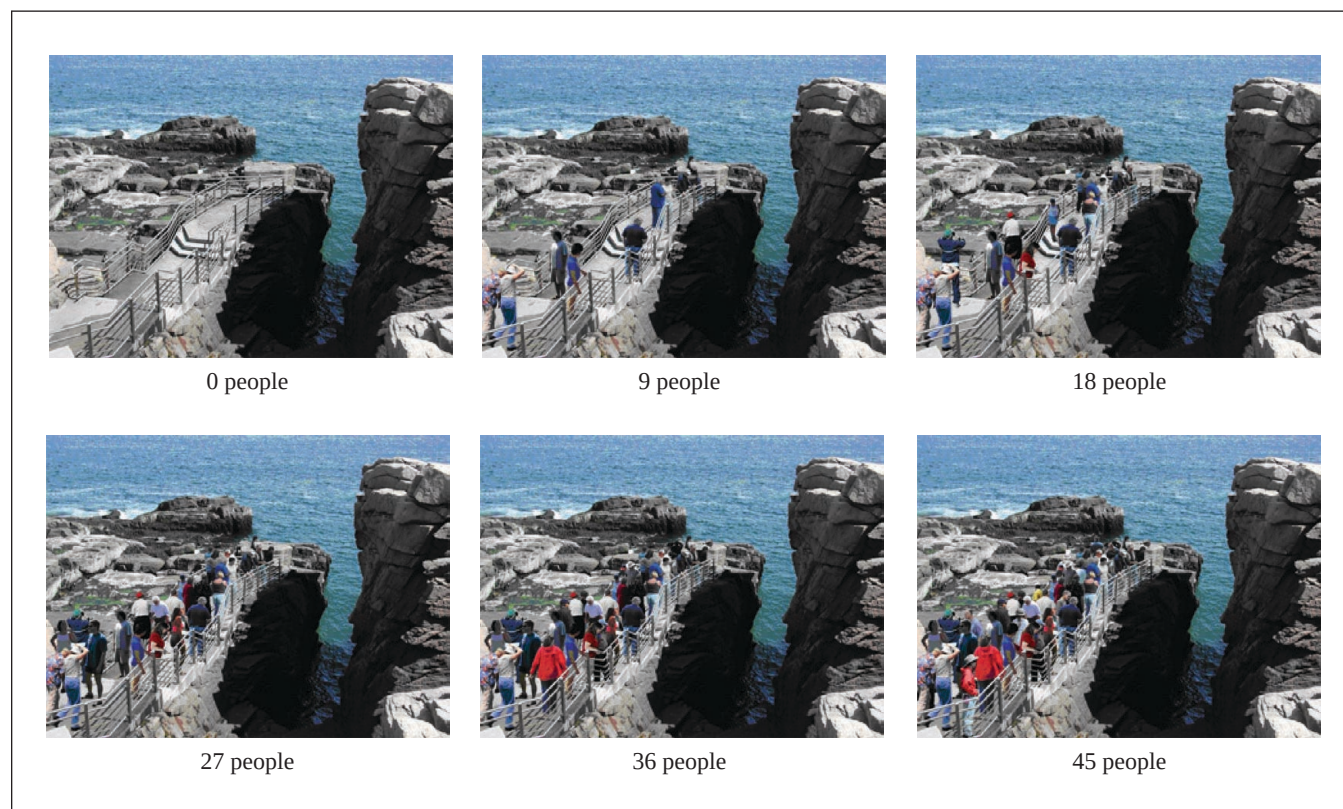


Figure 3.—Study photographs showing different use levels at Thunder Hole.

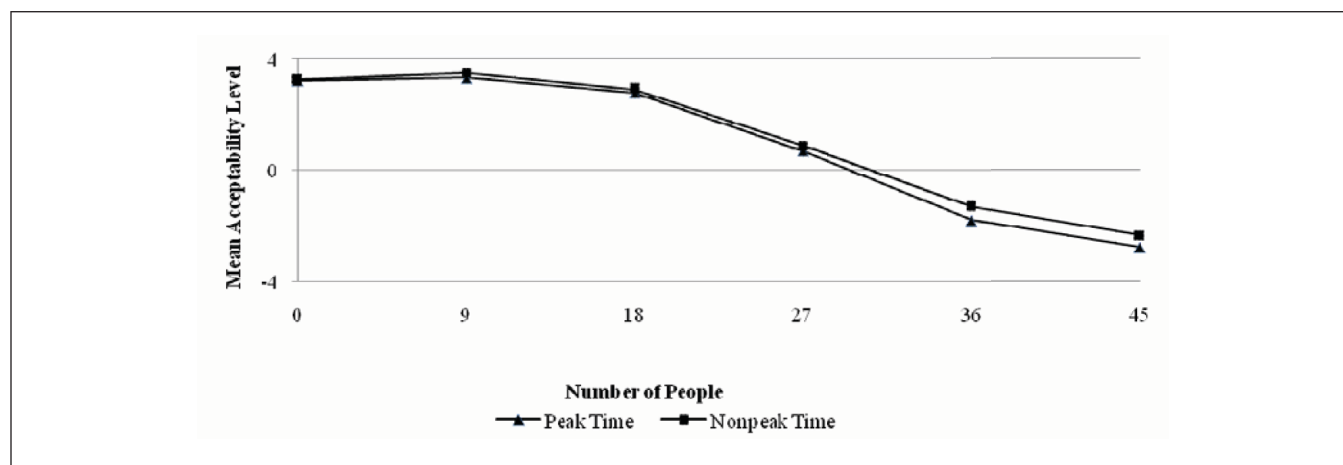


Figure 4.—Social norm curve for number of people at Thunder Hole.

Zero, 4, 8, 12, 16, and 21 vehicles were shown in photographs of Ocean Drive (Fig. 5). The social norm curve resulting from graphing mean acceptability ratings is shown in Figure 6. As with Sand Beach and Thunder Hole, peak and nonpeak time visitors assigned lower acceptability ratings to photographs showing higher levels of use. At all six use levels, there were no significant differences in acceptability ratings between the two groups.

As with Sand Beach and Thunder Hole, nonpeak time visitors to Ocean Drive indicated that they typically saw lower use levels during their visit than did peak time visitors (Table 5). There were no differences in the two groups in their preference, management action, and displacement ratings. Both groups perceived that management action would be needed at 13 vehicles and perceived that they would be displaced when about 16 vehicles were present.

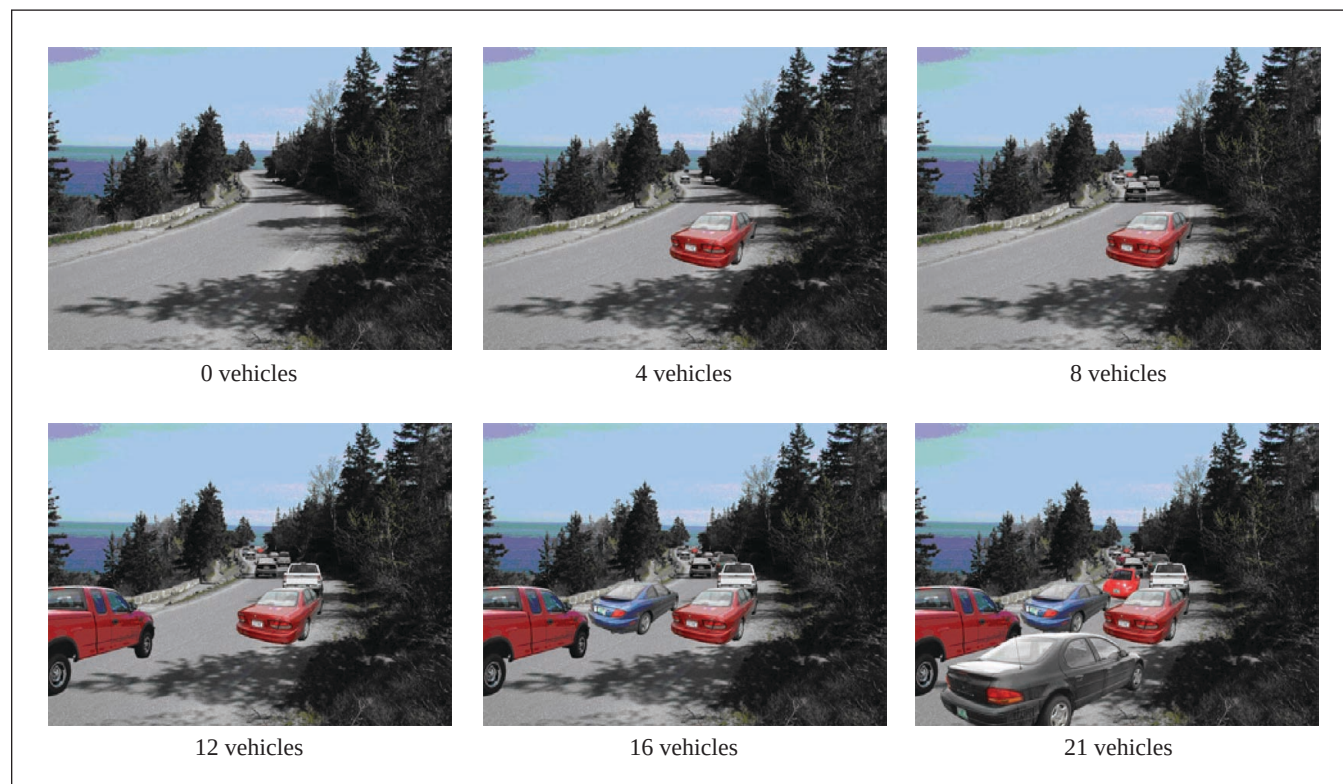


Figure 5.—Study photographs showing different use levels along Ocean Drive.

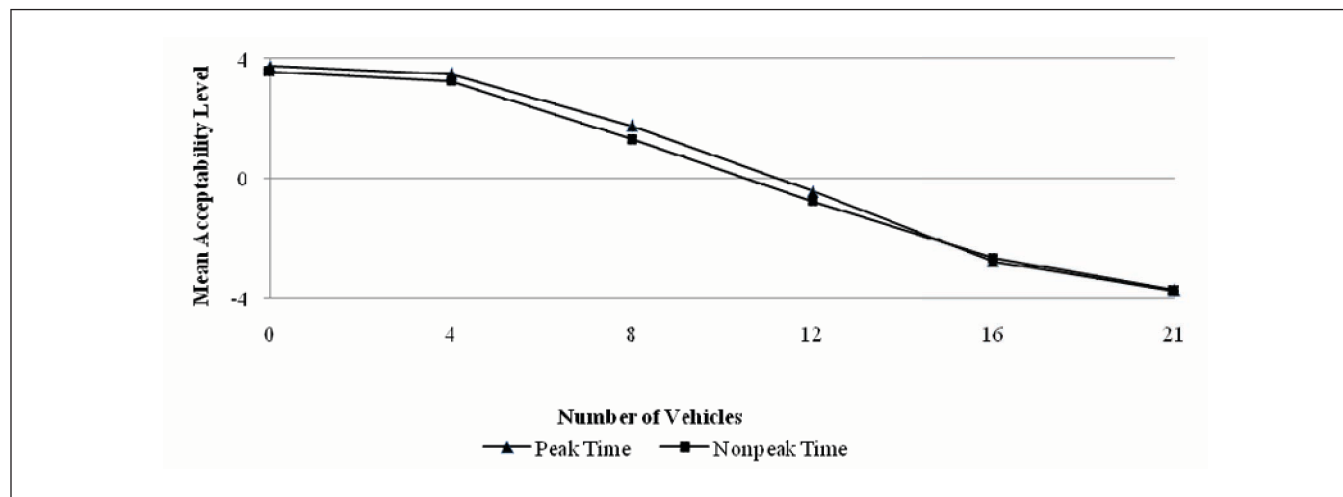


Figure 6.—Social norm curve for number of vehicles along Ocean Drive.

4.0 CONCLUSIONS

Comparisons by location and time were made for a number of indicator variables and related measures, including size of group, length of stay, number of previous visits, perceptions of crowding at the location, perceptions of problems, and overall opinions about Acadia National Park. Significant differences were more prevalent in the high- and low-use site location comparisons than they were in the time comparisons, though similar patterns emerged in both cases.

Visitors to high-use sites belonged to slightly larger groups, stayed a shorter time, and reported fewer previous visits to Acadia National Park than visitors to low-use sites. When asked about crowding-related issues specific to their location, high-use site visitors perceived greater crowding and felt that finding a parking place and the presence of too many people were bigger problems. When considering Acadia National Park as a whole, however, the opposite pattern emerged. In this case, it was the low-use site visitors who felt more strongly that the park was too crowded and that road and traffic conditions created a safety hazard.

Similar to high-use site visitors, peak time visitors perceived greater crowding and felt that finding a parking place, people parking illegally, and too many people were bigger problems at their location than did nonpeak time visitors. Unlike the location comparisons, peak time visitors reported more previous visits to Acadia National Park than nonpeak time visitors. It should be noted, however, that median values for previous visitation were identical for the two groups. Also, when considering Acadia National Park as a whole, the peak time visitors felt the park was more crowded, a finding that seems to contradict the same comparison made by location.

The number of significant differences in the indicator variables suggests that recreationists to low-use sites and to high-use sites during nonpeak times have different recreation experiences than their peak time, high-use site counterparts, who perceived lower

crowding and fewer problems at their location. The higher number of previous visits reported by low-use site visitors suggests that these may be displaced individuals who have sought out less popular recreation areas to cope with crowding. However, this hypothesis cannot be confirmed, since no direct measure of displacement was included in the survey instrument.

Comparisons of crowding standards by time revealed few significant differences. As would be expected, nonpeak time visitors at all three locations reported seeing fewer other people or vehicles than did peak time visitors. However, with the exception of a marginally significant difference in encounter preferences at Sand Beach, there were no differences between the two groups in preference, management action, and displacement ratings. Furthermore, the social norm curves were nearly identical for both groups at all three locations, except at Sand Beach, where nonpeak time visitors reported higher unacceptability ratings at the three highest use levels.

Why did so few differences emerge in the peak and nonpeak time standards comparisons? Significant differences in the number of people seen indicate that peak and nonpeak time visitors had different recreation experiences. A comparison of previous visitation suggests that nonpeak time visitors may not be exhibiting displacement behavior. On average, peak time visitors reported that they had previously visited Acadia more times than nonpeak time visitors. Median comparisons suggest that the number of previous visits between the two time groups may not be all that different. Furthermore, peak time visitors agreed more strongly that Acadia National Park as a whole was too crowded. If respondents were visiting at nonpeak times due to displacement, the opposite finding would be expected.

While the indicator comparisons in this study suggest that nonpeak time visitors were not displaced, the findings also suggest that low-use site visitors could be. If so, differences in standards may have emerged between the high- and low-use site groups, had they

been measured. While it may not be appropriate to compare site-specific standards at two different locations, similar high- and low-use sites could be chosen. For example, a general set of beach photographs could be shown to visitors at Sand Beach and Little Hunter's Beach. While this effort would not serve to determine standards at each specific location, it would provide a means for comparing standards for a general beach setting between the two groups.

Future research could examine the link between spatial displacement and standards of quality for crowding and other visitor-caused impacts. Studies should include a direct measure of displacement, and also consider the extent to which cognitive coping mechanisms influence indicators and standards of quality by measuring rationalization and product shift. Future research could also be expanded to include sampling during off-season time periods.

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AN EXPLORATORY ANALYSIS OF COPING SCHEMES USED BY PADDLERS WHO CAMPED IN THE ST. REGIS CANOE AREA, NEW YORK

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Abstract.—This study addresses requirements in the Adirondack Park State Land Master Plan for developing unit management plans. Recreational paddlers in New York State's St. Regis Canoe Area were surveyed about their perceptions of stress from daily hassles common to outdoor recreation activities, their coping responses to hassles, daily visit satisfaction, and overall trip satisfaction. Most paddlers who camped used coping schemes that combined problem- and emotion-focused strategies to achieve satisfaction. Overall, paddler-campers were either very satisfied or satisfied with their camping trip experience in the St. Regis Canoe Area. Results suggest that current coping efforts are effective in mediating stressful situations, but may not continue to be adequate if frustrating conditions persist or worsen. Managers should consider the amount and type of coping being used to overcome dissatisfaction and achieve trip satisfaction.

1.0 INTRODUCTION

When the Adirondack Park Agency was established in 1971, it was required to develop an Adirondack Park State Land Master Plan (SLMP). The SLMP in turn required unit management plans (UMP) for each unit of the park that included three types of information related to visitor use:

- An inventory of the types and extent of actual and projected public use of the area;
- An assessment of the impact of actual and projected public use on the resources, ecosystems, and public enjoyment of the area with particular attention to portions threatened by overuse; and
- An assessment of the physical, biological, and social carrying capacity of the area (New York State Department of Environmental Conservation 2001, p. 10).

Currently, these types of required information are not available for most of the units in the planning process, including the St. Regis Canoe Area (SRCA). Previous studies within the SRCA have provided some of the needed information by addressing issues of wilderness privacy (Fuller and Dawson 1999), perceptions of crowding (Dawson et al. 2000), and visitor satisfaction (Pfaffenbach et al. 2003). This study partially addresses the second UMP planning requirement by adding some key elements to the assessment of the impacts of actual and projected public use on the public enjoyment of the SRCA.

This study was based on transactional stress/coping theory, which assumes that undesirable conditions during outdoor recreation experiences can produce stress and that stress/coping processes influence the outcome of the recreation experience (Schuster et al. 2003). The purpose of this study is to address SLMP planning requirements, and to explore coping schemes used in response to stressors experienced during overnight wilderness paddling trips. Recent stress/coping literature emphasizes the importance of recognizing that coping schemes typically include a combination of problem- and emotion-focused coping mechanisms (Lazarus 2000, Schuster et al. 2006, Schuster et al. 2007). The objectives of this study are to identify factors (i.e., dimensions) of coping response from a set of 14 coping variables and to identify

homogeneous groups of boaters based on factors of coping response.

1.1 Stress/Coping Model

The stress/coping model (Fig. 1) developed by Lazarus and Folkman (1984) includes influencing factors, appraisals, coping, and outcomes (Schuster et al. 2006). Influencing factors are conceptualized as daily hassles—everyday irritating, frustrating, and distressing demands (Kanner et al. 1981). The appraisal process involves two stages. In the primary appraisal stage, the recreationist determines if the situation is stressful based on whether it is harmful, threatening, or challenging. In the secondary appraisal stage, the recreationist determines whether the situation can be controlled, what coping strategies to use, and whether the resources necessary to achieve the desired outcome are available (Folkman and Lazarus 1980, Lazarus and Folkman 1984).

Coping is defined as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus and Folkman 1984, p. 141). Coping occurs in the middle of the process to mediate initial appraisals of stress and to help facilitate desirable outcomes. Lazarus and Folkman (1984) have identified two basic coping strategies: emotion-focused and problem-focused. “Emotion-focused coping occurs when nothing can be

done to modify harmful, threatening, or challenging person-environment transactions” (Schuster et al. 2006, p. 100). This strategy serves to lessen emotional distress by employing tactics such as avoidance, distancing, selective attention, positive comparisons, and finding positive value in negative events (Schuster et al. 2006).

Problem-focused coping strategies are utilized when the situation is appraised as changeable. These methods focus on defining the problem, developing and judging the potential effectiveness of various solutions, choosing one, and then employing it (Schuster et al. 2006). Problem-focused coping strategies are intended to influence environmental conditions by altering the source of stress or reducing symptoms associated with the situation (Lazarus and Folkman 1984).

The prime importance of appraisal and coping is that they affect the outcomes of the stress/coping process, which can be short-term or long-term. Similar to the stress/coping model, visitor satisfaction is viewed as an outcome from a process. Satisfaction has been used as an appropriate surrogate for evaluating recreation experience quality (Williams 1989). Research has shown that some satisfaction measures may be appropriate indicators of short-term outcomes (Williams 1989).

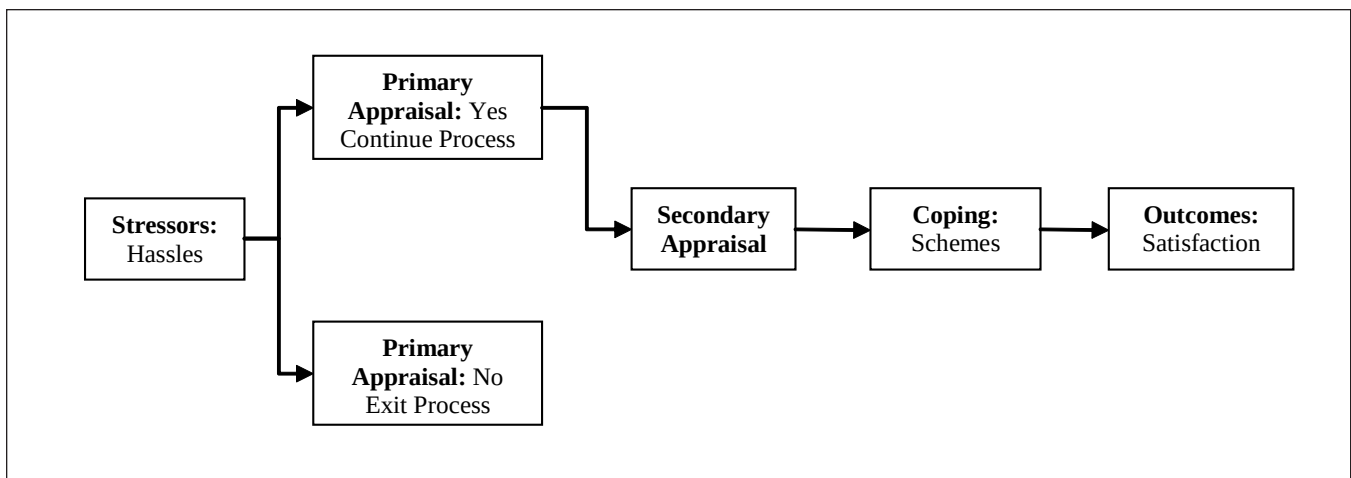


Figure 1.—Theoretical stress/coping model incorporating components of the current study; adapted from Schuster et al. 2006.

1.2 Coping Schemes

Recent outdoor recreation stress/coping literature emphasizes the importance of recognizing that coping schemes typically include a combination of problem- and emotion-focused coping mechanisms (Schuster et al. 2006). Researchers have noted a tendency in coping-related research to study problem- and emotion-focused coping separately (Lazarus 2000). Kuentzel and Heberlein (1992) tested a hierarchical coping model in the Apostle Island National Lakeshore (Wisconsin). They hypothesized that people use cognitive (i.e., emotion-focused) coping before using behavioral (i.e., problem-focused) coping. The premise was that cognitive and behavioral coping strategies are mutually exclusive. However, their results did not support their model. In fact, they found that coping mechanisms were not used individually or as mutually exclusive responses.

A study by Schuster et al. (2006) reported on recreationists' coping responses to hassles experienced in outdoor recreation settings. They tested the Lazarus and Folkman transactional stress/coping model, which hypothesized problem-focused and emotion-focused coping as being distinct factors. However, the results of their study indicate that problem-focused and emotion-focused coping were combined to create one overall coping scheme by visitors. "The scheme predominantly consisted of enacting personal behaviors to avoid the problem and exercising self-control" (Schuster et al. 2006, p. 108). Similarly, a study about visitor appraisal of and response to social conditions in the Great Gulf Wilderness (New Hampshire) by Schuster et al. (2007) reported that a typical coping scheme consisted of product shift and rationalization (emotion-focused coping) and to a lesser extent, physical avoidance (problem-focused coping).

The literature does not provide a definition of a coping scheme. For the purposes of this study, a coping scheme is a combination of problem- and emotion-focused coping mechanisms used by an individual to manage the demands of a problem-causing person-environment relationship (Lazarus 2000, Schuster et al. 2006).

2.0 METHODS

The field research for this study was conducted in the SRCA between mid-June and early September 2007. The SRCA is located in the central-northern region of New York State's Adirondack Park and covers 18,400 acres, including 1,621 acres composed of 58 different water bodies.

A convenience sample was used to contact visitors at five water access points around the SRCA. All visitors paddling in the SRCA were asked to participate in the on-site questionnaire, which was designed to obtain visitor characteristics and their experiences (not all of the data collected are reported in this manuscript). Paddlers staying at least one night in the SRCA were asked to participate in the daily diary portion of the study. Paddlers carried the diary with them and filled it out each night at their campsite, then returned it in a stamped, addressed envelope to the researchers. The diary was designed to collect information related to hassles, coping, and satisfaction. Hassles were measured using a modified version of the hassle scale developed by Kanner et al. (1981), including 18 items designed to reflect natural, managerial, and social domains of stress. Coping responses were measured using a modified version of Folkman and Lazarus' (1980) Ways of Coping checklist. The scale employed in this study represented 14 problem- and emotion-focused coping responses that were commonly used in other research (Schuster et al. 2006). The daily diary also included measures of satisfaction that parallel similar studies (Pfaffenbach et al. 2003). Computer-assisted analysis was conducted using SPSS.

Data analysis included principle components analysis (PCA) and hierarchical cluster analysis. The current study conducted a PCA similar to that of Fuller and Dawson (1999) using orthogonal varimax rotation to reduce the coping variables to meaningful factors and Kaiser Normalization to reduce statistical error. Factor loading had to be 0.40 or greater, factors had to have an eigenvalue of 1.0 or greater, and the internal reliability of each factor had to have a Cronbach's alpha of 0.60. This study also utilized an agglomerative hierarchical method of cluster analysis

with an average linkage procedure for developing clusters. The average linkage procedure is based on minimum Euclidean distance (Hair et al. 1995).

3.0 RESULTS

The interviewer approached 488 paddlers; only six refused to participate for an on-site response rate of 98.7 percent. Of the 482 paddlers who agreed to participate, 189 (39.2 percent) indicated that they would be staying overnight in the SRCA and all except two agreed to participate in the daily diary. One hundred eighty-seven daily diaries were distributed and 104 were returned for a response rate of 56 percent. Paddlers who camped were asked to indicate the intensity of stress perceived from different hassles. The results of this analysis are not reported in detail here; however, 95.7 percent of respondents reported perceiving stress from at least one source.

Paddlers who camped were asked to indicate how frequently they used different coping strategies in response to hassles. They were given the option of indicating that they did not use a particular coping strategy. Each potential coping strategy was used by at least one boater. The percentage of respondents reporting some level of coping strategy use ranged from 2.0 to 36.4 percent with a total of 63.2 percent of the respondents reporting using some level of one or more coping strategies.

PCA was used to identify the factors of paddlers' coping responses. One variable in the analyses, "asked someone for information or assistance," did not meet the inclusion criteria and was not used in the final analysis. Four factors with eigenvalues greater than 1.0 were identified with the remaining 13 coping variables. Three of the four factors met the reliability criterion and were used in the final analysis.

Table 1 shows the results for the final PCA. The first factor contained only emotion-focused coping variables such as making jokes about or ignoring the problem. The emotion-focused variable "tried to view the problem in a positive way" has been conceptualized by other researchers as a more specific category of emotion-focused coping labeled rationalization (Schuster et al. 2006). The variables "tried not to think about it" and "went on as if nothing happened" have been conceptualized as psychological distancing (Folkman and Lazarus 1980, Lazarus and Folkman 1984, Schuster et al. 2006) or rationalization (Schuster et al. 2007). For this study, that factor was labeled "rationalization."

The second factor contained problem-focused coping, such as avoiding areas where problems were expected and emotion-focused coping variables such as accepting the problem. This factor was labeled "acceptance-avoidance coping."

Table 1.—Factor loadings and means for the variables measuring ways of coping based on factor analysis of 11 coping variables in the St. Regis Canoe Area in the summer of 2007

Factors and Questionnaire Items	Factor Loadings	Mean Rating	Factor Mean	Factor Alpha Value
Rationalization			.53	.83
Laughed or made jokes about the problem	.84	.67		
Tried to view the problem in a positive way	.86	.64		
Tried not to think about it	.76	.45		
Went on as if nothing happened	.71	.35		
Acceptance-Avoidance Coping			.45	.72
Avoided campsite areas where I expected the problem to occur	.75	.50		
Moved to another campsite in response to the problem	.74	.16		
Made a plan to address the problem	.79	.20		
Accepted the problem as part of the St. Regis Canoe Area experience	.46	.70		
Talked about the problem with people in my group	.65	.65		
Confrontive Coping			.10	.80
Tried to get the person responsible to change his or her behavior	.93	.14		
Expressed anger to the person responsible for the problem	.95	.05		

The third factor contains only problem-focused coping variables. The variables in this factor are intended to directly confront a person responsible for causing a problem. These strategies have traditionally been labeled “confrontive coping” (Schuster et al. 2006) and that label was used in this study.

The results of the PCA give some support to other coping studies and offer some new findings. The rationalization and confrontation coping factors that loaded together are similar to those in a study by Schuster et al. (2006). The acceptance-avoidance factor is unique to this study in that it contains both problem-focused and emotion-focused coping strategies. Other studies have reported problem-focused and emotion-focused strategies loading separately from each other (Miller and McCool 2003, Peden and Schuster 2005, Schuster et al. 2006).

The next part of the data analysis was to identify homogeneous groups of respondents based on the three factors of coping response. Based on practical judgment and theoretical foundations, the results of the cluster analysis indicated that there were four types of respondents (Table 2). However, the solutions do not meet the first two *a priori* criteria typically used in cluster analysis (Jackson 1993). Group one is large enough to contain a majority of respondents and group

four is too small to be used in further analysis. The third *a priori* criterion is met, however, because the cluster solutions make intuitive sense.

An important characteristic of cluster analysis is that there is low within-group variance. All of the clusters in this study show low within-group variance (Table 2). Outdoor recreation studies often find homogeneity in respondents (Manning 1999). For this reason, it is not surprising that most of the respondents in this study grouped together.

The analysis also identified the coping schemes used by respondents (Table 3). Based on the cluster analysis grouping of respondents and their average use of the three coping factors, four coping schemes were identified (Table 3):

- Light coping: “Light” refers to the level of use within each coping factor; respondents in this group used a low amount of each factor.
- Rational Coping: Respondents most often used rationalization strategies.
- Passive Coping: Respondents used acceptance-avoidance more than the other factors, but at a medium level of use.
- Coping-Dependent: Respondents used high or medium amounts of each factor.

Table 2.—Results of cluster analysis and mean use of each coping factor

Group	Size	Rationalization		Acceptance-Avoidance Coping		Confrontive Coping	
		Mean	SD	Mean	SD	Mean	SD
1	72	0.20	0.35	0.19	0.27	0.06	0.26
2	10	2.17	0.37	0.66	0.45	0.00	0.00
3	10	0.65	0.27	1.64	0.63	0.50	0.16
4	4	2.12	0.25	1.45	0.55	1.13	0.48

Table 3.—Frequency of visitor use of each coping factor for each coping scheme

Scheme	Size	Rationalization*	Acceptance-Avoidance Coping*	Confrontive Coping*
Light Coping	72	Low	Low	Low
Rational Coping	10	High	Low	None
Passive Coping	10	Low	Med	Low
Coping-Dependent	4	High	Med	Med

*Label ranges: 0 = None; <1.0 = Low; 1.0-1.99 = Medium; 2.0-3.0 = High

These results suggest that a majority of paddlers in the SRCA during summer 2007 used a great deal of coping and a variety of strategies.

Paddlers were asked to indicate their level of satisfaction with nine different components of the daily SRCA experience. The detailed results of this analysis are not reported here, but each component of the daily SRCA experience was viewed as either satisfactory or very satisfactory by over half of the respondents. Overall, 77.1 percent of the boaters who camped were very satisfied and 22.9 percent were satisfied with their camping trip experience.

4.0 DISCUSSION AND CONCLUSION

This study provides managers with information regarding the second UMP planning requirement. Managers should consider the fact that over half (63.2 percent) of the paddlers who camped were utilizing at least one coping strategy to manage trip stress. If conditions are such that most people need to cope in order to have a high-quality visitor experience, then managers may need to remove or reduce sources of visitor stress. For example, the SRCA UMP (New York State Department of Environmental Conservation 2006) states that currently many campsites are closer together than regulations allow. By adjusting campsite locations, managers may be able to improve the quality of the visitor experience by reducing the need for visitors to cope with the campsite location and conditions.

Managers and planners need to recognize that a majority of the visitors were coping and employing coping schemes (i.e., multiple coping strategies). The evidence suggests that visitors were not able to cope effectively using only one coping mechanism. This finding may suggest that the on-site conditions are degraded to the point that coping schemes are necessary in order to have a satisfying visitor experience on a trip in the SRCA. However, it may also mean that the use of coping schemes is very common, as suggested by published literature on the subject. Managers and planners need to understand the use of coping schemes in order to further assess the impact of stress on visitor experiences.

Additionally, managers and planners need to continually monitor visitor satisfaction. While current coping efforts appear to ameliorate stressful situations (i.e., all respondents reported satisfying trip experiences during summer 2007), they may not continue to be effective if on-site conditions that cause problems persist or worsen. Therefore, significant sources of stress need to be identified and addressed in the SRCA.

More research is needed to complete the assessment required by the SLMP and to understand the stress/coping process and its relationship to visitor satisfaction and quality of experience. This study provides several general suggestions for researchers studying stress and coping in recreation experiences. Future stress/coping studies should conceptualize and measure coping in terms of schemes. This study provides empirical evidence to support the assertion in the literature that coping strategies often combine to create a scheme.

Stress/coping studies often use coping measures that are adapted for that specific study. In so doing, researchers are using measures that do not allow for comparison across studies. For example, Schuster et al.(2006) conceptualized the coping strategies “refused to get too serious about it” and “went on as if nothing happened” as psychological distancing and the strategy “followed established trail etiquette” as self-control. Later, Schuster et al. (2007) conceptualized the same three strategies as rationalization. While both conceptualizations are accurate, future researchers of stress and coping should consider using measures consistent with previous studies, which would increase the comparability and reliability of results.

The current study is part of a larger project. One of the goals of the larger project is to integrate findings from this study with findings of an on-going biophysical impact study. A final recommendation is that future stress/coping studies should also compare their findings to the findings of studies that examine actual biophysical impacts. If researchers can compare perceived and actual social and biophysical impacts, researchers, managers, and planners will significantly

improve their understanding of the relationships among conditions, stress, coping, and satisfaction. Additionally, this type of analysis will allow them to fulfill UMP planning requirements completely by developing an inventory of the types and extent of actual and projected public use of the area and assessing the impact of public use on the resources, ecosystems, and public enjoyment of the area. Research of this type will also help managers and planners assess the physical, biological, and social carrying capacity of the area.

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TOURISM—EMERGING TOPICS

NEW ENGLAND'S TRAVEL AND TOURISM MARKETS: TRENDS IN GEOGRAPHIC TARGET MARKETS BEYOND THE 90s – THE Y2K DECADE

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Abstract.—The purpose of this paper is to examine the travel and lifestyle activity trends in the years beyond the 1990s—the Y2K decade—for geographic markets of interest to New England travel destinations. The central theme is examining New England's potential primary, secondary, and tertiary geographic markets in detail.

1.0 INTRODUCTION

This line of research was last updated in 2006 and the data covered was just 4 years after September 11, 2001 (9/11) (Warnick and Bojanik 2007). This update assesses participation in recreation and travel activities from 1995 through 2007 and analyzes the recovery of the New England tourism markets after 9/11. Coming off a very strong late-1990s financial upswing, the U.S. economy grew rapidly before 9/11, interest in recreational activities and travel was increasing, and travel trends were very positive for the greater New England region. The post-9/11 world has had to confront severe economic challenges, such as the Iraq War, corporate fraud, and eventually the mortgage crisis and rapidly increasing fuel prices. All of these hardships have combined to change the outlook for both recreation and tourism destinations, which now face an uncertain future. Other demographic issues affecting the Northeast region include outmigration and an aging population.

Previous studies (Warnick 1992a, 1992b, 1993, 1997, 2000, 2001, 2008; Warnick and Bojanik 2007) have summarized data on domestic travel to the Northeast and New England. Warnick and Bojanik (2007)

reported that rates of domestic travel (travel by U.S. residents to U.S. destinations) declined between 2000 and 2005. These rates have recovered somewhat since 2005 but without a return to robust pre-9/11 levels. After 9/11, vacation travel declined the most in the regional markets, in some cases rather dramatically. As travel participation rebounded in the few years after 9/11, the overall trend has been one of “no growth.”

Another line of analysis by Warnick and Bojanik (2007) looked at recreation and sports activity participation of people living in specific geographic markets. Between 2000 and 2005, participation in golf declined while tennis remained relatively stable and skiing and biking actually grew. Outdoor recreation markets had mixed results, with interest in wildlife and the environment continuing to decline while camping and hiking grew across nearly all markets. Hunting remained stable, but rates varied dramatically even within the primary markets of metropolitan areas. Household interest in physical fitness and exercise and cultural activities remained stable, but interest in the nation's heritage grew through 9/11 and remained stable across nearly all markets. Interest in history and heritage grew in those areas most directly affected by the 9/11 tragedy, New York City and Mid-Atlantic metropolitan areas, where some of New England's secondary target markets are located.

2.0 PURPOSE OF STUDY

The purpose of this study is to: 1) examine domestic travel and travel recreation activities of residents of New England and other nearby markets during and beyond the 1990s into the Y2K decade; 2) identify changing patterns in travel and recreation activity of people who live in geographic markets of interest to New England destinations over a longer period of time post-9/11; and 3) examine additional market conditions that have not yet been examined in the context of trend analysis. Due to limited space in this publication, not all of the data can be presented here

and primary reporting and analysis will focus on the major findings.

3.0 METHOD

In previous studies, two databases were examined to more fully understand U.S. travel trends: Simmons Market Research Bureau's *Study of Media and Markets* and Standard Rate and Data Service's (SRDS) *Lifestyle Market Analyst*. With data now available through 2007, this research and trend analysis has been updated and expanded using SRDS data exclusively. Refer to Warnick and Bojanik (2007) for more detailed information about the methodology and variable selection for this research.

4.0 SELECTED FINDINGS

4.1 Travel Lifestyle Activity by Geographic Markets.

Domestic travel activity has remained relatively stable in the New England travel markets while vacation travel rates are higher for the New England region's primary, secondary, and tertiary markets than the national markets (Table 1). Table 1 also lists New England's primary, secondary, and tertiary markets that are examined in this research.

4.2 Domestic Travel Lifestyle.

None of New England's primary metropolitan markets experienced strong growth (>4 percent per year)

Table 1.—Travel patterns for New England destination markets for 2007 with trends for 1995-2007

Markets	Domestic Travel ^a	'95-'07 Dom. Trav. Trend	Vacation Travel ^a	'95-'07 Vac. Trav. Trend
1995 National Rates	34.9%		37.5%	
2001 National Rates	41.5%	S	34.3%	G*
2007 National Rates	35.1%		39.5%*	
1995 All New England Markets	35.8%		39.1%*	
2001 All New England Markets	42.2%	S	35.3%*	G*
2007 All New England Markets	35.8%		42.2%*	
Primary Markets 2007	35.6%	S	42.5%*	G*
Albany, NY	35.4%	NG	27.4%*	NG*
Bangor, ME	31.8%	NG	29.7%*	D*
Boston, MA	36.2%	S	48.1%*	G*
Burlington, VT/Plattsburgh, NY	34.7%	S	43.1%*	G*
Hartford/New Haven, CT	36.6%	NG	44.0%*	G*
Portland/Auburn, ME	34.2%	S	36.7%*	G*
Providence, RI/New Bedford, MA	34.7%	S	39.0%*	G*
Springfield, MA	34.2%	S	39.8%*	G*
Secondary Markets 2007	36.1%	S	43.0%*	G*
Harrisburg, PA	35.0%	G	34.5%*	G*
Philadelphia, PA	36.3%	S	31.5%*	G*
Scranton-Wilkes Barre, PA	34.3%	S	34.5%*	S*
Syracuse, NY	34.8%	S	36.8%*	G*
New York City, NY	36.4%	S	46.2%*	G*
Tertiary Markets 2007	35.6%	S	41.0%*	G*
Baltimore, MD	35.7%	S	39.6%*	G*
Cleveland, OH	36.4%	NG	34.9%*	S*
Pittsburgh, PA	34.3%	NG	32.3%*	S*
Washington, DC	36.5%	S	47.2%*	SG*
Atlanta, GA	36.2%	G	44.6%*	SG*
Charlotte, NC	33.8%	G	38.8%*	SG*
Raleigh/Durham, NC	34.0%	G	42.5%*	SG*

^aPercent of people from each market that participated in each kind of travel in a given year

* Vacation travel data available through 2005 only; no data for 2006/2007

Key: SD = Strong Decline (>-2%/yr); D = Decline (>0 to -2%/yr); NG = No Growth (at or near 0%/yr); S = Stable (positive, but <2%/yr); G = Growth (2% to 4%/yr); SG = Strong Growth (>4%/ yr)

in domestic travel during this period. Albany, NY; Bangor, ME; and Hartford, CT experienced no-growth trends. Metropolitan areas with the highest travel participation rates in 2007 were Boston (36.2 percent) and Hartford/New Haven (36.6 percent). However, it is also noteworthy that the most recent year examined here, 2007, reflects an overall downward trend in domestic travel activity. Domestic travel in the primary markets peaked in 2000 at 43.2 percent.

New England's secondary markets were also relatively stable and metropolitan areas had rates similar to the national rates for domestic travel. Harrisburg, PA, was the only growth market for travel in this sub-region. The tertiary markets exhibited more growth in domestic travel, but the overall region trend was stable for the period examined. The evolving markets of Charlotte, NC; Atlanta, GA; and Raleigh/Durham, NC were the only growth markets for domestic travel.

4.3 Vacation Travel Lifestyle

A better indicator for tourism travel is "vacation travel" collected by SRDS. Rates are typically higher here and these data likely reflect more region-based travel. The national vacation travel market increased between 2 and 4 percent per year between 1995 and 2007. The participation rate for vacation travel was higher for the New England markets (42.2 percent of all households participated in vacation travel) than the national rate (39.5 percent). Within New England's primary markets, nearly all metro areas experienced growth, with the exception of Albany (no growth) and Bangor (decline). Of all the geographic market areas in this analysis, Boston (48.1 percent), Washington, D.C. (47.2 percent), and New York City (46.2 percent) had the highest household participation rates for vacation travel.

Vacation travel rates in New England's secondary and tertiary markets grew and exceeded the national rates by 2007. Three of the tertiary market metro areas exhibited strong growth patterns from 1995 through 2005 for vacation travel: Atlanta (44.6 percent), Charlotte (38.8 percent), and Raleigh/Durham (42.5 percent). (Please note that at the time of this analysis, vacation travel data were available only for 1995

through 2005; data for 2006 and 2007 had not yet been released.)

4.4 Recreation and Sport Lifestyle Market Activity by Geographic Markets (Table 2)

Biking and tennis participation rates grew during the review period while skiing and golf participation rates have remained stable. Nearly 21 percent of all households in the New England market area participated in biking, but this activity peaked at 23.5 percent in 2000. Tennis enjoyed a rebound in the overall New England market area with a growth trend of 2 to 4 percent annually and the rates generally exceeded the national rates for the activity. Household participation rates for tennis were 6.5 percent nationally and 7.6 percent for the New England regional markets in the most recent year, 2007. Skiing participation rates also exceeded the national rates, but skiing rates were stable overall during the period for both the national and the overall New England markets. Household participation rates for skiing were 7.2 percent nationally and 8.1 percent for the New England regional markets by the end of the review period in 2007. Nationally, golf enjoyed a strong growth pattern in the late 1990s, but its popularity has generally declined since then. Household participation rates for golf were 17.6 percent nationally and 16.4 percent for the New England markets in 2007.

Golf Lifestyle. Households in three of the metropolitan areas (Albany, Hartford/New Haven, and Springfield, MA) had declining golf participation rates between 1995 and 2007. The secondary and tertiary markets were also no-growth regions for golf. Philadelphia, PA; Syracuse, NY; Cleveland, OH; and Pittsburgh, PA all had declining markets for golf while Harrisburg, Washington, D.C., and the southern tier markets (Atlanta, Charlotte, and Raleigh/Durham) remained stable over the period. Still, next to biking, this activity enjoys the highest household participation rates of the four activities examined.

Tennis Lifestyle. Tennis, which has traditionally had strong household participation rates in the New England region, has continued to show growth trend patterns through the late Y2K decade. The New York

Table 2.—Recreation and sport activity participation rates by market for 2007 plus 1995-2007 trends

Markets	Golf	Golf Trend	Tennis	Tennis Trend	Skiing	Skiing Trend	Biking	Biking Trend
1995 National Rates	19.8%		5.8%		7.4%		17.1%	
2001 National Rates	21.2%	NG*	6.9%	G*	9.0%	S*	24.3%	G*
2007 National Rates	17.6%		6.5%		7.2%		20.8%	
1995 All New England Markets	18.4%		7.0%		7.3%		19.2%	
2001 All New England Markets	20.0%	NG*	8.4%	G*	10.0%	S*	23.4%	G*
2007 All New England Markets	16.4%		7.6%		8.1%		19.8%	
Primary Markets 2007	17.8%	NG	7.0%	S	11.8%	NG	20.8%	G
Albany	19.7%	D	6.4%	S	11.4%	D	21.9%	G
Bangor	14.6%	S	4.1%	G	10.6%	NG	17.6%	G
Boston	18.2%	NG	7.7%	S	12.7%	NG	20.6%	G
Burlington/Plattsburgh	17.3%	S	6.3%	G	18.3%	S	24.2%	G
Hartford/New Haven	17.6%	D	7.4%	S	9.3%	D	19.8%	G
Portland/Auburn	16.5%	S	6.0%	G	14.7%	S	21.1%	G
Providence/New Bedford	17.3%	NG	6.5%	G	8.9%	S	20.5%	G
Springfield	18.3%	D	5.8%	S	9.1%	D	21.9%	G
Secondary Markets 2007	14.8%	NG	7.9%	S	7.7%	S	20.4%	G
Harrisburg	17.3%	S	5.7%	G	5.9%	G	18.4%	SG
Philadelphia	15.9%	D	7.3%	S	7.3%	S	20.5%	G
Scranton-Wilkes Barre	16.1%	NG	4.3%	G	6.4%	S	16.7%	SG
Syracuse	22.2%	D	5.5%	S	9.2%	NG	21.0%	SG
New York City	14.9%	NG	9.1%	S	12.1%	NG	19.6%	G
Tertiary Markets 2007	17.5%	NG	7.7%	G	6.5%	G	19.5%	SG
Baltimore	14.6%	NG	7.2%	S	6.9%	S	18.4%	G
Cleveland	21.6%	D	5.2%	G	5.6%	S	22.1%	G
Pittsburgh	19.9%	D	4.6%	S	6.2%	NG	17.2%	SG
Washington, DC	15.3%	S	9.2%	G	8.2%	G	20.4%	G
Atlanta	16.6%	S	10.1%	G	5.7%	SG	16.5%	SG
Charlotte	18.3%	S	6.8%	G	6.2%	SG	15.5%	SG
Raleigh/Durham	17.2%	S	7.9%	SG	5.5%	SG	17.7%	SG

Key: SD = Strong Decline (>-2%/yr); D = Decline (>0 to -2%/yr); NG = No Growth (at or near 0%/yr); S = Stable (positive, but <2%/yr); G = Growth (2% to 4%/yr); SG = Strong Growth (>4%/ yr)

City metropolitan area has a household participation rate of 9.1 percent and is a relatively stable market. Those metro market areas in the primary market that experienced 2- to 4-percent growth include Burlington, VT/Plattsburgh, NY; Portland/Auburn, ME; Providence, RI/New Bedford, MA; and Bangor. The strongest tertiary markets for tennis in 2007 were Washington, D.C. (9.2 percent) and Atlanta (10.1 percent). Raleigh/Durham (7.0-percent participation in tennis in 2007) had the strongest growth trend pattern for the period, with rates increasing more than 4 percent per year.

Bicycling Lifestyle. In all the New England markets, bicycling participation rates increased and were near or higher than the national averages. Bicycling is growing

in all primary, secondary, and tertiary markets, and several metropolitan market areas in the secondary and tertiary areas are growing at rates exceeding 4 percent per year (a strong growth trend). Primary metro areas with high bicycling rates include Albany, Springfield, and Burlington/Plattsburgh. The overall rates in the secondary markets were not as high. In the tertiary markets, Cleveland had the highest rate of bicycling participation (22.1 percent) in 2007. The metropolitan areas of Pittsburgh, Atlanta, and Charlotte all had overall growth rates that exceeded 4 percent per year in household bicycling participation.

Skiing Lifestyle. Nationally the skiing markets remained relatively stable. Participation rates were 7.4 percent in 1995, peaked at 9.0 percent in 2001, and

were back down to 7.2 percent by 2007. In 1995, the skiing rate in the New England market areas was 7.3 percent; by 2007 it was up to 8.1 percent. Although these rates are higher than the national averages, they are hardly keeping pace with population growth. The primary market overall had “no growth” between 1995 and 2007, but all of the region’s metro areas have rates above the national average. Three of the market areas experienced declining skiing participation rates during the period: Springfield, Hartford/New Haven, and Albany. The secondary markets remained stable during the review period for skiing. Rates were considerably lower in the tertiary markets with the exceptions of Washington, D.C. (growth), Atlanta, (strong growth), Charlotte (strong growth), and Raleigh/Durham (strong growth).

4.5 Outdoor Recreation Lifestyle Market Activity by Geographic Markets (Table 3).

Nearly 29 percent of all households in the United States fished in 2007 compared to 23.8 percent in 1995. Camping/hiking and fishing grew in the New England markets as well, but the rates for both activities were below the national rates and there was wide variability among the metropolitan area markets in the region. For example, the rates for camping/hiking topped 38.5 percent in Burlington/Plattsburgh but reached only 13.6 percent in the New York City metro area in 2007. Similar variability was also found in hunting and fishing participation rates. After years of growing interest in wildlife and the environment, the rate of interest nationally (15.1 percent) has returned to a stable overall trend and the overall New England market rate in 2007 (15.5 percent) showed no growth. The New England market area experienced growth in camping/hiking with a 2007 household participation rate of 19.9 percent, but this percentage was lower than the national average of 25.5 percent. Hunting enjoyed a stable pattern of activity between 1995 and 2007 in the New England market, and grew nationally. Although the fishing rates for the New England market exhibited a growth trend, the overall household participation rate for New England (22.4 percent) is still below the national rate (28.8 percent).

Interest in Wildlife and the Environment. The household participation rate (15.1 percent) for interest in the environment and wildlife in the New England markets was about the same rate as the national rate (15.5 percent). All New England metropolitan areas experienced either a stable or no-growth trend pattern. Only Burlington/Plattsburgh in the primary market area and Harrisburg and Syracuse in the secondary market area experienced growth. Hartford/New Haven and New York City actually experienced declining interest in wildlife and the environment. While metropolitan markets also do vary substantially, 10 of 20 metro areas had higher 2007 rates for interest in wildlife and the environment than the national rate.

Camping/Hiking Lifestyles. This activity displayed an overall growth pattern among most of the metropolitan markets reviewed here. The exceptions were Syracuse, New York City, and Cleveland, which all had stable rates. By 2007, Burlington/Plattsburgh (38.5 percent) and Portland/Auburn had rates that were 10 percent higher than the national and regional rates.

Hunting Lifestyles. Hunting probably had the most variability of any activity within the metropolitan areas examined. Bangor had a stable participation rate of 29.9 percent while New York City’s rate was only 7.3 percent; this disparity likely reflects the relative lack of available hunting areas around New York City compared to Bangor. Hunting participation rates were stable in the primary and secondary markets. Five metropolitan markets exhibited growth in hunting participation rates: Boston (9.0 percent), Portland/Auburn (21.8 percent), Providence/New Bedford (8.4 percent), Springfield (12.4 percent), and Harrisburg (23.9 percent). Hunting participation rates did not decline in any of the target market areas. Although hunting participation grew in four markets in the tertiary region (Washington, D.C.; Atlanta; Charlotte; and Raleigh/Durham), overall household participation rates in those markets in 2007 still remained below the national rate of 17.2 percent.

Table 3.—Outdoor activity participation rates for New England destination markets with trends for 1995-2007

Markets	Wildlife	Wildlife Trend	Camp/Hike	Camp/Hike Trend	Hunting	Hunting Trend	Fishing	Fishing Trend
1995 National Rates	16.4%		22.6%		15.4%		23.8%	
2001 National Rates	19.0%	S*	28.5%	G*	18.8%	G	31.1%	G*
2007 National Rates	15.4%		25.5%		17.2%		28.8%	
1995 All New England Markets	16.9%		17.0%		11.0%		17.3%	
2001 All New England Markets	18.5%		22.2%		13.3%		23.8%	
2007 All New England Markets	15.1%	NG*	19.9%	G*	12.4%	S*	22.4%	G*
Primary Markets 2007	17.1%	S	24.9%	G	12.7%	S	23.3%	G
Albany	19.4%	S	29.5%	G	17.5%	S	27.1%	G
Bangor	21.7%	S	29.2%	G	29.9%	S	38.7%	G
Boston	15.6%	NG	21.8%	G	9.0%	G	19.6%	G
Burlington/Plattsburgh	23.2%	G	38.5%	G	26.8%	S	34.3%	G
Hartford/New Haven	16.0%	D	21.6%	G	10.2%	S	21.5%	G
Portland/Auburn	21.5%	S	35.2%	G	21.8%	G	32.0%	G
Providence/New Bedford	14.9%	NG	19.7%	G	8.4%	G	21.1%	G
Springfield	17.9%	S	25.4%	G	12.4%	G	23.9%	G
Secondary Markets	14.7%	NG	16.5%	G	10.6%	S	20.1%	G
Harrisburg	17.3%	G	27.2%	G	23.9%	G	26.7%	G
Philadelphia	15.0%	NG	17.3%	G	11.2%	S	21.5%	G
Scranton-Wilkes Barre	18.2%	S	26.5%	G	27.4%	S	31.4%	S
Syracuse	19.4%	G	29.7%	S	19.7%	S	28.8%	G
New York City	13.8%	D	13.6%	S	7.3%	S	17.5%	G
Tertiary Markets	14.4%	S	21.2%	G	14.4%	G	24.7%	G
Baltimore	14.6%	NG	18.3%	G	11.5%	S	21.6%	G
Cleveland	14.8%	NG	23.2%	S	13.9%	S	25.0%	G
Pittsburgh	14.7%	NG	23.6%	G	12.9%	S	26.3%	G
Washington, DC	14.3%	NG	19.1%	G	12.3%	G	20.4%	G
Atlanta	13.8%	S	21.6%	G	13.8%	G	26.1%	SG
Charlotte	14.7%	S	23.5%	G	16.1%	G	29.3%	G
Raleigh/Durham	14.7%	S	19.7%	G	14.1%	G	28.3%	G

Key: SD = Strong Decline (>-2%/yr); D = Decline (>0 to -2%/yr); NG = No Growth (at or near 0%/yr); S = Stable (positive, but <2%/yr); G = Growth (2% to 4%/yr); SG = Strong Growth (>4%/ yr)

Fishing Lifestyles. Eighteen of the 20 metropolitan markets experienced growth trend patterns for fishing between 1995 and 2007. The only metro area among all regions examined that did not grow was Scranton/Wilkes Barre, PA. Rates for fishing also varied widely in the primary market. Rates in 2007 were highest in Bangor (38.7 percent) and Burlington (34.3 percent) and lowest in Boston (19.6 percent). In the secondary markets, Scranton-Wilkes Barre had the highest fishing participation rate (31.4 percent) and New York City had the lowest rate (17.5 percent). All of the tertiary markets exhibited growth trends for fishing. Charlotte had the highest participation rate in this area by 2007 (29.3 percent), but Atlanta experienced the strongest growth during the review period.

4.6 Fitness Lifestyle Market Activity by Geographic Markets (Table 4).

Between 1995 and 2007, fitness walking remained stable and fitness program participation grew across all three regions. The primary market participation rates for fitness walking (36.8 percent) and fitness programs (39.8 percent) were above the national rates of 34.2 percent and 38.3 percent, respectively.

Fitness Walking Lifestyle. Fitness walking participation rates grew in Portland/Bangor and Burlington/Plattsburgh while participation rates in the other primary markets remained stable. In the secondary markets, all metro areas remained stable. In the tertiary markets, Atlanta, Charlotte, and Raleigh/

Table 4.—Fitness and cultural/historic activity participation rates for New England destination markets with 1995-2007 trends

Markets	Fitness Walking	Fitness Walking Trend	Fitness/ Exercise	Fitness/ Exercise Trend	Cultural Activity	Cultural Activity Trend	History & Heritage	History & Heritage Trend
1995 National Rates	34.3%		34.0%		13.6%		4.9%	
2001 National Rates	36.9%	S*	41.6%	S*	19.4%	G*	7.4%	
2007 National Rates	34.2%		38.3%		16.9%		6.8%	SG*
1995 All New England Markets	34.6%		35.3%		15.6%		5.0%	
2001 All New England Markets	37.5%	S*	43.4%	S*	22.0%	SG*	7.6%	
2007 All New England Markets	37.2%		39.8%		19.3%		6.8%	G*
Primary Markets	36.8%	S	39.6%	G	18.7%	G	6.8%	G
Albany	36.7%	S	38.2%	G	18.0%	G	7.8%	G
Bangor	39.0%	S	35.1%	G	14.5%	SG	7.5%	SG
Boston	36.0%	S	40.8%	G	20.0%	G	6.5%	G
Burlington/Plattsburgh	38.6%	G	38.6%	G	16.8%	G	7.5%	SG
Hartford/New Haven	36.1%	S	39.9%	S	19.5%	G	6.5%	SG
Portland/Auburn	40.0%	G	38.1%	G	16.9%	SG	6.5%	G
Providence/New Bedford	37.2%	S	38.9%	S	17.4%	SG	6.2%	SG
Springfield	36.0%	S	39.3%	G	17.9%	G	6.4%	G
Secondary Markets 2007	34.0%	S	40.0%	G	20.0%	G	6.5%	G
Harrisburg	33.4%	S	40.1%	G	18.7%	G	7.2%	SG
Philadelphia	33.8%	S	37.3%	G	14.5%	G	7.9%	SG
Scranton-Wilkes Barre	35.8%	S	35.8%	G	12.9%	G	7.5%	SG
Syracuse	35.4%	S	38.3%	S	15.8%	S	7.1%	G
New York City	34.0%	S	40.6%	S	21.9%	G	6.0%	G
Tertiary Markets 2007	33.6%	S	39.8%	G	18.2%	G	7.1%	SG
Baltimore	32.3%	S	38.9%	G	18.9%	G	7.0%	G
Cleveland	33.9%	S	38.8%	S	15.9%	G	6.3%	G
Pittsburgh	35.2%	NG	38.7%	G	15.4%	S	6.8%	SG
Washington, DC	32.2%	S	41.8%	G	21.7%	G	7.8%	G
Atlanta	33.3%	G	39.5%	G	19.3%	SG	7.0%	SG
Charlotte	34.6%	G	38.4%	SG	14.6%	SG	7.4%	SG
Raleigh/Durham	35.1%	G	40.8%	G	18.2%	SG	7.1%	SG

Key: SD = Strong Decline (>-2%/yr); D = Decline (>0 to -2%/yr); NG = No Growth (at or near 0%/yr); S = Stable (positive, but <2%/yr); G = Growth (2% to 4%/yr); SG = Strong Growth (>4%/ yr)

Durham each grew, Pittsburgh experienced no growth, and the others remained stable.

Fitness/Exercise Program Lifestyle. The New England market had a higher fitness program participation rate (39.8 percent) than the national average (38.2 percent). The primary, secondary, and tertiary market areas all experienced growth in this activity while the national rate was stable. Across market areas, all fitness program participation rates grew except in Hartford/New Haven, Providence/New Bedford, Syracuse, New York City, and Cleveland which remained stable. In 2007, the highest participation rates in the primary, secondary, and

tertiary markets were in Boston (40.8 percent), New York City (40.6 percent), and Washington, D.C. (41.8 percent), respectively.

4.7 Cultural Activity and History/Heritage Interest Activity by Geographic Markets (Table 4).

For the period 1995-2007, nearly 17 percent of all U.S. households showed interest in cultural activities and 6.8 percent expressed interest in history and heritage. The rates in the New England overall market area (combined regions of primary, secondary, and tertiary) were higher for cultural activities (19.3percent) than the national rate (16.9 percent) and the rates for

interest in history and heritage were the same as the national rate (6.8 percent) by 2007. The national rates for interest in history and heritage experienced strong growth over this time while history/heritage interest grew (but less strongly) in the New England region.

Cultural Activity Lifestyles. In the primary, secondary, and tertiary markets, 2007 participation in cultural activities was highest in Boston (20 percent), New York City (21.9 percent), and Washington, D.C. (21.7 percent), respectively. In the primary markets, participation rates in Bangor, Portland/Auburn, and Providence/New Bedford grew more than 4 percent per year (strong growth). Growth extended across all metropolitan areas in the secondary and tertiary regions except Syracuse and Pittsburgh, which remained stable. Strong growth occurred in cultural activity interest and participation in the three southern tier cities (Atlanta, Charlotte, and Raleigh/Durham).

History and Heritage Interest Lifestyle. Growth occurred in both the primary and secondary regions for participation in history/heritage activities and strong growth occurred in the tertiary region. In the primary market, Bangor, Portland/Auburn, Hartford/New Haven, and Providence/New Bedford experienced strong growth trends for interest in history and heritage activities. In the secondary region, all metropolitan areas grew and Harrisburg, Philadelphia, and Scranton-Wilkes Barre experienced strong growth trend patterns. The 2007 rate was highest in Philadelphia (7.9 percent). In the tertiary markets, Pittsburgh, Atlanta, Charlotte and Raleigh/Durham experienced strong growth and the highest 2007 participation rate was in Washington, D.C. (7.8 percent).

5.0 DISCUSSION AND CONCLUSIONS

Earlier studies indicated that the New England travel markets rebounded in the mid- to late- 1990s. However, examining the markets of interest to New England destinations provides a more up-to-date review of travel and recreational activities in the late Y2K decade and the SRDS Lifestyle Market Analyst is an excellent source of secondary data about these markets. This research found that domestic travel

is relatively stable in the target markets examined. Vacation travel has rebounded in many metropolitan areas since 9/11 and has experienced some growth, but the growth is not as dramatic as suggested in previous research.

In this study, grouping New England's markets into primary, secondary, and tertiary areas provides new insights into how travel and activity patterns are changing. In addition, as the marketplace becomes more competitive, new markets evolve and some markets may become more or less important. The three southern tier market cities (Atlanta, Charlotte, and Raleigh/Durham) examined here are examples of currently changing market areas. Grouping and segmenting activities by geographic region also provide insights for potential market-targeting strategies and shows that metropolitan areas have varying travel and activity participation rates that grow or decline independently. This analysis also identifies the most active tourism markets and the most popular activities.

One limitation of the research is that the SRDS data link travelers from specific markets to specific activities but do not link actual participation in travel activities to specific destinations. That is, a certain percentage of New York City travelers may report participating in hunting, but this does not mean that the New York travelers necessarily participate in hunting while traveling. The link between activity participation and travel is only an association. Furthermore, the SRDS data provide only number of households and participation rates but do not address the frequency or intensity of participation; this omission continues to be a weakness of the dataset. Nonetheless, it is useful to know that New England-based travelers participate in selected recreation activities at levels well above the national average; this finding provides an important insight and suggests that these markets are robust.

One additional word of caution is needed when examining trend data. Rates of change over time were represented by a single number for each market area and each activity. Thus, one number represents

the overall trend pattern and may fail to depict micro-trends within the larger trend. For example, participation in an activity can grow for 7 of 10 years and then decline in the last 3 years. The average annual change rate may represent a positive growth trend, but the last 3 years may suggest interest in the activity has changed and declined. Future trend analysis may benefit from weighted year analysis with the most recent years contributing more than the more distant years.

Within recreation, travel, sport, and cultural activity markets, more insights were gained by examining the geographic markets where people live. People living in New England's potential market areas live in active households. This research examined both where they are likely to come from and the trend conditions within those markets over time. These markets are dynamic and some change dramatically over time. This monitoring of trends and activities by markets will continue to be necessary if New England is to maintain its status as a major tourism destination region.

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ECO-MEDICAL TOURISM: CAN IT BE SUSTAINABLE?

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Abstract.—Medical tourism has gained popularity over the past few years. While its roots may be found in the Neolithic and Bronze Ages with visits to mineral springs around the Mediterranean, current medical tourism is more likely to be driven by patients seeking less expensive medical procedures in eastern Europe, southeast Asia, and Latin America. This paper explores the role of medical tourism in Costa Rica, a country better known as a premier ecotourism destination. In this exploratory study, the question of sustainability is raised.

1.0 INTRODUCTION

An Associated Press poll in late 2007 found that the most important issues for American citizens were the economy and health care (Associated Press 2007). While healthcare has been usurped by increased concerns about the economy and has dropped to third in importance in more recent polls (ABC News/Washington Post 2008), health is tied to both economic and personal well-being concerns. Bargain hunters are now seeking less expensive yet high-quality medical care outside their home countries. For instance, it is estimated that as many as 500,000 Americans are seeking medical procedures overseas today (Rahim 2007). “The medical tourism industry, as it’s called, is only a few years old,” Rahim (2007) reports, “and most tourists make arrangements through special agencies or the foreign hospitals themselves. As a result, it’s hard to find reliable, independent information on foreign hospitals’ standards, doctors’ qualifications, or patients’ legal protection” (Rahim 2007). This paper explores the role of contemporary medical tourism in one Latin American country that has both an established ecotourism industry and highly

acclaimed medical services. Costa Rica is becoming a world-class medical center as more and more hospitals cater to foreigners seeking high quality treatment at an affordable cost.

The origins of medical tourism may be traced back thousands of years. Visitors have sought the medicinal values of mineral springs for millennia. Cultures in Asia and northern Africa have written records of bathing in mineral and thermal springs that date as far back as 4000 B.C. when the Sumerians built the earliest health spas. Artifacts from the Bronze Age (2000 B.C.) provide evidence of well established spas in present-day France and Germany (Healism 2008).

Health spas became popular in the United States during the 19th century. In the northeast, Saratoga Springs, NY, became a popular destination for people escaping the urban centers found along the coast. As early as the 14th century, the sacred springs of Saratoga were visited by indigenous Native Americans for their healing powers. In the late 1700s, Sir William Johnson was the first foreign visitor to the region (Saratoga Spa State Park 2008). The waters became popular for therapeutic consumption and even today are considered an upscale equivalent of European mineral water (Saratoga Spring Water 2008).

Contemporary medical tourism has roots in the need to go to a foreign country for services unavailable or unaffordable at home. Fertility treatments (English et al. 2001) and faith healing (Baldoria and Osana 2007) are still popularly sought treatments. But today people are more likely to be seeking affordable health care in a world where the industry has become a \$3-trillion enterprise (Economist 2007). Further, even in the affluent United States, some 46 million citizens are uninsured (Alsever 2006), making the 40- to 80- percent savings on medical procedures abroad even more attractive. Burkhart and Gentry (2008) estimate that medical tourism could become a \$40 billion industry as soon as 2010, while Hansen (2008)

suggests that in less than two decades, medical tourism could be a \$190 billion industry in India alone.

Beyond the economic reasons, there are other benefits of overseas medical care. According to Forbes (Oxford Analytica 2006), high quality treatment, more personalized care, and the availability of procedures not yet approved by the U.S. Food and Drug Administration are influential factors. The chief advocate for the elderly, the AARP, adds that the convenience of a short waiting time to see a doctor is another possible benefit of overseas medical care (Mecir and Greider 2007).

Typically, American vacationers will find significantly substandard health care facilities abroad. In some countries it is best to evacuate back home for emergency medical care. In other countries, the lax regulation of prescription drugs allows visitors to self-medicate and address some immediate health concerns. For example, in Costa Rica it is possible to ask for some *medicina de la tos* at a *farmacia* and receive codeine (Fig. 1). The U.S. Department of State (2007) provides a formal assessment of health care in Costa Rica with this note of caution: "Medical care in San Jose is adequate, but is limited in areas outside of San Jose. Most prescription and over-the-counter medications are available throughout Costa Rica." By contrast, in a guide to living in Costa Rica, Borner (2001) recounts that her husband suffered a heart attack while on vacation in Costa Rica and received superior local medical care.

Yet, it would be naive to believe that only Western citizens are seeking medical treatment abroad. At the Annual Health Tourism Congress, held in Spain in April 2008, 40 percent of the attendees were from Arab countries, including Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Bahrain, and Oman (Health Tourism Congress 2008).

The next section of the paper summarizes the current state of eco-medical tourism in Costa Rica, where the ecotourism industry is well established and extensive. A Certification in Sustainable Tourism (CST) program is sponsored by the Costa Rican Tourism



Figure 1.—Farmacia in La Fortuna, Costa Rica (Source: Author, 2005).

Institute to distinguish tourism businesses based on a sustainable model of natural, cultural, and social resource management. The medical equivalent to this accreditation is the Joint Commission International (JCI). The appropriateness of both accreditations for eco-medical tourism will be explored.

2.0 METHODS

A comprehensive review of eco-medical opportunities in Costa Rica was undertaken using primary sources, the Internet, and the popular press in the country. A review of business-to-business and business-to-consumer organizations was tabulated. This database provides an overview of the existing eco-medical tourism in a country best known as an ecotourism destination.

Located between Panama and Nicaragua, Costa Rica enjoys a relatively high standard of living. The average per capita income is US\$5,000 a year, and the adult literacy rate is 95 percent (United Nations Statistics Division 2008). These statistics exceed those of neighboring Latin American countries.

For the well established ecotourism industry, Costa Rica has an extensive national park system that protects natural areas along the coasts and in the interior mountains. Currently there are 20 national parks, 8 biological reserves and monuments,

27 protected forest areas, and 9 wildlife refuges. Collectively these lands represent 25 percent of the country, a larger percentage than any other country on Earth. For many, this small country is exactly what the International Ecotourism Society means by its definition of ecotourism: “responsible travel to natural areas that conserves the environment and improves the well-being of local people” (International Ecotourism Society 2008).

How can we be sure that natural resources are protected and that the industry is sustainable? One way is to have an independent body evaluate the practices of the industry. The Costa Rican Tourist Board’s CST emphasizes the need to: evaluate physical and biological interactions; assess management policies and operational systems for infrastructure and service; review management practices to encourage clients’ participation in sustainable actions; and evaluate the companies’ socio-economic interaction with local citizens and businesses. These four areas cover the sources of potential positive and negative impacts generated by Costa Rica hotels (Instituto Costarricense de Turismo 2008).

Costa Rica also has a comprehensive healthcare system. Foreign eco-medical tourists are attracted to the high-quality healthcare opportunities and extremely competitive pricing. American or western European eco-medical tourists may be able to save 40 to 90 percent of the cost of having the same procedures in their home countries. The extensive eco-tourism industry in Costa Rica addresses the needs of recovering patients and can provide a variety of traditional ecotourism experiences. For example, every week, the White House Hotel, Restaurant, Casino and Medical Spa advertises in the Tico Times (e.g., Tico Times, Feb. 29, 2008, p. 9), Central America’s most popular English language newspaper; the spa’s thriving eco-medical business caters to visitors seeking hormone replacement and age management treatments.

For this investigation, we use a definition of eco-medical tourism suggested by the U.S. Senate: “the practice of patients seeking lower cost health care

procedures abroad - often packaged with travel and sightseeing excursions” (Smith 2006). As with ecotourism, an independent organization can evaluate the eco-medical tourism industry.

The medical equivalent of the CST is the JCI, a nonprofit arm of the Joint Commission that accredits some 15,000 hospitals in the United States. Based in Illinois, the JCI assures that medical standards are met at overseas facilities as they are in the U.S., but it also ensures that all medical facilities converse in the same language. This latter point is important since common language is meant to ensure safety and consistency among all providers (JCI 2008).

In the evaluation of overseas eco-medical facilities, one important question is whether it is possible to link sustainable ecotourism practices with sustainable practices of medical tourism. Are the two accreditations even compatible? The next section will delve into these questions and attempt to find common ground.

3.0 RESULTS

If the medical tourism industry continues to grow, and all statistics point to this future, two questions of sustainability need to be addressed: 1) Can local people living near eco-medical facilities get needed medical care? and 2) How are medical wastes being handled? This section of the paper will explore these questions.

The growth of medical tourism is so dramatic in many countries that local citizens are unable to get adequate health care. For example, Thailand has an extensive medical tourism industry, and many of the country’s doctors prefer to work for private hospitals, where they can earn a week’s salary in 1 day compared to the wages offered at public facilities (Hamilton 2007). In this case and others like it, public or nationalized healthcare provides equal access to free or low-cost medical care, yet the market allows more affluent citizens to pay extra for better and/or faster services than are available under the managed system. It is simply a case of supply and demand.

In Costa Rica, local citizens have access to medical care, at least at Latin American standards. Table 1 provides a summary of the spending on public health services (estimated per person in U.S. dollars) and the percent of public spending on healthcare in nine Latin American countries in 2001. It appears that Costa Rica is at least comparable to other countries in the region. By comparison, the United States spends \$2,217 per person on health care, has a population of more than 300 million, and spends 6.2 percent of its gross domestic product on health.

Second, environmental concerns need to be addressed. Medical waste is a worldwide problem. Simply defined, medical waste includes used needles, soiled dressings, blood, body parts, chemicals, pharmaceuticals, expired medicines, scalpels, medical devices, and radioactive materials. According to the World Health Organization (WHO), approximately 20 percent of the waste generated from health care facilities is hazardous. Hazardous materials could be infectious, toxic, or radioactive (WHO 2007).

Medical waste is a serious concern in Costa Rica. Hospitals in San Jose alone produce 17 tons of waste a day and about 25 percent of it is classified as biohazardous. These materials are disposed of in bright red plastic bags. The contents pose a health and safety risk to scavengers who comb landfills to gather items for recycling or financial reward in colónes, Costa Rica's currency (Rogers 2007).

4.0 DISCUSSION AND CONCLUSIONS

The two industries, ecotourism on one hand and medical tourism on the other, have quite dissimilar motivations, yet can reap the benefits of collaboration. Ecotourism has a fairly long history in Costa Rica. Medical tourism is a more recent phenomenon. What remains unanswered in this report is how to link the two. One might argue that linking the accreditation process may help. The challenge is large, since medical accreditation has the distinct motivation to consider the patient first and foremost, much akin to the way traditional tourism caters to tourists. If service is important to the patient, and it is certainly important, how can industry cater to the interests of the local people since this extra service comes at a cost? Since Costa Rica citizens spend approximately 8.6 percent of their per capita income on health care and Americans spend only 5.8 percent, it might appear that the eco-medical tourist can afford to pay extra for the additional service at a foreign destination. Differences in the exchange rates will also contribute to the disparity.

The Costa Rican healthcare industry should continue to seek JCI accreditation, which would enhance the likelihood of insurance companies' sponsoring medical procedures in Costa Rica. The Hospital Clínica Bíblica in San Jose is Costa Rica's first hospital to gain JCI accreditation (see Fig. 2). The hospital has 120 beds and employs more than 400 doctors. Two other Costa Rican hospitals are being reviewed for accreditation: CIMA Hospital (Escazú) and Católica Hospital (Guadalupe).

Table 1.—Comparison of Latin American countries' expenditures on health care

Country	Per person health care expenditures (US\$)	Population (Millions)	Percent GDP spent on health care
Cuba	326	11.30	6.2
Suriname	376	0.40	5.7
Argentina	555	38.00	5.1
Uruguay	399	3.40	5.1
Costa Rica	433	4.10	4.9
Panama	296	3.10	4.8
Barbados	657	0.30	4.3
Dominica	243	0.10	4.3
Guyana	179	0.80	4.2

Source: World Mapper 2008



Figure 2.—Hospital Clínica Bíblica in San Jose, round top building, upper left of photo (Source: Author, 2005).

It appears that medical tourism in our global economy is here to stay. A Google search for “medical tourism Costa Rica” in May of 2008 found nearly 303,000 sites, 100,000 more than were available only 2 months earlier. Clearly, this is a growing field in both Costa Rica and the world.

What obstacles remain? One obvious concern is the legal uncertainty regarding medical tourism. What rights do patients have? Since there is no current international legal regulation of medical tourism, what options are left to a patient who may suffer needlessly (Mirrer-Singer 2007)?

It makes sense that the Costa Rican government should be the chief advocate for developing the country as an eco-medical destination. This step would ensure that local citizens benefit from the influx of eco-medical tourists by taxing the revenue received from foreign currency. The government could also link the CST and JCI accreditations to provide a sustainable approach

to eco-medical tourism in a country widely known for its natural attractions and excellent health care opportunities. The term “eco-medical tourism” could then in practice live up to the definition offered by the International Ecotourism Society (1990).

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BRIDGING AN INTERDISCIPLINARY GAP: A CASE FOR UNITING TOURISM AND URBAN PLANNING FOR A CONSISTENT UNDERSTANDING OF THE “URBAN TOURIST BUBBLE”

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Abstract.—Both tourism researchers and urban planners use the term “tourist bubble” to describe a geographic area in a destination within which visitors operate. However, there is an interdisciplinary disparity in the conceptualization of the tourist bubble. This paper aims to more clearly describe the intersection of tourism and urban planning research, as well as to illuminate semantic similarities and differences between the two disciplines. A new methodology was developed for identifying and mapping the urban tourist bubble through structured interviews with individuals representing the tourism and urban planning professions. Understanding the urban tourist bubble is important because individuals representing both of these professions influence policy decisions that affect the urban experience of visitors as well as residents.

1.0 INTRODUCTION

In the influential urban planning book, *The Tourist City*, Judd and Fainstein (1999) acknowledged the role of tourism in shaping the spatial form of cities. Urban tourism activity can be either integrated into the urban fabric or confined to distinct urban tourist zones. These geographic areas, which are planned and managed for tourists, have been described by such terms as “tourist bubbles” (Judd and Fainstein 1999), “tourist districts” (Pearce 1998), and “urban tourism

precincts” (Hayllar et al. 2008). Research on tourist zones appears in the literature of two distinct fields of study, tourism and urban planning, neither of which has measured the spatiality of tourism behavior in an urban context. Despite similarities in semantics, tourism and urban planning scholars have not collaborated much. In professional practice as well, there is little overlap between tourism professionals, whose primary responsibility is promoting the place, and urban planners, who often focus on developing the place product.

This paper defines the construct of the tourist bubble, compares the applications of this construct in tourism and urban planning literature, describes a new technique for measuring the tourist bubble in an urban context, and addresses opportunities for research on the urban tourist bubble.

2.0 DEFINING THE TOURIST BUBBLE

In tourism and urban planning literature, the tourist bubble has several consistent characteristics. The bubble comprises a concentrated geographic area of tourist-oriented facilities and attractions, which is separated from its surrounding environment by spatially or psychologically created boundaries. The classic example of a spatial boundary is a cruise ship, but spatial boundaries exist on land as well—for instance, a gated resort complex such as Club Med or Sandals. Psychological boundaries are created by cautionary messages directed toward those tourists who express interest in venturing beyond the tourist bubble. Some of the psychological boundaries are put in place by the operators as a means to keep profit from seeping out of the bubble. Others are created to prevent visitors from venturing into unsafe areas.

Within the bubble, tourists have limited interaction with local residents, since the boundaries serve to keep tourists in and residents out. In some cases,

residents are prohibited from entering the tourist bubble, as documented by Carrier and Macleod (2005) in their paper on a resort in the Dominican Republic. Additionally, since the facilities within a tourist bubble are oriented toward tourists, local residents may find little reason to spend time inside the bubble.

The first appearance of the word “bubble” in the tourism literature was in Cohen’s (1972) seminal piece on tourist typologies. In the context of mass tourism, Cohen described the “environmental bubble” as a familiar, comfortable microenvironment within a novel, foreign macroenvironment. Cohen’s environmental bubble was based on Boorstin’s (1961) early work on images and the “pseudo-event,” which is planned and lacks spontaneity. Weaver (2005) defined environmental bubbles as “enclosed spaces that shield tourists from potentially unpleasant experiences...[and that are] operated for the exclusive use of tourists” (p. 169). In these as well as other applications of the environmental bubble, the key characteristic is *familiarity*. Examples of environmental bubbles include resort complexes, theme parks, tour buses, and cruise ships.

2.1 Applications of the Tourist Bubble in the Tourism Literature

The term *tourist bubble* was derived from this conceptualization of an “environmental bubble.” Early references to a “bubble” in the context of tourism appeared in two chapters of the seminal anthology, *Hosts and Guests: The Anthropology of Tourism* (Graburn 1989, Smith 1977). Describing the bubble from the perspective of the tourist experience, Smith (1977) explained this experience as “being physically ‘in’ a foreign culture while socially ‘outside’ the culture” (p. 6).

Graburn (1989) described a hierarchy of prestige for travel experiences, with distant, exotic, or rugged travel being more prestigious than safe, package travel. Graburn emphasized the importance of familiarity to tourists who elect this second type of “lower-status” travel experience, described as “the tourism of the

timid,” for tourists who “carry the home-grown ‘bubble’ of their lifestyle around with them” (p. 35). Graburn noted that these tourists “worship ‘plumbing that works’ and ‘safe’ water and food” (p. 35).

After these early references in *Hosts and Guests*, applications of the tourist bubble in the tourism literature were absent until the present decade, when Jacobsen (2003) examined the relevance of the tourist bubble in the context of inter-European travel. Jacobsen defined the tourist bubble as “a territorial and functional differentiation and an expectation of [European] holidaymakers going abroad” (p. 71). The primary expectation of these tourists was a sense of familiarity in terms of food, lodging, and language.

Jaakson (2004) developed a method for measuring the tourist bubble in a Mexican cruise ship port-of-call, but applications of this technique are limited to destinations with predictable tourist flows. Carrier and Macleod (2005) applied the tourist bubble to an all-inclusive resort in the Dominican Republic. This bubble was spatial; tourists could visit local villages, but local residents were not permitted on the resort property. The authors also described a psychological tourist bubble where supposed “eco-tourists” were unaware of the measures that had been taken to create their resort—namely, that the construction of the resort displaced an entire village and kept local residents from reaching the beach.

Other concepts that are similar to the tourist bubble are: tourist districts (Pearce 1998), tourism precincts (Hayllar et al. 2008), tourism enclaves (Davis and Morais 2004, Edensor 1998, Freitag 1994), spaces of containment (Weaver 2005), and total institutions (Weaver 2005), a sociological term coined by Goffman (1961) to describe environments where the behavior of individuals is manipulated or constrained. The last two terms have been applied to cruise ships, which, according to Weaver, are built for the purpose of revenue containment. Cruise ship passengers are provided with everything they need so that all of their money is spent onboard.

Most examples of the tourist bubble in the tourism literature pertain to resorts, cruise ships, and cruise ship ports-of-call. Some tourism scholars have addressed the spatial composition of urban environments, such as Pearce's (1998) analysis of Paris' tourist districts. These conceptualizations of urban tourist spaces, however, do not include defining such traits of the tourist bubble as familiarity and low levels of interaction between tourists and residents. Examples of urban tourist bubbles include Baltimore's Inner Harbor and the Las Vegas Strip.

2.2 Applications of the Tourist Bubble in the Urban Planning Literature

Judd (1999) introduced the tourist bubble to the urban planning literature in *The Tourist City*. In this and other urban planning texts, the treatment of the urban tourist bubble was purely descriptive, focusing on the construction of the urban tourist bubble as a strategy for urban revitalization. Frieden and Sagalyn (1989) used the term "mayor's 'trophy collection'" (p. 259) to describe the checklist-style ensemble of attractions that cities amass to increase their attractiveness to visitors and (current and potential) residents. Judd (1999) related this "trophy collection" to the development of the urban tourist bubble, noting that urban tourist bubbles are standardized and contain identical attractive components, including a convention center, atrium hotel, shopping mall, new office towers, and restored historic neighborhoods. As a result of suburbanization and deindustrialization, cities were in need of alternate economic development strategies. Many turned to tourism, hoping to construct the ideal product mix to attract conventions, meetings, and leisure travelers to the urban core.

The result of this formulaic urban development can be what Harvey (1989) termed a "zero-sum" game. When every city has the same "trophy collection" of attributes, cities lose their ability to position themselves effectively and uniquely against other urban destinations, creating difficulties for tourism professionals who are charged with the task of positioning the city as a distinctive place. In addition, the urban tourism experience is devalued, since visitors to these big-box tourist spaces often have a

sense that they are in "Anywhere, U.S.A.," rather than a unique destination. Allowing visitors to venture outside the bubble or enabling elements of a destination's unique culture to seep in may facilitate differentiation. Interestingly, however, there is scant discussion of differentiation strategies in the urban planning literature on the urban tourist bubble.

Similar to the conceptualization of the tourist bubble in the tourism literature, urban planners' conceptualization of the urban tourist bubble also provides a sense of familiarity to tourists. Judd (1999) compared the urban tourist bubble to a theme park, which provides "entertainment and excitement, with reassuringly clean surroundings" (p. 39). In fact, themed spaces, such as shopping malls and festival marketplaces, are characteristic of the urban tourist bubble.

3.0 NEW METHODOLOGY FOR MAPPING THE TOURIST BUBBLE

While both tourism and urban planning professions have addressed the construct of the urban tourist bubble, they have not collaborated to come to a better understanding of the concept. Currently, urban planners view the tourist bubble in terms of its structural components, while tourism researchers focus on visitor behavior within and around the tourist bubble. Understanding the urban tourist bubble is important because individuals representing both of these professions influence policy decisions that affect the urban experiences of visitors as well as residents.

In fact, the study of *urban* tourism in general has been overlooked by both tourism scholars and urban planning researchers. Ashworth (2003) describes the absence of urban tourism research as a "double neglect," whereby "those studying tourism neglected cities while those studying cities neglected tourism" (p. 143). Much of the existing urban tourism research is case study research, which has been criticized for its inability to contribute to a greater theoretical understanding of the urban tourism phenomenon (Page 1999). As recently as 2004, Selby commented that "urban tourism has been severely neglected as an

area of academic research” (p. 31). The urban tourist bubble is a topic that is addressed by both fields of study and, therefore, provides an opportunity for interdisciplinary research.

Our recent study resulted in the development of a new methodology for mapping the tourist bubble. Data on perceptions of an urban tourist bubble, defined as a distinct geographic area planned and managed for tourists, were collected from tourism professionals and urban planning professionals to assess the differences between these two areas of research and practice. This study proposed a new methodology for mapping the urban tourist bubble based on respondents’ perceptions of the most-visited tourist attractions in downtown Raleigh, NC, as well as perceptions of the perimeter of downtown. This new measurement technique advances the literatures of both the tourism and urban planning fields and highlights the similarities and differences between tourism and urban planning professionals. Downtown Raleigh was chosen as the study site because it is undergoing significant urban revitalization efforts, including the construction of a new convention center, which opened in Fall 2008. Structured personal interviews were conducted with tourism professionals and urban planners to better understand these two stakeholder groups’ perceptions of the urban tourist bubble in downtown Raleigh.

Overall, 68 interviews were conducted, each lasting 10 to 20 minutes. The interview protocol consisted of three sections. The first section included background questions about employment experience and place of residence. The second section asked respondents about their perceptions of the most-visited attractions, places, restaurants, and accommodations in downtown Raleigh. The final section was a checklist task. It listed 21 well known places, selected because of their location near the perimeter of downtown Raleigh’s business improvement district. Respondents were asked to indicate whether they considered each place on the list to be in downtown Raleigh by responding with “yes,” “no,” “maybe,” or “I don’t know.” In

general, the urban planning professionals were more likely to adhere to the downtown Raleigh business improvement district boundaries when deciding whether a place was considered to be downtown. A geographic information system was used to map the data. These maps delineate similarities and differences between the two professional groups’ perceptions of the urban tourist bubble. In general, maps can serve as a *lingua franca* to effectively communicate research findings across professions and disciplines, thus avoiding one of the major pitfalls of interdisciplinary research.

4.0 RESEARCH OPPORTUNITIES

This research is a first step in bridging the gap between the tourism and urban planning professions, in terms of developing a more comprehensive understanding of downtown Raleigh’s urban tourist bubble. Several research opportunities have been identified along the way. First, the technique could be replicated in other destinations to identify perceived boundaries of “town squares” and the downtowns of small cities. Comparing the perceptions of two urban development stakeholder groups would have implications for local government policy and future development plans.

In addition, the technique could be validated by comparing results to actual visitor traffic patterns in Raleigh, using data collected from mobile telephone tracking technology (McKercher and Lau 2007) or radio frequency identification (Oztaysi et al. 2007). McKercher and Lau, however, discovered that visitors were reluctant to accept such devices. Therefore, more research is needed to determine the best practices for persuading visitors to accept high-tech devices for data collection purposes.

Finally, it would be valuable to both the tourism and urban planning professions to understand visitors’ perceptions of a destination’s urban tourist bubble, perhaps through intercept surveys targeting urban tourists.

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***CAMPUS RECREATION AND
OUTDOOR RECREATION***

SENSE OF PLACE IN OUTDOOR-PURSUIITS TRIP GROUPS

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Abstract.—Studies have revealed that sense of community and group cohesion increase significantly over time in outdoor-pursuits trip groups. This study sought to understand similar development of sense of place. Do people simultaneously become more attached to or dependent on the natural environment as they grow closer to each other? Results from a study of college students participating in a 13-day Outdoor Education Practicum course in the Adirondacks (New York) indicate that sense of place is not significantly correlated to sense of community or group cohesion. Sense of place scores remained relatively high across a 2-week course, but did not significantly increase over time. However, beginners had significantly lower scores than intermediates and those with advanced skills on Day 11; no differences were detected among levels of development (e.g., skill, experience, commitment) by Day 13. Perhaps the course was not long enough to cause a significant change. Alternatively, placing as much emphasis on developing an attachment to the natural world as on building a sense of community might influence similar growth in sense of place.

1.0 INTRODUCTION

In the mid-1990s, McAvoy et al. (1996) noted only a small number of studies had focused on outdoor groups from a group dynamics perspective, and those that did utilized samples from the general population or corporate training groups on challenge courses. Since then, research has increasingly addressed group dynamics in outdoor education or recreation contexts. Programs have focused on outcomes at many levels, from personal (e.g., increased self-confidence) to group (e.g., enhanced problem-solving skills, accomplishment of common goals and objectives, development of positive group experiences and interpersonal relationships) to environmental (e.g., appreciation of the natural environment) (Ewert and McAvoy 2000, Martin et al. 2006).

1.1 Sense of Community and Group Cohesion

Experiences in outdoor-pursuits trip groups have also led to enhanced sense of community among group members (Mitten 1999). Sense of community was initially operationalized as an objective, geographical construct determined by physical proximity to others, such as in a town or neighborhood (Lyons and Dionigi 2007). However, Sarason (1974) shifted sense of community beyond physical location to emphasize subjective psychological feelings of belongingness and connection with others. McMillan and Chavis (1986) proposed a theoretical framework for sense of community characterized by four elements: (1) sharing an awareness of group membership or identity; (2) integrating and fulfilling individual and group needs; (3) being emotionally connected; and (4) influencing each other. Part of the transactional process of the fourth element includes validating individual perceptions of the world while simultaneously affecting how members as a whole group interpret their surroundings.

Group cohesion, defined as a sense of belonging, attraction, and unity that a group has toward its members (Wilson 2002), has been found to influence the creation of community, and vice versa (McMillan and Chavis 1986). Glass and Benshoff (2002) found that group cohesion increased among adolescents as a result of participation in challenge courses. Beyond outdoor recreation, research has shown that cohesive groups perform better than noncohesive groups (Evans and Dion 1991, Mullen and Copper 1994).

In an ongoing series of studies, Todd et al. (2007) examined psychological sense of community and group cohesion in university outdoor-pursuits programs. Although both dependent variables increased significantly over time, the rate and pattern of increase varied by trip group. In follow-up focus groups, Breunig and her colleagues (2007) discovered that factors such as level of challenge, appropriate debriefing of experiences, weather, and a sense of “getting away from it all” contributed to positive feelings of community. Factors such as the short length of the outdoor-pursuits trip experience, perceptions of ineffective processing, and being too focused on goals (such as canoeing a specific number of miles per day) detracted from building community.

1.2 Leadership Style, Sense of Community, and Group Cohesion

Sharpe (2005) suggested that trip leaders are intimately involved in facilitating sense of community in integrated wilderness trip groups. She found that participants positively viewed sense of community upon completion of a trip, with program design elements and implementation of integration strategies influencing feelings of community. Since the trip leader is in a unique position to influence group members, O’Connell and others (2008) explored the effects of leadership style on sense of community and group cohesion in outdoor-pursuits trip groups using Hersey et al.’s (1996) Situational Leadership Theory. This model suggests that leadership style is based on concern for either the task or relationship function of the group.

O’Connell et al. (2008) measured trip leaders’ preferred styles of leadership plus their effectiveness in choosing appropriate leadership styles (telling, selling, participating, or delegating) for various situations based on the followers’ maturity, willingness, and readiness. Supporting the focus group findings mentioned above (Breunig et al. 2007), a main effect for leadership style was found for sense of community. Groups having a leader with a preferred selling style (high task/high relationship) recorded lower mean scores for sense of community than did groups with either a participating-style leader (high relationship/low task) or a leader preferring a combination of both styles. Although no interaction between leadership style and time resulted, gains in sense of community and group cohesion seemed to be greatest for groups with participating-style leaders and lowest for groups with selling-style leaders. When gains in sense of community and group cohesion were compared to leadership effectiveness scores, there were no significant correlations. Thus, the change in the dependent variables was not related to the leader’s relative ability to adapt his or her style to the one most appropriate and effective for the situation.

1.3 Sense of Place

Previous discussions of group outcomes, formation of community, and consideration of the situation in terms of choosing leadership styles all alluded to a common factor: the role the environment plays. An underlying assumption held by outdoor educators is that natural environments enhance the achievement of program outcomes. In particular, backcountry or wilderness settings are usually chosen for outdoor-pursuits trip group programs. According to many outdoor educators, stripping away distractions and forcing the group to focus on basic outdoor living and travel skills best facilitates outcomes such as sense of community, group cohesion, and personal development. Would these environments likewise enhance sense of place?

Scholars have defined “sense of place” as emotional and symbolic attachments between an individual and a particular place (Williams et al. 1992). Sense of place

is often characterized in terms of “place dependence,” or functional attachment to an environment, and “place identity,” or emotional attachment to a site (Williams and Vaske 2003). Studies have established relationships between sense of place and many other variables, including management preferences and user behavior (e.g., Bricker and Kerstetter 2000), leisure satisfaction and demand (e.g., Wickham and Graefe 2002), and activity involvement (Moore and Graefe 1994, Kyle et al. 2003).

2.0 PURPOSE OF THE STUDY

In this study, we examined the development of sense of place in outdoor-pursuits trip groups, specifically, whether participants simultaneously become more attached to or dependent upon the natural environment as they grow closer to each other and build a sense of community. Three objectives were pursued: 1) to investigate the association of sense of place and sense of community/group cohesion in outdoor-pursuits trip groups; 2) to examine the development of sense of place over time in these trip groups; and 3) to examine the effects of level of development (e.g., skills, experience, and commitment) on sense of place among outdoor-pursuits trip groups over time.

3.0 METHODS

3.1 Treatment

Participants were primarily sophomores and juniors from a 4-year comprehensive college in upstate New York enrolled in a 13-day Outdoor Education Practicum course during the summer of 2007. Required of all recreation majors regardless of specialty (outdoor, therapeutic, management, or general recreation), the course focused not only on teaching outdoor living skills, but also on building a sense of community, both as a larger centralized camp and in smaller decentralized trip groups. To achieve these goals, students spent 7 days in a residential camp-like outdoor education center and 6 days on a wilderness canoe trip in New York’s Adirondack Park.

Fifty-four students were assigned to one of seven trip groups designed to be as similar as possible. Various factors were balanced among the groups, such as

gender, certifications (e.g., First Aid, Wilderness First Responder, Lifeguard), personalities (e.g., extroverts and introverts), medical issues, experience, and skill level. Students who were already good friends were intentionally separated, resulting in trip groups that contained five to seven students who were initially acquaintances. One student staff person who had previously taken the course, and one senior staff, recruited for his or her experience and expertise in leading outdoor pursuits trip groups and/or camps, were also assigned to each group. The majority of senior staff members had been involved in the course for 10 to 30 years, were well trained, and were comfortably familiar with the course structure, its objectives, and their expected roles.

Group membership was assigned on the evening of Day 3 of the course. The group members met frequently over the next 2 days to review their assigned trip routes, plan their equipment and food needs, set group and personal goals, and work together to practice their technical skills, as well as their problem-solving and communication skills. On the morning of Day 6, the groups embarked on their 6-day canoe trip, returning to the base camp on the morning of Day 11 for 2 days of debriefing as a larger centralized camp.

3.2 Instrumentation

All student staff members and students enrolled in the course ($n = 54$) were asked to complete questionnaires three times during the course to assess changes in sense of community, group cohesion, and sense of place in their trip groups: on the first night that trip groups were formed (Day 3); on the first night the trip groups returned to base camp (Day 11); and on the last morning of the course (Day 13). Instruments were administered by senior staff members during trip group meetings on Days 3 and 11 and by the course director on Day 13. Each set of questionnaires contained the Perceived Sense of Community Scale (Bishop et al. 1997), Group Cohesion Evaluation Questionnaire (Glass and Benshoff 2002), Sense of Place Scale (Smith 2002), and supplemental questions (e.g., demographics and level of development).

According to Halamova (2001), the Perceived Sense of Community Scale (PSCS) is one of few scales available that measure psychological sense of community regardless of group context. The PSCS consists of 30 items measured on a 5-point scale, ranging from 1 (not at all true) to 5 (completely true). The 30 items can subsequently be broken down into three subscales: Mission, composed of 12 items revolving around group goals and responsibilities (e.g., “There is a sense of common purpose in this group”); Reciprocal Responsibility, with 12 items reflecting how group members look out for and depend on each other (e.g., “Members know they can get help from the group if they need it”); and Harmony, composed of six reverse-coded items centered on a theme of how well group members get along with each other (e.g., “Some people feel like outsiders at meetings”). Testing extensively through factor analysis and multiple regression analyses, Bishop et al. (1997) established acceptable reliability and validity for the total scale and all three subscales. Results of the current study confirmed the high reliability, with Cronbach’s alphas registering .96 for the overall scale, .93 for the Mission subscale, and .96 for Reciprocal Responsibility. In this particular study, however, the Harmony subscale’s reliability was calculated at a much lower level of acceptability at 0.59.

Originally designed for use in challenge course research, the Group Cohesion Evaluation Questionnaire (GCEQ) (Glass and Benshoff 2002) consisted of nine items measured on a 4-point Likert scale (1 = not at all like me/my group, 2 = a little like me/my group, 3 = a lot like me/my group, and 4 = exactly like me/my group). Glass and Benshoff (2002) verified the reliability of the 9-item scale, which held true in the current study (Cronbach’s alpha = .96).

The Sense of Place Scale consisted of six items using “the Adirondacks” as the place, each measured on a 4-point scale ranging from 1 (strongly disagree) to 4 (strongly agree). Three items reflected place identity or emotional attachment to the Adirondacks, while the other three assessed place dependence or functional attachment to the park. One place-dependence item

(“The things I do in the Adirondacks I would enjoy just as much in another place”) was reverse coded, but the scale’s reliability increased significantly when this statement was deleted. The resulting 5-item scale posted Cronbach’s alphas of .87 on Day 3, .94 on Day 11, and .95 on Day 13, demonstrating very high internal consistency and stability.

Level of development was operationalized using Todd’s (1997) single-item self-assessment: “How would you characterize your current stage of development as an outdoor-pursuits recreationist (which includes activities such as backpacking, canoe tripping, rock climbing, whitewater paddling, etc.)? 1 = beginner, 2 = intermediate, 3 = advanced, 4 = expert, or 5 = ‘post-expert’ – not the expert I once was.” This item accurately reflects corresponding measures of skill, experience, participation, knowledge, commitment, amateur/professional status, and equipment owned. Specifically, each factor significantly increases with level of development from beginner to expert, with post-experts dropping back to the level of a previous stage in a curvilinear fashion (Todd 1997).

4.0 RESULTS

4.1 Participant Profile

Of the 54 students eligible to participate in the study, 51 consented (94-percent response rate). Sixty percent were female, and ages ranged from 19 to 52, with an average age of 23. A third of the respondents classified themselves as beginners ($n=17$), a quarter were advanced ($n=12$), and the remaining students marked themselves as intermediates ($n=21$ or 42 percent).

4.2 Dependent Variables

Verifying previous studies, dependent t-tests revealed that mean scores for overall sense of community and two of the three subscales (mission and reciprocal responsibility) all significantly increased from Day 3 to Day 11, Day 11 to Day 13, and Day 3 to Day 13. Mean scores for the subscale harmony did not differ significantly over time. For group cohesion, scores significantly increased from Day 11 to Day 13 and

from Day 3 to Day 13. Like the harmony subscale, sense of place remained relatively high (approximately 3.00 on a 4-point scale) with little change over the three testings (Table 1). Of the five items, the three measuring place identity were consistently rated highest (“The Adirondacks mean a lot to me,” “I would prefer to spend more time in the Adirondacks if I could,” and “Being in the Adirondacks is an important part of my life”), followed by the two place-dependence items (“The Adirondacks are the best place to do the activities I like to do” and “I get more satisfaction out of visiting the Adirondacks than from visiting any other place”).

4.3 Sense of Community/Group Cohesion and Sense of Place

Pearson product moment correlations showed that sense of place was not significantly associated with sense of community or group cohesion, with one exception: Sense of place was moderately positively correlated to the harmony subscale on Day 13 ($r = .37, p < .01$). Upon further analysis, only the three place-identity items were significantly correlated to the harmony subscale on Day 13: “The Adirondacks mean a lot to me” ($r = .35, p < .01$), “I would prefer to spend more time in the Adirondacks if I could” ($r = .39, p < .01$), and “Being in the Adirondacks is an important part of my life” ($r = .47, p < .01$). Thus, as harmony within the group increased on the last day of the course, so did emotional attachment to the Adirondacks.

4.4 Sense of Place over Time

As noted above, although relatively high, sense of place did not increase over time at the same rate as

sense of community/group cohesion. Dependent t-tests revealed no significant differences over time. Mean scores for sense of place remained relatively flat from Day 3 to Day 11 to Day 13, whether the overall scale or the individual items were examined.

4.5 Effects of Level of Development on Sense of Place over Time

To test the third research question, data were analyzed using a repeated measures analysis of variance (ANOVA) with sense of place as the dependent variable and level of development as the independent variable. Specifically, a 3 x 3 mixed-design ANOVA was calculated to examine the effects of level of development (beginner, intermediate, and advanced) and time (Day 3, Day 11, and Day 13) on sense of place. Paired-samples t-tests and one-way ANOVAs were also utilized as follow-up tests.

As shown in Table 2, there was no main effect for time ($F(2,90) = 1.63, p > .05$), but there was a significant main effect for level of development ($F(2,45) = 4.747, p < .01$). Beginners had significantly lower mean scores for sense of place than intermediates or advanced (2.65 vs. 3.14 and 3.32, respectively). While there was no significant interaction between level of development and time ($F(4,90) = 1.95, p > .05$), the pattern of scores was interesting (see Fig. 1). Dependent t-tests documented no significant differences in sense of place across time by level of development, but beginners’ scores tended to dip on Day 11, intermediates tended to increase slightly at a steady pace from Day 3 to Day 13, and advanced participants tended actually to decrease over the three time periods. One-way ANOVAs revealed that

Table 1.—Paired samples t-test results

Variable	Time			<i>t</i> -value (<i>df</i>) (Day 3 to 11)	<i>t</i> -value (<i>df</i>) (Day 11 to 13)	<i>t</i> -value (<i>df</i>) (Day 3 to 13)
	Day 3 <i>M</i> (<i>sd</i>)	Day 11 <i>M</i> (<i>sd</i>)	Day 13 <i>M</i> (<i>sd</i>)			
Sense of Community Scale	3.50 (.77)	3.85 (.83)	4.06 (.71)	3.08** (48)	3.04** (48)	5.13** (48)
Mission	3.28 (.93)	3.63 (.97)	3.90 (.81)	2.89** (48)	3.57** (48)	5.21** (48)
Reciprocal Responsibility	3.41 (.96)	3.91 (.98)	4.17 (.82)	3.47** (48)	2.97** (48)	5.48** (48)
Harmony	4.09 (.63)	4.15 (.71)	4.17 (.74)	0.39 (48)	0.19 (48)	0.50 (48)
Group Cohesion Scale	2.98 (.69)	3.16 (.82)	3.39 (.64)	1.45 (44)	2.76** (48)	3.19** (48)
Sense of Place Scale	3.08 (.60)	2.98 (.75)	2.99 (.82)	1.04 (49)	.08 (48)	1.17 (49)

Note: The community scales used a 5-point scale, while the group cohesion and sense of places scales used a 4-point scale. $n=49$. ** $p < .01$.

Table 2.—Repeated measures ANOVA results for level of development on sense of place over time

Source	<i>df</i>	<i>F</i>	<i>Eta</i> ²
Between subjects			
Level of Development	2	4.75*	.17
Within-Group Error	45	(0.98)	
Within subjects			
Sense of Place over Time	2	1.63	.04
Sense of Place X Level of Development	4	1.95	.08
Within-Group Error	90	(0.17)	

Note: Values in parentheses represent mean square error. *n* = 49. **p* < .05.

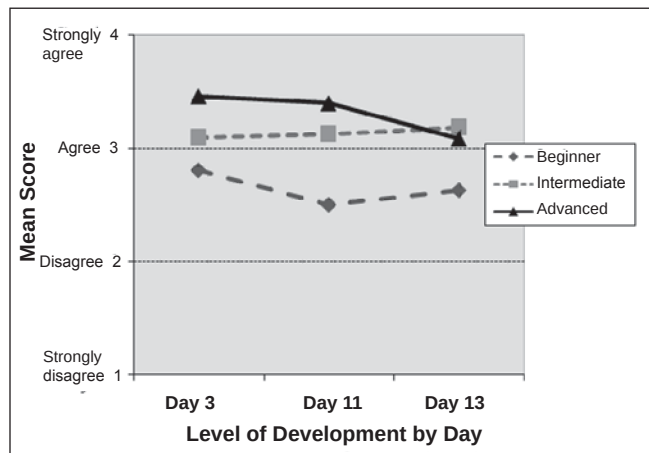


Figure 1.—Change in sense of place by level of development over time.

beginners scored significantly lower than advanced on Day 3 (2.78 vs. 3.47), beginners were significantly lower than both intermediates and advanced on Day 11 (2.51 vs. 3.13 and 3.40, respectively), and no differences were detected among levels of development on Day 13 (see Table 3).

5.0 CONCLUSIONS AND IMPLICATIONS

The results of this study suggest that although sense of place is relatively high for outdoor-pursuits trip groups, it does not seem to increase at the same rate

as sense of community/group cohesion. In fact, the two concepts are not even correlated in this situation, with the exception that place identity increases as harmony within the group improves. Not surprisingly, this study also showed that sense of place is higher for participants with higher levels of development. This result probably reflects the fact that those who are more advanced have spent more time in the Adirondacks or similar outdoor places, enabling attachment to and dependence on the resource to grow.

Perhaps this intense 13-day course was simply not long enough to cause a significant change in sense of place. Results may also have differed if different language had been used to identify the place. For instance, the specific name of the camp or lake may have evoked stronger feelings of sense of place in students than “the Adirondacks.” As a tradeoff, using those specific names might have run the risk of students’ limiting their evaluations to the in-camp portion of the course instead of the entire period, including the 6-day trip through other parts of the Adirondacks.

Interestingly, students have also tended to use the name of the lake as synonymous with the course itself. If the name of the lake had been used, would students

Table 3.—One-way ANOVA results for sense of place by level of development

Variable	Level of Development			<i>F</i> -value
	Beginner <i>M</i> (<i>sd</i>) (<i>n</i> = 17)	Intermediate <i>M</i> (<i>sd</i>) (<i>n</i> = 21)	Advanced <i>M</i> (<i>sd</i>) (<i>n</i> = 12)	
Sense of Place on Day 3	2.78 ^a (.64)	3.10 ^{ab} (.52)	3.47 ^b (.47)	5.49**
Sense of Place on Day 11	2.51 ^a (.73)	3.13 ^b (.74)	3.40 ^b (.45)	6.61**
Sense of Place on Day 13	2.63 (.84)	3.19 (.76)	3.12 (.84)	0.10

Note: Values with different superscripts are significantly different. ***p* < .01.

have conjured up a totally different set of feelings for this place, based on their feelings for the course and relationships they formed with other students and staff? It should be remembered that by the end of the course, the more harmonious the group, the higher the place identity scores. Evidence of this position was presented by Hutson (2008), who performed Q-sort analysis based on the question, “How do you find meaning in a place in the out-of-doors?” A relational factor emerged, in which attachments to ongoing relationships were the defining characteristics of place meanings. Group engagement and relationships with people and places over time, combined with a need to return to the setting to re-experience those positive feelings, gave a place its meaning for some outdoor recreation professionals.

In the current study, participants were not asked whether sense of community actually caused sense of place, or vice versa. They were simply asked to evaluate their perceptions of how they felt about their group and the Adirondacks at three different points in time. A detail to consider is that recreation students are commonly placed in group situations and expected to facilitate sense of community; perhaps more emphasis on attachment to the natural world in this course would influence similar growth in sense of place. The findings from this study can therefore help theorists and practitioners gain greater conceptual clarity of sense of community and sense of place. Our findings also can aid outdoor educators in program planning and design. What practices or educational strategies could intentionally integrate sense of place and sense of community in similar situations? What successful practices in facilitating a sense of community might help facilitate a sense of place?

It should be further noted that these results may have been limited by the small sample size. Other factors that may have hampered the development of sense of place include uncontrollable environmental factors, such as attending the course during the height of black fly season, experiencing unfavorable weather conditions (rain, wind, extreme temperatures), or facing difficult trip route conditions (going upstream against the river current, facing lengthy canoe

portages, climbing challenging mountain peaks). Future studies should take these intervening variables into account, particularly for beginners, who may be more sensitive to and less able to negotiate these constraints. In sum, being in community with an outdoor setting and with people during an outdoor educational experience provides an opportunity to further explore these concepts and potentially represents another way to facilitate meaningful connections to natural environments.

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GETTING THE ENGINE STARTED: MOTIVATIONS FOR PARTICIPATION IN A UNIVERSITY OUTDOOR RECREATION PROGRAM

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Abstract.—This study was conducted to identify the motivations of trip participants in the Georgia Outdoor Recreation Program at the University of Georgia during the fall semester of 2007, and to collect baseline data about their participation. Participants were asked to fill out a survey and return it to the trip leader at the conclusion of each trip. Participants' activity selection was found to be significantly related to motivation for: gaining new experiences, seeking solitude, experiencing a thrill, visiting a new place, and meeting new people. Activity selection was not motivated by: wanting to join a friend who was participating in that activity, taking a trip as part of a personal hobby, or getting physical education credit. Discussion focuses on providing a better understanding of student motivations for participation in university recreation programs and how this understanding can provide for better programming.

1.0 INTRODUCTION

The Georgia Outdoor Recreation Program (GORP) is part of the Department of Recreational Sports at the University of Georgia (UGA). The program was established 20 years ago to provide outdoor recreation experiences primarily for university students, and to a lesser extent faculty and staff of the university and residents of the surrounding community. GORP has grown from offering a few trips and clinics per semester to offering a large number of trips (80-100

trips and clinics annually serving more than 700 students), renting equipment, managing and providing instruction for a climbing/bouldering wall, and conducting a challenge course program. The primary focus of this paper is to examine the motivations of people who participated in a GORP trip. Trips are generally organized around a specific activity such as hang gliding, backpacking, whitewater kayaking, and horseback riding. Trips are led by UGA students and faculty members and are supported by an assistant director of the recreational sports department.

This study arose from a need to better understand participants and their motivations for participating in the GORP program. No study of participants had been undertaken during the 20-year history of the program and members of the Department of Recreational Sports were unsure about the effectiveness of the GORP program's marketing.

The University of Georgia has more than 34,000 undergraduate students and about 2 percent of this population takes a GORP trip each year (GORP programs also include more students through other activities). Therefore, one goal of this study was to understand who exactly was going on GORP trips. The second goal of this study was to try to understand the motivations of GORP trip participants; this information can be used to refine and improve GORP's programming and marketing. This study may also be beneficial for other university outdoor recreation programs given the lack of research in this area.

2.0 LITERATURE REVIEW

Outdoor recreation programs at universities throughout the United States are generally located within existing departments and rarely stand alone; most are found in recreation departments (Taylor et al. 2002). For this reason, university outdoor recreation programs have not been well studied. Research by Taylor et al. (2002)

found that outdoor recreation programs can help to increase student retention rates and promote personal growth of participants. A connection is assumed between involvement in a program and the motivations for participation, but few studies have addressed this connection (Kyle et al. 2005), especially in a university outdoor recreation setting.

One goal of outdoor recreation programs is to foster involvement and retention. Therefore, the ability of a program to meet the needs of the participants, understand their motivations, and ensure positive outcomes may be an antecedent of enduring involvement (Kyle et al. 2005). This understanding can also provide for better programming and less possible conflict between users (Manfredo et al. 1996). Understanding participants' motivations, however, is not an easy task. Individual and situational differences will determine participant motivations and perceived needs (Weissinger and Bandalos 1995). Todd et al. (2003) identify and describe the motivations of four different types of outdoor recreation participants: beginners, intermediate, advanced, and expert. The beginner struggles to achieve because the activity is new and challenging. The intermediate participant has some exposure to the activity and thus seeks out opportunities for excitement and risk. Advanced participants have a strong background in the activity and want to work on self-actualization. Experts have mastery of the activity and seek out new and exciting challenges for themselves. It appears that the more experience a participant has, the more serious he or she becomes about a particular activity, and the more important and intrinsic the rewards become (Todd and Graefe 2002). Understanding participants' skill levels will therefore help outdoor recreation programs better match activities to the motivations of the particular user groups mentioned above.

Outdoor recreation programmers and marketers also need to consider participants' social motivations. Schuster et al. (2003) suggest that the social component of outdoor recreation includes self-centered values, family/social values, and human

values. Self-centered values focus on direct benefit to the individual. Family and social values are concerned with building relationships. Going on the trip to meet new people or going on the trip because your friends want to go are examples of this value. Human value is concerned with connecting to the natural world. People who participate in outdoor recreation experiences often seek an understanding of the natural environment (Frauman 2002) and would like to go to a place of "natural peace and quiet" (Hammitt 2000, p. 522). Schuster et al. (2003) identify solitude as an important human value, but solitude has different meanings for different groups and individuals. For example, physical isolation may have less to do with a feeling of solitude than with interactions between individuals and groups (Manning 1999). Considering the individual and social motivations of outdoor recreation participants can direct programming away from outdoor elitists (Jones 1997) and provide opportunities for a much broader participant base.

3.0 METHODS

During the fall semester of 2007, GORP participants were able to sign up for trips that were conducted between August 16 and November 14. There were 17 trips to choose from and none had prerequisites so participants were able to choose freely. Upon completion of the trip, participants were given an information sheet outlining the reason for the study and asking them to fill out the survey with 22 questions related to participation motivations, trip experience, and demographics. Participation was voluntary. Completed questionnaires were collected and analyzed using SPSS 15.0 (SPSS Inc. 2007), stratifying data by trip activity, and looking at motivations by activity. Frequencies were tabulated for demographic variables, and Pearson's chi-square analysis using cross-tabs was conducted to determine relationships between activities and motivations for participation. A 7-point Likert-type scale used on the survey to measure motivations (ranging from 1 = strongly disagree to 7 = strongly agree) was condensed to a 3-point scale (1 = disagree, 2 = neutral and 3 = agree) for ease of analysis.

4.0 RESULTS

4.1 Trip Participation

Completed surveys were turned in by 152 of the 201 participants for a response rate of 75 percent. For 69.4 percent of the respondents, this was their first GORP trip. The average age of the participants was 21.9 years; the average age of the general population of UGA is 23 years old. More than 71 percent of the trip participants were female; in contrast, females make up 56 percent of the general UGA population. The ethnicity percentages were similar between the UGA general population and GORP trip participants (Table 1). Students attending UGA made up the majority of the trip participants (88.2 percent) while the rest (11.8 percent) were faculty, staff, and non-UGA students. The majority of the GORP trip participants were undergraduate students at UGA (77 percent) and 23 percent of the UGA students were first-year students. The remainder of the trip participants were graduate students at UGA (10 percent), transfer students (2 percent), or those identifying themselves as “other” (10 percent).

4.2 Results for Trip Participants’ Motivations

Trip participants were asked a series of eight Likert-type questions to determine their motivations for participation. Person’s chi-square analysis showed that five of the eight motivators were significant at an alpha of .05. The activity chosen by the participants was significantly related to: seeking solitude on the trip ($X^2 = 43.40$, $p = 0.004$); wanting to visit a place they had never been ($X^2 = 61.18$, $p = .000$); going on the trip to create new friendships ($X^2 = 54.95$, $p = 0.000$); seeking out a new experience ($X^2 = 38.26$, $p = .017$); and going on a GORP trip to seek a thrill ($X^2 = 42.47$, $p = 0.005$). The activity chosen by the participants was not significantly related to: going on the trip with their friends ($X^2 = 32.34$, $p = .072$); taking the trip to receive a physical education credit ($X^2 = 33.77$, $p = 0.052$); or going on the trip because it was related to a hobby ($X^2 = 28.06$, $p = 0.174$) (Table 2). Participants were asked to indicate their degree of agreement about whether they were motivated by specific factors. Based on a 3-point scale (1 = disagree, 2 = neutral,

Table 1.—Comparison of race between GORP and the UGA general population

Race/Ethnicity	GORP %	UGA %
Caucasian/White	86.2	82
Asian American	5.3	7
African American	3.3	6
Hispanic/Latino	3.3	2
Other	2.0	3

Table 2.—Pearson chi-square for activity and motivation for attending a GORP trip

Item	X^2	df	Sig.
Activity & seeking solitude	43.40	22	0.004*
Activity & visiting a new place	61.18	22	0.000*
Activity & creating new friendships	54.95	22	0.000*
Activity & seeking a new experience	38.26	22	0.017*
Activity & seeking a thrill	42.47	22	0.005*
Activity & going with friends	32.34	22	0.072
Activity & taking trip for PE credit	33.77	22	0.052
Activity & type of trip is a hobby	28.06	22	0.174

*Significant at an alpha of .05

3 = agree), participants gave low scores to going with friends (1.74), taking the trip for physical education credit (1.43), and going on the trip because it is their hobby (1.91); these low scores correlate with the results of the Pearson’s chi-square test. The mean scores for the motivations of visiting a new place (2.56), creating new friendships (2.43), seeking out a new experience (2.85), and seeking a thrill (2.54) were higher on the 3-point scale as would be expected based on the Pearson’s chi-square analysis. The mean score for the motivation of seeking solitude (2.01) was neutral despite having a significant Pearson’s chi-square ($X^2 = 43.40$, $p = 0.004$).

5.0 DISCUSSION

It appears that GORP’s recruiting efforts have generally been successful at attracting different segments of the university population. The racial identification breakdown between UGA and GORP is similar, but this consistency does not imply that GORP, or the university, could not do a better job of recruiting a more diverse population. That being said, one of the

goals of this study as identified by the Department of Recreational Sports was to understand the current GORP participants, not to comment on current practices. GORP seems to attract a disproportionate number of female participants when compared to the UGA population as a whole. Several factors may contribute to this result. The Outdoor Recreation Center, where many of the trips are advertised, is on the only route to the women's locker room in the recreation center and women may therefore have more exposure to GORP advertisements. Men may also be less inclined to participate in GORP trips because they feel like they can do these activities on their own and do not need someone to "show them how." Furthermore, men who participate in outdoor recreation may be more likely to initiate and organize these types of activities on their own while females may seek out a more structured environment. It is also possible that women are more likely to participate because there are more male trip leaders than female leaders.

GORP is catering to the university student population with nearly 90 percent of the trip participants being UGA students. This number could be higher, but GORP also advertises to the local community and faculty and staff. GORP could do a better job of advertising to specific groups of students in order to increase the number of graduate and transfer students that participate in the program. GORP advertises heavily each semester in the undergraduate dorms and incoming first-year students have the option to take an outdoor adventure orientation course through GORP. The advertising and course options may explain why the undergraduate population is well represented among participants. On the other hand, incoming graduate and transfer students do not participate in GORP programs as frequently, perhaps because GORP does not actively reach out to them.

When this study was initiated, one research hypothesis was joining a trip to be with friends would be a primary motivating factor. This hypothesis was based on noticing during numerous trips that many people knew each other prior to the trip. As the results show,

however, going with friends was not a significant motivator when based on activity type ($X^2 = 32.34$, $p = 0.072$). It became apparent after analyzing these data that GORP participants had more internal motivations for going on trips. Seeking solitude, seeking a thrill, and going to experience a new place were all significant motivators and have very little to do with going with friends. The solitude motivator had a significant Pearson's chi-square ($X^2 = 43.40$, $p = 0.004$), but a low mean on the 3-point scale (2.01). The neutrality of this score may be due to the nebulous nature of the concept of solitude. Solitude means different things to different people and can be obtained in a wide variety of ways. In addition, the trips offered by GORP offer different opportunities for solitude. For example, a backpacking trip to a Wilderness area will offer more opportunities for solitude than a whitewater rafting trip down class IV and V rapids. It appears that GORP marketing needs to focus more on personal experience and less on social aspects of the trips. In contrast, making new friends was a significant motivator based on activity. This finding may have been a result of the participants' taking the survey after the trip had concluded and they had made new friends. If the survey had been administered before the trip, the results may have been different.

The question regarding the physical education (PE) credit as a motivating factor was included to determine whether a newly added credit course was influencing participation. The PE class was not a motivating factor based on activity type ($X^2 = 33.77$, $p = .052$), but was close enough to ask the question, Should students be going on GORP trips of their own accord, or for PE credit? One case study is the SCUBA course offered by GORP, which had a high number of PE-credit students because it helped to satisfy a portion of their course requirements. However, the trip leader noticed a significant decline in the number of people following the SCUBA course through the open water certification once the PE course was offered through GORP; many people appeared to be taking it for the sole purpose of gaining PE credit. The data, however, refute this theory; of the 28 GORP participants that took SCUBA during this study, 22 disagreed with the

statement, “My primary motivation for going on this trip is PE credit.” Poor question wording or a lack of complete honesty on the survey participants’ part may have contributed to this discrepancy, but more time needs to be spent on this question to understand the impact it may be having on the GORP program.

6.0 CONCLUSIONS

This study was long overdue for the GORP program at UGA. Although it appears that GORP is providing outdoor recreation opportunities to a wide variety of participants (when compared to the UGA population as a whole), more could be done to reach potential segments of the outdoor recreation market. It has been shown that the background (ethnicity, race, sex) of individuals does have an effect on their participation in outdoor recreation (Walker et al. 2001). The majority of the trip participants are white, female undergraduates, which neglects a large portion of the university. Advertising and reaching out to populations currently underserved by GORP (minorities, males, and graduate students) will help bring new insights to the programming and will also help the program serve more students. Having the academic community at UGA involved in the GORP program—in this case the physical education department in particular—is a tremendous opportunity to get more students involved in outdoor recreation. However, it is important to set clear expectations for involving more students so that the integrity of a given trip or clinic is not compromised (see SCUBA course above). Offering a wider variety of trip opportunities including introductory clinics and intermediate and advanced trips might allow GORP to reach a wider audience. The trips and clinics themselves need to be novel to maintain interest in GORP. Unfortunately, GORP and programs like it have become comfortable offering the same trips to the same destinations year after year. This approach may sustain the program but will certainly not provide for growth and diversification. This type of study is not done enough with outdoor recreation programs on university campuses. Understanding participant motivations for taking part in outdoor recreation activities can lead to programming that will better suit not only the students, but also the program.

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***PSYCHOLOGY/PLACE
IDENTIFICATION AND BONDING***

TESTING A NEW SCALE OF PLACE IDENTITY IN THE TEXAS HILL COUNTRY

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Abstract.—In this study, we proposed a three-factor structure of place identity comprising the dimensions of structure, function, and affect. This conception of place identity was tested against three competing models that viewed place identity as consisting of either: 1) a single dimension of place identity; 2) two dimensions of cognition and affection; or 3) a second-order model where structural, functional, and affective dimensions were subsumed to a higher-order factor of place identity. The four models were tested on data collected from a random sample of Texas Hill Country landowners. Performance of the models was evaluated based on fit indices, convergent validity, internal consistency, and discriminant validity. Study findings suggested that conceptualization of place identity as comprising the cognitive and affective dimensions best addressed the evaluative criteria.

1.0 INTRODUCTION

Place identity has been conceptualized as comprising multiple domains by research using the qualitative approach (Korpela 1989, Twigger-Ross and Uzzell 1996). However, quantitative examination of this concept primarily measured it as a uni-dimensional construct (e.g., Williams and Vaske 2003, Jorgensen and Stedman 2006). According to identity theory, self-identity consists of meanings that form the defining characteristics of the identity (Burke and

Tully 1977). Thus, place identity can be viewed as encompassing meanings that characterize one's self-identity cultivated through interactions with a specific geographic location. Literature has suggested that meanings that individuals attribute to a place can be categorized into three distinguishable yet correlated dimensions: structural (i.e., biophysical features of a place), functional (i.e., activities and functions supported by the place), and affective (i.e., emotions and feelings attributed to the place) (Relph 1976, Proshansky 1978).

In our study, a model of place identity consisting of three correlated first-order dimensions (i.e., structural, functional, and affective) was proposed. This model of place identity (Model A) was tested against three alternative explanations of place identity. The first alternative was a first-order model (Model B) where the cognitive and affective dimensions of place identity were correlated. In this model, the structural and functional dimensions suggested in the proposed model were combined into the cognitive dimension due to the interdependence between meanings pertaining to the biophysical features of a place (i.e., the structural dimension) and functions supported by these features (i.e., functional dimension). The second alternative explanation was a single-factor model (Model C) that comprised one dimension of place identity (Cuba and Hummon 1993). The third alternative was a second-order model (Model D) where three first-order factors (i.e., structural, functional, and affective dimensions) loaded onto a single second-order factor (i.e., place identity) (Jorgensen and Stedman 2001).

2.0 METHODS

2.1 Study Area

The study was conducted in the private properties of the Hill Country, which encompasses 25 counties in the central part of Texas. This region has been dominated by the ranching industry since the first

settlement by Europeans in the mid-1800s (Texas Parks and Wildlife Department 2007). Rapid population growth and urban development, however, have forced many large ranches to become fragmented and converted to other types of land uses.

2.2 Scale Development

Development of the place-identity scale primarily followed Netemeyer et al. (2003). Items used to measure the three place-identity dimensions (structural, functional, and affective) were created based on the results of semi-structured interviews with a convenience sample of Hill Country landowners. The interviews were aimed at identifying the meanings that landowners attributed to their property. In addition, two items adapted from an existing place-identity scale (Williams and Vaske 2003) were included in the initial item pool to measure the affective dimension. The refined scale contained 19 items after a series of pilot tests.

2.3 Data Collection and Analysis

Stratified random sampling was applied to select 1,080 individuals who possessed properties of at least 10 acres in three counties of the Hill Country (Hays, Blanco, and Gillespie counties). Stratification was implemented based on property size and the county where a property was located. The survey was administered following the multiple-contact procedure adapted from Dillman (2000). To measure study participants' place identity related to their property, they were asked to indicate "to what extent you agree or disagree with the following statements regarding your feeling about your property." The response format was a 7-point scale where 1 represented "strongly disagree," 4, "neutral," and 7, "strongly agree."

The survey was implemented between February and May 2007. Two months later, a short version of the survey was sent to 150 randomly selected nonrespondents in order to examine nonresponse biases.

After data screening, confirmatory factor analysis (CFA) was applied using LISREL Version 8.70 to "confirm an a priori hypothesis about the relationship

of a set of measurement items to their respective factors" (Netemeyer et al. 2003, p. 148). Fit indices, convergent validity, internal consistency, and discriminant validity were used to evaluate the performance of the models.

3.0 RESULTS

Overall, 528 usable questionnaires were returned, which resulted in an effective response rate of 51 percent. Thirty-two landowners responded to the short version of the survey sent to initial nonrespondents. No significant difference was found between respondents to the two versions of the survey in terms of their socio-demographic characteristics and responses to the place-identity scale.

3.1 Landowner Characteristics

Respondents' socio-demographic characteristics are summarized in Table 1. They were predominantly male (70.5 percent), averaged 61.8 years old, and had an education level of at least some college (80.0 percent). More than half (52.7 percent) had an annual household income of \$80,000 or more.

Table 1.—Respondents' socio-demographic profile

Gender (N=509)	
Male:	359 (70.5%)
Female:	150 (29.5%)
Education (N=509)	
Less than high school:	9 (1.8%)
High school graduate or GED:	78 (15.3%)
Vocational/Technical training:	15 (2.9%)
Some college:	108 (21.2%)
Bachelor's degree:	153 (30.1%)
Post-graduate degree:	146 (28.7%)
Age (N=507)	
Mean=61.8 years	(S.D.=11.6)
Income (N=461)	
Less than \$20,000:	27 (5.9%)
\$20,000-\$39,999:	57 (12.4%)
\$40,000-\$59,999:	74 (16.1%)
\$60,000-\$79,999:	60 (13.0%)
\$80,000-\$99,999:	52 (11.3%)
\$100,000 or more:	191 (41.4%)

3.2 Responses to Place-Identity Scale

In general, respondents exhibited a slightly to very high level of place identity tied to the biophysical attributes of and functions supported by the property, and emotional meanings they attributed to the property (Table 2). However, a large majority did not agree that the meaning of their property was connected to its importance as a source of income (Mean=3.2).

3.3 Model Testing

Exploratory factor analysis based on principal component analysis and varimax rotation was first applied to identify items that might contribute to the failure of a converged solution in CFA (Netemeyer et al. 2003). Three items, PS5 (“Native plants of the property are of little value to me”), PF3 (“The property provides an important source of income”), and PF7 (“There are better places to enjoy the activities I do on the property”), highly cross-loaded on dimensions other than the ones they were hypothesized to measure and were dropped prior to CFA. Responses to the rest of the 16 items were used to test the four competing models based on CFA.

Due to the exploratory nature of the study, all the models were respecified to “detect and correct for specification errors” (Jöreskog and Sörbom 1996, p. 274) after an examination of the estimated factor loadings and modification indices. As a result of the respecification procedures, PS2 (“Water features are a crucial element of the property”), PS4 (“Native wildlife is an important feature of the property”), PF1 (“The property provides the opportunity to work on the land”), PF6 (“I enjoy the friendship with neighbors”), PA1 (“The property says a lot about who I am and what I like to do”), and PA2 (“The property is important to my family heritage”) were dropped. After respecification, all four models were improved by a significant reduction in S-B χ^2 . S-B χ^2 and other fit indices indicated that the final form of Model B outperformed the other competing models (Table 3). Although the proposed model (Model A) and second-order model (Model D) also showed acceptable model fit, study findings failed to provide evidence for discriminant validity between the structural and functional dimensions of both models. Analyses further evaluated the final form of Model B based on its internal consistency and discriminant validity.

Table 2.—Descriptive statistics of the place-identity scale

Items	Mean (St. Dev.)
Structural dimension	
PS1: The natural environment makes the property special	6.7 (.8)
PS2: Water features are a crucial element of the property	5.9 (1.6)
PS3: The terrain is an essential quality of the property	6.3 (1.0)
PS4: Native wildlife is an important feature of the property	6.4 (1.1)
PS5: Native plants of the property are of little value to me ^a	5.8 (1.8)
PS6: There are places on the property that are special to me (e.g., a spot along a creek/on a hilltop, or an old house)	6.4 (1.1)
Functional dimension	
PF1: The property provides the opportunity to work on the land	6.2 (1.3)
PF2: The property provides a quality living environment	6.5 (1.0)
PF3: The property provides an important source of income	3.2 (2.1)
PF4: The property is a great place to enjoy the outdoors	6.7 (.6)
PF5: I enjoy having people visit me on the property	6.1 (1.3)
PF6: I enjoy the friendship with neighbors	5.6 (1.5)
PF7: There are better places to enjoy the activities I do on the property ^a	5.1 (4.7)
Affective dimension	
PA1: The property says a lot about who I am and what I like to do	6.1 (1.3)
PA2: The property is important to my family heritage	5.5 (1.8)
PA3: I feel at home when I'm here	6.6 (.9)
PA4: I feel the property has become a part of me	6.4 (1.1)
PA5: I feel spiritually connected to the property	5.9 (1.5)
PA6: The property doesn't mean much to me ^a	6.6 (1.0)

^a Items were reverse coded

Table 3.—Estimates of fit indices (initial and final forms)

Model	χ^2 (df)	S-B χ^2	Adjust RMSEA	SRMR	Robust CFI	GFI	Difference in: S-B χ^2 df	
Model A							256.38***	70
Initial	482.42 (101)	331.24	.067 (.058-.076)	.067	.94	.89		
Final	133.38 (31)	74.86	.053 (.044-.061)	.054	.97	.95		
Model B							305.90***	71
Initial	517.82 (103)	365.54	.071 (.062-.080)	.069	.93	.88		
Final	104.58 (32)	59.64	.042 (.032-.050)	.044	.98	.96		
Model C							372.30***	71
Initial	720.43 (104)	534.62	.091 (.081-.101)	.076	.91	.82		
Final	266.12 (33)	162.32	.088 (.078-.098)	.076	.94	.89		
Model D							262.74***	70
Initial	490.89 (102)	339.49	.068 (.059-.077)	.067	.94	.89		
Final	135.96 (32)	76.75	.053 (.044-.061)	.053	.97	.95		

***p < .001

Evaluative criteria: a: Root mean square error (RMSEA)≤.06; b: Standardized root mean square residual (SRMR)≤.08;
c: Comparative fit index (CFI)≥.95; d: Goodness of fit index (GFI)≥.90

Evidence of convergent validity is revealed when items have statistically significant loadings on the factors they are to measure at $p < .01$ (Netemeyer et al. 1996) and magnitude of the loadings between .60 and .90 (Bagozzi and Yi 1988). Due to the exploratory nature of our study, factor loadings no less than .50 were deemed acceptable. Table 4 shows that all the factor loadings were equal to or greater than .50 and significant at $p < .01$, an indication of convergent validity.

Composite reliability, Cronbach's alpha coefficients, and average variance extracted estimates (AVE) were used to examine the internal consistency of the final form of Model B (Table 5). The composite reliability

estimates for the two dimensions of Model B met the criterion of .70 suggested by Hair et al. (1998). Cronbach's alpha coefficients of the two dimensions, .75 and .83 respectively, met the criterion of .7 that is widely suggested (Netemeyer et al. 2003). However, the estimate of AVE of the Cognitive Dimension in Model B (.38) fell short of the threshold of .45 suggested by Netemeyer et al. (2003) for newly developed scales.

Discriminant validity was examined first by comparing the differences of chi-square values between the model that fixed the correlation between Cognitive Dimension and Affective Dimension to 1 and the model that freely estimated the correlation (Table 6).

Table 4.—Factor loadings and standard errors of Model B (final form)

Items	Factor Loading ^{ab}		SE	t-value
	Cognitive Dimension	Affective Dimension		
PS1	.62		--	--
PS3	.52		.17	6.90
PS6	.62		.26	5.81
PF2	.71		.21	6.89
PF4	.69		.13	6.70
PF5	.54		.23	6.61
PA3		.84	--	--
PA4		.86	.11	11.26
PA5		.79	.16	9.55
PA6		.59	.12	7.11
Cronbach's Alpha	.76	.83		

^a Completely standardized solution^b All the factor loading are significant at $p < .01$

Table 5.—Internal consistency estimates for Model B (final)

	Composite Reliability	Cronbach's Alpha Coefficient	Average Variance Extracted (AVE)
Cognitive Dimension (6 items)	.79	.76	.38
Affective Dimension (4 items)	.86	.82	.61

Table 6.—Discriminant validity estimates for Model B (final form)

	S-B χ^2	df	S-B χ^2 Difference ^a
Unconstrained Model Latent factor correlation freely estimated	59.64	32	
Constrained Model Correlation between Functional and Affective Dimension set to 1	118.62	33	58.98***

^a S-B χ^2 difference between constrained and unconstrained models with 1 degree of freedom change.

***p < .001

Results showed that the values of S-B χ^2 significantly increased by forcing the correlation of the latent factors to be perfectly correlated with 1 degree of freedom change ($\chi^2 \geq 3.84$). In other words, the model was significantly deteriorated by forcing the two dimensions to be perfectly correlated. This result provides the evidence of discriminant validity for Model B.

4.0 DISCUSSION AND CONCLUSIONS

Quantitative research has frequently operationalized place identity as a uni-dimensional construct. However, findings of our study suggested that viewing place identity as a single latent factor (i.e., Model C) was less than optimal to conceptualize this construct. Although the proposed three-dimensional structure of place identity (Model A) and the second-order model (Model D) fit the data well, the lack of discriminant validity between the structural and functional dimensions implies that both dimensions may be distinguishable conceptually but difficult to be separated from each other empirically. On the other hand, Model B, which conceptualized place identity as consisting of the cognitive and affective dimensions, displayed the best model fit and showed evidence of convergent validity, internal consistency, and discriminant validity. This model differs from the conceptualization of place attachment in much of the natural resource and outdoor recreation research, which views this construct as comprising the

dimensions of place dependence and place identity (Williams and Vaske 2003, Kyle et al. 2005). Place dependence represents the functional aspect of place attachment. In our study, the functional aspect of place meanings along with the structural aspect of place meanings constituted the cognitive dimension. Place identity in the past literature encompasses the affective meanings individuals attribute to a place and is comparable to the affective dimension of place identity tested in our study. Furthermore, an interpretation of place identity based on identity theory provides the theoretical basis to explain the motivational force of place identity on place-related behaviors when there is a need to maintain the identity (Stryker 1987, Burke 1991).

Some limitations of our study need to be noted. The low AVE in the cognitive dimension of Model B raises concern that the variance contributed by measurement errors was greater than the one captured by the latent construct of cognitive place identity (Claes and David 1981). This result may be attributed to two factors. First, measurement errors might come from the variation in responses due to the heterogeneity of respondents. A second factor might derive from the failure of the scale to capture other components important to the cognitive aspect of landowners' identity of their property. Further effort will be needed to improve the ability of the scale to capture the essential components of the cognitive dimension of place identity.

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REASSESSING THE CAUSAL STRUCTURE OF ENDURING INVOLVEMENT

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Abstract.—Guided by tenets of identity theory, we hypothesized a causal structure of enduring involvement suggesting that self-relevant components precede the other dimensions. We used Kyle et al.'s (2004a) Modified Involvement Scale, in which leisure involvement is conceptualized as a multidimensional construct consisting of identity affirmation, identity expression, attraction, centrality, and social bonding. Identity affirmation and identity expression were considered as self-related facets based on their dimensional definitions. The model was tested using campers visiting a southeastern National Forest. The analyses offered partial support for our hypothesized model. Attraction was positively influenced by identity affirmation, whereas centrality and social bonding were positively predicted by identity expression. This work provides a theoretical framework for understanding the leisure involvement process, where identification with a leisure activity leads to the development of attitudinal facets of involvement.

1.0 INTRODUCTION

The construct of involvement was introduced into the social psychology literature by Sherif and Cantril (1947). They conceptualized the construct in terms of the activation of ego-attitude and postulated that involvement exists when a cognitive connection

is made between stimuli (the attitude object) and elements of the ego or self system. Sherif and Cantril defined “ego” as the core part of an individual, the constellation of the social and personal values one has acquired and which determine the enduring nature of one’s identity. Leisure researchers have defined the construct of involvement as “an unobservable state of motivation, arousal or interest toward a recreational activity or associated product. It is evoked by a particular stimulus or situation and has drive properties... In other words, leisure involvement refers to how we think about our leisure and recreation, and it affects our behavior” (Havitz and Dimanche 1997).

Although the definition of involvement holds situational properties, leisure research, consistent with Sherif and Cantril’s (1947) original conceptual work, has focused primarily on the enduring component of the relationships between the self (ego) and leisure activities (Havitz and Dimanche 1997). Leisure involvement has been conceptualized as a multidimensional construct. Three dimensions—attraction, centrality, and self-expression—have consistently been shown to be reliable and salient within leisure contexts. *Attraction* refers to the individual’s perceptions of activity importance and the pleasure or hedonic value derived from the activity. *Centrality* focuses on the extent to which other aspects of an individual’s life (such as social interactions) are centered on a chosen leisure activity. Finally, *self-expression* refers to the extent to which a leisure activity provides an opportunity to project a desired image that individuals wish to convey to others.

Several authors have also suggested and empirically tested the existence of the subdimensions *centrality* and *self-expression*. *Centrality* can be separated into two constructs, centrality and social bonding, and *self-expression* can include two distinct dimensions, identity affirmation and identity expression (McIntyre 1989, Dimanche and Samdahl 1994, Kyle et al. 2007). While this multidimensional approach

acknowledges the potential of leisure activities to be personally relevant for several different enduring reasons, it shows that much of the leisure literature on involvement has removed the focus from the self, which is the fundamental element in Sherif and Cantril's conceptualization of involvement. In fact, identity theory suggests that the self-related components of identity affirmation and identity expression determine the dimensions of attraction, centrality, and social bonding. Identity theorists agree that positive affect (i.e., attraction) results from meeting one's identity expectations, and more important elements of identity produce stronger emotions (Stets and Burke 2003). When outcomes (e.g., leisure participation) are relevant to the aspects of self (identity), individuals regard the outcomes as more important or valuable (Stryker 1987). For the relationship between identity and *centrality*, Sampson (1978) also argued that people tend to manage areas of their lives that are relevant to a central aspect of self in order to establish a sense of continuity and stability to their identity. Finally, identity theory posits that self-verification underlies behavioral processes such as group formation (i.e., social bonding) (Stets and Burke 2000).

In this investigation, we adapted identity theory to reassess the structure of enduring involvement. Specifically, we hypothesized that self-related components of identity affirmation and identity expression predict the other facets of enduring involvement (i.e., attraction, centrality, and social bonding).

2.0 METHODS

2.1 Sample

Data for our study were collected from visitors at three camping areas (Cherry Hill campground, Burrells Ford recreation area, and Ellicott Rock Wilderness Area) in the Sumter National Forest in South Carolina during the summer and fall of 2003. For visitors sampled at the Cherry Hill and Burrells Ford sites, surveys were completed on-site. For the Ellicott Rock Wilderness Area, campers were provided with a survey and a stamped, addressed envelope in a resealable plastic

bag because of the difficulty of completing survey instruments on-site. They were also asked to provide their name and address so that they could be sent a follow-up survey if they lost or damaged the survey we provided on-site. These procedures yielded 312 completed surveys (96-percent response rate) for the Cherry Hill and Burrells Ford sites, and 112 completed surveys (60-percent response rate) for Ellicott Rock. Combined, the sample size was 424 cases.

2.2 Measures

Enduring involvement was measured using Kyle et al.'s (2007) Modified Involvement Scale (MIS). In addition to adapting items from McIntyre (1989) and McIntyre and Pigram's (1992) involvement scale, Kyle and colleagues utilized five additional items (see Table 1). For centrality, two items were added: 'camping occupies a central role in my life' and 'to change my preference from camping would require major rethinking.' The first item was adapted from Kyle et al.'s (2003) and Kyle et al.'s (2004b) measure of centrality, which they used to measure hikers' enduring involvement with hiking along the Appalachian Trail. The second item was adapted from Pritchard et al.'s (1999) resistance dimension of their commitment scale. Though this item was originally developed to measure an outcome associated with an individual's psychological commitment to an agency, we reworded the items so that the primary attitude object now reflected personal investment in activity. In so doing, the primary attitude object reflected in the item was shifted from the brand level (i.e., service provider) to the product level (i.e., activity). Similar to centrality and Buchanan's (1985) conceptualization of side bets, Pritchard et al.'s resistance dimension examines the degree to which recreationists' attachment to a type of behavior is a function of personal investment (e.g., emotional commitment, social world ties, activity-related expenditures). Lastly, Kyle et al. (2004a) constructed one new item based on the definition of the identity affirmation dimension, 'I identify with the image associated with camping.' All items were measured along a 5-point scale where 1=strongly disagree and 5=strongly agree. Two independent samples were used to establish the

Table 1.—Scale performance of measurement model for the pooled sample

	M	SD	Factor Loadings	t-value
Attraction ($\alpha=.87$)	4.24	.71		
A1 Camping is one of the most enjoyable things I do	4.33	.78	.81	14.03
A2 Camping is very important to me	4.17	.80	.86	15.41
A3 Camping is one of the most satisfying things I do	4.20	.80	.81	14.35
Centrality ($\alpha=.84$)	3.00	.92		
C1 I find a lot of my life is organized around camping	2.88	.99	.79	12.51
C2 Camping occupies a central role in my life	2.88	1.05	.75	11.67
C3 To change my preference from camping to another recreation activity would require major rethinking	3.20	1.13	.71	11.14
Social Bonding ($\alpha=.66$)	3.38	.839		
SB1 I enjoy discussing camping with my friends	3.74	.86	.75	11.47
SB2 Most of my friends are in some way connected with camping	3.02	1.07	.66	10.11
Identity Affirmation ($\alpha=.70$)	3.90	.70		
IA1 When I participate in camping, I can really be myself	4.08	.78	.74	11.56
IA2 I identify with the image associated with camping	3.71	.82	.72	11.16
Identity Expression ($\alpha=.73$)	3.56	.69		
IE1 You can tell a lot about a person by seeing them camping	3.61	.90	.48	7.18
IE2 Participating in camping says a lot about who I am	3.61	.85	.90	15.61
IE3 When I participate in camping, others see me the way I want them to see me	3.46	.81	.66	10.71

Note: Items were measured along a 5-point scale where 1=Strongly disagree and 5=Strongly agree.
CFA fit indices: $\chi^2=127.74$, $df=53$, $RMSEA=.078$, $NNFI=.96$, $CFI=.97$

validity (i.e., convergent, discriminant, nomological) and reliability (i.e., internal consistency) of the scale using multiple criteria.

3.0 RESULTS

Analysis began with an examination of the measurement model (confirmatory factor analysis [CFA] in LISREL version 8.7) to determine the suitability of our hypothesized factor structure for these data. Both the fit indices ($\chi^2=127.74$, $df=53$, $RMSEA$ [Root Mean Square Error of Approximation] $=.078$, $NNFI$ [Non-Normal Fit Index] $=.96$, CFI [Comparative Fit Index] $=.97$) for this model and the tests of internal consistency (all $\alpha > .60$) indicated that the model satisfactorily fit the data (Table 1).

For the cross-validation of the hypothesized model, we randomly split our sample into two groups and compared the measurement and structural properties using LISREL group function. Separate covariance matrices were then constructed for each group. To examine the causal structure of enduring involvement,

analyses were designed to test whether components of both the measurement model and structural model were invariant (i.e., equivalent) across the two groups. The hierarchy of invariance that was tested in this study was as follows: (H_1) equality of structure (which examines the suitability of a five-factor solution across the two groups), (H_2) equality of scaling (which examines the similarity in the pattern of factor loadings among the groups), and (H_3) equality of structural coefficient estimates (which examines the similarity of the regression paths for groups).

Before the invariant test, the baseline model was tested in each group's sample (Table 2). Constructing a baseline model that fits both groups is a prerequisite for invariance testing on the hypothesized model across groups. To accomplish this task, the structural model was first tested with the pooled sample. In the structural model, three of the hypothesized paths (i.e., identity affirmation $\rightarrow$ centrality, identity affirmation $\rightarrow$ social bonding, and identity expression $\rightarrow$ attraction) were removed from the model on the

Table 2.—Summary of invariance tests

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	NNFI	CFI
Measurement model	127.74	53			.078	.96	.97
Structural model	210.58	57			.079	.96	.97
Baseline							
Group I	131.16	53			.079	.96	.97
Group II	105.29	53			.064	.97	.98
H ₁ - Form	236.45	106			.072	.97	.98
H ₂ - Invariant factor loadings	243.59	119	9.14	13	.066	.97	.98
H ₃ - Regression coefficients	253.86	129	10.27	10	.067	.97	.98

basis of nonsignificant *t*-values (Schumacker and Lomax 1996). After removal of the nonsignificant paths, the final model indicated a satisfactory model fit ($\chi^2=210.580$, $df=57$, $RMSEA=.079$, $NNFI=.96$, $CFI=.97$). The baseline model was then tested for two groups. $RMSEA$, $NNFI$, and CFI indicated that the model has a good fit for each group (Group1: $RMSEA=.079$, $NNFI=.96$, $CFI=.97$; Group 2: $RMSEA=.064$, $NNFI=.97$, $CFI=.98$).

3.1. Invariance Testing

The first test examined the suitability of the imposed factor structure for the two groups. The models were hypothesized to have the same pattern of fixed and free values in the matrices containing factor loadings and structural coefficients, and in the variance/covariance matrices. Nonfixed parameters were not restricted to having the same value across groups in this first test. The fit of this unconstrained model, shown in Table 2 (H₁), was considered adequate ($\chi^2=236.45$, $df=106$, $RMSEA=.072$, $NNFI=.97$, $CFI=.98$). This unconstrained model served as a point of comparison for the second test (equality of scaling) discussed below. The χ^2 difference was used to assess support for equality constraints (Byrne 1998).

The minimum condition for factorial invariance is the invariance of factor loading (Marsh and Grayson 1995). The fit of the model that required all factor loadings to be the same across groups (equality of scaling) was compared with the fit of the model that did not require this variance (equality of structure). The χ^2 difference test indicated that this constraint did not significantly impair fit ($\Delta\chi^2=9.14$, $\Delta df=13$). Thus, the pattern of factor loadings was held constant across the two groups.

For the final test (H₃), equality constraint was placed on each element of a lambda matrix to test the equality of the regression coefficient of the hypothesized model across the two groups. Model fit was compared with the fit indices from the model tested above and indicated that this constraint did not significantly impair the model's fit to the data ($\Delta\chi^2=10.27$, $\Delta df=10$). In other words, the hypothesized model explains the two groups equally.

In summary, these tests of invariance indicate that the factor structure, the performance of the indicators, and the effect of identity affirmation and identity expression on attraction, centrality, and social bonding were equivalent across the two groups.

3.2 Summary of Effects

Figure 1 depicts the statistically significant effects of identity affirmation and identity expression on attraction, centrality, and social bonding with the group 1 sample. These findings offer support for the hypothesized model suggesting that each of two identity-related involvement dimensions would positively predict each of the rest of the involvement dimensions. Specifically, the following relationships were observed in the final model:

- a. *Attraction* was positively predicted by *identity affirmation* ($\beta=.59$, $t= 6.747$). Thus, the importance and pleasure respondents associated with camping were products of the affirmation of their own sense of self. When camping provides opportunities to affirm the self to self, individuals consider the activity more important and attractive.

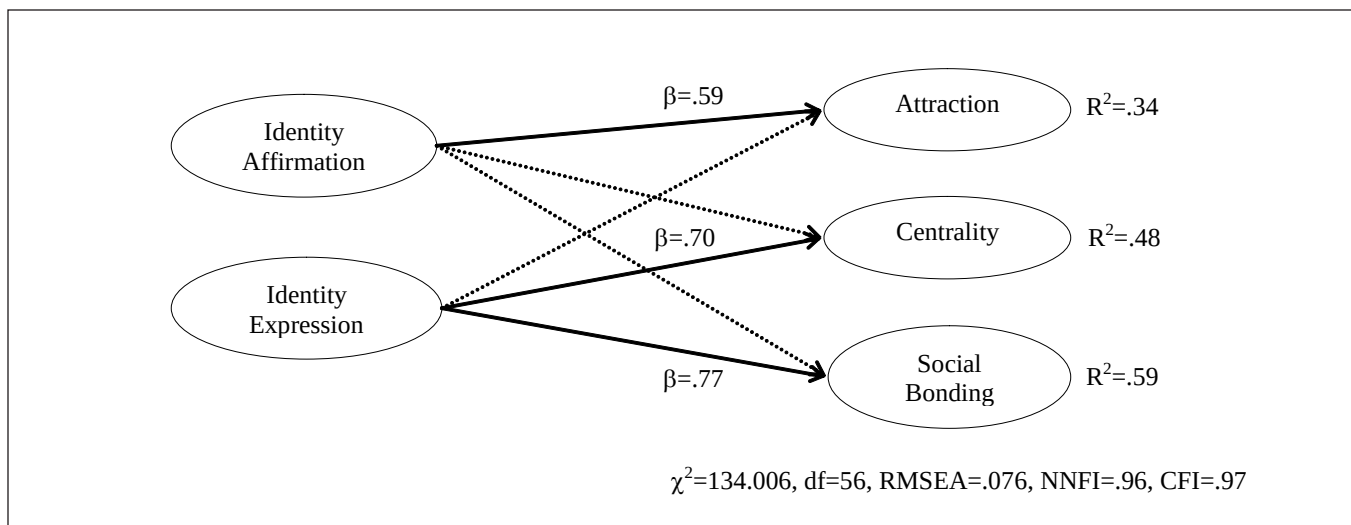


Figure 1.—Final model with group 1 sample.

- b. *Identity Expression* positively predicted *centrality* ($\beta=.70$, $t= 6.601$) and *social bonding* ($\beta=.77$, $t= 5.734$). Thus, as respondents' desire to express their identities (i.e., the self to others) increased, so too did their propensity to indicate that camping occupied an important place in their lives. The effect of identity expression on social bonding implies that respondents' desire to express the self to others leads to structuring their social world around camping.

The model explains 34 percent of the variance associated with attraction, 48 percent of the variance related to centrality, and 59 percent of the variance associated with social bonding.

4.0 CONCLUSION

In most of the leisure literature, the dimensionality of enduring involvement has developed based on the utilization of inductive techniques. That is, investigations have typically conducted some form of Exploratory Factor Analysis (EFA), or modified the existing scales that have been developed based on EFA. This approach may mask serious flaws in

the conceptualization of involvement. Guided by tenets of identity theory, we revisited the original conceptualization of involvement by Sherif and Cantril (1947) and suggested a causal structure of leisure involvement in which the self leads the development of attitudinal involvement (i.e., attraction, centrality, and social bonding) in a leisure activity. In our results, all significant relationships demonstrated that identity-related components (i.e., identity expression and identity affirmation) positively predicted the other dimension (i.e., attraction, centrality, and social bonding). The causal structure could be applied to the weak relationship between self-related dimensions and leisure behaviors that has been observed in previous research (Havitz and Dimanche 1997). Given our conceptualization of involvement, we would suggest that the self-leisure behavior relationship is mediated by the attitudinal dimensions of involvement. As a guide for future model testing, identity theory could provide researchers with a stronger theoretical base to construct hypotheses about relationships to other leisure-related constructs such as commitment, loyalty, and specialization.

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THE RELATIONSHIP BETWEEN PLACE BONDING AND SOCIAL TRUST, AS EXPLORED IN A STUDY IN THE BIG THICKET NATIONAL PRESERVE, TEXAS

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Abstract.—The management of feral hogs surrounding the Big Thicket National Preserve (BTNP) in southeastern Texas requires that National Park Service (NPS) staff and stakeholders manage resource issues collaboratively. Past research has indicated that place bonding can be the common ground upon which managers and stakeholders develop social trust with one another to form a basis for collaborative management. However, such research has not examined the different types of social trust (e.g., trust in local managers versus trust in the entire agency) that exist. The present study tested the hypothesis that the relationship between respondents' place bonding and their trust in BTNP managers to manage feral hogs is moderated by whether or not the respondents trusted the agency (i.e., NPS) as a whole. The results of the analysis failed to confirm the hypothesis, but the place belongingness dimension of place bonding was positively related to trust in BTNP NPS staff.

1.0 INTRODUCTION

Many issues face managers of natural resource recreation areas in southeastern Texas, including the expansion of the wildland-urban interface, changing visitor demographics, and management of feral hog populations. This last issue stems from the early

beginnings of European exploration of the North American continent. Legend suggests that the first hogs to become feral escaped from Hernando de Soto's expedition in the first half of the 16th century. These hogs, undoubtedly along with others from subsequent European settlement, expanded their territory to cover most of the southern United States. Today feral hogs feed on crops, damage landscaping, increase erosion through rooting, and compete with native species for food and habitat. Hunting and trapping feral hogs also has become a recreational activity that many people enjoy. Given that feral hogs range in and out of natural resource recreation areas, managers of these areas have begun to work with local residents to manage the feral hog population collaboratively.

The paradigm shift in the decision-making processes of recreation land management agencies, from being agency-centered to involving stakeholders, over the past quarter of a century has been well documented (Williams and Stewart 1998, Cortner and Moote 1999). Managers have begun to embrace stakeholder involvement and public collaborative efforts rather than relying upon traditional agency-driven decisions. Although this style of decision-making encourages and empowers the public, collaborative efforts can become cumbersome by bringing a myriad of values and attitudes to the discussion (Lee 1993, Winter et al. 1999). The concept of place bonding has been used to help understand the subjective and symbolic meanings people associate with natural settings (Williams and Vaske 2003, Kyle et al. 2004). Research by Payton et al. (2005) and by Williams and Stewart (1998) has indicated that bonding with a setting not only provides insight into the thoughts and feelings people have towards that place, but can also serve as a starting point for reaching a common ground that fosters social trust between stakeholders and managers of protected areas. In turn, this trust can facilitate the collaborative management process. Because social trust and place

bonding have been suggested as important concepts in the understanding of the decision-making process, it is imperative that recreation resource scholars and managers alike understand the relationship between the concepts. By improving our comprehension of place bonding and social trust, we may be able to suggest ways to encourage and improve the collaborative decision-making process.

2.0 RELATED RESEARCH

2.1 Place Bonding

For hundreds of years scholarly and literary authors have written about places that are special to themselves and others. Thoreau, Emerson, London, and Abbey have all highlighted the importance of natural settings to us. To understand the person-place relationship, researchers have developed the concept of place bonding. Place bonding has been defined as “the extent to which an individual values or identifies with a particular environmental setting” (Kyle et al. 2003, p. 250). It is a social psychology concept involving the beliefs, attitudes, and identities that a person holds with regard to specific settings. Place bonding research has also been labeled “place attachment,” “sense of place,” and “genres of place” (Altman and Low 1992). Related literature has indicated that being bonded with a place implies a strong emotional tie between the person and place that can vary from temporary sensory delight to long-lasting rooted attachment (Tuan 1974). Shumaker and Taylor (1983) suggested that the person-place bond evolves from the perceptions people have of the physical conditions of a setting. Furthermore, several authors have indicated that we develop place bonds to certain settings because we attribute meanings to a setting that reflect our social and cultural experiences (Greider and Garkovich 1994, Eisenhauer et al. 2000, Kyle & Chick 2007).

To understand the nuances of the person-place bond, Hammitt and colleagues (2004) have conceived of place bonding as comprising five dimensions. The first dimension in their taxonomy is labeled *place familiarity*. Place familiarity is bonding due to remembrance and cognition of a place and is indicated by a sense of familiarity and “typicality” (Nasar

2000). The second dimension is *place belongingness*, or attachment to a place through social bonding. This bonding causes individuals to feel they have connected with, and hold “membership” within, an environment (Mesch and Manor 1998). Another dimension is *place identity*. It involves using the bonded place in creating and expressing an individual’s self-identity. In fact, we can consider place identity a sub-structure of the self-identity. The fourth dimension suggested by Hammitt and colleagues’ taxonomy is *place dependence*. This dimension is characterized as bonding due to the functional necessity of a certain resource. In other words, the physical attributes of the place contain features and conditions that support specific goals and desired activities (Stokols and Shumaker 1981). Defined as everyday rootedness (Hummon 1992), the final dimension is *place rootedness*. This high level of bonding is indicated by an individual’s elevated sense of security in a place and by a sense of possession over that place.

2.2 Social Trust

One of the many lessons learned during the Spotted Owl controversy in the Pacific Northwest in the 1980s and 1990s was that for collaborative management to be effective in managing the resource, a certain level of trust between stakeholders and the management agency was necessary (Yaffee 1994). Subsequently, several studies have identified an association between social trust and natural resource policy acceptance (Winter et al. 1999, Shindler and Toman 2003, Winter et al. 2004). In the context of recreation resource management, social trust is the willingness to rely on the managers and institutions that are responsible for the resource. An individual can hold multiple social trusts in an agency concerning a given issue. For example, individual trust occurs when a stakeholder trusts a specific person or specific people, whereas overall trust in an agency to manage resources is labeled “institutional trust.” Moreover, the trust an individual holds in an agency may be specific to a single issue or resource (e.g., feral hog management). According to Barber (1983), trust develops when one believes that an agency will act in an ethical manner and consider the needs and wants

of the stakeholder. Because resource management decisions are often very complex, stakeholders do not have the time or knowledge to evaluate whether the managers are acting in accordance with their needs and in the interest of the resource. Hence, as a proxy, stakeholders quantify trust in terms of shared values, direction, goals, views, and thoughts between themselves and agency managers (Earle and Cvetkovich 1995). Winter et al. (1999) found empirical support for this conceptualization of trust among stakeholders interested in fees charged on National Forest lands.

2.3 Place Bonding and Social Trust

Several authors have suggested that knowledge about a stakeholder's place bonding with the resource and social trust in managers are important to understanding the collaborative decision-making process. However, few studies have explored the relationship between place bonding and social trust. One study that sought to identify the relationship between these concepts examined the civic action of stakeholders at the Sherburne National Wildlife Refuge (NWR) in Minnesota (Payton et al. 2005). Specifically, the researchers tested a model that included a two-dimensional place bonding conceptualization (i.e., place identity and place dependence) and two levels

of trust (i.e., individual and institutional trust in the local refuge). One of their conclusions was that place identity can facilitate the development of individual trust. However, the researchers examined only respondents' individual trust in managers and other stakeholders and their institutional trust with local NWR staff. They did not consider respondents' institutional trust in the Fish and Wildlife Service (FWS) as a federal land management agency, nor did they examine respondents' trust in the FWS regarding specific resource management issues.

Although previous research supported the existence of a relationship between place bonding and social trust, it did not examine the effects of institutional trust in the land management agency on the relationship between place bonding and trust in the agency to manage a specific resource issue. Hence, the purpose of the present study was to further explore the relationship between respondents' place bonding, overall trust in the agency, and trust in the agency to effectively manage a specific resource. We hypothesized that the relationship between place bonding and social trust regarding a management issue (i.e., feral hogs) would be moderated by whether or not the individual trusted the agency (i.e., the NPS) as a whole (Fig. 1).

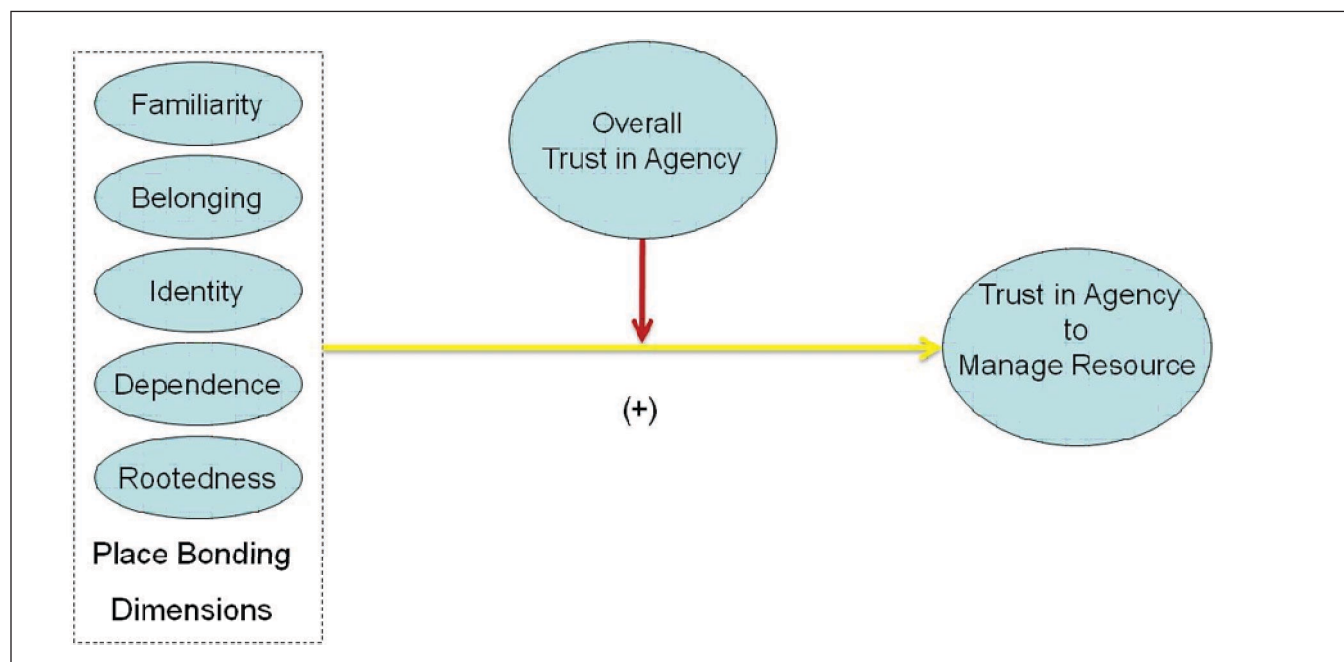


Figure 1.—Hypothesized model.

3.0 METHODS

3.1 Study Area, Population, and Response Rate

The data for this analysis were collected during fall 2007 from residents who lived near the BTNP in southeastern Texas. We mailed 1,500 surveys to a random sample of residents living in the six counties (i.e., Hardin, Jasper, Jefferson, Orange, Polk, and Tyler) adjacent to the preserve. A modified Dillman (2000) approach was used. Two hundred and twelve individuals returned a usable survey, thus achieving a 14.1-percent response rate. Although this response rate is low, it is important to remember that the survey was mailed to the general population and the topic of the survey was relatively specific. That is, many people may not have responded to the survey because they were not interested in feral hog management and/or the Big Thicket National Preserve.

3.2 Survey Instrument

The items used in this analysis measured the five dimensions of place bonding and two types of social trust. The place bonding scale consisted of 22 place bonding items adapted from Hammitt et al. (2004). These items were measured using a 5-point agreement scale (1=strongly disagree; 3=neutral; 5=strongly agree). The scales measuring social trust were adapted from Earle and Cvetkovich (1995). Respondents' overall social trust in the NPS was measured using five items on a 4-point agreement scale (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree; and an option to indicate "no opinion"). Social trust in the NPS to manage the feral hogs was measured by four items on a 7-point scale specific to each item.

4.0 ANALYSIS

Respondents' ages ranged between 23 and 96, with a mean age of 50 years. Most indicated that they were Caucasian (n=189, 89 percent) and over three-quarters were male (n=161, 76 percent). Twenty-seven percent (n=57) of the sample had not attended any college. Respondents' household incomes were well dispersed, with about half earning more than \$60,000 a year.

The results of the confirmatory factor analysis (CFA) of the items measuring respondents' place bonding and trust in the NPS to manage feral hogs are reported in Table 1 and Table 2. Concerning the place bonding items, the reliability coefficients and the factor loadings indicated that the five-dimensional model of place bonding (familiarity, belongingness, identity, dependence, and rootedness) exceeded the minimum acceptable criteria. The means and standard deviations for each of the place bonding dimensions signify that as a group, the respondents were only marginally bonded to the BTNP. Regarding the respondents' trust in the NPS to manage the feral hog problem, the factor loadings and reliability coefficient were acceptable. The respondents indicated they had a moderate level of trust in the NPS (m=4.31; sd=1.33).

To test for the moderating effect of institutional trust on the relationship between respondents' place bonding and trust in BTNP managers to manage feral hogs, a composite score was created using the institutional trust items. After excluding respondents who indicated they had no opinion, we used the five items measuring the respondents' overall institutional trust in the NPS to form a mean composite score of institutional trust for each respondent (Table 3). The mean of the composite score for all respondents indicated that they held a minimal amount of institutional trust in the NPS on the 4-point scale (m=2.91; sd=.54). We used the composite score to create a dichotomous variable that signified whether the respondent trusted the NPS in general. Respondents who had a composite trust score of three or higher were assigned to the group that trusted the NPS; individuals whose composite score was less than three were labeled as people who did not trust the NPS overall. After this grouping process, we found that 139 of the respondents trusted the NPS and 73 did not. The mean institutional trust composite score for those who trusted the NPS was 3.16 (sd=.35). For respondents whose scores indicated that they did not trust the NPS, the mean institutional trust score was 2.43 (sd=.50).

We tested the hypothesized model (Fig. 1) of the relationship between place bonding and trust in the agency to manage a resource issue, moderated by

Table 1.—Factor loadings, standard errors, and reliabilities of the place bonding scale

Dimension-Items	λ	SE
Place familiarity ($\alpha=0.82$; $m=2.43$; $sd=0.84$)		
I know BTNP like the back of my hand	0.77	0.05
I have many memories of the BTNP	0.81	0.06
I could draw a rough map of the BTNP	0.78	0.05
Place belongingness ($\alpha=0.80$; $m=2.95$; $sd=0.82$)		
I feel like I belong at BTNP	0.56	0.05
I feel connected to BTNP	0.94	0.05
When I visit the BTNP, I feel a part of it	0.79	0.05
Place identity ($\alpha=0.89$; $m=2.70$; $sd=0.90$)		
I am very attached to BTNP	0.84	0.05
I identify strongly with the BTNP	0.80	0.05
I feel like BTNP is part of me	0.90	0.05
Place dependence ($\alpha=0.84$; $m=2.39$; $sd=0.84$)		
There are no substitutes for the BTNP	0.64	0.06
For the activities I enjoy most, the BTNP is more important to me than any other place	0.91	0.05
I get more pleasure visiting the BTNP than visiting other wildland places	0.87	0.05
Place rootedness ($\alpha=0.83$; $m=2.03$; $sd=0.73$)		
I rarely recreate outdoors at places other than BTNP	0.74	0.05
BTNP is the only place I desire for the activities I enjoy most	0.88	0.05
I consider only the BTNP when I visit wildland places	0.90	0.05

Means based on a 5-point agreement scale: 1=strongly disagree; 3=neutral; 5=strongly agree

Table 2.—Factor loadings, standard errors, and reliabilities of the respondents' social trust in BTNP management scale

Dimension-Items	λ	SE
Trust in an agency to manage the resource ($\alpha=0.92$; $m=4.31$; $sd=1.33$)		
To what extent do you believe the NPS shares your values with regard to the management of feral hogs on the BTNP?	0.83	0.07
To the extent that you understand them, do you share the NPS's goals for managing feral hogs on the BTNP?	0.95	0.07
To what extent does the NPS support your views about the management of feral hogs on the BTNP?	0.94	0.07
How much confidence do you have in the NPS to effectively manage feral hogs on the BTNP?	0.70	0.09

Table 3.—Mean and standard deviation of overall trust in the NPS items

Items	M	SD
The NPS shares similar values as me	2.97	0.53
The NPS shares similar opinions as me	2.93	0.58
The NPS thinks in a similar way as me	2.89	0.58
The NPS takes similar actions as I would	2.81	0.66
The NPS shares similar goals as me	2.96	0.55
Composite of trust items	2.91	0.54

institutional trust in the agency, by using the “groups” function of LISREL 8.80 to conduct covariance structure analysis. The results of this analysis are included in Table 4. The chi-square difference test indicated that the data from those who had institutional trust in the NPS did not differ from the data for the respondents lacking institutional trust in the NPS. The significant regression paths and coefficients were equal across the groups. This result failed to confirm the hypothesis that the relationship between respondents' place bonding with the BTNP and their trust in the NPS to manage feral hogs is moderated by their institutional trust in the NPS.

Table 4.—Results of test for the moderating effect of institutional trust

Model	χ^2	$\Delta \chi^2$	Df	Δdf	RMSEA	NFI	NNFI	CFI
Measurement Baseline	754.31	151	--	--	.10	.95	.96	.97
Trust	552.74	151	--	--	.10	.94	.96	.96
No trust	522.63	151	--	--	.13	.88	.92	.93
1 (H1-Structure)	1075.37	302	--	--	.11	.92	.95	.95
2 (H2-Final factor loadings)	1080.56	310	5.19	8	.11	.92	.95	.95
3 (H3-Regression coefficients)	1081.90	311	1.34	1	.11	.92	.95	.95

The lack of support for the moderation model suggests that the relationship between place bonding and trust involved only the respondents' trust in the BTNP NPS staff to manage feral hogs. Hence, we tested the relationship between the five dimensions of place bonding and respondents' trust in the NPS to manage feral hogs at the BTNP. The covariance structure analysis indicated that the data adequately fit the model, as represented in Figure 2. As respondents' level of the place belongingness dimension increased, so did their trust in the NPS to manage the feral hogs at BTNP ($\beta=.64$; $R^2=.29$).

5.0 DISCUSSION

The purpose of this study was to test for a moderating effect of institutional trust on the relationship

between place bonding and trust in a local unit of a land management agency to manage a specific resource. This hypothesis was unsupported. However, the data did support a relationship between place bonding and social trust that differed from previous research. Specifically, the data indicated that place belongingness is positively related to trust in the local agency unit to manage the resource. Previously, Payton et al. (2005) considered only the dimensions of place identity and place dependence and concluded that place identity was the salient dimension with regards to the relationship with individual trust in the local agency staff. Underlying methodological reasons may explain the differences between this study and the previous one, beyond the fact that the samples are different. The multi-dimensional

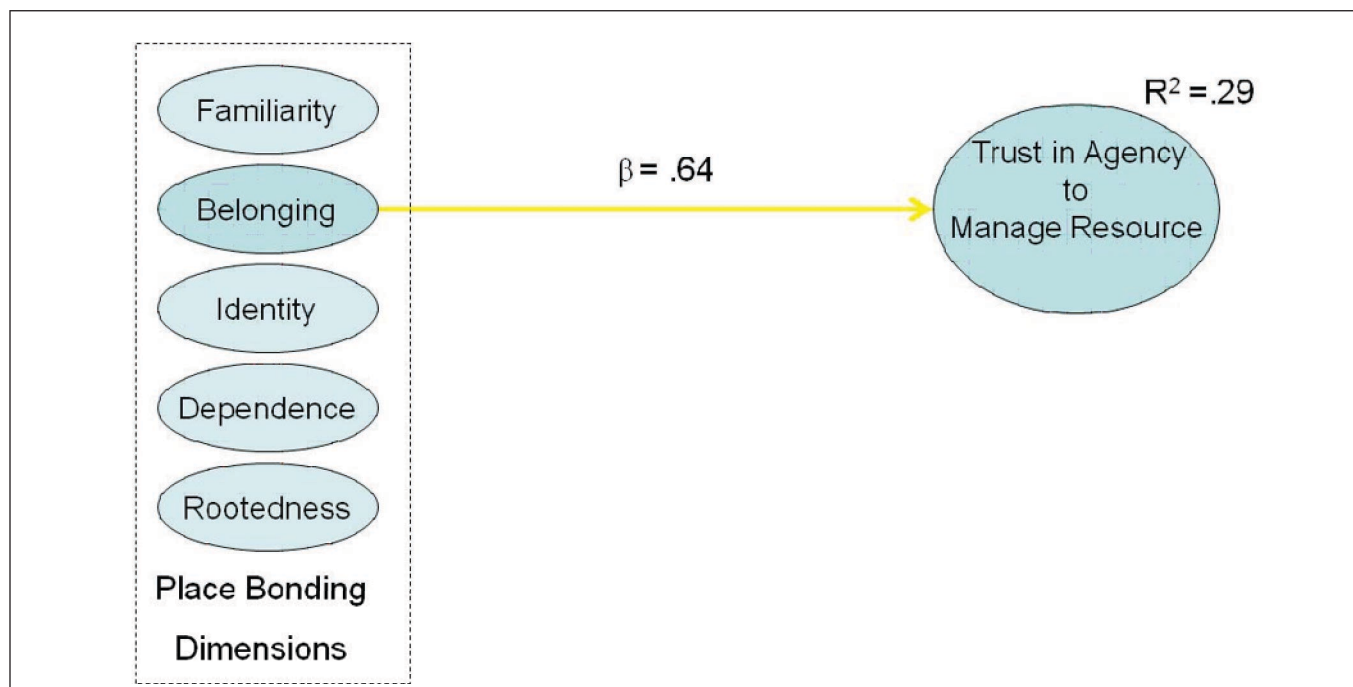


Figure 2.—Place bonding-social trust relationship model ($\chi^2=754.31$; RMSEA=.10; NFI=.95; CFI=.97).

conceptualization of place bonding, consisting of five dimensions, perhaps may allow for a different level of specificity than the two-dimensional model. This difference may influence: a) how the respondent answers the individual items in the place bonding scale and/or b) the correlations between the variables that each conceptualization has in common and other constructs of interest. Hence, the multi-dimensional conceptualization may provide more information on the nuances of place bonding.

It was not surprising that place belongingness proved to be the salient dimension of place bonding's influence on respondents' trust in the NPS at BTNP to manage feral hogs, given previous research on social trust. Barber suggested that trust develops through social interaction between individuals; it follows that the dimension that has been defined as attachment to a place through social bonding is important to the relationship. We find this a plausible explanation because previous research has concluded that an individual's social bonding with a setting can be influenced by interactions with other individuals in the setting through shared experiences and meanings (Kyle et al. 2005). We suggest that as individuals interact with protected area managers in a specific setting, they develop a connection with that setting and the managers they interact with there. In turn, this shared membership within the environment serves as common ground to develop trust between the individual and the manager. Hence the stronger a person's level of place belongingness, the more they trust the managers who represent the local unit of the management agency to manage a specific resource within the setting.

5.1 Implications

The theoretical and practical implications of this study are straightforward. Future research should continue to attempt to determine when it is appropriate to use a multi-dimensional conceptualization of place bonding versus a uni-dimensional or two-dimensional model. Although our investigation did

not support a moderating effect of institutional trust, we feel that given the limited literature regarding the relationship between place bonding and social trust, it is important to continue to include the different levels of trust (i.e., institutional trust, trust in management personnel, and trust in the agency to manage a specific resource) to better determine the relationship between the constructs. These data also support the idea that place bonding can serve as the starting point in the development of the social trust needed for collaborative management. Future research should be conducted to further understand the necessary antecedents of the collaborative management process.

Practically, local managers must understand that individuals' perceptions and social trust are influenced both by past experiences with specific management actions in the setting of interest and with interactions with agency staff. Hence, to use place bonding as a common ground to foster social trust and encourage participation in collaborative management, managers must address the stakeholder's setting-specific concerns and work to build positive relationships with all individuals interested in the management of the resource.

5.2 Limitations

As with all research, the interpretation of these findings is restricted by several limitations. The nature of the sample (i.e., a general population survey of local residents) limited the number of responses received. This investigation was further limited by the type of stakeholders who were involved in the analysis. All respondents lived near the BTNP; hence, potential stakeholders from a greater distance, who may have different concerns regarding feral hogs, were not included. Finally, the respondents to this survey were not very bonded to the BTNP, as demonstrated by the relatively low means for each of the place bonding dimensions. Therefore, results may be different for a sample of stakeholders who are highly bonded to, or vary greatly in their bonding to, the study site.

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***COASTAL RESEARCH
AND MANAGEMENT***

CROWDING AT CAPE LOOKOUT NATIONAL SEASHORE: AN EXAMINATION OF THE INFLUENCE OF VISITOR CHARACTERISTICS ON ENCOUNTER NORMS AND PERCEIVED CROWDING

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Abstract.—Outdoor recreation researchers have typically defined “crowding” as a negative evaluation of the social atmosphere of an area. According to normative theory, individuals have standards (norms) regarding the appropriateness of different levels and types of recreational use. The purpose of this study was to examine the influences of visitor characteristics on the formation of encounter norms and perceived crowding levels at Cape Lookout National Seashore off the coast of North Carolina. Results suggest that visitor expectations, vehicle use, and visitor hometown population density were significantly related to perceived crowding levels. Implications for managing crowding expectations are discussed.

1.0 INTRODUCTION AND STUDY PURPOSE

Outdoor recreation researchers generally consider “crowding” to be a negative evaluation of the social atmosphere of an area. Normative theory suggests that individuals have standards (norms) regarding the appropriateness of different levels and types of recreational use (Vaske and Donnelly 2002). Crowding literature suggests that recreationists tend to feel crowded when they encounter a higher number of people during their visit than their personal norm deems acceptable or tolerable. While a positive relationship between norm violations and perceived

crowding levels has been well documented (i.e., those recreationists whose norms are exceeded by actual encounter levels feel more crowded than those whose norms are not exceeded), less is known about the various individual-level factors that may correspond with the normative conditions and perceived crowding levels in different types of settings. The purpose of this study was to examine the influences of visitor characteristics identified by the literature on normative conditions and perceived crowding levels at Cape Lookout National Seashore (CALO).

CALO is a barrier island system along the southern region of the North Carolina Outer Banks. Due to its lack of accessibility, CALO is different from other nearby beach recreation areas with regard to its level and type of use. The absence of a road connecting CALO islands to the mainland has undoubtedly contributed to keeping recreational visitation rates lower than those of other beach areas located within the Outer Banks. Consequently, CALO provides a recreational setting in which one might not expect many visitors to feel crowded. In contrast to crowding studies that have focused on high-density environments, this study investigated individual factors that may contribute to perceived crowding and norm formation in a relatively low-density environment.

2.0 LITERATURE REVIEW

Crowding is typically thought to represent the social atmosphere of a recreation area, traditionally assumed to have a negative effect on a visitor’s overall satisfaction with his or her experience. It occurs when a visitor experiences more encounters, or too much of a certain type of encounter, than is deemed appropriate by his or her personal norm (Vaske and Donnelly 2002). Norms are standards that individuals and groups use in order to evaluate

social and environmental conditions (Manning et al. 2002). Measures of reported encounters, encounter norms, and perceived crowding levels are often used in recreational carrying capacity studies, with encounter norms representing appropriate standards of use and actual reported encounter levels representing indicators of the social condition of an area.

Many researchers have focused on understanding the relationship between norms and perceived crowding as well as understanding the various factors that may influence these two concepts. A meta-analysis conducted by Shelby et al. (1989) examined 35 studies in 59 different recreational settings and identified a number of different situational and individual factors that may influence recreational crowding levels. Situational factors included the type of setting, seasonality, resource abundance and availability, resource accessibility and convenience, and management policies utilized. Individual factors identified that may influence crowding levels included expectations, preferences, prior experiences, and commitment towards an activity. The authors urged future researchers to use a single-item 9-point scale for measuring perceived crowding in order to increase the generalizability of the results of crowding studies in similar types of coastal settings.

Another study conducted by Manning et al. (1999) discussed the importance of clearly specifying which evaluative dimensions a researcher uses to measure encounter norms. Encounter norms are often measured by asking recreationists to indicate the maximum number of people that they feel is appropriate to see during a recreational visit. However, rather than using the word “appropriate,” most crowding researchers have utilized a number of different evaluative dimensions (e.g., acceptable, tolerable, preferable, maximum before management action) or a combination thereof for measuring norms. Manning et al. (1999) did not suggest that any one dimension is superior to other measures. Rather, they urged future researchers to select the one or more evaluative dimensions that are most appropriate to the research setting, and to clearly describe those dimensions

in their results. For the purposes of the current study, acceptance and tolerance levels were used as evaluative dimensions for examining norms, as these are among the most commonly used in the research literature.

3.0 METHODS

3.1 Research Setting and Sampling

CALO provides the public with a wide variety of recreational pursuits, such as fishing, camping, sunbathing, surfing, swimming, visiting the lighthouse and other historical areas, beach driving, and other activities. Data used for this study were collected from visitors at two of the three main islands within CALO: North Core Banks and South Core Banks. Visitors from the third island, Shackleford Banks, were excluded from the study due to that island’s lower visitation rates and restrictions regarding beach driving. Data collection took place during the peak visitation season (March through November) from May 2006 through November 2007.

The sample used for this study followed a systematic design. Because recreational visitors in this area are widely dispersed, a roving intercept method was employed to locate and sample visitors. On days with lower visitation, researchers attempted to survey every person they encountered on the beach. On days with higher visitation, researchers attempted to survey every *n*th visitor on the beach, with the size of *n* depending on visitation levels. Two instruments were used for data collection in this study. First, researchers conducted on-site interviews with those visitors that they encountered on the beach. Upon consent and completion of the interviews, researchers asked the respondents if they would be willing to participate in a follow-up questionnaire to be completed at home following their trip and mailed back to the researchers. For those who agreed to the follow-up survey, a modified Dillman Total Design Method was used to encourage people to respond. A total of 979 interviews took place, yielding 517 returned mail-back questionnaires (52-percent response rate).

3.2 Measuring Norms and Perceived Crowding

Encounter norms data were gathered during the interview portion of this study. Both acceptance norms and tolerance norms were gathered from visitors. To measure acceptance norms, respondents were asked to indicate the maximum number of people that they felt was acceptable to see on the beach in one day. Respondents were given three response options, the first being simply a specific number of people. Those respondents who did not feel that they could provide a numerical acceptance norm limit were given the option to indicate that (1) the number of other people on the beach did not matter to them; or (2) the number of other people on the beach did matter to them, but they were unable to specify a number. Tolerance norms were measured in the same manner, but instead of indicating a number that they thought was acceptable, respondents were asked to indicate the maximum number of other people that they felt they could tolerate seeing on the beach before they would no longer wish to visit CALO. The above-mentioned alternative response options were used for measuring tolerance norms as well.

Perceived crowding information was gathered using the follow-up mail questionnaire. Respondents were asked to indicate how crowded they felt during their trip to CALO using a 9-point scale. The scale was broken up into three main subsections: 1-2 (not at all crowded), 3-7 (somewhat crowded), and 8-9 (extremely crowded).

3.3 Measuring Visitor Characteristics

Visitor characteristics examined in this study include visitation frequency, distance traveled, vehicle use, group size, visitor expectations, and visitor hometown population density. Visitation frequency was measured by asking respondents to indicate how many times they visit CALO in a typical year. In addition to a numerical response category, respondents were given the option to indicate (1) that they were not sure how many times they visit per year; (2) that they were currently on their first visit ever; or (3) another category. Distance traveled was measured by asking respondents to indicate how many miles their

permanent home was away from CALO. Vehicle use was measured by asking respondents whether they had ever owned or rented a beach vehicle. Group size was assessed by asking respondents to indicate the number of other people with whom they came to CALO. To measure visitor expectations, respondents were asked to compare the number of people that they saw during their visit to the number of people that they had expected to see on the beach prior to their visit. They were presented with a five-point scale for this question ranging from 1 (I saw a lot fewer people than I expected to see during my visit), to 3 (I saw about the same number of people that I expected to see during my visit), to 5 (I saw a lot more people than I expected to see during my visit). Respondents were also given the opportunity to indicate that they did not have any expectations regarding the number of other people prior to their visit. Hometown population density was measured by comparing respondent ZIP codes with U.S. Census Bureau population density data. For the purposes of this study, hometown population density refers to the population per square mile within a visitor's ZIP code tabulation area. For those respondents whose ZIP code did not fall into a ZIP code tabulation area, U.S. Census Bureau city population data were used in order to gather the population per square mile of a visitor's hometown.

4.0 RESULTS

In the interest of brevity, descriptive results of the study variables will not be discussed in this section. However, the descriptive results are displayed in Tables 1 through 4.

Correlation analysis was used to test relationships between norms, perceived crowding, and visitor characteristics. As shown in Table 5, visitation frequency, group size, distance traveled, and respondent age were not significantly correlated with norms or crowding scores, suggesting that these variables have little or no influence on normative conditions or crowding perceptions for the typical CALO visitor. None of the visitor characteristics examined in this study was significantly correlated with tolerance norms or acceptance norms at the $p < .005$ level. However, both expectations and

Table 1.—Visitor characteristics

Distance Traveled	N	%	Group Size	N	%
0-100 Miles	204	21.3	Alone	4	0.4
101-200 Miles	309	32.2	2-4 People	417	43.1
201-300 Miles	242	25.2	5-8 People	384	39.7
301-500 Miles	137	14.3	More than 8 People	162	16.8
Over 500 Miles	68	7.1	Total	967	100
Total	960	100	Mean = 5.22		
Mean = 254.6			Standard Deviation = 5.39		
Standard Deviation = 307.5					
Vehicle Use	N	%	Visitation Frequency	N	%
Yes	318	65.4	Once per year	203	20.7
No	168	34.6	2-5 times per year	310	31.7
			6-10 times per year	96	9.8
			11-25 times per year	98	10
			Over 25 times per year	46	4.7
Hometown Population per Square Mile			This was my first visit	170	17.4
Mean = 576.6 people			Other	56	5.7
Standard Deviation = 833.64			Total	979	100
			Mean = 7.44 times per year		
			Standard Deviation = 11.46		

Table 2.—Visitor expectations

How did the number of people that you saw during your visit compare to the number that you expected to see?		N	%
1	A lot less people than I expected	36	7.3
2	A little less than I expected	78	15.8
3	About what I expected	317	64.3
4	A little more than I expected	42	8.5
5	A lot more than I expected	20	4.1
Total		493	100
Mean = 2.86		SD = 0.83	
*17 people reported that they did not have any expectations			

Table 3.—Acceptance norms and tolerance norms

Item	N	Mean	Standard Deviation	Median	Quartiles	
					25%	75%
About how many people did you see on the beach today?						
Numerical response	948 (97%)	38	57.93	25	12	45
Can't remember	21 (2.1%)	--	--	--	--	--
Missing	8 (0.8%)	--	--	--	--	--
How many people on the beach is it acceptable to see in one day?						
Numerical response	499 (51.1%)	103	199.70	50	20	100
# of people on beach does not matter to me	305 (31.2%)	--	--	--	--	--
# matters, but I can't specify a number	165 (16.9%)	--	--	--	--	--
Missing	8 (0.8%)	--	--	--	--	--
How many people on the beach could you tolerate before you would not visit CALO anymore?						
Numerical response	492 (50.4%)	432	1586.78	200	100	350
# of people on beach does not matter to me	273 (27.9%)	--	--	--	--	--
# matters, but I can't specify a number	202 (20.7%)	--	--	--	--	--
Missing	10 (1.0%)	--	--	--	--	--

Table 4.—Perceived crowding levels

How crowded did you feel during your visit?		N	%
1	Not at all crowded	189	37.0
2		153	29.8
3		70	13.7
4		41	8.0
5		36	7.0
6	Somewhat crowded	11	2.2
7		5	1.0
8		4	0.8
9	Extremely crowded	2	0.4
Total		511	100
Mean = 2.35		SD = 1.55	

visitor hometown population per square mile had weak correlations with acceptance norms that were significant at the $p < .010$ level. Expectations were negatively correlated with acceptance norms ($r = -.117$, $p = .069$), suggesting that, on average, those visitors who saw more people than they expected to see during their visit tended to report slightly lower acceptance norms than those who saw a lower number of people than expected. The results show a weak positive correlation ($r = .119$, $p = .080$) between hometown population per square mile and acceptance norms, suggesting that, on average, those visitors who had higher hometown population densities tended to report slightly higher acceptance norms than those who had lower hometown population densities.

Perceived crowding was also significantly correlated with both visitor expectations ($r = .515$, $p < .001$) and

visitor hometown population per square mile ($r = .108$, $p = .025$). These results suggest that, on average, CALO visitors who had higher hometown population densities tended to feel slightly more crowded during their visit than those visitors who had lower hometown population densities. A much stronger correlation was found between perceived crowding and visitor expectations, suggesting that those visitors who saw more people on the beach than they expected tended to report higher levels of perceived crowding than those visitors who saw fewer people than expected. Another visitor characteristic that seemed to have an effect on perceived crowding levels was vehicle use. As shown in Table 6, the mean perceived crowding score was significantly lower for those visitors who used vehicles ($X = 2.14$) than for those who did not use vehicles ($X = 2.74$). This result may reflect the ability of visitors with vehicles to travel greater distances within CALO, ultimately allowing them to escape congested areas more easily than those who did not use vehicles.

5.0 DISCUSSION AND CONCLUSIONS

In this study, the visitor characteristics that seemed to have an effect on perceived crowding levels included expectations, vehicle use, and hometown population density. The lack of significant relationships found between other visitor characteristics (e.g., visitation frequency, group size, distance traveled, and age), norms, and perceived crowding may suggest that situational factors tend to have a stronger influence on the formation of norms and crowding levels.

Table 5.—Correlation analysis of study variables

Variables	Acceptance Norms			Tolerance Norms			Perceived Crowding		
	R	Sig.	N	r	Sig.	N	r	Sig.	N
Visitation Frequency (per year)	-.047	.369	368	.038	.474	359	-.045	.367	409
Distance Traveled (miles from home)	-.002	.960	495	.020	.662	489	-.062	.167	501
Expectation vs. Reported Actual Conditions	-.117	.069	243	-.028	.658	260	.515	<.001	493
Group Size	.053	.235	495	.019	.675	489	.049	.271	503
Age	.000	.995	244	.037	.556	258	-.065	.148	499
Hometown Population Density per Sq. Mile	.119	.080	216	-.023	.735	227	.108	.025	426

Table 6.—Vehicle use, norms, and perceived crowding

Acceptance Norms					
Vehicle Use	N	Group Mean	Standard Dev.	t	p
Yes	140	94.74	147.72	.494	.622
No	101	106.35	200		
Tolerance Norms					
Vehicle Use	N	Group Mean	Standard Dev.	t	Sig
Yes	135	458.68	1774.33	-.832	.406
No	112	314.88	483.43		
Perceived Crowding (Scale 1-9)					
Vehicle Use	N	Group Mean	Standard Dev.	t	Sig
Yes	316	2.14	1.40	3.87	<.001
No	167	2.74	1.73		

As expectations have been shown to have a relatively strong influence on perceived crowding (with this study as well as others), managers of outdoor recreational areas might be able to alleviate feelings of crowdedness by providing inexperienced or first time users with information on which to base more accurate expectations prior to their visit. Such efforts might include communicating information that would describe typical use levels during different times of the year and in different areas within a recreational setting.

The results of this study suggest a positive albeit weak relationship between visitor hometown population densities and levels of perceived crowding. It seems that those CALO visitors coming from more densely populated areas were slightly less tolerant of the other people around them than those visitors coming from less densely populated areas. Although this finding was the opposite of what we expected, one potential reason for this relationship is that visitors from more populous hometowns may be attempting to escape from the crowds while visiting CALO. However, the strength of this relationship, or lack thereof, does not suggest that visitor hometown population densities have a large effect on perceived crowding. Reexamination of this relationship, along with the relationship between origin population and motivations to visit, is needed in future studies to confirm whether meaningful relationships exist between visitor hometown characteristics and recreational attitudes and perceptions in a variety of recreational settings.

Another limitation prevalent in much of the crowding research is the measurement time lag between when on-site intercepts and observational data are collected and when respondents complete mail-back instruments. It is recommended that future research focus on determining the effect that this time lag may have on the lack of robust correlations between these variables that is quite common within crowding research.

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WILDERNESS, WILDNESS, AND VISITOR ACCESS TO CUMBERLAND ISLAND NATIONAL SEASHORE, GEORGIA

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Abstract.—Cumberland Island National Seashore (CUIS), located off the coast of Georgia, was created in 1972 to preserve the island's ecosystem and primitive character. CUIS management staff has recently been charged with developing a Transportation Management Plan (TMP) to provide better access to the northern portion of the island, where several sites of historical significance are located. This assignment has created a conflict between providing transportation and preserving the island's naturalness. Proposals include providing transportation by passenger vehicles, trams, horseback, and even a horse and carriage. A total of 2,227 public comments on the proposals were received from individuals and organizations and have been analyzed to help guide the decision-making process. Eighty-one percent of the comments expressed opposition to or offered only conditional support for the proposed TMP. Hence, CUIS is facing a delicate state of transition and will need to further consider the balance between preservation and use of the island.

1.0 INTRODUCTION

Cumberland Island National Seashore (CUIS) was created in 1972 to preserve the island's primitive character and natural processes. CUIS managers are further charged with preserving the area's natural, cultural, and historical aspects, while offering visitors

a feeling of isolation and wonder. These ideals, set against the backdrop of the National Park Service's (NPS) mission of protecting the natural character of the park while accommodating the recreation needs of visitors, cause some conflicts of interest (NPS 2007). The island has been inhabited for approximately 4,000 years and had been home to wealthy industrialists since the late 19th century. Human impacts on the island are obvious, but Cumberland has recovered from years of grazing and farming to such an extent that almost half of the island is now a federally designated "wilderness." Imposing a low limit on daily visitors to CUIS over the past 30 years (a maximum of 300 people per day) has helped the island recover even further, resulting in a mostly pristine environment.

Although Cumberland Island has remained relatively unchanged throughout the tenure of the NPS, CUIS now faces some significant changes. The original "wilderness" designation meant that a portion of the main road that runs the length of the island is off-limits to vehicular traffic in accordance with the Wilderness Act of 1964. New legislation requires CUIS staff to provide better access for visitors to the northern portion of the island, where several sites of historical significance are located. To allow this access, the island's wilderness designation had to be changed since the only access to the north end of the island is a dirt road that runs directly through the wilderness. The CUIS management staff now has been charged with developing a transportation management plan (TMP) to provide access to the northern portion of the island.

This paper provides a brief background of CUIS to enhance understanding of how the current situation developed. The TMP and related issues will then be discussed. Visitor perceptions of the proposed TMP will also be examined, along with issues related to the future of transportation on the island.

2.0 THE HISTORY AND MANAGEMENT OF CUMBERLAND ISLAND NATIONAL SEASHORE

2.1 Cumberland Island Ecology

Cumberland is a barrier island off the southern coast of Georgia near the border with Florida. It is one of the largest, most pristine, undeveloped barrier islands on the East Coast. The island is composed of second-growth maritime forests, inland salt marsh, grassy dunes, and miles of pristine beaches. The island has had time to recover from early settlers' extensive farming and grazing, but the current incarnation of Cumberland Island is different from when the Europeans found it. Large stands of live oak and pine once covered the island, and undergrowth of such species as saw palmettos was less prevalent. The felling of the original large tree stands opened the door for more groundcover to develop, which resulted in its present-day look.

The mild climate, with temperatures in the 60s in the winter and mid-80s in the summer, makes Cumberland Island an ideal place for both humans and animals. This ecosystem is home to a wide variety of native and exotic wildlife, including bobcats, feral hogs, wild horses, armadillos, and deer. Federally protected loggerhead sea turtles use the many miles of beaches to lay their eggs.

2.2 Cumberland Island Cultural History

Cumberland Island has a long and storied history of human inhabitation stretching back 4,000 years. For most of this time the indigenous people, the Timucuan Indians, cultivated the land. They manipulated the local ecology by burning tracts of land to develop it for agriculture and encourage grazing by desirable animals such as the white-tailed deer (Dilsaver 2004). By the time Spanish explorers arrived in 1562, the island had visible signs of human impact. In fact, European settlers later adopted the trail system established by the Timucuans and today many of the trails are remnants of these ancient byways (Dilsaver 2004).

In 1783, Revolutionary War General Nathaniel Greene was awarded land on the island in recognition of

his heroic role in the war. Greene built what would become one of the lasting images of the island, the original Dungeness Estate. Dungeness was the residence of the Greene family until it burned down. It remained in ruins until 1881 when the most famous residents of the island, the Carnegie family, razed the ruins and built their own Dungeness.

The Carnegies were the primary landowners on Cumberland for close to 100 years and they established several sites around the island. In 1972, after years of deliberation and negotiations, the Carnegies and other minor landholders sold their land to the NPS. Some families still reside on the island today as the result of agreements they have with the NPS, although many of these titles will revert to the NPS in 2010. Despite these few remnant in-holdings, the majority of the land on Cumberland Island is now owned and managed by the NPS.

2.3 NPS Involvement on Cumberland Island

On October 23, 1972, Public Law 92-536 was signed by President Nixon to establish Cumberland Island as a 40,500-acre National Seashore, making it one of the largest, mostly undeveloped, barrier island preserves in the world. The NPS decided early on that this island was a unique treasure to preserve and that preservation was made easier by its detachment from the mainland. The NPS subsequently set a visitor limit of 300 people per day to the island to limit visitor impacts on the ecological and recreational resources. A ferry runs twice daily to and from the island, taking up to 150 people per trip. It is not well understood how this visitor limit was established; the 300 people per day limit is generally accepted as an arbitrary number imposed by the NPS that lacks validation through scientific study. However, without imposing such restrictive limits, it is possible that social and ecological impacts would increase (Freimund and Cole 2001). A University of Georgia study in 1970 calculated that the island had a daily carrying capacity of more than 14,400 visitors (Ike and Richardson 1975). However, Ike and Richardson (1975) suggested that the NPS set the maximum at 10,000 and monitor visitor impacts to determine a more appropriate

number. Research on crowding at Wilderness areas by Dawson and Watson (2000) found that visitor satisfaction often remains high despite the perception of crowding.

From the outset, NPS managers considered designating a portion of the island as Wilderness. This discussion came to fruition in 1982 when the northern part of the island (roughly 9,986 acres) was established as a Wilderness to be managed by the NPS as part of the National Wilderness Preservation System. In accordance with the Wilderness Act of 1964, this new designation prohibited vehicular traffic on a portion of the main road that runs the length of the island. NPS staff members could use only primitive tools to maintain the trails in the Wilderness area and they were encouraged to use the water as their primary means of travel to the north end. Individuals who retained private property on the island were still allowed to use the main road with the agreement that when their use rights ended (most during 2010), the area would become a more “proper” Wilderness (Dilsaver 2004).

As time went on, it became apparent to many users and the park management staff that the north end of the island was inaccessible to many visitors due to lack of transportation. This realization led to new legislation requiring NPS to provide access to the environmental and historical sites at the north end of the island. Passed in 2004, Public Law 108-447 removed the main road’s Wilderness designation, once again allowing vehicular traffic access to the north end of the island. The legislation also required the NPS to develop a TMP to accommodate no less than five and no more than eight tours a day to the north end of the island.

3.0 THE TRANSPORTATION MANAGEMENT PLAN

As an agency, the NPS believes that resource conservation should take precedence over visitor recreation (NPS 2007). In 1981, researchers Bonnicksen and Robinson noted that the NPS is often hesitant to expand recreational development within national seashores because of its commitment

to preservation. The NPS mission states that CUIS is to provide for public outdoor recreation use and enjoyment of significant shoreline, lands, and water and to preserve related scenic, scientific, and historical values (NPS 1984). The CUIS is mandated to preserve the island’s natural environment as well as its cultural heritage, and this is where the TMP comes into play.

Currently, the island is divided into two well defined areas: the north and south end. The south end of the island is where the majority of visitor activity takes place. This is the location of the two ferry drop-offs, Sea Camp and Dungeness Mansion, as well as easy access to the beach. The north end is primarily a designated wilderness and the only access is by foot or bicycle (private holdings are an exception; individuals are allowed to drive their private vehicles to the north end). The north end is the site of a 100-year-old Carnegie Mansion (Plum Orchard), and the settlement where the First African Baptist Church resides. Plum Orchard is undergoing a multi-million dollar renovation and will be a big attraction for tourists. The First African Baptist Church and the settlement are of great cultural significance in African-American history and heritage. The issue is how visitors will get to these historical and cultural sites.

The first issue to be addressed is how visitors will reach the north end of the island; specifically, what type of vehicle will be used to transport visitors around the island. Several ideas have been proposed, such as passenger vehicles (vans or SUVs), trams, horseback, and even a horse and carriage (Hartrampf, Inc. and Jordan, Jones, and Goulding, Inc. 2006). The idea getting the most attention is the vehicle proposal, but it faces several obstacles that must be overcome if it is to succeed. For instance, will the vehicles be gas-powered or possibly electric? Environmentalists argue that gas is not an option. With five to eight tours a day running to the north end of the island, gasoline-fueled vehicles will have a detrimental effect on the natural environment. Electric vehicles, however, come with their own problems. The overall trip to the north end and back (as the road currently exists, and allowing for touring the sites) takes approximately 3 to 4 hours. The electric car may be more environmentally friendly, but

would the vehicle have enough of a charge to make the return trip? If the answer is no, then a charging station may have to be built on the north end of the island, which would further impact the area and possibly be an expensive endeavor. Furthermore, these vehicles, electric or gas-powered, will need a hub from which to operate. This option would require the construction of a costly transportation center where the vehicles could be stored and maintained, and may be perceived as an intrusion in the natural environment.

Discussion has also included bidding the tours of the north end out to a private concessionaire. However, the public has made it clear that bidding is not an option, nor is it in the best interest of CUIS (Georgia Conservancy, n.d.). The concerns range from turning CUIS into an amusement park to prioritizing profit over protection to adding yet another burden to the already overworked NPS staff (Hartrampf, Inc. and Jordan, Jones, and Goulding, Inc. 2006).

Another factor to consider when discussing shuttling people back and forth to the north end of the island is the condition and maintenance of the road. The current road is primitive and is not maintained on a regular basis. The road is also narrow, treacherous, and riddled with washboard striations. In its present state, it would not be feasible to take five to eight tours a day, comfortably, to the north end of the island. Therefore, along with determining the mode of transportation, the road itself would most likely need modification to accommodate tours. Modification probably would include grading the road to provide a smoother and more comfortable ride. Vegetation encroaching on the road includes saw palmettos, pines, and live oaks, which would need to be pruned or removed altogether to accommodate the increased traffic safely. These adjustments to the natural environment go against the mission of the NPS and CUIS, and thus present a major challenge for park management.

Before vehicle type is chosen or new facilities are built, however, the main access point for the north end needs to be determined. There are currently two main access points to the island via the ferry: Sea Camp and Dungeness Dock. A third access point is

being considered at Plum Orchard (Jerry Brumbelow, personal communication, 2007). The existing wharf at Plum Orchard could not accommodate the ferry, and a substantial monetary investment by the NPS would be needed to build a new dock. Plum Orchard, however, may be an ideal place for the hub of the tours to and from the north end.

Plum Orchard is the approximate mid-point of the island and could be an ideal place for incoming visitors to experience the historical, cultural, and natural wonders of CUIS. Renovations to the existing wharf at Plum Orchard would enable visitors to be ferried directly from Sea Camp or Dungeness Dock, thus alleviating the need for added vehicle traffic on the Main Road. Plum Orchard is also a good spot for the hub of the proposed transportation system. There is an existing facility on site, which with renovations would suit the needs of housing and maintaining the vehicles. Plum Orchard is a destination that visitors could enjoy in and of itself, with tours to the north end being an added value. This alternative is only one of the options at this point, but nevertheless one of the stronger options.

In light of the mandate to offer five to eight tours of the north end of the island to the visiting public, this paper, so far, has primarily discussed how visitors would reach the north end of the island but has neglected the possibly more important question of why visitors should be shuttled there. One major attraction at the north end of CUIS is Plum Orchard. With the possibility of offering ferry service to this location, the TMP is not necessary. However, sites such as the Settlement and the First African Baptist Church are not easily reached by foot or bike, nor are there suitable water depths for ferry service at the northern end. The TMP is necessary to access these destinations.

Another consideration is: What will be the interpretive value of the experience? The CUIS will need to provide drivers (if a private concessionaire is not involved), who will require interpretive training for the tour. The NPS-trained drivers may be a good option considering work done by Miller and Wright (1999), who found that the quality of visitors' experiences in

Denali National Park in Alaska is largely affected by the courtesy and knowledge of tour bus drivers. These are subjective questions open for interpretation but are important to ask nonetheless because the NPS still has a no-action clause. It is unlikely that this alternative will be chosen, but at this stage of TMP development, all options must be weighed.

3.1 The Decision-making Process

As of this writing, CUIS managers and NPS regional and national managers are making decisions about the final form of the TMP. Decisions will be based on NPS and CUIS policy and the missions of the agency. Public comments have been collected and analyzed to help guide the decision-making process. In the upcoming months, intercept surveys will be conducted on the island to get a better understanding of visitors' perceptions and desires regarding the TMP. A mail survey also will be conducted to help better understand visitor preferences and desired experiences regarding CUIS and the TMP.

3.2 Public Scoping Summary

Between August 1 and September 15, 2006 the NPS held an open comment period on proposals for the TMP. A total of 2,227 comments were received from individuals and organizations. About 86 percent of the comments were sent via email and the remaining 14 percent were sent by mail, fax, or in person at public meetings. Content analysis showed that 81 percent of the respondents opposed or offered only conditional support for the proposed TMP. Approximately 14 percent of the comments were in support of the TMP; about 5 percent of the respondents were uncommitted (Hartrampf, Inc. and Jordan, Jones, and Goulding, Inc. 2006) (see Table 1).

Specific public comments reflected a range of concerns and interests regarding the TMP. A few examples of pro-TMP comments are: "The Island should be more accessible to the general public...the tax payers"; "a means of having transportation for the disabled would be most beneficial"; and "The beauty of the island should be shared by all." The comments of those opposed to the TMP generally have a more resentful tone: "Georgia's last pristine wilderness... tourists are ... ruinous to the environment"; "no changes to Cumberland Island"; and "our family goes there for peace and quiet and lack of people...this plan will undo that." One comment in particular sums up much of this discussion: "Leave the park in its natural state and preserve the environment, the purpose of the NPS."

3.3 Moving Toward the Future

Fitzsimmons (1976) noted, "Society has generally viewed the national parks as places for relaxed nature appreciation with largely unspoiled, scenic, natural landscapes, as opposed to commercial playgrounds amid scenic beauty." Over the next few years, CUIS will be in a delicate state of transition and management will need to further consider the balance between preservation and recreation, a common theme for the National Park Service. Sax (1980) raises the concern that national parks may be turning into Disneyland, where people are there simply to be entertained on vacation. Perhaps the best way to educate visitors is to provide as much information as possible about the wide range of opportunities available within any given park. Educating the public would allow visitors to choose an experience that best meets their expectations (Shelby 1980).

Table 1.—Summary of public comments on Cumberland Island National Seashore transportation management plan Received in August and September 2006

Category	Concerns
Tours	Privatization, Fee, Number of trips, Guided vs. Non-guided
Route	Beach Driving, Ferry Routes and Docks, Use of Main Road
Mode	Fuel Type, Non-Motorized Options
Support Facilities	Type/Use of Facility, Paving
Miscellaneous	Limit on Number of Visitors

(Modified from Hartrampf, Inc. and Jordan, Jones, and Goulding, Inc. 2006).

The NPS is increasingly beginning to focus on alternative transportation systems in the national parks (White 2007). It will be important to understand the meanings that visitors construct about different transportation systems within the parks. White (2007) also states that very little research has been done on how visitors perceive transportation systems and how these transportation systems impact visitors' experiences. Studies of existing NPS transportation systems (Miller and Wright 1999, Mace et al. 2006) have shown that visitors perceive such systems as a satisfying experience. In White's (2007) study on a proposed transportation plan in Yosemite National Park (California), most people responded they would be in favor of a shuttle service to reduce emissions and traffic problems within the park. The situation at CUIS is unique. Unlike Yosemite and Zion National Park (Utah), where TMPs were used to reduce traffic and the impact of too many visitors, the TMP at CUIS has the potential to increase the number of visitors to the park.

Much remains to be decided at CUIS in the upcoming years. Developing a realistic carrying capacity for the island requires further research. Other national parks that are working through similar problems have decided to restrict access in hopes of decreasing congestion. Acadia (Maine), Grand Canyon, Yellowstone, and Zion National Parks have all instituted various shuttle systems to alleviate traffic congestion during peak visitation times of the year (Sims et al. 2005). The CUIS, however, is not concerned about further restricting access to the island, which is the major focus of many previous studies. Interviews and surveys along with public meetings need to be implemented to obtain a better understanding of what the best options for the TMP may be. This is the beginning of a long process for CUIS. We hope that when the transportation management plan has been fully implemented and evaluated, it will provide a model for other parks facing similar situations.

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***TOURISM—TOURIST PERCEPTIONS
AND BEHAVIORS***

PERCEPTIONS OF SELF-DRIVE TOURISTS ALONG THE ALASKA-CANADA BORDER TOWARD THE INCREASED SECURITY REQUIREMENTS OF THE WESTERN HEMISPHERE TRAVEL INITIATIVE

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Abstract.—This study explores the attitudes and feelings of self-drive tourists who cross the Alaska-Canada border about the increased security requirements of the Western Hemisphere Travel Initiative (WHTI), and how such attitudes and feelings may impact the tourism industry in this region. Results of a 2007 survey suggest that implementation of passport requirements will have little effect on tourism in the region. Although the WHTI is a polarizing issue with a sizeable proportion of opponents, many travelers showed support for the initiative. It appears that the price of fuel, especially in northwestern Canada, is more likely to have a negative impact on tourism than will passport requirements.

1.0 INTRODUCTION

The Western Hemisphere Travel Initiative (WHTI) is part of the wide-ranging national security increases in the United States following the terrorist attacks of Sept. 11, 2001. WHTI would require “travelers to and from the Caribbean, Bermuda, Panama, Mexico, and Canada have a passport or other secure, accepted document to enter or re-enter the United States” (U.S. Department of State 2006a). Alternative documents have not yet been created or chosen, so most parties see the WHTI as primarily a passport requirement and assume that it will stay that way. The first phase of the WHTI was implemented on Jan. 8, 2007, requiring a passport for arrivals by air or sea. The second phase would require the same documents for crossings by land and ferry and was originally set to start on

Jan. 1, 2008 (U.S. Department of State 2006a). Reflecting how strongly some people feel about this issue, action in the U.S. Congress delayed this implementation to June 2009 at the latest (Harper 2006).

The WHTI would require travelers to obtain a passport if they do not already have one, costing U.S. citizens at least \$100 with an approximately 6-week wait (U.S. Department of State 2006b). Thus, the WHTI has caused much concern in the U.S. and Canadian travel and tourism sector that the price and planning required for a passport will deter travel, especially more spontaneous and short-term trips. Roughly \$20 billion is spent annually by tourists traveling across the U.S.-Canada border (Canadian Intergovernmental Conference Secretariat 2006, U.S. Office of Travel and Tourism Industries 2006), and it is anticipated that the tourism market will be hard hit by the new requirements. The Canadian Tourism Commission (2005) argues that tourists are far more discretionary in their travel choices and will show a much greater reaction to WHTI requirements—and that the tourism industry will suffer significant economic losses as a result.

The WHTI’s impact on tourism may have its strongest effect on the heavily tourism-dependent communities of Alaska and the Yukon Territory in Canada. Tourism accounts for at least 5 percent of the gross domestic product and at least 8 percent of employment in the Yukon (Yukon 2004); 70 percent of tourists in the Yukon are from the United States and nearly 25 percent are from Canada. More than 400,000 Americans and Canadians enter Alaska each year by driving through Canada, and more than a quarter of those are Canadian travelers who spend over CDN\$81 million in Alaska (Taylor 2005). While lower numbers of tourists would be expected to affect all of Alaska and the Yukon negatively, it will likely be worse in

communities such as Beaver Creek, Tok, Haines, and Dawson City, where tourists who drive themselves constitute a larger percentage of the local economy.

1.1 Self-drive Tourism in Alaska and Northwestern Canada

A 1990 report on Alaskan tourism noted, “Alaska offers a novel vacation destination since it is physically remote, distinct with respect to climate, and culturally different owing to its indigenous peoples and history” (Snepenger et al. 1990). This claim may be especially true for visitors who drive themselves (“self-drive tourism”) since few if any other destinations in North America, and possibly the world, are as attractive to road tourists as a trip through Canada to Alaska (Valencia 2006). There are several reasons for this attraction. First, the natural elements of the region, such as the wilderness, history, glaciers, mountains, and wildlife, are easily viewed from the highways. Second, there are many popular attractions and destinations, not just one or two prime ones. This variety encourages driving throughout and across the region instead of merely to one or two areas, keeping with the observed pattern that multi-destination trips are popular for long-haul destinations (Opperman 1995). Third, the North is out of the way of normal travel routes and few people ever travel there compared to more easily reached destinations like Florida or New York; it is thus a rarer and more exciting destination. Finally, this region is so popular with self-drive tourists because the nature of the roads in this region makes them an attraction unto themselves. Despite the vast size of Alaska, the Yukon, northern British Columbia, and western parts of the Northwest Territories—an area more than four times the size of Texas (Valencia 2006)—there are extremely few roads, and many are unpaved. Often rather desolate, these roads have no billboards and little if any development along them. They serve as pathways through the wilderness and offer drivers the opportunity to be surrounded by spectacular scenery for hundreds of miles in any direction. The nature of these roads makes them more challenging to drive and distinct from most highways in the rest of the continent. Thus they have become prized and fabled destinations for the self-drive tourism market. This

fascination extends back to the very construction of the highways; Canadian authorities were shocked at the high demand for travel on the Alaska Highway following its opening to the general public in 1948 (Wonders 1994).

1.2 Purpose

To date, no academic studies have been published in peer-reviewed journals that examine the potential effects of the WHTI or other identification requirements on tourism, despite the large amount of attention and worry that these new laws are generating in the U.S. and Canada. Some research on this subject has been conducted by various governmental or trade organizations, but studies have focused on the southern Canadian border. In addition, previous research has collected information from prospective tourists, but no studies have been done in the field with tourists who have actually traveled to the region. Therefore, this study examines the WHTI’s potential impacts on tourism from both an academic perspective and an empirical approach using a survey of tourists who were traveling to Alaska by car. Its aim is to examine self-drive tourists’ feelings about and attitudes towards the implementation of stricter border-crossing regulations and explore how these feelings and attitudes might affect tourism in Alaska, the Yukon, and British Columbia. The research hypothesis is that tourists will have negative feelings towards the increased regulations and related costs, but that these will not dissuade them from visiting Alaska.

2.0 METHODS

2.1 Study Area

This study was conducted during the 2007 summer tourism season in Alaska and the Yukon Territory in conjunction with related dissertation research. Self-administered surveys (Mehmetoglu 2007) were utilized for data collection. During 22 randomly chosen sampling days, surveys were distributed at 14 public and private campgrounds and recreational vehicle parks throughout the region. Ranging from Yukon territorial campgrounds to Alaska state and city parks and Denali National Park, these locations constituted a convenience sample based on sites where permission to survey was granted.

2.2 Sampling Methods

Self-drive tourists were identified while camping in or near their vehicles in the evenings while resting at their sites. All campers at each location were approached, except for those who were clearly from Alaska and the Yukon. Identification of self-drive tourists was made initially through observing license plates. For tourists who flew to Alaska or the Yukon and then rented vehicles, identification was possible despite their local license plates by observing rental company decals and bar-code stickers. In addition, common vehicle models in the rental fleets that summer—such as Dodge Caliburs and Chevrolet Impalas and Cobalts—are not generally popular among locals and thus were easily identifiable as rentals. After a brief discussion of the project, surveys were left with the campers and completed surveys were collected either that same evening or the following morning.

2.3 Survey Design

The survey consisted of four yes/no questions and several short-answer/multiple-choice items designed to gather demographic information and more detailed information about feelings towards the WHTI and fuel prices. There were also seven Likert-type scale items aimed at gathering information on degree of agreement with statements pertaining to the WHTI. These scales ranged from 1 to 8, with 1 representing “Do not agree at all” and 8 representing “Strongly agree.”

3.0 RESULTS

A total of 229 surveys were returned for a response rate of 79 percent. Just over 90 percent of respondents were repeat visitors to the area. About 80 percent were

from the U.S., 10 percent were from Canada, and 8 percent were from elsewhere. Almost 65 percent were retired, and the mean age was 57. More than 95 percent were aware of the upcoming passport requirement, 88.9 percent already owned a passport, and 77.9 percent indicated that they supported the WHTI. There were no significant differences between U.S. and Canadian travelers in any of these survey items.

The Likert-type scale questions produced mostly skewed results. Respondents strongly agreed that crossing borders is not a burden, that acquiring a passport is not a hassle nor would it cost too much, and that the price of fuel was an inconvenience. The only items with more varied distributions were: “The WHTI is necessary,” which had strong agreement (47 percent scored 8) with a smaller yet significant portion (17.3 percent) scoring 1, and “I would not go to the Yukon if I could not continue to Alaska,” which had 24.2 percent scoring 1 and the same percentage scoring 8. There was a significant difference between Canadians and Americans on this last item; Canadians were more willing to go just to the Yukon and not to Alaska, ($p < .05$). Results are summarized in Table 1.

More than 61 percent of visitors ($n = 140$) indicated that fuel prices were at or near levels that would deter future visitation. On the Likert-type scales for “The price of fuel was an inconvenience,” Americans had a mean score of 6.36, compared to 4.75 for Canadians, and 3.2 for other nationalities. The average price of fuel that would deter future visits was U.S.\$3.31 per gallon for Americans, \$4.35 for Canadians, and \$5.45

Table 1.—Results from Likert-type survey items

Statement	Percent Indicating Each Likert-Type Scale Value								n
	Do not agree					Strongly agree			
	1	2	3	4	5	6	7	8	
The WHTI is necessary	17.3	3.5	4.0	4.5	7.9	5.9	9.9	47.0	202
Crossing international borders is a burden	33.8	14.7	9.8	7.4	13.2	8.8	2.9	9.3	204
Acquiring a passport would be a hassle	69.8	9.4	3.0	2.5	4.0	3.0	1.5	6.9	202
A passport would cost too much for me	68.5	11.3	3.0	4.4	4.4	3.0	0.5	4.9	203
I would not go to Yukon if I could not continue on to Alaska	24.2	9.7	8.2	5.3	8.2	7.2	13.0	24.2	207
The price of fuel is an inconvenience	8.5	5.2	5.7	6.2	7.1	10.4	12.8	44.1	211

for others. Differences were all significant from each other at the .05 level with p-values of 0.000. A survey by the author of fuel prices in July and August 2007 throughout the parts of the region connected to the road system showed average prices of U.S.\$3 per gallon in urban Alaska, \$3.69 in rural Alaska, and \$5.50+ per gallon in rural Canada.

4.0 DISCUSSION AND CONCLUSIONS

Results from this survey suggest that the implementation of passport requirements will have little or no effect on tourism in the region. Most tourists surveyed already had passports and/or felt that the money and work required to obtain one were not obstacles that would keep them from traveling through this region as its attraction is too great. There is a fairly strong showing of support for the WHTI among the travelers although this requirement proved to be a polarizing issue; opponents of the WHTI measures, though in the minority, had strong negative feelings and attitudes about the WHTI. Travelers were relatively split, however, on whether or not they would travel to the Yukon Territory if they could not continue on to Alaska. The research hypothesis was therefore partially supported.

The results from this study are intriguing as the data do not support the concern of tourism agencies, governments, and communities in the region that the WHTI will hurt self-drive tourism. Rather, it appears that the price of fuel is more likely to have a negative impact on tourism than will passport requirements, especially in northwestern Canada. Of course, this issue is of ever-growing concern in the face of record fuel prices. It is likely that the Yukon Territory will be most at risk for negative tourism impacts from rising fuel prices. The Yukon was found to be a less attractive destination than Alaska for U.S. travelers and it is easily bypassed by air or boat travel. Many tourists already choose to fly to Alaska instead of driving (Nizioł 2006) and higher fuel prices in the Yukon and northern British Columbia may make this option more attractive to those who would otherwise drive, thus depriving the Yukon of some of the drive-through tourism it currently enjoys.

It should be noted that this study did have several limitations. First, it was conducted through the use of a convenience sample and thus did not utilize a random sampling method. Second, the vast majority of those sampled were repeat visitors, and many already had passports even though they were not yet required for border crossings. Because these repeat visitors had previously visited the region and were impressed enough with it to return, it can be assumed that they would be more likely to return yet again in the future. In addition, the passport requirement is obviously not a burden for travelers who already have one. Future study could sample prospective tourists who have not yet driven to the North and who might therefore be more hesitant about paying for passports. Examining how these potential new travelers feel about the WHTI might produce different results from those gained from this study, and may show how the WHTI could affect future first-time visitation to Alaska and Northwestern Canada.

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A COMPARISON OF MOTIVATIONS BETWEEN ISLAND TOURISTS VISITING PENGHU, TAIWAN, AND PHUKET, THAILAND

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Abstract.—The island tourism market is a major growth segment in international tourism. The islands of Penghu, Taiwan, and Phuket, Thailand have become major tourism destinations for Taiwanese tourists, who have had an economic impact on the local communities of these islands. The objectives of this study were to develop a profile of Taiwanese tourists visiting Penghu and Phuket based on their socio-demographic characteristics and travel behaviors, and to identify and compare the importance of their push and pull motivations. Using factor analyses, this study identified four push (*discovery, relaxation, togetherness, and escape*) and five pull motivation factors (*facilities, natural resources, promotion, cost, and revisitation and special events*). Among them, *relaxation* and *natural resources* were the most important push and pull motivations, respectively. Taiwanese tourists who traveled to Phuket had stronger travel motivations across four motivation factors (*discovery, facilities, natural resources, and promotion*) than those who traveled to Penghu.

1.0 INTRODUCTION

Island tourism has played a significant role in the overall economies of many Pacific islands, in some cases accounting for more than 50 percent of export earnings (Shaw and Williams 1994, Lockhart 1997). For some all-island states, international tourism contributes the largest percentage of their gross national product (Harrison 2001). Most tourism

destination islands provide a wide variety of natural resources and activities for tourists.

Around the world, Phuket, Thailand, is a well known island tourism destination. Tourism in Phuket accounts for 33 percent of Thailand's total tourism revenue; approximately 5 million international tourists visited Phuket in 2006 (Tourism Authority of Thailand 2006). An estimated 400,000 Taiwanese visited Phuket in 2006, making Phuket one of the most popular foreign island destinations among Taiwanese. The largest island in Taiwan, Penghu, has also long been a popular domestic tourism destination that brings in approximately 430,000 Taiwanese tourists every year (Taiwan Tourism Bureau Ministry 2006).

Islands dependent on tourism economies vary in their size, land area, location, resource base, level of economic development, and extent to which they rely on tourism and the consistent inflow of direct foreign investment for economic growth (Riaz and Michael 2005). Prideaux and Crosswell (2006) suggest that it is important to understand tourists' motivations and post-visit satisfaction levels when planning for and marketing tourism destinations. They also point out that lack of knowledge about visitor motivations and consequent weaknesses in planning and marketing are evident in many small-island destinations and may seriously impede future development of the island tourism industry.

Researchers have noted that there are multiple motivations behind tourists' decisions to travel (Crompton 1979, Kozak 2002). In addition, tourists might have different reasons for choosing domestic or international vacations. Crompton (1979) emphasized the importance of both push and pull factors in shaping tourist motivations and choice of vacation destinations. Push factors are origin-related and refer to the intangible, intrinsic desires of the individual traveler (e.g., the desire for escape, rest and relaxation,

adventure, health, or prestige). Pull factors are mainly related to the attractiveness of a given destination and its tangible characteristics, such as beaches, accommodation and recreational facilities, and cultural and historical resources (Uysal and Jurowski 1994).

Taiwanese tourists interested in visiting domestic and foreign island destinations emerge as a significant market segment, but that segment has not drawn strong attention from tourism researchers. Thus, this study investigates the motivations and travel behaviors of Taiwanese tourists related to their choice to travel to either Penghu or Phuket. The objectives were to: (1) develop a profile of Taiwanese island tourists based on their socio-demographic characteristics and travel behaviors; (2) identify the relative importance of specific travel motivations of Taiwanese tourists choosing Penghu or Phuket; (3) identify the underlying dimensions of both Taiwanese push and pull motivations for travel to the two islands; and (4) identify differences between the derived push and pull factors between the two island travel groups.

2.0 METHODS

This study used convenience sampling and targeted travel groups organized by travel agents. In July and August 2007, data were collected from Taiwanese travel groups visiting Penghu, Taiwan, and Phuket, Thailand. Three hundred eighty self-administered questionnaires were collected on-site from a tourist population of 700 for a response rate of 54.7 percent. This total consists of 180 questionnaires from 350 Penghu visitors (response rate of 51.4 percent) and 203 of 350 questionnaires from Phuket visitors (response rate of 58.0 percent). The questionnaire had three parts and contained 37 items about travel motivations, seven questions about socio-demographic characteristics, and six questions about travel behaviors and destination choices. The 37 motivation items were developed based on a review of relevant literature.

To investigate differences between Taiwanese tourists visiting a domestic island, Penghu, and a foreign island, Phuket, the study compared socio-demographic characteristics, travel behaviors, and travel motivations

between the two groups. Descriptive statistics were used to identify the tourists' profiles and travel behaviors. Factor analysis was conducted to identify the push and pull motivational dimensions of the respondents. An independent sample *t*-test was used to determine whether significant differences existed on the mean scores for each item and on the factors related to the two groups' travel motivations.

3.0 RESULTS

3.1 Socio-demographic Characteristics

Of the 383 sampled tourists, 56.1 percent were female and the majority (74.4 percent) was between 20 and 40 years old. Most of the respondents had an education level equivalent to or above a college degree (88.6 percent). Approximately half of the respondents were single (52 percent) and the other half were married (48 percent). Respondents' occupations were categorized as blue-collar workers (29 percent), white-collar workers (27.2 percent), and professionals (20.9 percent). More than half of the respondents (66.8 percent) had personal monthly incomes between US \$607 and US \$1,788. Visitors mainly came from central (39.6 percent) and northern (33.4 percent) Taiwan. Significant differences were observed between the two groups in the categories of age, marriage status, and income. Penghu respondents included more young, single, and low-income people than did Phuket respondents.

3.2 Travel Behaviors

The majority of the respondents who visited Penghu (61.7 percent) and Phuket (80.3 percent) had visited the respective island previously. *Friends* and *family* were the two most often reported groups of traveling companions for visitors to both Penghu (65.9 percent and 58.1 percent, respectively) and Phuket (70.8 percent and 68.3 percent, respectively). With regard to the number of traveling companions, the respondents of Penghu (38.9 percent) and Phuket (38.4 percent) tended to travel with 5 to 10 people. Nearly three-quarters of the respondents from Penghu (72.8 percent) were on a 3 day/2 night trip and more than half of the respondents (57.1 percent) from Phuket were visiting for 5 days/4 nights (Table 1).

Table 1.—Travel-related behaviors of respondents by trip location (n=383)

Characteristics	Penghu % (N = 180)	Phuket % (N = 203)
Number of previous visits		
0	38.3	19.7
1	31.1	27.1
2	16.2	18.2
3 or more	14.4	35.0
Type of trip companion*		
Family	58.1	68.3
Friends	65.9	70.8
Classmates	34.6	28.2
Colleagues	39.7	36.1
Arranged by travel agency	11.7	18.3
Group size		
1-4 people	26.1	34.5
5-10 people	38.9	38.4
11-20 people	21.7	23.2
21 people and more	13.3	3.9
Length of trip		
3 days and 2 nights	72.8	4.9
4 days and 3 nights	18.3	31.6
5 days and 4 nights	2.2	57.1
Other	6.7	6.4
Information source*		
Previous trip experience	25.0	19.7
Family/friends	59.7	59.6
Magazines/newspaper	42.6	60.1
TV/radio	38.1	43.8
Travel agency	25.0	34.0
Internet	46.6	47.3
Other	2.2	3.0

*Multiple responses permitted

3.3 Travel Motivations between the Two Islands

Of the 37 motivation items on the instrument, there were significant differences between visitors to Penghu and Phuket on only 15; Table 2 shows the rankings and mean scores for perceived importance of push and pull motivations and associated t-values and significant levels for these 15 items. Taiwanese tourists reported stronger motivations to visit Phuket than Penghu based on the “push” factors of reducing stress/getting away from job or school, learning something new or increasing knowledge, finding thrills and excitement, rediscovering themselves, and shopping. Respondents were also more strongly motivated to visit Phuket than Penghu based on the “pull” motives of good air quality, spacious beaches, good undersea views, a clean living environment, the proper season in which to travel to the specific island, good service quality, safety and security of facilities, recommendations from the media, exotic features, and recommendations from a travel agency. Overall, Taiwanese tourists had significantly stronger push and pull motivations to visit Phuket as a tourist destination than Penghu. The greatest differences ($p < .001$) were for the “push” motive to learn something new or increase knowledge, and the “pull” motive of the island’s exotic features.

Table 2.—T-test results of motivations that are significantly different between Taiwanese tourists visiting Penghu and Phuket Islands

Items	Penghu		Phuket		t-value	p-value
	Rank	Mean*	Rank	Mean*		
Push items						
To reduce stress and get away from job or school	1	4.52	1	4.66	2.479	p ≤ .05
Learning something new or increasing knowledge	2	3.91	2	4.19	3.475	p ≤ .001
Finding thrills and excitement	3	3.71	3	3.91	2.311	p ≤ .05
Rediscovering myself	4	3.21	4	3.47	2.740	p ≤ .01
Shopping	5	2.57	5	2.85	2.769	p ≤ .01
Pull items						
Good air quality	1	4.11	1	4.32	2.680	p ≤ .01
Spacious beaches	2	4.05	2	4.26	2.713	p ≤ .01
Good undersea view	3	3.97	4	4.17	2.387	p ≤ .05
Clean living environment	4	3.94	3	4.18	2.603	p ≤ .01
Proper season to travel here	5	3.84	5	4.02	2.215	p ≤ .05
Good service quality	6	3.79	6	4.00	2.405	p ≤ .05
Safety and security of facilities	7	3.74	8	3.99	2.570	p ≤ .05
Recommendation from media	8	3.51	9	3.69	2.111	p ≤ .05
Exotic features	9	3.35	6	4.00	7.715	p ≤ .001
Recommendation from travel agency	10	3.16	10	3.37	2.382	p ≤ .05

*Mean score: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

3.4 Push and Pull Motivation Factors for Both Islands

Because the respondents in this study were all the same nationality, it is also instructive to consider all respondents' reported push and pull factors related to the choice of an island destination for tourism travel. Factor analysis identified four push motivational dimensions related to the island destination choices—*discovery*, *relaxation*, *togetherness*, and *escape*—which together accounted for 59.0 percent of the explained variance. Fourteen items turned out to be the most important; together they had a Cronbach's alpha value of 0.80. Five items related to *discovery* contributed heavily to the first factor, had a Cronbach's alpha of 0.76 and an eigenvalue of 4.12, and accounted for 17.9 percent of the variance explained. *Relaxation* consisted of four items (Cronbach's alpha of 0.67, eigenvalue of 1.66, and 15.5 percent of the variance). Three items associated with *togetherness* loaded on the third factor (0.65, 1.38, 12.9 percent). Two items related to *escape* loaded on the fourth factor (0.72, 1.10, 12.6 percent). Of the four underlying push factors, *relaxation* and *togetherness* emerged as the two most important, as shown by the mean importance scores of 4.3 and 4.0, respectively (Table 3).

In addition, factor analysis identified five pull motivational dimensions: *facilities*, *natural resources*, *promotion*, *cost*, and *revisitation and special events*, which cumulatively accounted for 65.0 percent of the variance explained. Individual factors had Cronbach's alpha scores ranging from a high of 0.91 to a low of 0.62. The overall reliability of a 23-item scale resulted in a Cronbach's alpha value of 0.91. Five items pertaining to *facilities* loaded on the first factor, had a Cronbach's alpha of 0.91 and an eigenvalue of 8.12, and accounted for 15.8 percent of the variance explained. Factor 2 (*natural resources*) consisted of five items (Cronbach's alpha of 0.69, eigenvalue of 2.95, and 15.4 percent of the variance). Six items dealing with *promotion* loaded on the third factor (0.80, 1.60, 13.8 percent). Four items associated with *cost* loaded on the fourth factor (0.84, 1.24, 12.1 percent). Factor 5 (*revisitation and special events*) included three items (0.62, 1.04, 7.9 percent). Of the five underlying pull factors, *natural resources* and *facilities* were the two most important, as shown by the mean importance scores of 4.22 and 3.92, respectively (Table 4).

Table 3.—Results of factor analysis performed on push motivations

Push domains and items*	Factor Loading	Eigenvalue	Explained Variance	Cronbach's Alpha	Mean
Factor 1: Discovery		4.116	17.89	0.761	3.87
Experiencing different cultures	0.846				
Experiencing exotic food	0.689				
Learning something new or increasing knowledge	0.683				
Rediscovering myself	0.616				
Finding thrills and excitement	0.467				
Factor 2: Relaxation		1.660	15.52	0.665	4.30
Experiencing different or new life-style	0.736				
Being physically or emotionally refreshed	0.734				
To reduce stress and get away from job or school	0.633				
Seeing nature	0.577				
Factor 3: Togetherness		1.382	12.99	0.652	4.00
To be together with family	0.816				
Meeting new friends/local people	0.732				
To spend time with relatives or friends	0.641				
Factor 4: Escape		1.104	12.61	0.718	2.60
Escaping from ordinary/responsibilities	0.847				
Shopping	0.833				
Total variance explained			59.01		

*Cronbach's alpha= 0.80

Table 4.—Results of factor analysis performed on pull motivations

Pull domains and items*	Factor Loading	Eigenvalue	Explained Variance	Cronbach's Alpha	Mean
Factor 1: Facilities		8.116	15.76	0.908	3.92
Good food sanitation	.824				
Professional medical equipment	.811				
Clean living environment	.802				
Safety and security of facilities	.752				
Good service quality	.733				
Factor 2: Natural resources		2.945	15.42	0.692	4.22
Spacious beaches	.843				
Limpid sea	.822				
Beautiful scenery and landscapes	.786				
Good air quality	.726				
Good undersea view	.701				
Factor 3: Promotion		1.599	13.79	0.799	3.58
Festival events	.729				
Recommendation from media	.695				
Exotic features	.618				
Recommendation from travel agency	.596				
Recommendation from Internet	.583				
Proper season to travel here	.582				
Factor 4: Cost		1.242	12.14	0.843	3.46
Inexpensive products	.832				
Low-price travel package	.808				
More discount promotion	.720				
Inexpensive food	.615				
Factor 5: Revisitation and special events		1.042	7.86	0.621	3.43
Revisiting the destination	.783				
Family oriented destination	.681				
Attending international sport events	.531				
Total variance explained			64.97		

*Cronbach's alpha= 0.91

3.5 Push and Pull Motivational Factors between the Two Islands

An independent sample t-test was used to compare the mean scores of the four push and five pull factors between the two groups of island tourists. Four motivation factors—one push and three pull—were significantly different between the two groups: *discovery (push)*, *facilities (pull)*, *natural resources (pull)*, and *promotion (pull)*. The Taiwanese tourists who traveled to Phuket had stronger travel motivations across these four factors than those who traveled to Penghu. However, both groups had the same rankings, based on the mean importance ratings, for these four motivation factors. For example, both groups showed the highest mean scores on *natural resources* and the lowest mean scores on *promotion* (Fig. 1).

4.0 CONCLUSIONS

Identifying motivation factors is central to tourism behavior studies (Iso-Ahola 1982). It is necessary to understand the motivational and behavioral differences that create tourists' satisfaction and repeat visits. A comparison of tourist motivations and behaviors across different destinations can help policy makers, planners, and marketers of island destinations establish their own marketing strategies to attract visitors.

The major finding in this study is that Taiwanese travelers to Penghu and Phuket significantly differ on motivation items, including *learning something new or increasing knowledge*, *finding thrills and excitement*, *rediscovering myself*, *good air quality and undersea view*, *spacious beaches and clean environment*, *exotic features*, *safety and security of facilities*, and

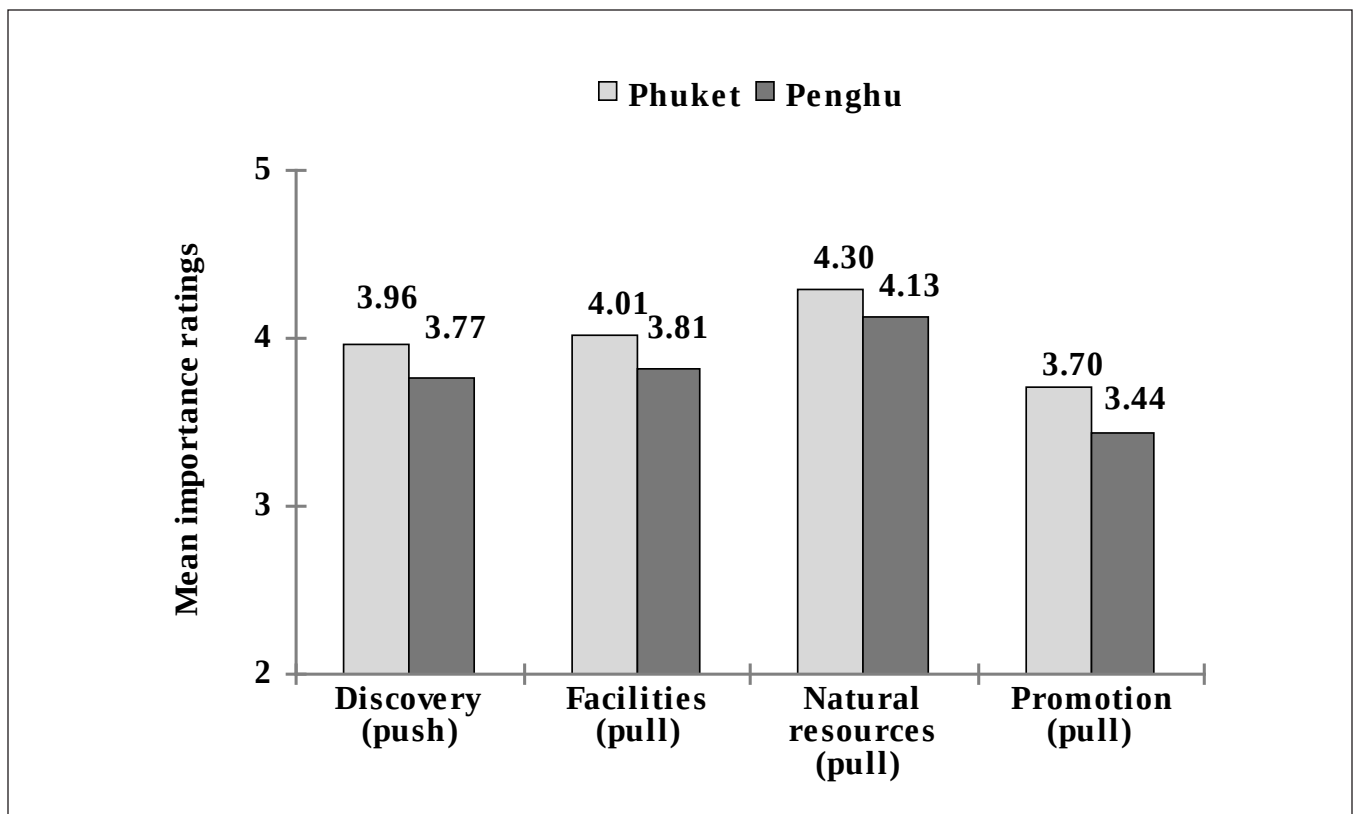


Figure 1.—T-test results of factors that are significantly different for tourists visiting Penghu and Phuket.

recommendation from media and travel agency. While both Penghu and Phuket tourists traveled with friends and family and acquired information via family/friends and the Internet, Phuket tourists were more likely to be repeat visitors and to have acquired travel information from magazines or newspapers.

In comparing the travel motivations of Taiwanese tourists, the study finds that Phuket has more attraction (pull) factors than Penghu. Planners and marketers therefore may want to try to differentiate Penghu from other island tourism destinations and to concentrate on highlighting Penghu's unique resources to shape its own niches in the competitive island tourism market. On the other hand, Phuket may want to emphasize the great attractiveness of the island's natural resources and facilities to draw more Taiwanese tourists and encourage them stay longer. Effective positioning and proper marketing strategies based on these findings could help both Penghu and Phuket increase their market share.

This study's findings are limited in representing the entire island tourism population in Taiwan. First, the research employed a convenience sample to collect data from tourists using tour packages arranged by travel agencies. In addition, because all respondents were the same nationality, the factor analysis considers tourism to both islands rather than tourism to each island separately. Nonetheless, this study does contribute to the limited research available on island tourist motivations across countries.

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CAMPUS TOURISM

AN EXAMINATION OF GAMBLING IMPACTS AT AN UPSTATE NEW YORK COLLEGE

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Abstract.—The purpose of this study was to examine gambling participation at the State University of New York, Cortland, in upstate New York. Three hundred sixty-two students were involved in the study. More than 76 percent of the respondents reported that they had gambled at least once during the last school year and 5.6 percent of them had gambled weekly or more often, indicating that gambling participation was prevalent on this college campus. In addition, 77.6 percent of the respondents knew about Turning Stone Resort and Casino, the casino closest to the campus, and 38.7 percent of them had been there, suggesting that gambling has an impact on students' leisure lifestyle. Male students were more likely to gamble than female students. The primary motivations for gambling were to have fun and to make money. This study provides a better understanding of college students' gambling behavior in the leisure context.

1.0 INTRODUCTION

Since Nevada legalized casino gambling in 1931 (American Gaming Association 2006), Americans have never stopped gambling. Welte et al. (2002) revealed that 82 percent of Americans aged 18 or older reported having participated in gambling in the past 12 months. Playing the lottery was the most popular activity for gamblers, while “casino

gambling accounted for the largest extent of gambling involvement” (Welte et al. 2002, p. 313).

Since college students are the frequent targets of pro-gambling advertising, it is not surprising that many such students participate in gambling-related activities during their leisure time. However, research on high school and college administrators' awareness of students' gambling-related problems showed “an important discrepancy between the prevalence of gambling-related problems among young people and the awareness of these problems among educators” (Shaffer et al. 2000, p. 93). Shaffer et al. (2005) reported that only 26 schools (22 percent) out of 119 scientifically selected colleges included in the 2001 Harvard School of Public Health College Alcohol Study (CAS) had a gambling policy, while all of the schools in the sample had a student alcohol use policy.

Many other studies have indicated that gambling on college campuses is commonplace (for example, Winters et al. 1998, Platz and Millar 2001, Neighbors et al. 2002, Engwall et al. 2004). Some research has also found that gambling is a real problem on campuses and that a substantial proportion of students can be considered pathological gamblers (Platz and Millar 2001, Shaffer and Hall 2001, Engwall et al. 2004). On the other hand, some researchers focus on the relatively low rate of diagnosed pathological student gamblers and argue that people may overestimate college student gambling (Browne and Brown 1994, Winters et al. 1998, LaBrie et al. 2003, Slutske et al. 2003).

While most of the recent research on college student gambling was conducted in relatively large cities, this study was conducted in a small city with a population of less than 20,000 in upstate New York with a nearby land-based casino, Turning Stone Resort and Casino (TSRC). Five research questions guided this study: (1) Are gambling activities prevalent on the State

University of New York (SUNY) Cortland campus? (2) Does TSRC impact students' leisure lives, and if so, what effects does it have? (3) What are the primary motivations that draw students to gambling? (4) Is there a difference between recreational student gamblers and students with a gambling problem in the type of gambling activities in which they participate? (5) Is there a relationship between gambling participation and students' gender, age, grade point average (GPA), and household income?

2.0 METHODS

The sample was composed of SUNY Cortland students who were enrolled during the 2007-2008 academic year. Three hundred sixty-two valid questionnaires were collected between October 2007 and March 2008; this total represents about 5 percent of the student population at the college. The sample was evenly split between males (50.7 percent) and females (49.3 percent).

Three primary methods were used to approach students: (1) handing out questionnaires from a table set up in a major student-activity location such as the Student Union, athletic center, library, or dining hall; (2) approaching students near or in residence halls; and (3) approaching students in classrooms. The survey administrator emphasized to each student that participation was absolutely voluntary and that those who preferred not to participate could simply refuse with no consequences.

3.0 RESULTS

3.1 Socio-demographic Information

Table 1 shows the specific socio-demographic breakdown of the sample by gender, ethnicity, age, GPA, employment, year in school, and student athlete status. About one-third of the participants were juniors, 24.7 percent were seniors, 20.5 percent were freshmen, and 17.2 percent were sophomores. Most of the respondents were Caucasian (87.1 percent), which is consistent with the overall student population. About 68 percent of respondents were between 18 and 24 years old.

3.2 Research Questions

1. Are gambling activities prevalent on the SUNY Cortland campus?

The majority of students (76.2 percent) reported that they had participated in gambling in the past. Among students who had gambled before, 5.6 percent reported gambling weekly or more frequently; experts consider this level of participation in gambling to be pathological or potentially pathological (LaBrie et al. 2003). Students who gamble less than weekly were defined as recreational gamblers (see Table 2).

2. Does TSRC impact students' leisure lives, and if so, what effects does it have?

Table 3 displays students' knowledge of TSRC. About 80 percent of the respondents had heard of TSRC. Among the students who had heard of it, more than 80 percent thought that TSRC was not far away from campus. Despite rising gasoline prices, almost 60 percent of the respondents said that distance did not influence whether or not they chose to visit TSRC. Almost 40 percent of them had actually been to TSRC. Among the students who had been to TSRC, 85.7 percent had participated in gambling there, 40.7 percent had dined, 26.4 percent had watched shows, 20 percent had stayed there overnight, and 7.1 percent

Table 1.—Demographic characteristics of the sample

Gender		
Male	50.7%	
Female	49.3%	
Year of school		
Freshman	20.5%	
Sophomore	17.2%	
Junior	33.8%	
Senior	24.7%	
Other	3.9%	
Ethnicity		
African American	3.4%	
Native American	1.4%	
Caucasian	87.1%	
Asian	2.5%	
Hispanic	3.9%	
Other	1.7%	
Student-Athlete	16.9%	
Average Age	21	SD=3
Average GPA	3.12	SD=0.48

Table 2.—Student gambling participation categories

Nongambler (did not gamble at all)	23.8%
Recreational gambler (gambled less than one time per week)	70.6%
Problem gambler (gambled one or more times per week)	5.6%

had played golf. These statistics reveal that TSRC does impact the students' leisure lives. They know about TSRC and many have actually been there to participate in a range of activities.

3. What are the primary motivations that draw students to gambling?

The top two reasons for gambling activities were to have fun (66.3 percent) and to win money (59.9 percent), which is similar to the findings of Neighbors et al. (2002). Other motivations for gambling included excitement (35.8 percent), escape from school or work (8.2 percent), and other (1.1 percent).

A Chi-square analysis revealed that there was a significant relationship between gender and the motivation for winning money ($p < .001$) (Table 4), but there was no significant relationship between gender and seeking fun, excitement, or escape from school or work. However, significant relationships were found between the non-gambling and gambling participants for all the gambling motives except escape from school or work. In addition, statistical relationships were also found between the group of recreational gamblers and the group of problem gamblers and motivations. This result is congruent with Platz and Millar's (2001) finding that problem gamblers rated various motives as significantly more important than recreational gamblers.

4. Is there a difference in the type of gambling activities that students participated in when comparing recreational student gamblers and students with a gambling problem?

Table 5 lists a variety of gambling-related activities and the frequency with which students participated in

Table 3.—Questions about Turning Stone Resort and Casino (TSRC)

Questions:	Yes	No
Have you heard of TSRC?	77.6%	22.4%
If you have heard of TSRC, do you think TSRC is far away?	17.8%	82.2%
If you have heard of TSRC, does the distance to TSRC influence whether or not you go there?	42.4%	57.6%
Have you been to TSRC?	38.7%	61.3%

Table 4.—Relationship between winning money and gender

		Gender		Total
		Male	Female	
Win money				
No	Count	45	66	111
	% within Gender	29.0%	53.7%	39.9%
Yes	Count	110	57	167
	% within Gender	71.0%	46.3%	60.1%
Total	Count	155	123	278
	% within Gender	100.0%	100.0%	100.0%

these activities during the past school year. Playing cards, dice, and other games of chance were the most popular type of gambling activities among students, with 49.6 percent reporting some level of involvement. Among all these activities, a significant relationship ($p < .001$) was found between gambling status and frequency of gambling in each activity (see Table 6). In all cases, students with a gambling problem participated in gambling activities more frequently than the recreational gambling group.

5. Is there a relationship between gambling participation and students' gender, age, GPA, and household income?

Figure 1 shows the frequency of gambling in general, broken down by gender. Male students were more likely to gamble than female students. Students who gambled more frequently had lower GPAs than students who gambled less (Fig. 2).

As in previous college-based studies, the rate of problem and pathological gambling was significantly

Table 5.—Percentage of participants engaging in each gambling activity during the past school year by frequency

Gambling Activity	Never	A few times/year, < monthly	Monthly, < weekly	≥ weekly
Professional sports	66.2	24.4	4.00	5.4
College sports	75.2	18.8	2.60	3.4
Horse/dog races	87.1	11.1	0.30	1.5
Casino gambling	58.5	33.2	6.30	2.0
Lottery/numbers	46.6	39.1	10.9	3.5
Internet gambling	86.5	8.30	2.90	2.2
Betting with a bookie	94.0	3.40	0.60	2.0
Cards, dice, games of chance	50.4	28.8	13.7	7.1

Table 6.—Chi Square for different levels of gamblers on different types of gambling activities

	Professional sports	College sports	Horse/dog races	Casino gambling	Lottery numbers	Internet gambling	Betting with a bookie	Cards and dice games
Recreational vs. problem	$\chi^2 = 107$ $p < .001$	$\chi^2 = 140$ $p < .001$	$\chi^2 = 32.4$ $p < .001$	$\chi^2 = 86.6$ $p < .001$	$\chi^2 = 69.0$ $p < .001$	$\chi^2 = 87.2$ $p < .001$	$\chi^2 = 79.0$ $p < .001$	$\chi^2 = 111$ $p < .001$

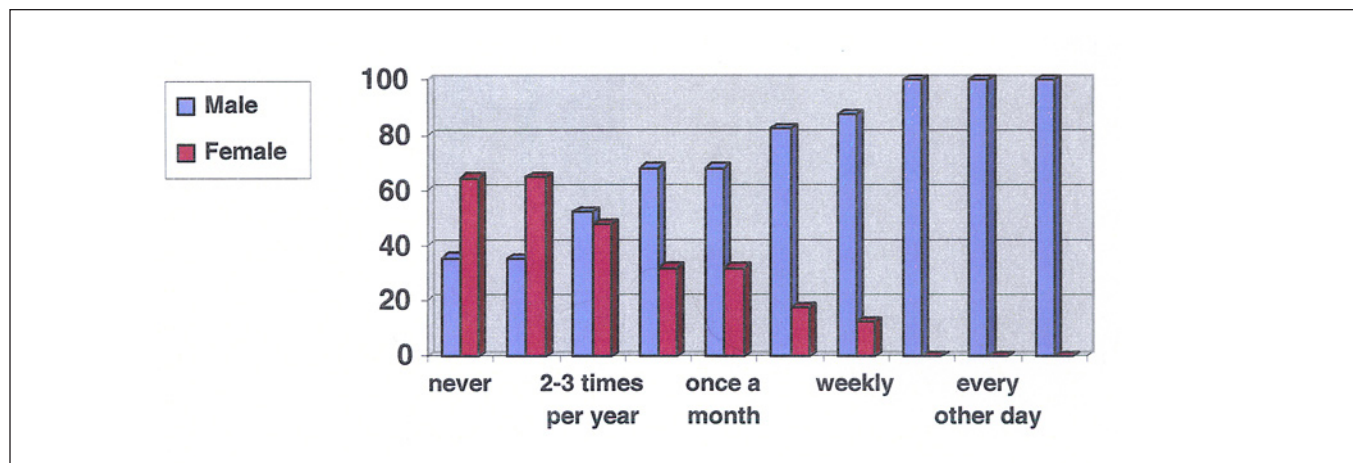


Figure 1.—Comparison of male and female gambling frequency.

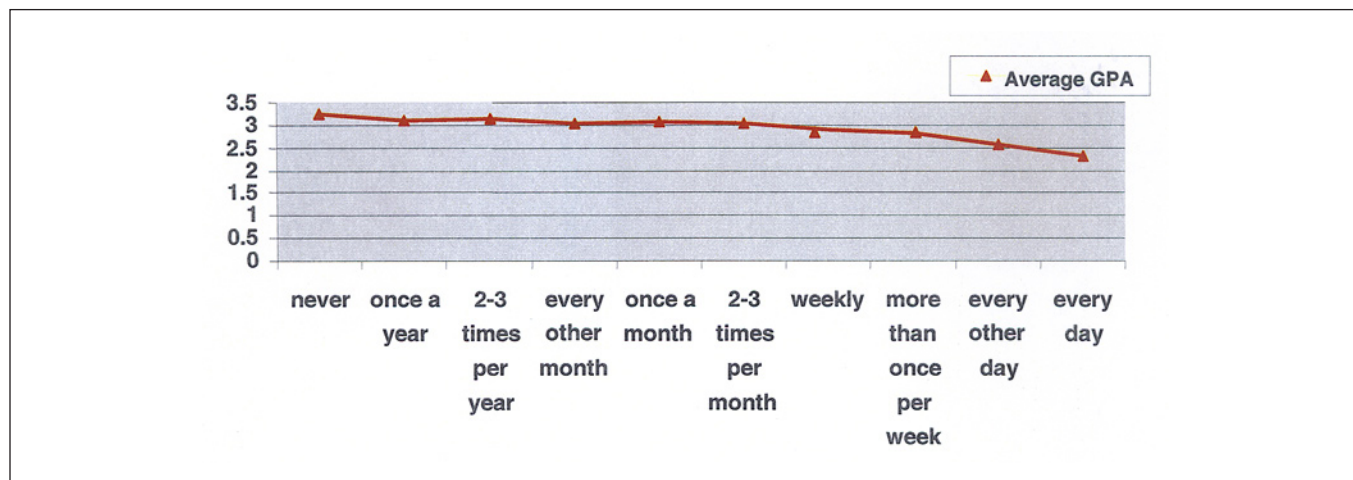


Figure 2.—GPA of students by frequency of gambling

higher for male students than for female students ($\chi^2 = 16.224$, $df = 1$, $p < .001$.) The percentage of male students in the problem-gambler group was 10.5 percent versus only 0.6 percent for the female students.

Table 7 lists the amount of money that was actually spent on gambling by study participants in the past school year. There was a strong positive relationship between this variable and the frequency of gambling in general ($r = .803$), which is consistent with the finding that students who reported gambling more frequently spend more money on gambling. Moreover, male students spend more money than female students ($\chi^2 = 53.320$, $p < .001$), consistent with the fact that male students are more likely to gamble.

4.0 CONCLUSIONS

This study found that gambling-related activities are popular and prevalent on this college campus. The majority of students (74.7 percent) participated in various forms of gambling, but most of them were recreational gamblers, with only 5.6 percent of the sample falling into the category of pathological or potentially pathological gamblers. This finding is consistent with the range of 4.67 to 6.56 percent in general among college students reported by Shaffer et al. (1997).

As found in previous studies, male students are significantly more likely to gamble than female students (Winters et al. 1998, LaBrie et al. 2003, Engwall et al. 2004), to spend more money on gambling, and to be more highly motivated to gamble for money. In addition, more male students than female students have been to TSRC.

Having fun and winning money are the primary motivations for gambling, as confirmed by the significant differences found between the gambling group and the nongambling group. The students went to TSRC more frequently for gambling than other activities, which reveals that the presence of TSRC has a great impact on these students.

Table 7.—Money spent on gambling during the last school year

US Dollars	Percent	US Dollars	Percent
Less than 25	55.6	300-500	3.1
25-50	15.7	500-700	1.1
50-100	9.0	700-1000	0.3
100-200	7.6	1000-2000	0.8
200-300	3.7	More than 2000	3.1

Since most schools have an alcohol use policy but do not have a gambling policy, this study provides valuable information to college administrators for deciding whether to institute a gambling policy. Specially, the findings of this study could be used by Student Affairs coordinators and campus counselors to plan activities and offer counseling services more effectively.

Volunteer samples were used for data collection because the students could be easily approached on the small campus. A random sampling method is suggested for future studies on larger populations. Qualitative methods are recommended for future studies because they may yield more details about students' gambling behaviors.

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MODELING THE EFFECTS OF STUDY ABROAD PROGRAMS ON COLLEGE STUDENTS

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Abstract.—This study explored the possibility of modeling the effects of a study abroad program on students from a university in the northeastern United States. A program effect model was proposed after conducting an extensive literature review and empirically examining a sample of 265 participants in 2005. Exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM) were then used to test the model. Three factors were identified in EFA and CFA: foreign interaction, personal growth, and career development. Personal growth effects were found to partially mediate the relationship between foreign interactions and career plans. For study abroad program participants, the experience of being independent increases personal growth and influences future career plans. Foreign experience or interactions also directly affect future career direction. These findings suggest that study abroad program effects are significantly interrelated. Implications for theory and practice are discussed.

1.0 INTRODUCTION

The number of U.S. students who participated in study abroad programs reached 174,629 in 2004, a

nearly 145-percent increase since 1991 (Institute of International Education 2004). The growing number of participants suggests that studying abroad has become more important than before in advancing knowledge and personal growth (Sutton and Robin 2001, Hadis 2005). In 2005, a special Congressional commission report stated that American students need foreign experience in order to stay competitive in the global economic workforce. The Commission recommended that by the year 2017, 1 million American college students should be studying abroad each year (Commission on the Abraham Lincoln Study Abroad Fellowship Program 2005).

1.1 Literature Review and Proposed Model

Previous literature suggests that study abroad programs facilitate improvements in five educational outcomes: learning (Sutton and Rubin 2001, Ritchie 2003, Pearce and Foster 2007), cultural immersion (Carlson and Widaman 1988, Carlson et al. 1990, Laubscher 1994, Gmelch 1997, Lutterman-Aguillar and Gingerich 2002), personal growth (Pyle 1981, Hadis 2005), foreign interactions (Murphy-Lejeune 2002, Gardner and Burnett 2006), and career development (Kauffman et al. 1992, Dwyer 2004). Although some researchers suggest that relationships exist among these program effects, few studies have identified these relationships or discussed them in detail (see below). A personal progress model proposed to describe the interrelationships among foreign interaction, personal growth, and career plans in the current study is shown in Figure 1.

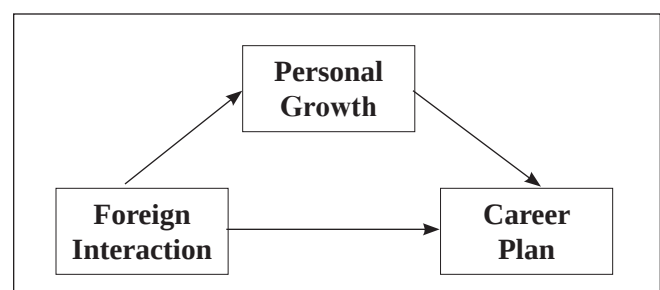


Figure 1.—Proposed model of personal progress.

Some research has examined the relationships between the three study abroad program effects included in the proposed model. For example, Gray et al. (2002) discussed the relationship between foreign interactions and personal growth and suggested that study abroad participants' interactions with foreign hosts contribute to personal growth factors such as perceived independence and self-confidence. Gmelch (1997) observed students who had previously studied in Austria and concluded that living in a foreign environment helps students learn how to cope with psychological and physical changes. Hansel (1988) and Stitsworth (1988) observe that, after participating in study abroad programs, some students demonstrate a higher level of independence as they adapt to new, unfamiliar living environments.

From a labor or work-force management perspective, personal characteristics or attitudes may be an indicator of possible career choices. Suutari and Taka (2004) suggest that career planning effects include both objective career opportunities and a subjective internal sense of working life. Arthur and Roussen (1999) state that career plans or choices depend on people's perceptions and their personal characteristics. Carlson and colleagues (1990) argue that career development is a significant reason for students to participate in study abroad programs. Hannigan (2001) found support for the position that exposure to foreign cultures and programs tends to orient study abroad participants toward international corporations as they develop their careers.

2.0 METHODS

In this study, a quantitative survey research method was used to identify program effects and to model and test the relationships among those effects. The survey method is an effective tool for conducting investigations of large populations (Babbie 2001). In the summer of 2005, a Web-based study abroad program survey, hosted by the Lime Survey program, was used to collect information from study abroad program alumni about their experiences. Lime Survey has the advantages of free service and an autonomous database system.

To validate the hypothesized model for study abroad program effects, we used three statistical analysis procedures: exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). EFA served as the first statistical procedure (Hair et al. 2006) to identify the underlying dimensionality of the hypothesized measurement model. EFA can also decrease error variances of construct correlations, which increases the probability of finding a parsimonious model in subsequent confirmatory analyses (Bollen 1989). After the EFA procedure, CFA and SEM were used to specify program effect models as suggested in Anderson and Gerbing's (1988) two-step modeling procedure. All model identifications were based on the covariance matrix. Maximum likelihood estimation was used to identify a good fit model via a series of indexes offered by the LISREL 8 program (Jöreskog and Sörbom 1996).

Various statistical measurements were utilized to assure the reliability and validity of the measurement model, including Cronbach's alpha (Nunnally 1994) and construct validity (Hair et al. 2006). Two statistical tests, convergent validity and discriminant validity, were used to examine construct validity. The following goodness of fit indexes were used to measure whether the two models had a good fit: the Chi-square statistic, Comparative Fit Index (CFI), Nonnormed Fit Index (NNFI), and Root Mean Square Error of Approximation (RMSEA). For CFI, Hair et al. (2006) suggest 0.90 as a critical indicator for a good NNFI. RMSEA is thought of as a badness-of-fit statistic and acceptable values are between 0.03 and 0.08. However, as Hair et al. (2006) suggest, there is no single cutoff value for the goodness-of-fit standard and all indexes should be considered to judge whether the model has a good fit with the data.

3.0 RESULTS

A total of 265 students chose to participate in this online study. Table 1 shows sample characteristics. Most participants were female seniors majoring in liberal arts or business administration.

Table 1.—Characteristics of study participants

Demographic Characteristics	Frequency	Percentage
Gender, N=265		
Male	78	29
Female	187	71
Years in School, N=264		
2nd year	3	1
3rd year	39	15
4th year	175	66
5th year	47	18
College, N=263		
Arts	28	11
Business	68	26
Liberal Arts	108	41
Science	59	22

EFA identified three factors (i.e., personal growth, foreign interactions, and career plan) that accounted for 43 percent of the explained variance (see Table 2). CFA (using LISREL 8) revealed that the fit of the measurement model could be improved with the deletion of two items because their standardized path coefficient values were greater than 4 (Hair et al. 2006). These items were: “I have different perceptions of what my life should be since my return from the other country” and “I feel I am still connected with

local people even after the program was over.” After these modifications, CFA showed that the model fit the data reasonably well ($\chi^2 = 69.90$, $df = 24$, $p = .00$, NNFI = .86, CFI = .90, RMSEA = .08) (Table 3).

Descriptive statistics and intercorrelations for all items in the personal progress model are presented in Table 4. The constructs’ reliability and validity were also assessed to validate the measurement model. The findings that all *t*-values of the hypothesized paths exceed the critical values of 1.96 ($p < .05$) and that all Cronbach’s alpha values for construct reliability exceed the .7 level, provide evidence of reliability (Hatcher 1994). In addition, three loading estimates were below the .6 level, which is the threshold level for convergent validity; however, the remaining six factor loadings were all adequately high and the covariance estimates between factors were appropriately low (see Table 5) (Hair et al. 2006), providing evidence of the model’s construct validity.

Anderson and Gerbing’s (1988) two-step modeling procedure calls for a look at the goodness of fit of a structural model as a saturated theoretical model. Goodness-of-fit and badness-of-fit indices for the

Table 2.—Results of exploratory factor analyses in personal progress model

Scale Item ^a	Factor Loading	Cronbach’s Alpha	Explained Variance
Personal growth		.73	17.12%
I am more independent than I was before the program.	.72		
I have different perceptions of what my life should be since my return from the other country.	.60		
I feel more confident in myself after finishing the program.	.56		
I have a new outlook on the world since my study abroad experience.	.55		
Foreign interactions		.73	14.52%
I felt that I was part of the local community during this trip.	.72		
I feel I am still connected with local people even after the program was over.	.63		
I felt at home during this trip.	.55		
I will visit this destination again if possible.	.55		
Career plan		.62	12.01%
I will consider employment in global companies because of my experience in the study abroad program.	.86		
The program has raised my interest in some overseas job.	.44		
I have different views about my future career after this trip.	.43		
Deleted items			
The program was important to me because it will someday be useful in getting a good job.	.41		
Total explained variance			43.65%

Table 3.—Overall CFA for personal progress model

Construct	Factor Loading	t-Values
Personal (CR = 0.76, VE = 39.9%)		
I am more independent than I was before the program.	0.68	9.75*
I feel more confident in myself after finishing the program.	0.57	8.27*
I have a new outlook on the world since my study abroad experience.	0.64	9.19*
Career (CR = 0.86, VE = 50.5%)		
The program has raised my interest in some overseas jobs.	0.73	11.74*
I will consider employment in global companies because of my experience in the study abroad program.	0.72	11.51*
I have different views about my future career after this trip.	0.68	10.51*
Foreign (CR = 0.71, VE = 37.1%)		
I felt at home during this trip.	0.79	10.33*
I felt that I was part of the local community during this trip.	0.55	7.74*
I will visit this destination again if possible.	0.43	6.13*

Note: CR = construct reliability; VE = variance extracted.

Table 4.—Personal progress descriptive statistics and construct intercorrelations (N= 265)

	1	2	3
1. Personal development	1.00		
2. Career plan	.50*	1.00	
3. Foreign interactions	.52*	.48*	1.00
M	4.34	3.89	4.05
SD	0.63	0.82	0.74

* $p < .05$

structural model (see Fig. 2) suggest that it had moderate fit according to common fit indices ($\chi^2 = 69.90$, $df = 24$, $p = .00$, NNFI = .86, CFI = .90, RMSEA = .08). Additionally, the ratio of Chi-square to degrees of freedom was 3.0, which, according to Hoyle and Panter (1995), is another indicator of acceptable fit.

The final structural model showed all path coefficients to be positive and statistically significant, suggesting that the personal progress model is a partial mediation model that satisfies the three requirements for mediation effects recommended by Baron and Kenny (1986). Namely, in this model, a third variable between the independent and dependent variables partially mediated the relationship between the two variables. In this case, foreign interaction was positively related to personal growth ($\beta = .52$, $p < .01$). Personal growth also was positively related to career plan ($\beta = .34$, $p < .01$). Foreign interaction was also positively related

Table 5.—Discriminant validity for the modified measurement personal progress model

Parameter	Covariance Estimates	Standard Error	Discriminant Validity
Personal and career	.20	.04	Supported
Personal and foreign	.27	.05	Supported
Career and foreign	.27	.05	Supported

to career plan ($\beta = .30$, $p < .01$). Table 6 shows the direct, indirect, and total effects of all endogenous and exogenous latent variables in the structural model. According to these findings, the indirect effect of personal growth to career plan increased significantly due to the contribution of positive indirect effects.

4.0 THEORETICAL IMPLICATIONS

The individual relationship paths in the proposed structural personal progress model are identical to previous findings about the effects of study abroad (Hannigan 2001, Suutari and Taka 2004). The hypothesis that there are three different relationships between foreign interactions, personal growth, and career plan is supported by structural equation procedures in this study. Personal growth mediates the direct relationships between foreign interactions and career plans. From a statistical perspective, the final result suggests that it is a partial mediation model (Cohen and Cohen 1983, Baron and Kenny

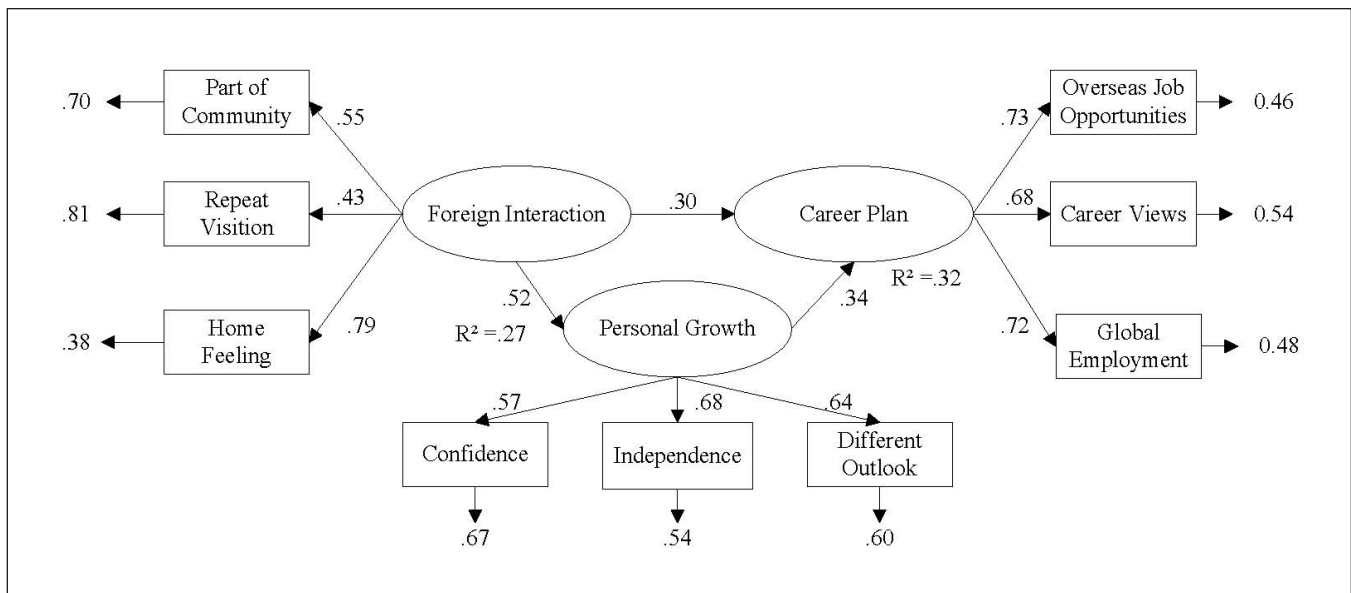


Figure 2.—Relationships among foreign interaction, personal growth, and career plan in personal progress model.

1986) since the size of total relation effects between foreign interactions and career plan increased due to contributions of personal growth in the model.

5.0 MANAGEMENT IMPLICATIONS

Overall, the findings provide insight into the ways in which study abroad programs affect participants and how those effects connect or relate to each other. The findings suggest that college officials and/or private organization administrators should customize their programs to meet students' individual needs for intercultural competency and personal advancement. Indeed, language learning effects, the focus of much research on study abroad outcomes, are not the only significant results from such programs. On the contrary, attention should be paid to other program outcomes, such as cultural immersion and career advancement. As the present study suggests, language learning and foreign interactions are the originators of a series of program effects, and program designers might take all possible effects into account for students with different foci in their study abroad experience.

Table 6.—Summary of structural model of personal progress

Antecedent Constructs	Affected Constructs	
	Personal Growth	Career Plan
Foreign interaction		
Direct effect	0.52	0.30
Indirect effect	-	0.18
Total effect	0.52	0.48

Studying abroad, one of the most popular travel patterns for college students (Ritchie 2003), is thought to be an alternative way of learning (Laubscher 1994). Krippendorf (1987) stated that people are more fascinated than ever with learning effects during their travel. Therefore, high quality study abroad programs should be designed to satisfy needs for personal knowledge and for gaining academic credit to fulfill college requirements and advance careers.

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TOURISM IMAGE

USING DESTINATION IMAGE TO PREDICT VISITORS' INTENTION TO REVISIT THREE HUDSON RIVER VALLEY, NEW YORK, COMMUNITIES

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Abstract.—This analysis explores the differences in Affective and Cognitive Destination Image among three Hudson River Valley (New York) tourism communities. Multiple regressions were used with six dimensions of visitors' images to predict future intention to revisit. Two of the three regression models were significant. The only significantly contributing independent variable in both models was cultural amenities provided by the communities. The percent of variance accounted for by the entire model and the unique and common variance accounted for by the cultural amenities predictor are limited. Therefore, simply adding more of the same cultural amenities in hopes of increasing visitation may miss the target market and result in expending resources with little return on investment. In light of the destination marketing continuum, these results should be interpreted with caution. The data must be analyzed more thoroughly to identify specific target markets. Other relevant variables (such as experience and place attachment) should be accounted for in the process before making recommendations to the study communities.

1.0 INTRODUCTION

Nature and heritage tourism in the Hudson River Valley (HRV) of New York is increasing in popularity. Nature-based tourism includes activities such as sea kayaking, hiking, bike riding, camping, nature walks, driving for pleasure, and scenic viewing. Heritage tourism includes visiting a destination to see, learn about, and experience the current and historical culture embodied in the destination. Visiting a historic riverfront attraction such as the Rondout District in Kingston or staying at a historic bed and breakfast are heritage tourism activities. Traditional tourism-related activities and expenditures such as shopping, dining, lodging, ground transportation, and local guide services are also associated with the nature/heritage tourism experience.

HRV communities have recently been increasing the opportunities for local nature/heritage tourism. For example, the Scenic Hudson Land Trust developed the Foundry Cove historic site kayak launch and the city of Kingston built a kayak launch site and purchased a fleet of kayaks. Kayaking was already popular at the Constitution Marsh Audubon Center and Sanctuary in Philipstown (adjacent to the village of Cold Spring). The state of New York also created the Hudson River Valley Greenway Communities Council. Its mission is to "preserve, enhance and develop the world-renowned scenic, natural, historic, cultural and recreational resources of the Hudson River Valley" with an emphasis on "appropriate economic development activities" that "remain consistent with the tradition of municipal home rule" (Greenway 2006).

Many rural valley communities face challenges in maintaining stable local economies. Over time, many have come to depend on recreation and tourism as the basis for community and economic sustainability. One topic of interest in such communities is creation of a distinct image that offers a focus for entrepreneurial activity, government investment, and local identity.

The term “destination image” is defined as the sum of beliefs, ideas, and impressions that an individual has of the attributes and/or activities available at a destination (Crompton 1979, Gartner 1989). Destination image has been conceptualized as consisting of distinct cognitive images which focus on the tangible and physical attributes of the site. Affect refers to the mood or feelings that one has during, or as a result of, an experience; affective image is simply the feelings that one has about a destination. Understanding the relationship between residents’ and tourists’ images of a community can help local leaders, rural planners, and resource managers understand how images might be shaped to develop local entrepreneurship and contribute to economic viability. HRV communities have unique attributes that are marketable and attractive to tourists. Due to increased competition, however, communities in this region must maintain a clear position among alternatives in order to remain attractive and economically prosperous.

Tourism research and practice has identified four important reasons to understand a destination’s image (Morgan and Pritchard 1998). First, destination image can be used to provide specific targeting language to potential visitors about the destination’s attributes and opportunities. Second, it can be used to reposition the destination relative to surrounding/competing destinations and market demand. Third, it can be used to correct potential visitors’ negative images of the destination or to reinforce positive perceptions of the destination. Finally, it can be used to identify and segment target markets. These four uses of image become critical when a destination is attempting to position itself in a competitive market in relation to similar destinations (Echtner and Ritchie 1993, Laws 1995, Baloglu and McCleary 1999, Beerli and Martin 2004, Pike and Ryan 2004).

2.0 OBJECTIVES

The primary objective of this paper is to explore the differences between affective and cognitive destination images among three HRV communities that provide nature and heritage tourism opportunities. Specifically, multiple regression analyses explore the relationship

between six dimensions of visitors’ images and their intention to revisit the destination in the future. This research is directed at providing HRV communities with strategies for highlighting their unique social, cultural, and environmental qualities in sustainable tourism development. The information can be directly applied by tourism providers to convince potential visitors to choose one destination over another.

3.0 METHODS

3.1 Site Description

Three tourism destinations along the Hudson River were investigated: the village of Cold Spring, the city of Kingston, and the city of Beacon. The communities were chosen based on variation in their levels of tourism development, their abundant natural resource amenities, and the sizes of local populations. The village of Cold Spring in Putnam County has a population of about 2,000 people and is located on the east bank of the Hudson River approximately 50 miles north of New York City. Cold Spring’s riverfront and village are accessible by boat, Metro-North Railroad, automobile, and bicycle, and the village has a long history of nature/heritage tourism. Cold Spring is currently working on a waterfront revitalization plan and is drafting a master plan update that includes a tourism development plan. A private marketing firm has been contracted to assist in creating and distributing a marketing campaign titled “Explore the Secrets of the Hudson Highlands.”

The city of Kingston in Ulster County is located on the west bank of the Hudson River, approximately 80 miles north of New York City, and has a population of approximately 23,000. Kingston has nine marinas and five businesses that provide river tourism opportunities such as sailing instruction, river tours, and boat rentals. The West Strand Waterfront Park/Rondout Landing Dock is located on a tributary to the Hudson. The historic Rondout District has boat docking facilities and summer band concerts. It is within walking distance of the Urban Cultural Center, Trolley Museum, and Hudson River Maritime Museum Center. The riverfront park provides a setting for concerts, theatrical events, and festivals. The

plaza faces a row of restored Italianate buildings that now house restaurants, boutiques, and antique/craft shops. Kingston's Department of Parks and Recreation provides a host of nature-based activities for both residents and tourists, such as naturalist-guided kayak tours. The city also offers kayak rentals.

The city of Beacon in Dutchess County has a population of approximately 14,000 people. It is on the east bank of the Hudson River approximately 60 miles north of New York City. Beacon is accessible by train, car, boat, and bicycle and is home to a growing arts movement, including world-class art institutions, art production facilities, regional galleries, and outdoor sculpture gardens. Historic sites include Industrial Revolution-era factories and mills and remnants of the Mount Beacon Incline Railway (one of the world's steepest when it opened in 1902). Approximately 1 mile from the riverfront, boutiques, antique shops, and restaurants line the restored historic districts on Main Street's east and west ends. A kayak outfitter/guide service in Beacon provides equipment and tours on the River. A small environmental education center, city park, and boat launch marina are located at the waterfront.

3.2 Survey Design, Sampling, and Analysis

First, a content analysis of marketing materials from each community was conducted. Text and images from the materials were used to identify themes that reflect the areas' images, amenities, and recreation opportunities. These themes were used to develop a survey of non-resident tourists visiting the three communities. This paper focuses on 26 questions from the survey that directly addressed visitors' images of the destination. All 26 image variables were measured on a 5-point Likert-type scale (-2=strongly disagree to 2=strongly agree, 0=neutral). Respondents were asked whether they agreed that the community provided the image attribute listed. Affective Image was measured using a 5-point semantic differential scale consisting of the four items listed in Table 1. Intention to visit the community again was measured with the single questions: *How likely are you to return to <insert*

community name> in the next two years? Responses were measured on a 5-point response scale ranging from extremely unlikely to extremely likely.

Two field technicians used on-site convenience sampling to find nonresident tourists to participate in the survey between May 21 and August 6, 2007. A total of 875 usable surveys were collected. Five hundred eight people were approached in Beacon and 269 filled out surveys for a 53-percent response rate. Cold Spring had 625 contacts and 344 completed surveys (55-percent response rate) and Kingston had 526 contacts and 262 completed surveys (50-percent response rate).

A factor analysis using principal components (PCA) extraction and varimax rotation was performed to reduce the 26 cognitive image variables to a smaller number of domains that could be combined to create scales. Affective image was hypothesized to be uni-dimensional and was not submitted to a PCA. Factor loadings of greater than 0.4 were required for a variable to be included in a factor. Variables with multiple loadings (within .3 of each other) were excluded from further analysis. Scales were created by averaging the items in each factor for each community.

Multiple regression procedures were performed using the image factors for each community as the independent variables to predict future intention to revisit the community (the dependent variable) (see Table 1). Significance levels were set at .05 for all procedures and all analyses were performed using SPSS version 16.

4.0 RESULTS

A four-factor model provided the simplest solution, accounting for 59 percent of explained variance. All eigenvalues for this model were greater than 1 and the variance of each individual factor was greater than 5 percent. Cronbach alphas ranged from .6 to .8.

Three standard multiple regressions were performed using the six image variables and intention to revisit the community. Table 2 displays the results of the

Table 1.—Manifest variables for each of the image factors and mean scores for each of the Hudson River Valley communities

Cognitive Image Factors	Community	Community Factor Average
Cultural Offerings	$\alpha = .82$	
A diversity of sites to visit	Beacon	0.73
Opportunities to learn about history	Cold Spring	1.05
Interesting architecture	Kingston	0.95
Good antique shopping		
A good place to see and buy artwork		
A variety of festivals, concerts, and events		
Good restaurants		
Nature Offerings	$\alpha = .78$	
A lot in terms of natural scenic beauty	Beacon	0.81
Varied and unique flora and fauna	Cold Spring	1.36
A variety of LAND recreation activities (e.g. hiking, biking)	Kingston	0.84
A clean environment		
A good romantic getaway		
Local Character	$\alpha = .77$	
Quality accommodations	Beacon	0.14
Opportunities for experiencing how the local people live	Cold Spring	0.41
Good night life	Kingston	0.42
Opportunities to learn new recreational activities.		
River Connection	$\alpha = .74$	
A variety of RIVER recreation activities (e.g. fishing, kayaking)	Beacon	0.80
Excellent opportunities to view the River	Cold Spring	1.35
Easy access to use the River for recreation	Kingston	1.30
Infrastructure	$\alpha = .61$	
Beacon is a convenient place to visit	Beacon	0.57
Parking a vehicle is convenient in Beacon	Cold Spring	0.45
Beacon is crowded	Kingston	
Beacon has traffic congestion problems		
Goods and services in Beacon are expensive		
Beacon has limited choices for accommodation		
Shopping in Beacon is pleasant		
Affective Image		
sleepy-arousing	Beacon	0.88
unpleasant-pleasant	Cold Spring	1.22
gloomy-exciting	Kingston	0.88
distressing-relaxing		

overall models. The models for Beacon and Kingston were significant at .05 and the model for Cold Spring was not significant.

Tables 3 and 4 show the unstandardized regression coefficients (B), standardized regression coefficients (β), and the semipartial correlation (Sr^2) for each of the independent variables. The only significantly contributing independent variable in both models was cultural amenities provided by the communities. The r^2 (Table 2) for the overall models indicates that slightly less than 10 percent of the variance in intention to revisit the site was accounted for by the

image factors. The semipartial correlation (Tables 3 and 4) indicates that approximately 20 percent of the variance accounted for by all predictors (20 percent of 10 percent) is uniquely contributed by the amount of cultural amenities provided by the host community. Even though none of the other five factors was significant, they collectively contributed 80 percent of the significant variance in the model (80 percent of 10 percent). In addition, the significant relationship between cultural amenities is positive, indicating that as visitors' awareness of available cultural amenities increases, the likelihood that they will revisit that destination also increases.

Table 2.—Results of the initial regression models for each of the Hudson River Valley communities

	df	F	β	r^2
Beacon	6	2.4	.02*	.08
Kingston	6	2.4	.02*	.09
Cold Spring	6	2.4	.09	

*significant at $p = .05$

Table 3.—Detailed regression results for image factors predicting intention to revisit Beacon

Beacon				
Variables	B	β	Sig	Sr ²
Affective Image	.114	0.89	.286	
Cultural Amenities	.409	.249	.012*	.191
Nature Interaction	-.122	-0.71	.468	
Local Character	.270	1.96	.095	
River Amenities	-.079	-.038	.660	
Infrastructure	-.255	-.152	.236	

*significant at $p = .05$

Table 4.—Detailed regression results for image factors predicting intention to revisit Kingston

Kingston				
Variables	B	β	Sig	Sr ²
Affective Image	.182	.113	.202	
Cultural Amenities	.687	.282	.023*	.185
Nature Interaction	-.179	-.077	.446	
Local Character	.264	.128	.224	
River Amenities	.287	.107	.209	
Infrastructure	-.309	-.186	.140	

*significant at $p = .05$

5.0 DISCUSSION

The number and level of significant results was lackluster. The only image variable able to account for variance in intention to revisit was cultural amenities. The items that loaded on the “Cultural Offerings” factor represent the basic elements promoted in all of these tourism destinations. One interpretation is that planners should concentrate on providing more of the elements that are already emphasized on-site. However, these results should be interpreted with caution for two reasons. First, the percent of variance accounted for by the entire model is low and the distribution of unique and common variance accounted for by the significant predictors is also

limited. Therefore, increasing the number of festivals and shops with the hope of increasing visitation may miss the target market; such an investment may neither encourage repeat visitors nor draw new visitors. Second, it is important to note that the image variable was not a count of the cultural amenities offered—it was a measure of the visitors’ perception that the community offers amenities. It would be more appropriate to target potential visitors’ attitudes toward the availability of amenities in the destination community. A campaign that targets attitudes toward existing amenities may be more cost-effective than simply increasing the number of amenities offered.

The authors feel that additional data analysis including multidimensional constructs is necessary prior to making recommendations to the HRV communities. Research has found that the relationship a tourist has with a destination varies depending on engagement with the destination and length of time spent there. Variance in tourists’ relationship with the destination can be reflected in how they engage with the destination and whether they will revisit. If our intention is to use the data to create a marketing program that will attract first-time visitors and promote repeat visitors, then differences between these groups must be accounted for in the analysis.

Two paradigms in marketing research literature are transactional marketing and relational marketing (Jackson 1985, Dwyer et al. 1987). Transactional marketing involves providing information about discrete transactions with the destination in the form of goods or services. Transactional marketing assumes that decisions concerning destinations are based on a rational process of evaluating the attributes of the destination that are presented in the marketing campaign and assessing the destination’s ability to fulfill tourists’ needs. Relational marketing is directed at tourists who have already visited a site, have knowledge of the available resources, and know that the destination is capable of fulfilling their needs. Relational marketing is designed to evoke a response from tourists by reminding them of the positive experiences they had while visiting the destination in the past. Researchers have hypothesized that tourists

fall along a continuum ranging from transactional to relational (Lin and Morais 2008). First-time visitors start on the transactional end of the continuum and progress toward the relational end as they gain experience and develop bonds with the destination.

In light of the destination marketing continuum presented above, we wish to re-emphasize that the results of this analysis should be interpreted with caution. The tourist population of the three HRV communities was analyzed as a single group and past experience was not controlled for in the analysis. The data must be analyzed more thoroughly to target specific markets. Past experience along with other relevant variables (e.g., place attachment) should be accounted for in the process prior to making recommendations to the communities or using this information in the planning process.

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TRAILS

BEHAVIORAL INTENTIONS WITHIN OFF-HIGHWAY VEHICLE COMMUNITIES IN THE NORTHEASTERN U.S.: AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOR

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Abstract.—The increasing use of off-highway vehicles (OHV) in the northeastern United States suggests the need for more effective recreation management strategies in public forest areas. This study employed the Theory of Planned Behavior (TPB) (Ajzen 1991) to examine the attitudes and perceptions of OHV operators. Hypotheses were tested regarding differences in attitudes toward intentions to engage in a behavior (i.e., the creation and use of unauthorized trails). The relationship between attitudes and behavioral intentions was tested. The study attempted to identify the most effective management mechanism for communicating with OHV riders and to clarify views concerning depreciative behaviors within the riding community. It found weak but positive preferences for specific direct and indirect management actions with an overall preference for behavior-specific indirect management. The study supports previous findings about the relationship between attitudes and intentions within the TPB.

1.0 INTRODUCTION

Cordell et al. (2004) report that off-highway vehicle (OHV) (i.e., 4-wheelers, off-highway motorcycles/dirt bikes, 4x4s) use has increased on public lands over

the past decade. In 2003, 37.6 million people 16 years and older participated in off-highway vehicle riding in the United States (Cordell et al. 2004). This trend holds particular significance for public forests in the northeast United States, where the number of people with access to public lands (which is higher than in the west) tends to magnify issues of recreational use. The increasing presence and use of OHVs in the northeastern United States highlight the need to enhance recreation management strategies on public land. OHV operator behaviors such as unauthorized trail creation and use can result in negative social and environmental impacts. Through a mail survey of OHV riders in the Northeast, this study explores the relationships among management techniques (direct and indirect), attitudes towards a behavior (i.e., the creation and use of unauthorized trails by OHV riders), and behavioral intentions of OHV operators.

1.1 Theory of Planned Behavior

Human attitudes, intentions, and behaviors are complex issues best organized within a social science-based framework. The Theory of Planned Behavior (TPB) (Ajzen 1991) (Fig. 1) is an established framework for studying the relationships among beliefs and attitudes related to recreation behaviors (Hrubes et al. 2001). Application of the theory in specific recreation populations provides resource managers with the empirical data required to inform policy initiatives. In its simplest form, the TPB suggests that individual behaviors stem from intentions which are formed by a synthesis of attitudes toward the behavior, subjective norms, and a sense of perceived control regarding the behavior.

If the role of management is to influence or prescribe behavior, knowledge of the attitudes that influence specific behaviors may provide a point of intervention. The targeting of certain attitudes would

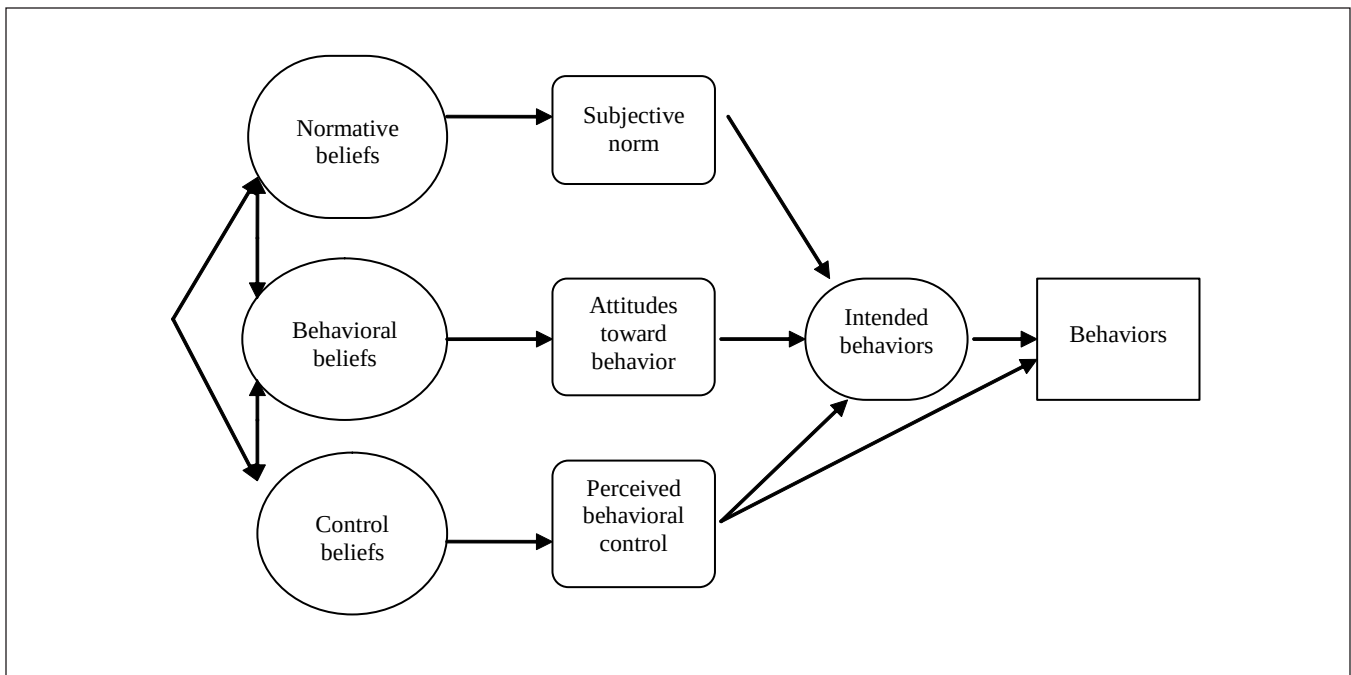


Figure 1.—The Theory of Planned Behavior (Ajzen 1991; redrawn from Hrubes et al. 2001).

then create opportunities to shape desirable behavior (Manfredo et al. 1992). This concept is fundamental to understanding the influence that management techniques might have upon OHV operator behaviors.

1.2 Management Strategies

Gramann et al. (1995) suggest that damage to public lands and natural resources often results from recreational pursuits outside of the regulations established for a given area. The term “impact” is often associated with these behaviors. Leung and Marion (2000) consider impacts to be undesirable visitor-related changes to a resource. Managers’ responses to the behaviors and their subsequent impacts are often divided into two general forms: direct and indirect management (Lucas 1982). Direct management addresses behavior by means of overt regulations that are backed by the threat of sanctions for those who choose to violate standards (Namba and Dustin 1982). Indirect management utilizes education and informational techniques to encourage conformity with established standards and regulations (Gramann et al. 1992). Situational requirements often decide which of the two management forms takes precedence, but most

recreational settings call for a mix of the two. Lucas (1982) argues that while there are some instances (e.g., safety issues) that call for strict oversight and enforcement of regulations, direct management can often lead to strained relations between visitors and managers. The limitation of choice interferes with the pleasurable experiences sought by recreationists. This assumption suggests that indirect management or influence upon behavior strikes a valuable balance between visitor enjoyment and resource protection.

Previous OHV studies have called for further research on the subject of operator perceptions and behavior. Baker (2007) studied OHV riders from New York State and reported several examples of interstate travel by those involved with the sport. That study recommends the regional approach taken by this current study. Cordell et al. (2004) suggest that the rise in depreciative behaviors (e.g., unauthorized trail development) correlates to increased OHV activity and that these occurrences have important management implications. This study seeks to examine the relationship between management strategies and OHV rider behavior.

2.0 METHODS

This study utilized a mail survey of 818 OHV riders conducted with the assistance of the New England Trail Riders Association (NETRA). Survey questions were created to obtain information germane to the goals of the study and to the constructs adapted from previous research on attitudes and intended behaviors. Individual variables were developed to address the objectives and test the hypothesis of this study. The survey consisted of 112 questions, responses to which could be written, checked, or circled. Question topics included demographics; personal riding experience; riding locations; and perceptions of management strategies, attitudes, and intentions. Questions used to elicit the complex components of attitude and intent were modified from prior works (Hines et al. 1987, Ajzen and Driver 1992, Bright and Manfreda 1996, Ajzen 2001) to reflect the specific characteristics of OHV use and its relationship to natural resource management. Questions referring to indirect and direct management were adapted from Rogers (1985) and Maddux and Rogers (1983).

Preferences for management type (direct, indirect) were gathered with 12 indicator variables using a 5-point scale ranging from -2 (strongly not favored) to 0 (neutral) to 2 (strongly favored). For purposes of analysis, this study divides management type (direct, indirect) into general and specific (i.e., to the behavior) constructs based upon a-priori designations (Maddux and Rogers 1983, Rodgers 1985). Attitude is defined holistically, based upon the concept's development through previous research (Ragheb and Beard 1982, Ajzen and Driver 1992, Bright and Manfreda 1996, Hrubes et al. 2001). As such, individual cognitive, affective, and evaluative constructs of attitude are measured and analyzed to quantify the attitude concept. For this study, the term "attitude" is defined as pertaining to each of these constructs as they are treated individually.

Data from each returned questionnaire were entered into an Excel spreadsheet created for the study and then transferred into SPSS (Chicago, IL) for analysis. Descriptive statistics were calculated and distributions

were checked for normality. Variables were combined into factors. Preferences for indirect and direct management were combined based upon literature-derived a-priori designation (Maddux and Rogers 1983, Rogers 1985). Variables related to intentions were averaged into one factor for analysis (Ajzen and Driver 1992).

A factor analysis using principal components extraction and varimax rotation was performed on the variables related to attitude. A Principle Components Analysis (PCA) procedure was used to identify possible factor structures in the data and to evaluate each to identify the most interpretable and parsimonious solution. Evaluation criteria included evaluating scree plots, eigenvalues greater than one, percent variance greater than 5 percent for any single factor, percent variance greater than 50 percent for the model, and factor loadings greater than 0.4 for a variable. Variables with multiple factor loadings were excluded from further analysis. A Chronbach's reliability coefficient (α) of 0.7 was required for a scale to be considered reliable (Tabachnick and Fidell 1996). Indicator variables were averaged to create one factor score.

Multiple regression analyses were used to examine relationships between study constructs. Intended behavior was a single factor comprising six variables. Attitude was composed of three separate components: cognitive, evaluative, and affective. The cognitive component had three subcomponents: symbolic existence beliefs, objective knowledge, and perceptions of outcomes (Bright and Manfreda 1996). The evaluative component of attitude had two subcomponents: attitude toward the object (OHVs) and attitude toward the behavior (Bright and Manfreda 1996). The affective component was a single measure (i.e., emotional response toward the behavior). Multiple regressions included all factors, as identified by PCA, associated with these components. In order to better understand the relationship each individual independent variable had with the dependent variable, this study examined semipartial correlations (Sr^2). Squared semipartial correlations express the unique

contribution of a given independent variable to the total variance of a dependent variable; analysis of these aided the interpretations regarding each objective (Tabachnick and Fidell 1996).

3.0 RESULTS

The sample population for this study comprised 818 names and addresses (811 supplied by NETRA, and seven volunteer participants from Pennsylvania). Of this total, 384 surveys were returned by participants and 22 surveys were undeliverable, giving a qualified response rate of 48 percent. To examine the potential for bias, a one-page nonresponse survey was sent to 100 of the addresses in the original sample. Twenty-eight surveys were returned from this final mailing.

OHV operators were asked to characterize themselves and their OHV-based recreation histories. When they were asked for the number of years they have been riding OHVs, the mean response was 24.80 years with a standard deviation of 11.93 ($n = 379$). Response to a question asking for the year they were born gave a mean of 1964 with a standard deviation of 10.88 ($n = 345$). More than 97 percent of respondents were male ($n=370$).

3.1 Hypothesis Tests

Twelve hypotheses were tested using statistical procedures appropriate for the data and for the stated goals and objectives of the study. This manuscript looks at two of those twelve.

Hypothesis 1. *There is no significant relationship between preference for management strategies and the attitudes of OHV operators regarding the creation and use of unauthorized trails ($p \leq 0.05$).* Five standard regression analyses were conducted to examine the relationship between the independent variables for management preferences regarding the behavior (the creation and use of unauthorized trails) and the five dependent variables comprising the attitude concept as operationalized by this study.

We ran five separate analyses that included the relationship between management preference and

attitude components related to the behavior (creation and use of unauthorized trails). Three regressions examined general attitude factors and two looked at factors specific to the behavior. The first and second general attitude factors, evaluative attitude toward OHVs [$F(4, 365) = 1.640, p = .164$] and cognitive attitude toward OHVs [$F(4, 362) = 1.640, p = .164$], were not significantly related to management preference. The remaining three regressions had significant relationships: cognitive symbolic existence beliefs [$F(4, 362) = 2.719, p = .030$]; the factor combining affect and evaluative attitude toward the behavior [$F(4, 356) = 25.446, p < .001$]; and the cognitive perceptions of behavioral outcome [$F(4, 363) = 30.408, p < .001$]. The null hypothesis is rejected.

We also ran three analyses that included the relationship between preferences for general direct management strategies and attitudes regarding the behavior. The regression for management preference on cognitive symbolic existence beliefs (Table 1) proved significant for direct management [standardized regression coefficient (β) = .168, $t = 2.438, p = .015$].

Two analyses were run testing the relationship between preferences for specific direct management strategies and attitudes regarding the behavior. The regression for management preference on cognitive perceptions of behavioral outcome (Table 2) proved significant for specific direct management [standardized regression coefficient (β) = .195, $t = 3.195, p = .002$].

Two analyses were run testing the relationship between preferences for specific indirect management strategies and attitudes regarding the behavior. The regressions for indirect management preference on affect and attitude toward the behavior [Table 3; standardized regression coefficient (β) = -.386, $t = -5.654, p < .001$]; and cognitive perceptions of behavioral outcome proved significant for specific direct management [Table 2; standardized regression coefficient (β) = .267, $t = 3.999, p < .001$] are both statistically significant.

Table 1.—Standard multiple regression of management preference variables on the general attitude component: Cognitive symbolic existence beliefs

Variables	s.e.	B	Sr ²	p
Indirect Management General	.058	.030	0.00	.667
Direct Management General	.060	.168	0.01	.015*
Indirect Management Behavior	.046	-.142	0.009	.063
Direct Management Behavior	.036	.066	0.002	.342
R ²	.030			
F	2.719*			

*p≤0.05

Table 2.—Standard multiple regression of management preference variables on the behavior specific attitude component: Cognitive perceptions of outcomes of behavior

Variables	s.e.	B	Sr ²	p
Indirect Management General	.087	.043	0.00	.492
Direct Management General	.090	.089	0.004	.141
Indirect Management Behavior	.069	.267	0.03	.000*
Direct Management Behavior	.054	.195	0.02	.002*
R ²	.254			
F	30.408*			

*p≤0.05

Table 3.—Standard multiple regression of management preference variables on the behavior specific attitude component: Affect and evaluative attitude toward the behavior

Variables	s.e.	β	Sr ²	p
Indirect Management General	.096	-.019	0.00	.759
Direct Management General	.099	-.057	0.001	.348
Indirect Management Behavior	.075	-.386	0.07	.001*
Direct Management Behavior	.059	-.062	0.002	.328
R ²	.225			
F	25.446*			

*p≤0.05

Hypothesis 2. *No significant relationship exists between the attitudes and intended behaviors of OHV operators creating and using unauthorized trails ($p \leq 0.05$).* One standard multiple regression was performed between intended behavior (dependent variable) and the five attitude factors (three general, two specific) regarding the behavior (the creation and use of unauthorized trails; independent variables). The test of the relationship between attitudes and intended behaviors for using unauthorized trails [$F(6, 352) = 31.306, p < .001$] is statistically significant (Table 4). The null hypothesis is rejected.

4.0 DISCUSSION

The multidimensional definition of attitude allowed for a more detailed understanding of recreationist perceptions. This study's findings regarding the significance of constructs such as affect, symbolic existence beliefs, evaluative attitude toward the behavior, and the cognitive perceptions of behavioral outcome, support previous research (Bright and Manfredo 1996, Giles et al. 2004, Bright and Burtz 2006).

Table 4.—Standard multiple regression of attitude variables for behavior 2 on intended behavior

Variables	s.e.	β	Sr ²	p
General attitude:				
evaluative attitude toward object	.097	-.096	0.007	.059
cognitive objective knowledge	.089	.100	0.091	.042
cognitive symbolic existence beliefs	.087	.051	0.001	.322
Specific attitude toward behavior 2:				
affect and evaluative attitude toward behavior	.056	-.399	0.09	.000*
cognitive perceptions of behavioral outcome	.061	.215	0.026	.000*
R ²	.311			
F	31.306*			

*p≤0.05

OHV operators in this study had a meaningful perception regarding the use of fines and tickets. While most resented what they view as “persecution” and “heavy-handedness” among law enforcement agencies, they do seem influenced by a “fear of being caught” or sanctioned. This finding differs from those of d’Astous et al. (2005), who found that attitudes regarding music piracy were not significantly influenced by the threat of negative consequences. It can be argued, however, that issues of scale exist between onsite interactions with law enforcement officers and the cease and desist emails from record companies.

Evidence also exists to support the findings of Gramann et al. (1995) regarding the preference for and influence of indirect management. OHV operators reported that “cooperation” with agency and law enforcement representatives was something of interest, and that this cooperation contrasted with interactions which resulted in conflict (i.e., fines, tickets, arrest). The potential for conflict can be viewed through the affective lens here as it has been in emotionally charged studies such as the Bright and Manfredo (1996) work on wolf reintroduction and the Hrubes et al. (2001) study on hunters. The significance of behavioral outcome perceptions is reflected in the sentiments of OHV operators, who voiced a preference for “guidelines” and “information” rather than conflict. People prefer to be shown what to do rather than being punished for having done something after the fact.

Precedence already exists for the relationship between attitudes and intentions (Ajzen 1991, Ajzen and Driver

1992, Bright and Manfredo 1996, Hrubes et al. 2001). Despite the use of intentions as surrogates for behavior by this study and others (Bright and Burtz 2006), these findings suggest that public area land managers can affect recreational behavior by influencing attitudes. Hrubes et al. (2001) found that the role of attitudes and intentions within the TPB framework were useful as predictors for the choice between hunting and not hunting.

5.0 CONCLUSION

This study’s main goal was to provide natural resource managers with an understanding of the attitudes and perceptions of OHV operators pertaining to intended behaviors. By demonstrating that attitudes are associated with the intention to engage in depreciative behaviors, this study suggests an access point for managerial influence on behavior (Manfreda et al. 1992).

Previous studies employing the TPB (Ajzen and Driver 1992, Bright and Manfreda 1996, Hrubes et al. 2001) have suggested that the relationship between the attitudes of outdoor recreationists and their behavioral intentions provides a point of access for resource managers seeking to influence behavior. This study’s findings support that assertion. Statistically significant relationships between attitudes and preferences for management strategies suggest that management actions can be tailored to maximize their effect. The fact that specific management actions, both direct and indirect, have a greater effect than general actions on

OHV operator attitudes indicates that participants in this study were more influenced by clear and concise direction. This finding bodes well for land managers wishing to reach a specific audience regarding a specific issue and/or behavior.

The second assertion this study makes within the TPB framework is that once influenced, OHV operator attitudes will be related to behavioral intentions. Statistically significant results support this claim. There is a relationship between OHV rider attitudes and their intentions to engage in the behavior specific to this study (i.e., the creation and use of unauthorized trails). It is important to note that, for this study, the specific behavior was not directly measured. Previous work (Bright and Burtz 2006) posits that, in such cases, intentions can act as a surrogate for behavior. That observation is particularly germane to this study as the illegal, emotionally charged, or unauthorized behaviors questioned might have been difficult to measure. Attitudes appear to influence intentions and can provide managers with the basis for intervention.

In addition to this study's utility for managers of public lands, its findings add to the body of work that supports the use of the TPB as a model of the determinants of human behavior (Hrubes et al. 2001). Previous research demonstrating a relationship between attitudes and intended behaviors was replicated by this study. The strength of the affect construct within attitude, as observed among college students by Ajzen and Driver (1992), can also be observed within this population of OHV operators. Similarly, Bright and Manfredi (1996) found that emotional response (affect) had more of an effect on attitude than did more objective measures. This assertion informed the management preference approach used to explore the relationship between management action and attitude in the present study. Bright et al. (1993) used the TPB to recommend that natural resource managers rely on effective communication programs to influence recreational behaviors. This study's findings regarding the preference of OHV operators for indirect management seem to support this approach.

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RESEARCH TO GUIDE TRAIL MANAGEMENT AT ACADIA NATIONAL PARK, MAINE

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Abstract.—Acadia National Park, Maine, is the tenth most-visited national park in the United States. Managers face the challenge of protecting the park's trail system from damage while maintaining a high quality recreation experience. For this study, an initial phase of research was conducted to identify potential indicators of quality for trail resources and the visitor experience. Trail impacts, crowding, and type and level of trail development were identified as important indicators of quality. A second phase of research focused on formulating standards for each of these indicators. Findings identified the resource and trail conditions that respondents prefer, find minimally acceptable, think the National Park Service should allow, and find so unacceptable that they would no longer hike the trails in the park. Responses from hikers on high- and low-use trails were compared. Overall, visitors to Acadia report that they find the trails in good condition and that they are receiving a relatively high quality recreation experience.

1.0 INTRODUCTION

Acadia National Park includes approximately 120 miles of trails, and hiking is one of the most popular recreation activities in the park (Littlejohn 1999). The popularity of the trail system presents a challenge to park staff who must protect trails from unacceptable

visitor impacts, such as soil compaction and erosion, trampling of vegetation, trail widening, and creation of visitor-caused trails (Hammitt and Cole 1998). Trail use must also be managed to maintain the quality of the visitor experience with regard to the social impacts of visitor use, including crowding and unacceptable trail management practices (Manning 1999).

Management of outdoor recreation in national parks is guided by the Visitor Experience and Resource Protection (VERP) framework developed by the National Park Service (NPS) (National Park Service 1997). VERP relies on formulation of indicators and standards of quality for resource and social/experiential conditions that reflect management objectives/desired conditions. Indicators of quality are measurable, manageable variables that can be used as proxies for management objectives/desired conditions. Standards of quality define the minimum acceptable condition of indicator variables. This study was designed to help create indicators and standards of quality for Acadia's trail system.

2.0 STUDY METHODS

The first phase of research was conducted in the summer of 2004 and focused on identifying potential indicators of quality. A visitor survey incorporated a series of open- and close-ended questions. Open-ended questions asked visitors what they enjoyed most and least about hiking in Acadia, and close-ended questions asked visitors to rate the importance of several trail-related issues. Park "ridge runners" obtained 249 completed questionnaires from a representative sample of hikers encountered throughout the trail system.

The second phase of research was conducted in the summer of 2007 and focused on identifying potential standards of quality for selected indicator variables. A visitor survey incorporated a series of questions that

asked respondents to judge the acceptability of a range of trail conditions. These questions adopted normative theory and methods (Manning 1985, Vaske et al. 1986, Shelby and Vaske 1991, Vaske and Whittaker 2004), and used narrative/numerical, visual, and long- and short-question formats to examine several evaluative dimensions, including “preference,” “acceptability,” “management action,” and “displacement” (Manning et al. 1999, Manning and Freimund 2004). Three indicators covered the resource, social/experiential, and managerial dimensions of recreation opportunities: resource conditions, crowding, and type and intensity of management practices. Ridge runners administered the survey to a representative sample of hikers at trailheads throughout the trail system achieving an 82-percent response rate and yielding 287 completed questionnaires.

Acadia’s trails receive varying amounts of use. Trails sampled in phase 2 were divided into “high-use” and “low-use” categories based on a census of the park’s hiking trails (Jacobi, 2003). Trails that received 100 hikers or fewer per day were designated as “low use,” and trails receiving more than 100 hikers were designated as “high use.” Survey responses from these two classes of trails were compared and tested to see whether hikers’ normative standards varied significantly based on trail use level.

3.0 RESULTS

3.1 Indicators of Quality

The results of the first phase of research identified trail impacts (such as soil erosion and trail widening) and crowding as important indicators of quality. Level of trail development and management was also considered a potentially important indicator of quality, as trail impacts are often addressed through a range of development practices such as signage and trail surfacing (Park Studies Laboratory 2008).

3.2 Standards of Quality

Respondents were asked a series of questions to help identify standards of quality for each of the three indicator variables listed above. The first section of the survey addressed trail impacts. First, respondents were

asked to evaluate the acceptability of five computer-generated photographs depicting increasing levels of visitor-caused soil and vegetation impact (Fig.1).

Acceptability was measured using a 9-point Likert-type scale ranging from -4 (“very unacceptable”) to 4 (“very acceptable”). The second question asked respondents to indicate which photograph showed the amount of trail impact they would prefer to see. The following question addressed visitor displacement, and asked respondents to report the photograph that showed the level of trail impact that was so unacceptable that they would no longer hike on park trails. Respondents were given the opportunity to report that “none of the photographs are so unacceptable that I would no longer hike on the trails I hiked today.” The fourth question asked respondents to report which photograph showed the highest level of trail impact that the NPS should allow before restricting visitor use. Respondents were given the opportunity to report that “none of the photographs show a high enough level of environmental impact to restrict people from hiking on these trails” or that “the number of people hiking on these trails should not be restricted.” The final question asked respondents to indicate the photograph that looked most like the amount of environmental impact that they typically saw on the trails they hiked.

A summary of visitor responses to questions about trail impacts is shown in Table 1. Study findings suggest that increasing levels of trail impacts are increasingly unacceptable, as shown by the social norm curve in Figure 2.

The mean acceptability rating falls out of the acceptable range and into the unacceptable range between photographs 2 and 3. Respondents prefer to see very low levels of trail impact, with a mean photo preference of 1.2. Visitors reported a displacement level corresponding to an average photograph number of 4.3, but this level is substantially underestimated because 43 percent of respondents said that none of the photographs showed a level of trail impact that was so unacceptable that they would be displaced from the area. Visitors felt that the NPS should allow



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5

Figure 1.—Trail impact study photographs.

Table 1.—Summary of respondents' assessments of trail impact levels

	Mean photo number
"Acceptability"	2.5
"Preference"	1.2
"Displacement"	4.3
"Management action"	2.8
"Typically seen"	1.7

trail impacts corresponding to an average photograph number of 2.8 before restricting people from using the trails. However, this level is also underestimated because 17 percent of respondents reported that none of the photographs showed a level of impact sufficient to restrict use, and 5 percent felt that visitor use should not be restricted under any circumstances. Finally, visitors reported that they saw trail impacts corresponding to a mean photograph number of 1.7 on the day they were contacted for the study.

The second section of the survey explored visitor attitudes toward alternative trail management practices used to encourage visitors to stay on the designated trail in order to limit environmental impacts. Respondents were presented with a series of eight computer-generated photographs depicting alternative trail management practices (Fig. 3) and asked to evaluate the acceptability of each according to the same scale described above. A summary of visitor responses to these questions is presented in Table 2.

Visitors found "no management" and "occasional rock borders" to be the most acceptable trail management practices, and "continuous rock borders" and "stone paving" to be the least acceptable. However, none of the management practices received a mean negative acceptability rating.

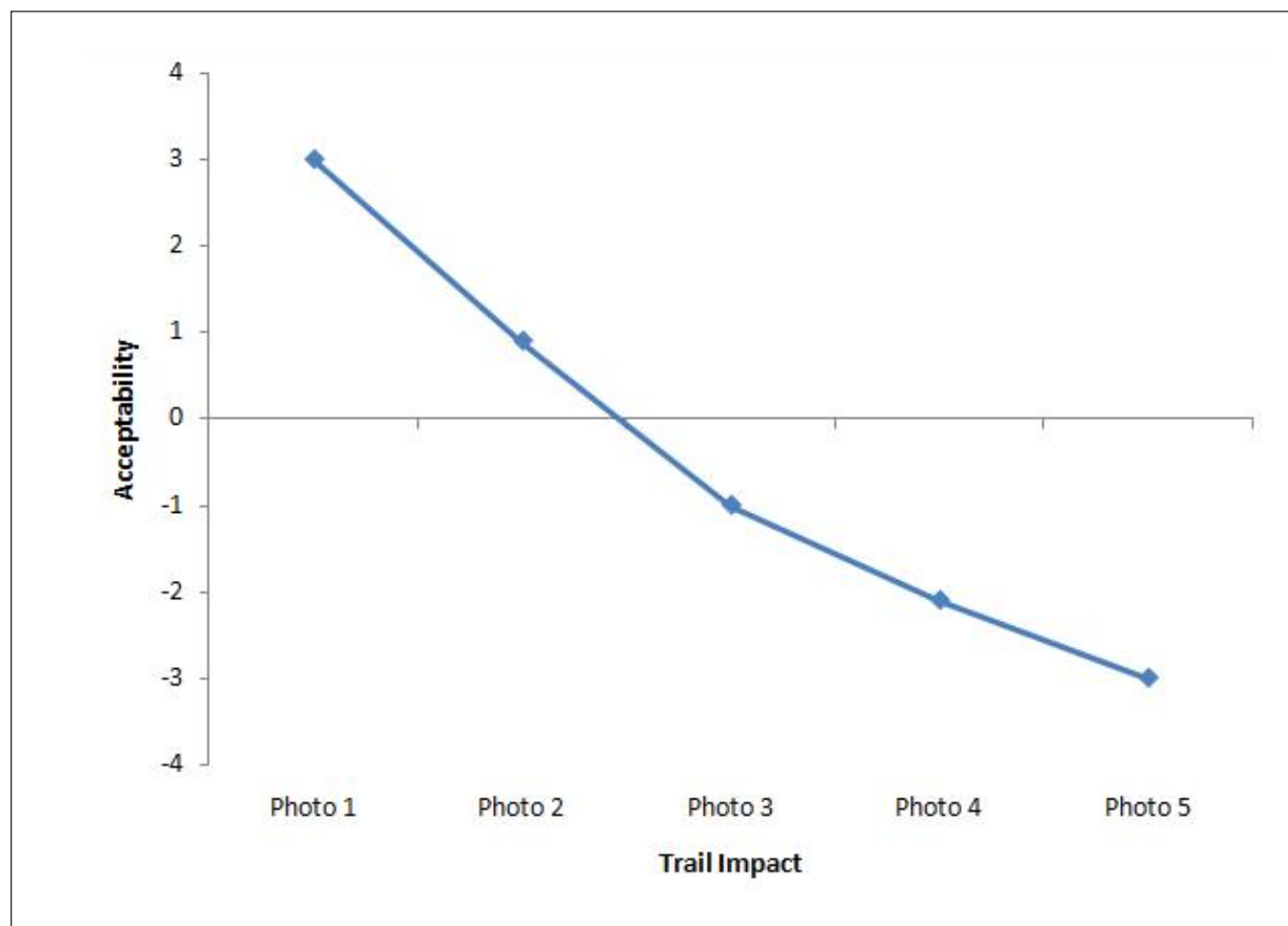


Figure 2.—Social norm curve for the acceptability of trail impacts.



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8

Figure 3.—Trail management study photographs.

Table 2.—Mean acceptability ratings for the eight trail management approaches

	Mean Acceptability Rating*
Photo 1: No management	3.0
Photo 2: Occasional rock borders	2.8
Photo 3: Continuous rock borders	0.9
Photo 4: “Stay on Trail” sign	2.5
Photo 5: Stone paving	0.7
Photo 6: Wooden planking	1.4
Photo 7: Brushed social trail	2.1
Photo 8: Brushed and signed social trail	2.1

* -4 = “Very unacceptable”; 4 = “Very acceptable”

The final section of the survey addressed crowding levels on trails through the number of encounters with other hikers. Respondents were first presented with 11 scenarios of encounters with an increasing number of other hikers (ranging from no other hikers up to more than 100 other hikers). Scenarios were presented in a narrative/numeric format, and respondents were asked to evaluate the acceptability of each scenario using the same 9-point response scale as the previous questions. After evaluating each scenario, respondents were asked to indicate the number of other hikers they would prefer to see on the trails per day. The third question addressed displacement by asking respondents to indicate the maximum number of other hikers seen per day before they would no longer hike these trails. Respondents were given the option to report that they “would continue to hike these trails regardless of the number of other hikers seen.” The fourth question asked respondents to indicate the maximum number of other hikers per day that the NPS should allow on trails before restricting hikers. Respondents were given the option to report that “the number of hikers on these trails should not be restricted.” The fifth question asked the approximate number of other hikers the respondent had seen while hiking that day. Next, respondents were asked how much time (in minutes) they had spent hiking on the day of the survey. Finally, respondents were asked to rate how crowded they felt on the trails they hiked. The rating was based on a scale of 1 (“not at all crowded”) to 9 (“extremely crowded”).

A summary of visitor responses to the questions addressing crowding is shown in Table 3. The study findings suggest that encountering increasing numbers of other hikers on trails is increasingly unacceptable. This result is presented graphically in the social norm curve in Figure 4. The mean acceptability rating falls out of the acceptable range into the unacceptable range at an encounter rate of 37.5 other hikers per day. Respondents prefer to see a mean of 15.4 other hikers per day on trails in Acadia. Visitors reported that encounters with other hikers would cause displacement (i.e., they would choose to hike elsewhere) at a mean of 54.2 other hikers per day. Approximately 25 percent of respondents said that they would continue hiking the trails regardless of the number of other hikers they saw. Visitors felt that the NPS should allow a mean of 84.5 hikers per day before restricting use on the trails. Approximately 52 percent of respondents felt that visitor use should not be restricted. Finally, visitors reported seeing a mean of 18.8 other hikers, and perceived crowding levels were low. About 54 percent of visitors reported that they felt “not at all crowded” while hiking on the day they were contacted for this study.

3.3 A Comparison of High- and Low-Use Trails

Hikers on high- and low-use trails displayed similar norms regarding resource conditions on trails. An independent-samples test found no significant differences in the acceptability of the range of trail impacts depicted in the study photographs. The only resource condition variable that showed a significant difference between high- and low-use trails was the level of impact that respondents reported seeing

Table 3.—Summary of respondents’ assessments of use levels

	Number of Other Hikers	
	Mean	Median
“Acceptability”	37.5	--
“Preference”	15.4	12.0
“Displacement”	54.2	44.0
“Management action”	84.5	50.0
“Typically seen”	18.8	15.0

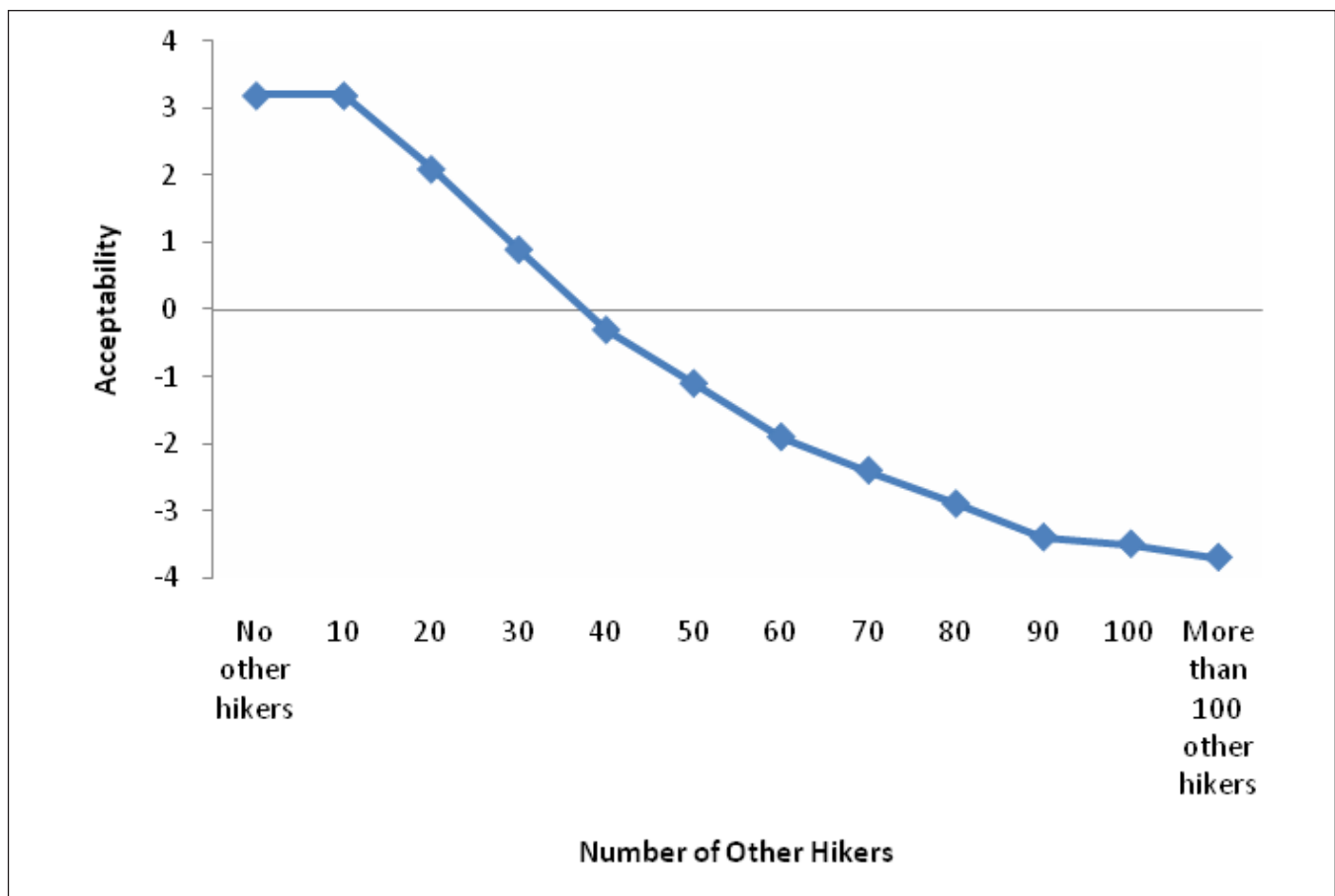


Figure 4.—Social norm curve for the acceptability of encountering other hikers.

($t = -4.675$; $p \leq .001$). Respondents hiking on high-use trails reported a level of impact corresponding to an average photograph number of 1.51, while respondents hiking on low-use trails reported a level of impact corresponding to an average photograph number of 1.91.

As with perceptions of trail impacts, there was little difference between high- and low-use trails with regard to the acceptability of study photographs showing different trail management practices. Responses to Photo 6 were the only ones that show a significant difference between use levels ($t = -3.171$; $p = .002$). Respondents hiking on low-use trails gave the use of wooden planking a higher acceptability rating than did respondents hiking on high-use trails (mean acceptability ratings of 1.87 and 0.93, respectively).

There were no significant differences in responses to the 11 hiker encounter scenarios. However, differences were observed in the approximate number of other hikers seen, the length of time spent hiking, and respondents' perceived level of crowding. Visitors hiking on high-use trails reported seeing a significantly higher number of other hikers than did visitors hiking on low-use trails ($t = 3.334$; $p = .001$), with hikers on high-use trails encountering about 22 other hikers, and those on low-use trails encountering about 15 other hikers. Visitors hiking on high-use trails also reported feeling significantly more crowded than hikers on low-use trails ($t = 4.212$; $p \leq .001$), with average perceived crowding levels of 2.3 and 1.6 respectively. On average, visitors on high-use trails also spent about an hour less time hiking than visitors on low-use trails ($t = -5.471$; $p \leq .001$).

4.0 CONCLUSION

This study's findings suggest that visitors hiking in Acadia National Park are receiving a fairly high quality recreation experience. Visitors are generally encountering trail impacts that are much lower than their minimum acceptable condition and very close to the conditions they would prefer to see. Although visitors reported seeing a higher number of other hikers than they would prefer to see, the difference is very small and far below their minimum acceptable condition. Visitors typically rated no trail management or "light-handed" management as being more acceptable than "heavier-handed" forms of management and trail hardening. None of the trail management practices depicted, however, received an average negative (unacceptable) rating, suggesting that visitors are willing to accept a variety of trail management practices that are deemed necessary to protect trails.

Few significant differences were observed between responses given by visitors hiking on high- and low-use trails and tended to relate mostly to what visitors saw, such as environmental impacts on trails and the number of other hikers. For example, visitors hiking on high-use trails reported more encounters with other people on average than visitors hiking on low-use trails. Consequently, hikers on high-use trails reported feeling slightly more crowded than hikers on low-use trails. In practical terms, however, observed differences were relatively small. Overall, it appears that hikers on high-use trails are as likely to accept management actions as hikers on low-use trails, and both groups display very similar norms relating to environmental and social conditions within the park.

Study results help provide an empirical basis for formulating indicators and standards of quality for the resource, experiential, and managerial components of trail management at Acadia. The range of potential standards of quality identified in this study provides a basis for designing and maintaining a diverse system of trail conditions and hiking opportunities across the park.

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HUNTING AND ANGLING I

THE RELATIONSHIPS BETWEEN ANGLERS' RISK PERCEPTION, SENSATION-SEEKING, AND FISHING SITE CHOICE ALONG THE NORTHEAST AND YILAN COAST SCENIC AREA, TAIWAN

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Abstract.—The northeastern coast is one of the best fishing areas in Taiwan, but the terrain, weather, and tides can create a dangerous and even deadly environment. This study examines the relationships between anglers' risk perceptions, sensation seeking, and fishing site choices. Results from a survey conducted at Long-Don in 2005 were analyzed for four dimensions of Sensation Seeking: "Thrill and Adventure Seeking," "Experience Seeking," "Disinhibition," and "Boredom Susceptibility." Anglers at three locations perceived risks that varied with the study spots. Resource managers can help provide safe angling opportunities by developing activities for anglers to substitute for sensation seeking during bad weather. Education programs may also help anglers prevent accidents through accurate risk perception while fishing.

1.0 INTRODUCTION

Numerous reefs and capes along the seashore make the northeastern coast of Taiwan one of the best coastal fishing areas in the country. The number of visitors to the Northeast and Yilan Coast National Scenic Area increased from 0.98 million in 1998 to 3.39 million in 2007 (Tourism Bureau 2008). Recreational fishing along this coast takes place year-round, but conditions can be harsh. The landscape is rocky, the weather can be very bad, and huge tides change so often and so quickly that numerous anglers have lost their lives there. Some anglers even go fishing during typhoon season. After numerous anglers suffered accidents

on the northeastern coast, resource managers along the coast employed several strategies to reduce the accident rate, such as enhancing safety facilities, setting up warning signs, distributing leaflets, and forcing anglers to leave during bad weather. According to the author's on-site observation, some anglers are intent on choosing dangerous sites and need to pay attention to the waves. Sometimes anglers have to go back and forth frequently from the shore to avoid getting wet or getting pulled in by the waves. Other anglers sit and relax at calm spots and enjoy the beautiful coast. The purpose of this study is to investigate the relationships among anglers' sensation-seeking, perceived risks, and fishing site/spot choices.

2.0 LITERATURE REVIEW

2.1 Fishing Site Choice

Hunt (2005) reviewed studies modeling the choice of recreational fishing sites and the recreational fishing literature and found that cost, fishing quality, environmental quality, facility development, encounter levels, and regulations may all influence an angler's selection of a fishing site. In general, anglers prefer fishing sites with lower costs, higher fishing quality (i.e., certain fish species, size, and number), higher environmental quality (i.e., beautiful scenery and clean water), convenient facilities, and fewer encounters with other anglers. Only a few studies have shown that regulations are an important aspect of anglers' site choices (Aas 2000, Ok et al. 2005). However, these factors do not explain why some anglers select high-risk fishing sites/spots and others seek relatively safe sites/spots. Adventure recreation research has indicated that sensation-seeking and risk perception influence the selection of adventure recreation activities and sites (Rowland et al. 1986). Therefore, this study hypothesis is that anglers' sensation-seeking and risk perception influence fishing site/spot choice.

2.2 Sensation-Seeking

Sensation-seeking is “a trait defined by the need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience” (Zuckerman 1979). Numerous studies have examined sensation-seeking and several related recreational activities, including rock-climbing (Robinson 1985), high-risk sports (Rowland et al. 1986), and downhill skiing (Bouter et al. 1988).

Sensation-seeking can be measured on the Sensation Seeking Scale (SSS), which was originally developed by Zuckerman (1979) and now has six forms (I–VI). Form V of the SSS is the one most often used by researchers. It contains four dimensions: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (Dis), and Boredom Susceptibility (BS).

2.3 Risk Perception

Previous recreation studies have suggested various strategies to manage the potential risks at recreation sites (Sönmez and Graefe 1998, Cooley 2000, Tangen-Foster and Dawson 1999, Bentley and Page 2001, Bentley et al. 2001). However, few studies have discussed how recreation participants perceive risk in recreation settings (Brannan and Condello 1992, Priest 1992, Priest and Carpenter 1993, Schuette 1993, Jones and Ellis 1996, Rogers 1997). The Adventure Model (Ewert and Hollenhorst 1989) proposes that participants with lower involvement perceive risk based on the information from the media and other participants but not from their experiences. Therefore, they report lower risk perception. On the other hand, people with higher involvement have more opportunities to experience the risks, so they perceive higher risk.

Ewert and Hollenhorst (1989) defined adventure/risk recreation as “a variety of self-initiated activities utilizing an interaction with the natural environment, that contain elements of real or apparent danger, in which the outcome, while uncertain, can be influenced by the participant and circumstance.” According to this definition, adventure recreation activities occur in the

natural environment when and where there are dangers and uncertainty, and the outcome can be influenced by participants’ competence and the risks in the natural settings (Priest 1992). Therefore, an individual’s perceived risk may influence his/her activity and site choice.

3.0 METHODS

Long-Don First Branch at the Northeast and Yilan Coast National Scenic Area in Taiwan was selected as a study site in order to try to understand the potential influences of sensation-seeking traits and perceived risk on fishing site/spot choices. This location has various risky fishing spots, and three specific spots were selected based on their geographic characteristics: Spot A, Spot B, and Spot C (Fig. 1). Anglers at Spot A fish on a cliff more than 100 feet above the water and encounter strong wind gusts and loud sea waves. Anglers at Spot B are closer to sea level on a rocky outcropping; they must pay close attention to the surf and be ready to run back away from the water periodically and on short notice to avoid getting wet and being pulled into the ocean by large waves. Unlike the previous two spots, the seashore along Spot C is much calmer, and anglers can sit and enjoy the scenery during their fishing.

Questionnaires were collected through on-site interviews from March to June 2005 using convenience sampling of anglers present on sampling days. Sampling was cancelled on a couple of days because of very bad weather, the small number of anglers present, and concerns about the interviewer’s safety. All anglers at the study sites on sampling days were asked to fill out the questionnaire; some individuals declined to be interviewed. Respondents were asked to report their perceived risks for Spots A, B, and C and to answer questions about sensation-seeking based on the SSS Form V (Zuckerman 1977).

4.0 RESULTS

4.1 Descriptive Characteristics of the Sample

Of the 174 questionnaires collected, 168 were valid (complete) and 6 were discarded because of missing

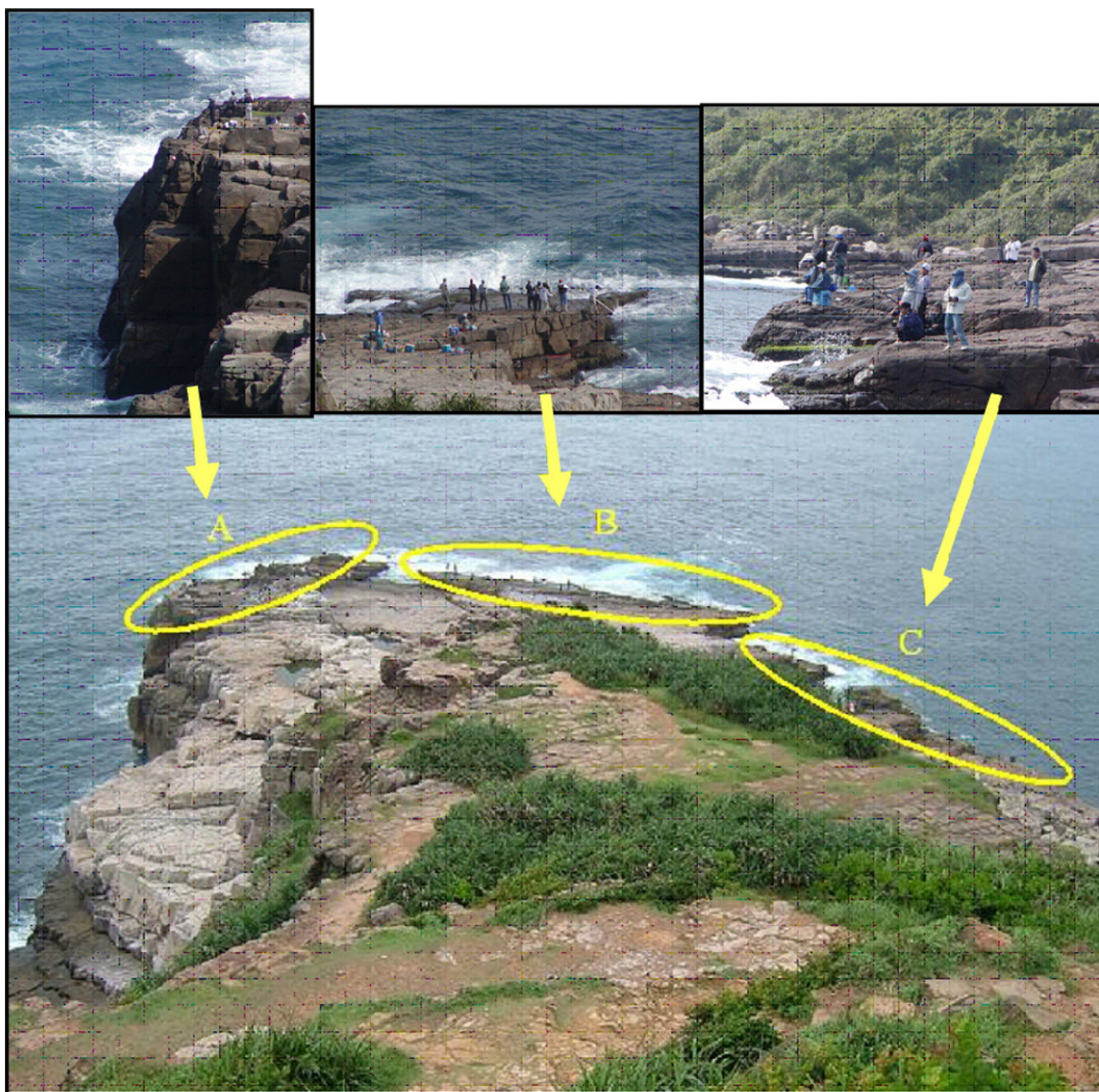


Figure 1.—Photographs of study site at Long-Don First Branch.

values for sensation-seeking or perceived risk variables. Most anglers were male (94.6 percent), middle-aged (67.2 percent were 31-50 years old), and middle-income level by Taiwanese standards (73.4 percent earned 20,000 to 60,000 NT/month). Most respondents worked in industry (34.7 percent) or business/service (31.2 percent), and 25.8 percent of the

respondents were unemployed. More than 79 percent of the respondents were high school graduates or had less education. Of the 168 valid questionnaires, 47 (28.0 percent), 40 (23.8 percent), and 81 (48.2 percent) were collected from Spot A, Spot B, and Spot C, respectively (Table 1).

Table 1.—Demographic characteristics of study participants

Variable	Item	N	%	Variable	Item	N	%
Gender	Male	159	94.6	Level of Education Completed	Elementary	25	14.9
	Female	9	5.4		Junior high	40	23.8
Age	under 19 years	1	0.5		High school	68	40.5
	20-30 years	20	12.0		College	33	19.6
	31-40 years	62	37.2		Graduate	2	1.2
	41-50 years	50	30.0	Income (NT/month)	Under 20,000	22	13.3
	51-60 years	29	17.4		20,001~40,000	62	37.6
	61 years and above	5	3.0		40,001~60,000	59	35.8
Avocation	Agriculture/Fishery/Forestry	4	2.4		60,000 above	22	13.3
	Industry	58	34.7	Current fishing spot	Spot-A	47	28.0
	Business/Service	52	31.2		Spot-B	40	23.8
	Police/faculty/student	10	6.0		Spot-C	81	48.2
	Unemployment	43	25.8				

4.2 Anglers' Sensation-Seeking Traits

Anglers' sensation-seeking scores varied across the three fishing spots (Table 2). Anglers at Spot A (0.54) and Spot B (0.51) had higher scores on TAS than anglers at Spot C (0.42). In addition, anglers at Spot A (0.42) and Spot B (0.42) had higher scores on overall "Sensation Seeking" than anglers at Spot C (0.33). These results indicated that anglers at Spot A and Spot B have higher sensation seeking traits than anglers at Spot C.

Within each group, TAS and Dis scores were generally higher than ES and BS scores. These findings show that the respondents have a stronger tendency to engage in sports or other activities involving some danger, risk, or personal challenge. Furthermore, they have a stronger need to engage in disinhibited behavior in the social sphere.

4.3 Anglers' Perceived Risk

Anglers' perceived risks varied at the different fishing spots and can be compared within the group or between groups. For Spot A, anglers at Spot B reported the highest risk perception (score = 3.58) and anglers at Spot C perceived the lowest risk (3.26). For Spot B, anglers at Spot C reported the highest risk score (3.64), and anglers at Spot B reported the lowest perceived risk score (3.08). For Spot C, anglers at Spot A reported the highest risk score (2.53), and anglers at Spot B reported the lowest perceived risk score (1.98). In terms of the overall risk of Long-Don First Branch, anglers at Spot A (3.23) perceived higher risk than anglers at Spot B (2.90) and Spot C (2.87).

Anglers' perceived risks were further compared within each group. Anglers at Spot A thought that B was the most dangerous spot and that Spot C was the safest.

Table 2.—Sensation seeking scores of anglers at different fishing spots by sensation seeking dimension

Sensation Seeking Dimension	Spot A		Spot B		Spot C	
	Mean	S.d.	Mean	S.d.	Mean	S.d.
TAS	0.54	0.26	0.51	0.26	0.42	0.25
ES	0.35	0.18	0.32	0.18	0.33	0.18
DIS	0.44	0.24	0.47	0.18	0.43	0.21
BS	0.33	0.17	0.36	0.14	0.33	0.15
Overall	0.42	0.15	0.42	0.12	0.38	0.13

Anglers at Spot-B perceived Spot-A as the most dangerous spot and Spot-C as the safest. Anglers at Spot C thought Spot B was the most dangerous and Spot C was the safest (Table 3).

5.0 DISCUSSION AND CONCLUSIONS

Based on the perceived risk reported by anglers, fishing at Spot A and Spot B is more dangerous than at Spot C (Table 3). Anglers at Spot A and Spot B had higher scores on TAS and the overall sensation-seeking scale than anglers at Spot C. These results indicate that anglers with higher sensation-seeking traits seem likely to pursue dangerous fishing spots with features such as rocky cliffs, wind gusts, or loud waves. Anglers with lower sensation-seeking traits avoid potential risks by choosing safe fishing spots.

Since anglers with high sensation-seeking traits tend to choose risky fishing spots, resource managers should consider developing educational programs to help anglers accurately perceive risks while fishing. In addition, alternative off-site adventure recreation activities such as indoor rock climbing may be developed to substitute for recreation fishing during bad weather and satisfy anglers' needs for sensation-seeking.

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Table 3.—Anglers' perceived risks for different fishing spots^a

Perceived risk	Anglers at Spot A		Anglers at Spot B		Anglers at Spot C	
	Mean	S.d.	Mean	S.d.	Mean	S.d.
Risk of Spot A	3.35	1.15	3.58	1.08	3.26	1.14
Risk of Spot B	3.38	0.97	3.08	0.94	3.64	1.10
Risk of Spot C	2.53	1.06	1.98	1.03	2.08	0.88
Overall	3.23	0.91	2.90	0.71	2.87	0.89

^a The number shown in the table is the mean value of agreement with the statement "fishing at this spot is very dangerous" where 1 = "strongly disagree" and 5 = "strongly agree."

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TOURISM—RESIDENTS

VISITOR USE PATTERNS AND SATISFACTION ALONG THE ROGUE-UMPQUA SCENIC BYWAY, OREGON

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Abstract.—Face-to-face interviews were conducted with 232 visitors/groups along Oregon's Rogue-Umpqua Scenic Byway (RUSB) to identify recreation use patterns and assess visitor satisfaction with various attributes of the Byway. Study participants were most likely to be over 50 years old, to be visiting overnight, and to be repeat visitors from Oregon who were there with family members and/or friends. For most, RUSB was their primary destination. Their most common recreational activities on the trip were sightseeing, viewing scenery/nature, hiking/walking, camping, pleasure driving, fishing, and viewing waterfalls. Performance-based satisfaction analysis indicated that the visitors were very satisfied with their overall experience and with the facilities and services offered along the Byway. Stepwise regression analysis found that satisfaction with seven attributes explained approximately 45 percent of the variance in satisfaction with the overall experience. Safety/security and educational interpretation were the most important components of overall visitor satisfaction.

Recommended improvements include better drinking water facilities and enhanced security along the Byway.

1.0 STUDY BACKGROUND

This study was conducted along the Rogue-Umpqua Scenic Byway (RUSB or Byway), located in the High Cascades of south-central Oregon near Crater Lake National Park. The 172-mile-long Byway lies primarily in the Umpqua and Rogue River National Forests. It passes through diverse river settings and mountain landscapes that include oak-covered hills, towering coniferous forests, white water rapids, and inter-canyon lava flows. Along the Byway and at waysides nearby are several parks, waterfalls, springs, and lakes, each with a variety of recreational opportunities including world-class fisheries (National Scenic Byway Program 2008). Every summer, thousands of visitors from both Oregon and out-of-state come to the area to enjoy the attractions.

The bottom line of sustainable management of any recreation area is maintaining visitor satisfaction by providing a quality experience (Lucas and Stankey 1974, Floyd 1997). Achieving this objective requires managers to have some basic information about the area's features, visitor use patterns and preferences, and the extent of visitors' satisfaction with their experience of the area. However, no study has been done before in the RUSB area to collect this vital information. Therefore, RUSB resource managers had very little understanding of who visitors were, why they came there, how satisfied they were with the existing condition of the natural and physical resources, and whether or not they appreciated the role of management and staff in providing quality visitor experiences. RUSB managers believed that information related to recreation along the Byway and

the quality of visitors' experiences would help them evaluate their existing programs and take actions to maximize visitor satisfaction while maintaining the natural and aesthetic quality of the area.

2.0 OBJECTIVES

The purpose of the study was to collect some basic information on recreation along the Byway and the quality of visitors' experiences. The specific objectives of the study were to:

- Identify the characteristics of RUSB visitors
- Determine visitors' trip characteristics and recreational use patterns along the RUSB
- Assess visitor satisfaction with various attributes of the RUSB
- Understand visitors' spending patterns along the RUSB

3.0 METHODOLOGY

On-site face-to-face interviews using a questionnaire were conducted to obtain the data needed for meeting the study objectives. The interviews were held at 23 pre-identified survey sites along the RUSB for 30 sample days in the summer of 2007. Students who were trained by the researchers about the contents and meanings of the questionnaire conducted the interviews. Each day, interviewers spent 1 hour at each of five different sites along the Byway on a rotating basis. All visitors who agreed to participate in the survey during that period were interviewed. The response rate was very encouraging. A total of 232 visitors/groups completed the survey for a response rate of 92 percent. As suggested by Biemer and Lyberg (2003), an adult was selected to participate from each group based on having a birthday nearest to the interview date.

The questionnaire contained both open- and close-ended questions. The questions covered various aspects of visitors' personal information, trip characteristics (first time or repeat visitor, number of visits, group composition, day or overnight trip, length of trip, primary destination), participation in recreation activities, primary recreation activities, reasons for

visiting, satisfaction with the entire experience, and attributes of the Byway.

Questions requested information about participation in 33 different recreation activities. Most of the activities were modified from a list in the National Visitor Use Monitoring (NVUM) survey, but some activities not available in the study area were omitted and others not on the NVUM list were added (Table 1). Respondents were also asked what their primary activity during the trip was. Motivation to visit the Byway was measured using 13 items. Respondents were asked to indicate how important each of the 13 items was for them on a 5-point Likert scale, where 1 meant "not important at all" and 5 meant "extremely important." Respondents were then asked to select their most important reason for visiting the Byway among four choices: 1) I enjoy the place itself; 2) It is a good place to do outdoor activities that I enjoy; 3) I wanted to spend more time with my companions; and 4) It is close to my home.

Borrie and Birtzell (2001) noted that *importance-performance measures* (assessments of the quality of various attributes and assessments of the quality of attribute delivery) and *experience-based approaches* (more direct assessments of the overall experience) are widely used to measure the quality of outdoor recreation experiences. However, Absher (1998) reported that, in many cases, only *performance-based approaches* are applied. In the performance-based approach, the quality of the experience is measured in terms of user satisfaction (Outdoor Recreation Resources Review Commission 1962, Borrie and Birtzell 2001). This study used both of these approaches to assess the quality of visitors' recreation experiences. Respondents were asked to rate their level of satisfaction with facilities and services, their satisfaction with the overall experience, and their satisfaction with the quality of various attributes of the RUSB. To assess satisfaction with facilities and services, respondents were asked to what extent they agreed with 27 statements related to services and facilities available along the Byway using a 5-point Likert scale. A score of "1" meant "strongly disagree" (lowest rating) and "5" represented "strongly agree"

(highest rating). Likewise, satisfaction with the overall experience was assessed using a 10-point scale, where “1” was the lowest ranking and “10” was the highest. The quality of seven attributes was measured on a 5-point Likert scale, where “1” represented the lowest rating and “5” represented the highest rating. To identify the various attributes’ effects on overall experience, overall experience was regressed on perception of seven attributes.

4.0 RESULTS

4.1 Visitor Characteristics

The mean age of the respondents was 43 years and 48 percent were more than 50 years old. The number of male respondents (55 percent) was slightly higher than the number of female respondents. About 70 percent were from Oregon and the rest were from other states; only 1 percent was from another country.

4.2 Trip Characteristics

At the time of the survey, the RUSB was attracting both repeat and new visitors. Most of the respondents to the Byway survey were repeat visitors (65 percent) while there was also a good contingent of first-time visitors. The median first year of visiting RUSB was 1995.

The majority of the respondents were visiting in social groups (92 percent), such as with family members (51 percent), with friends (22 percent), or with both family members and friends (19 percent). Approximately 8 percent of respondents reported that they were visiting alone and less than 1 percent of the respondents came in organized groups. Figure 1 displays the percentage of respondents by group type.

Overnight trip visitors (69 percent) were far more common than day-trippers. The mean length of overnight trips was about 5 days and 75 percent of multi-day visitors had spent more than 3 days in the area. The RUSB was the primary trip destination for the majority of the visitors (76 percent); two-thirds of them (67 percent) were visiting just the Byway while 33 percent also visited other national parks or national forests during the trip. Three-fourths of the respondents (76 percent) reported that they had

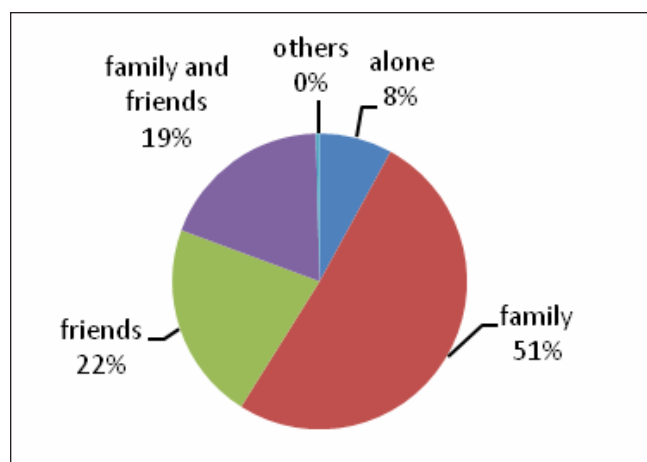


Figure 1.—Group composition of respondents.

visited or were visiting only part of the RUSB while 24 percent said that they had traveled or were traveling the entire length of the Byway. The average length of stay along the Byway was 2.8 days.

4.3 Activity Participation

Of the 33 activities listed on the survey, sightseeing and viewing scenery/nature along the RUSB were the most popular; more than 75 percent of the respondents reported participating in these activities. Between 50 percent and 65 percent of respondents participated in hiking/walking, camping, photography, pleasure driving, fishing, and viewing waterfalls. Between 15 percent and 37 percent of the respondents participated in picnicking, restaurant dining, rafting, shopping, and mountain biking (Table 1).

Camping was the primary activity for about a quarter of the respondents (23 percent), followed by sightseeing (17 percent), fishing (11 percent), viewing scenery/nature (11 percent), rafting (10 percent), pleasure driving (6 percent), and hiking/walking (5 percent).

4.4 Motivation to Visit

As in other scenic areas, the main motivations for visiting RUSB were to experience scenic vistas and nature, to be outdoors, to seek relaxation, and to escape from routines and crowds (Fig. 2). Improving social ties (for example, with family and friends) was another important motivation. As expected from

Table 1.—Respondents' activity participation and self-identified primary activity

Recreation activity	Percent of respondents (they could choose multiple activities)	Percent of respondents saying this was their primary activity (one selection per respondent)
Sightseeing	75.9	17.0
Viewing scenery/nature	75.4	11.0
Hiking/walking	63.4	4.6
Taking photographs	62.1	0.9
Camping	62.1	23.4
Pleasure driving	61.2	6.6
Viewing waterfalls	53.4	3.2
Fishing	52.6	11.5
Picnicking	36.6	1.4
Visiting educational/interpretive facilities	31.5	0.0
Dining in restaurants	26.8	0
Shopping for other goods	19.8	0
Rafting/kayaking/canoeing	19.8	9.6
Bicycling (mountain bike)	14.7	0.0
Bicycling (road bike)	13.4	0.9
Automobile touring	12.5	0
Visiting historic sites/museums	12.5	0.5
Shopping for art, souvenirs, crafts, antiques, etc.	11.6	0
Using barrier-free trails	10.8	0
Other (specify)	5.6	4.1
Rock collecting	4.7	0
Horseback riding	3.9	0
Special event attendance	3.0	0
Motorcycle touring	2.6	1.4
Using barrier-free recreation sites	2.2	0
Commercial lodging (motel, bed and breakfast, etc.)	1.7	0
Gaming	1.7	0.9
Climbing/caving	1.7	1.4
Resort lodging	1.3	0
Driving off-road/4WD vehicles	1.3	0
Hunting	0.9	0
Golfing	0.4	0
Bus touring	0	0.5

a scenic byway, physical/health benefits (exercise), sports participation, and developing skills were relatively low-rated motivations.

4.5 Most Important Reason for Visiting

The setting and other features of the area were important reasons for survey respondents to visit (Fig. 3). About 40 percent of the respondents thought that the RUSB was a good place to engage in outdoor activities that they enjoyed while 31 percent enjoyed the place itself. To 21 percent of visitors, social needs, such as spending time with companions, were the most important reason to visit the Byway. About 9 percent indicated that closeness to home was their main reason for visiting the Byway.

4.6 Satisfaction

4.6.1 Satisfaction with Facilities and Services

In general, the respondents were very satisfied with the various facilities and services on their RUSB trip (Table 2). Respondents' average score for satisfaction-related statements about facilities and services was above 4 on a 5-point scale. Five features of the Scenic Byway received very high ratings (over 4.75): compatibility of recreation activities with the natural environment, prices of the services, condition of the facilities, safety from dangers, and accessibility for people with disabilities and special needs. Relatively low-rated facilities and services (mean rating of less than 4.2) included interpretation education services, availability of drinking water, friendliness of staff, and

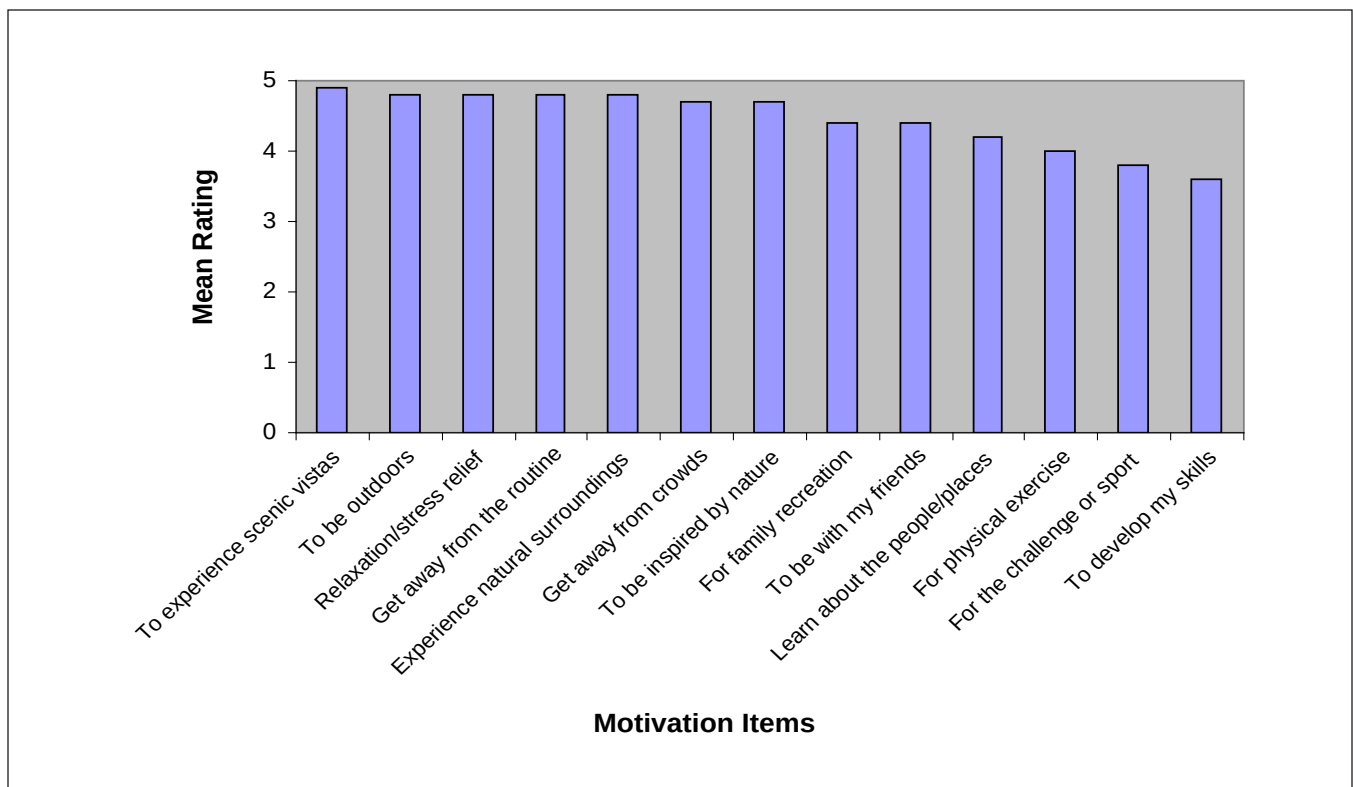


Figure 2.—Respondents' mean rating of various motivation items in RUSB.

safety while driving along the byway. The rest of the features scored in between those two groups.

4.6.2 Satisfaction with Overall Experience

Like the individual facilities and services, visitors' perceptions of their overall RUSB trip experience were very positive (Fig. 4). The mean ranking for the overall experience was 9.28 on the 10-point scale. Almost 95 percent of respondents rated their experience as highly satisfactory and none rated their experience below 6.

4.6.3 Satisfaction with Various Attributes

The RUSB visitors were very happy with the area's attributes, rating all of them higher than 4.5 on a 5-point scale (Fig. 5). "Recreation setting" was highest, indicating their great level of satisfaction with the natural environment of the area. Kent (1993) also found that people considered visual characteristics of scenic routes to be more important than other attributes and gave high ratings to the natural setting. He concluded that people enjoy scenic drives for various reasons but that opportunities to experience natural

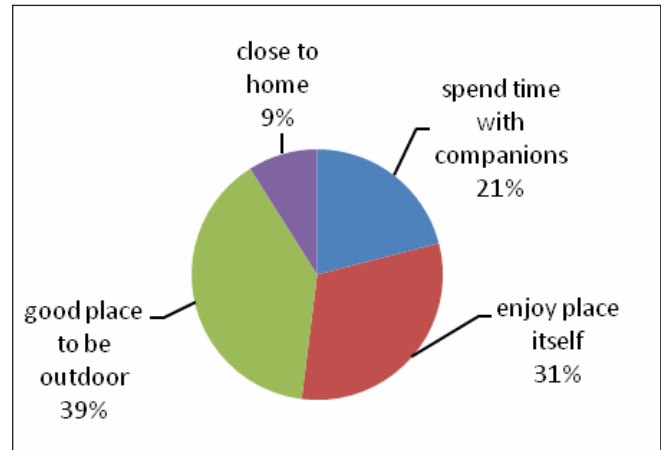
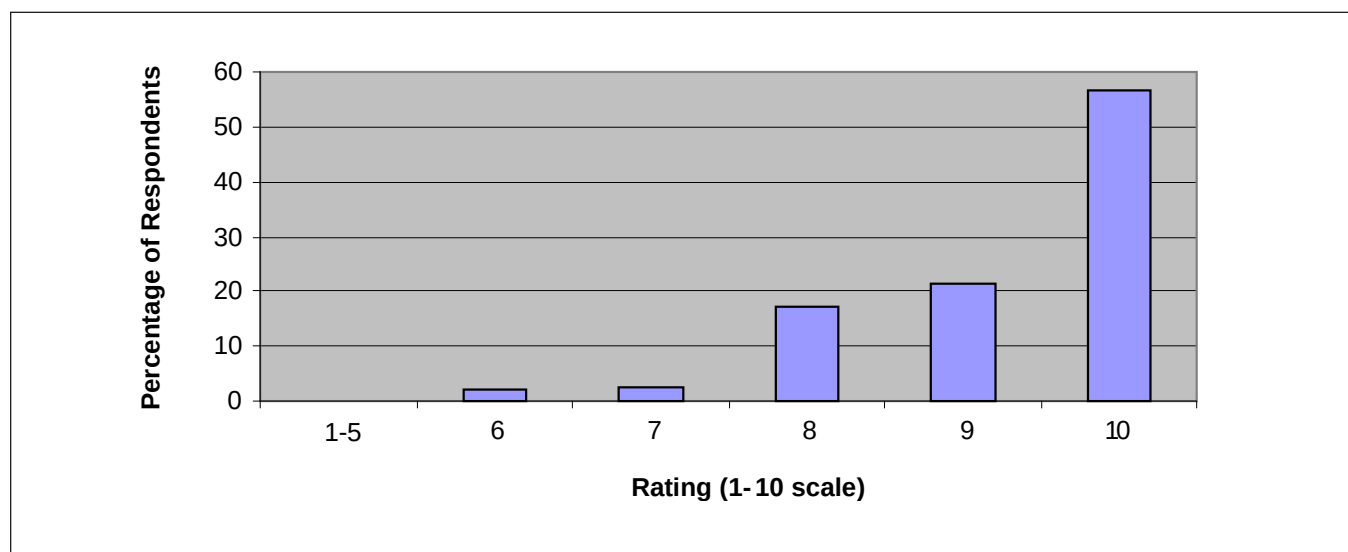


Figure 3.—Percentage of respondents who selected various primary reasons for visiting.

beauty and rural scenery are especially appreciated. In the current study, the rest of the attributes were also rated very high (mean above 4.5), but managers still have some opportunity to improve the facilities and services in such areas as health and cleanliness, safety, staff responsiveness, and condition of the facilities.

Table 2.—Perception (level of agreement) of quality of services and facilities at RUSB.

Quality Attribute	Mean Rating
Drinking water is available	4.13
Recreation use is compatible with the environment	4.72
Reasonable prices for traveler services are available	4.26
Facilities are in good condition	4.56
Recreation sites are free of dangerous conditions	4.54
Facilities are accessible for persons with disabilities or special needs	4.18
Garbage does not exceed container capacity	4.48
I have the opportunity to be inspired by natural settings	4.81
Views from rec areas free of obstruction by buildings or development	4.84
Roadside signs and directions make recreation sites easy to find.	4.74
Restrooms/Toilets are clean and free of odor	4.14
Parking spaces are plentiful	4.46
I feel safe at the recreation areas	4.73
Adequate scenic turnouts (frequency, safety) are available	4.47
I am able to find comfortable, good quality accommodations	4.65
Wildlife can be found to observe	4.48
Roads and trails are in good repair	4.68
Rules and regulations are clearly posted and easy to understand	4.75
Roadways are safe and well-maintained	4.63
The area is free from litter	4.66
Adequate trip planning information	4.56
Educational interpretation of area natural features is available	4.56
Supplies (gas, food, other supplies are available	4.23
Educa.interpretat. of area cultural customs, social events is available	4.29
I feel good when I get home after driving on the scenic byway	4.85
I feel safe when driving along the scenic byway	4.66
People who serve travelers are friendly and helpful	4.8

**Figure 4.—Rating of overall experience along the Rogue-Umpqua Scenic Byway (mean rating = 9.28).**

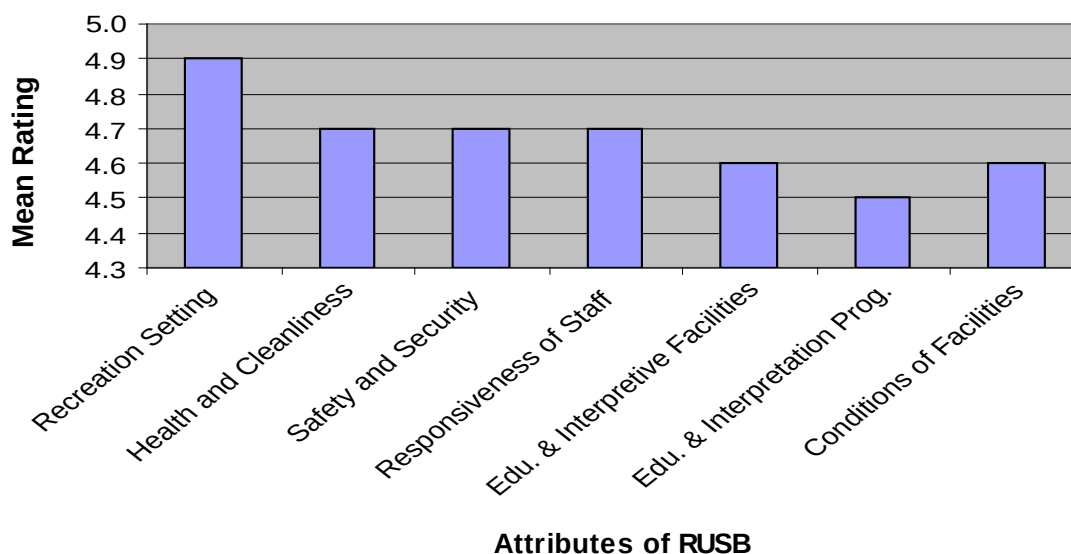


Figure 5.—Rating of various attributes of the Rogue-Umpqua Scenic Byway.

4.7 Role of Various Attributes in Overall Satisfaction

In order to determine the effects of various RUSB attributes on overall visitor experience, overall experience was regressed on perception of seven attributes (Table 3). The result was that the perception of seven attributes could significantly explain 45 percent of the variance in overall experience ($R^2_{adj} .45$, $F = 12.387$, $d.f. 97$, $sig .000$). Of the seven attributes, only safety and security and educational interpretation programs made significant contributions to explaining overall experience. Considering the loneliness and isolation of scenic byways, the importance of safety and security is not very surprising. Educational

interpretation programs can also enhance the visitor experience by providing much needed information about the available physical and cultural resources.

4.8. Expenditure Pattern

Visitors' mean expenditures within 50 miles of the RUSB was \$157 per person/group, which included about \$90 for food and accommodations, \$32 for gasoline and oil, and \$15 for parking and use fees (Table 4). The purchase of souvenirs, clothing, and other items accounted for approximately \$16. Considering that the average length of stay in the area was 5 days, this expenditure is very low. One explanation is that the visitors were interviewed while

Table 3.—Regression coefficients showing relation between overall experience and attributes of the Rogue-Umpqua Scenic Byway

	β	Std. β	t	sig
Constant	4.455		4.463	.000**
Health and cleanliness	-.638	-.331	-1.814	.073
Safety and security	.646	.392	3.409	.001*
Condition of facilities	.341	.188	1.339	.184
Responsive staff	.110	.063	.554	.581
Recreation setting	-.053	-.020	-.189	.851
Educational/interpretive programs	.552	.448	3.139	.002**
Educational/interpretive facilities	.093	.064	.392	.696

**Table 4.—Mean Expenditures by Respondents/
Groups within 50 Miles of RUSB**

Expenditure	Amount in \$
Privately-owned lodging	8.50
Government-owned lodging	20.70
Food and drink in restaurants and bars	30.61
Food and drink in other places	27.62
Fuel	32.00
Other transportation costs	1.00
Fees, guides, and gear	4.82
Parking and use fee	15.31
Souvenirs and clothing	7.20
Other items	9.43

they were still in the area and had not yet completed their expenditures for the trip. However, the low expenditure rate suggests that there may be a need for expanded and more diversified retail or commercial offerings in the area.

5.0 CONCLUSIONS

The RUSB received repeat visitors but also attracted many new visitors. Most of them came in social groups, mainly with family and friends. The Byway was the primary destination for more than three-quarters of the visitors and the majority of them spent 3 to 4 days in the area. The most common recreational activities along the Byway were sightseeing, viewing nature, hiking, camping, photography, driving, fishing, and viewing waterfalls. A majority of study participants were motivated to take the trip to view the scenery or be in a natural setting; next in importance was seeking relaxation and escaping from crowds and routines. The major reasons for coming to the RUSB were to enjoy the place and to recreate there. The visitors were very satisfied with their overall experiences as well as with the natural and physical attributes of the area. They had limited opportunities to spend money in the Byway area, which suggests that there may be a need for more facilities to provide local accommodations and other necessities. Other areas for improvement include safety and security features and quality of available drinking water. Safety and security, condition of the facilities, and interpretation programs were important factors in overall visitor satisfaction.

6.0 MANAGEMENT IMPLICATIONS

RUSB managers now have the first-ever baseline data about visitor use and preferences. Although the data were collected only during the summer season, they provide a wealth of information about RUSB users. Understanding visitor motivations and satisfaction levels confirms that the resource managers are indeed meeting the needs of their users. In the future, continued high fuel costs may have a negative impact on the use patterns along the Byway, and managers will be able to collect data to determine whether changes have occurred in people's visitation patterns.

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KEEPING OUR CHARM: RESIDENTS, GROWTH, AND QUALITY OF LIFE ISSUES IN A SMALL BUT GROWING TEXAS COASTAL COMMUNITY

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Abstract.—This study assessed residents' perceptions of quality of life, conservation, and growth in a small, fast-growing coastal community. Data were collected from an on-site survey in Aransas County, TX, from 2006 to 2007. Results show that the residents are concerned about preserving their natural resources, maintaining a small-town atmosphere in their community, and ensuring citizen involvement in future planning efforts, especially with tourism. The implications of the study for Extension professionals and residents are discussed and suggestions are made for future research.

1.0 INTRODUCTION

In many parts of the United States, coastal regions and communities are being transformed in response to population growth, urbanization, and tourism. Tourism development and growth provide economic opportunities for local residents and businesses but may potentially have negative effects, including reduced open space, traffic congestion, loss of community identity, and displacement of residences (Freudenburg et al. 1982, Salamon 2003). Consequently, local government and community leaders must become more aware of residents' concerns and attitudes to balance economic development and tourism with overall quality of life and environmental conservation.

In this paper, we report on the results of a study examining residents' attitudes toward growth and quality of life. Study objectives are: 1) to assess perceived concerns and attitudes toward growth, quality of life issues, and natural resource conservation; 2) to compare citizens' attitudes and concerns by length of residence; and 3) to discuss the implications of growth for the quality of life for residents of coastal communities.

2.0 METHODS

2.1 Study Area

Data used in this study were collected from a survey of Aransas County residents in Texas. This coastal county is located on the Gulf of Mexico near Corpus Christi. The geographic area provides an important case study because it possesses rich coastal resources for tourism development. Aransas County is adjacent to major metropolitan cities such as Houston and San Antonio and other coastal communities, including Corpus Christi, Galveston, and South Padre Island. Aransas County is also experiencing rapid population and economic growth. Total population in the surrounding area exceeds 5 million people (U.S. Census Bureau 2007). The per capita personal income in Aransas County was \$25,094 in 2002, a 21.2-percent increase from 1997. The estimated population in 2006 was 24,831, an increase of 38 percent since 1990. The county population was 72 percent white, 22 percent Hispanic or Latino, 3 percent Asian, and 2 percent African American in 2005 (U.S. Census Bureau 2007). Local business sectors include seafood, oil production, tourism, sport hunting and fishing, boating, and water sports.

2.2 Data Collection

Data for this study were collected from several sources in spring 2006 and summer 2007. Participants at the Sea Fair Festival and the Oyster Festival in Aransas County were approached by interviewers and asked to

participate in a research study. Questionnaires (written in English) were completed on-site. In addition, other community members were asked to complete questionnaires at local meetings of the Chamber of Commerce Board, Rotary Club, and Master Gardeners.

2.3 Survey Instrument

The main part of the questionnaire contained items to assess participants' attitudes towards growth and quality of life. Respondents were asked to rate their level of agreement with each statement on a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The items in the questionnaire incorporated multiple dimensions of the meaning of place from the local perspective: community identity and vision, consumption and services, and quality of life (related to walkability, livability, recreation, and social interaction) (Green et al. 1996, Kang and Kwak 2003, Bengston et al. 2005, Fenton 2005). Items were also selected from local issues and concerns expressed in the Texas Community Futures Forum, a state-wide assessment conducted in each county by Texas Cooperative Extension in 2004. The most salient issue was the effect that rapid population growth might have on "coastal charm," which was perceived to be an important local amenity. The questionnaire also contained items measuring outdoor recreation activity participation and socio-demographic characteristics.

3.0 RESULTS

3.1 Respondents' Profile

From the contacts made during the survey process, 1,540 usable questionnaires were obtained. For the purpose of this study, only local residents (full-time and part-time) were included in the data analysis (n=923). Part-time residence status was determined by respondents' self-reports. Of the respondents, 68 percent were full-time residents and 32 percent were part-time residents. The majority (58 percent) of the residents were female, 52 percent were between 47 and 67 years of age, 31 percent had some college/technical school education, and 87 percent were white. More than 60 percent of the residents had annual family incomes of at least \$50,000 (Table 1).

Table 1.—Socio-demographic profile of residents

Resident Variables	N	Percentage	Census data
Age			
18-24	44	5%	6%
25-34	72	8%	9%
35-44	99	12%	14%
45-64	430	50%	27%
> 65	208	24%	20%
Gender			
Male	370	42%	50%
Female	518	58%	50%
Education			
Less than high school	40	4%	25%
High school diploma	176	19%	29%
Some college/technical school	291	32%	24%
University graduate	260	28%	15%
Graduate degree	148	16%	6%
Household income			
Under \$15,000	26	3%	24%
\$15,000 to \$30,000	90	11%	24%
\$30,001 to \$50,000	190	23%	22%
\$50,001 to \$75,000	195	24%	15%
\$75,001 to \$100,000	144	17%	7%
> \$100,000	184	22%	8%
Race and ethnicity			
White	794	87%	87%
African American	9	1%	1%
Hispanic	60	7%	20%
Asian	9	1%	3%
Native American	8	1%	1%
Others	28	1%	5%

Note: The total numbers of demographic variables do not add up to the total number of study participants (923) due to missing data.

The majority of respondents had lived in the county less than 5 years (59 percent), and 11 percent had lived there more than 15 years. Just over 30 percent of the respondents work in the county, including about 45 percent of the full-time residents but only 4 percent of the part-time residents. Thirty-five percent receive a retirement pension. Currently, 85 percent of the residents participate in outdoor activities such as fishing, walking/hiking, and wildlife viewing.

Compared to the most recent Census data for the county (U.S. Census 2007), the survey respondents showed similar socio-demographic characteristics in age and gender distribution but exhibited slightly higher income and education than average. The sample contained a lower proportion of Hispanic individuals as well (Table 1).

3.2 Attitudes about Growth and Quality of Life

Table 2 shows the mean scores on the items pertaining to growth and quality of life for full- and part-time residents (1=Strongly Disagree, and 5=Strongly Agree). Overall, respondents agreed that growth and the future of the local environment are important to them. Specifically, respondents felt that citizens should play a role in guiding the character of future growth (mean=4.4), liked the small-town feel of downtown Rockport and Fulton (4.3), recognized that tourism is likely to remain the mainstay of the Aransas economy (4.3), and felt strongly about preserving local windswept oaks (4.4) and other natural features such as oak motts (a copse or small grove of trees,

particularly of live oaks, where a tight group shares a root system), wetlands, and prairies (4.3). Residents also felt that they lived close enough to local stores (2.5), did not prefer to shop at large chain retailers (2.5), and did not agree that seeing their neighbors less is better (2.0).

Several significant differences were also found in comparing full- and part-time residents (Table 2). Part-time residents felt more strongly that Aransas County had adapted well to new arrivals over the last 20 years (mean=3.7), had stronger positive feelings about the small-town feel of Rockport and Fulton, and were more willing to agree to a slight increase in taxes to preserve natural areas.

Table 2.—Mean scores and t-test results for growth and quality of life items for full and part-time residents

Statement	Overall Mean ¹	SD	Mean Full-time	Mean Part-time
Population growth has had a positive effect on the character of our community	3.5	1.2	3.4	3.5
Aransas County has adapted well to the arrival of new people over the last 20 years	3.5	1.0	3.4*	3.7
Aransas County needs growth in order to prosper	3.5	1.3	3.5	3.5
City and county government should play a role in guiding the character of future growth	4.0	1.0	4.0	4.0
Citizens and citizen groups should play a role in guiding the character of future growth	4.4	0.8	4.4	4.4
Tourism is likely to remain the mainstay of the Aransas County economy	4.3	0.9	4.3	4.3
Seeing and interacting frequently with neighbors is important to me	4.0	1.0	4.0	4.1
I live close enough to walk to local stores	2.5	1.4	2.5*	2.7
I would like to be able to drive less and walk more	3.4	1.2	3.4	3.5
The less I see my neighbors the better	2.0	1.2	2.0	2.1
I like the small-town feel of downtown Rockport and Fulton	4.4	1.0	4.3*	4.5
I prefer to shop at a large chain retailer rather than small local stores	2.5	1.2	2.5*	2.3
Interesting shopping is important in a tourism-based economy	4.2	1.0	4.2	4.1
I enjoy purchasing fresh seafood from local boats and docks	4.2	1.0	4.2*	4.4
I would be willing to give up some yard space in return for more walkable neighborhood and closer proximity to shops and retail	3.0	1.4	3.0	3.1
It is important to preserve the remaining areas of windswept oaks	4.4	0.9	4.4*	4.5
I will be willing to endure a slight increase in taxes to preserve important remaining natural areas	3.2	1.3	3.1*	3.3
There are already enough natural areas preserved in Aransas County to ensure my grandchildren enjoy the same natural environment as I do	2.6	1.3	2.6	2.6
Natural areas, such as oak motts, floodplains, wetlands, and prairies are important to the economy of Aransas	4.3	1.0	4.2	4.3

*Significant differences in the mean scores using independent t-tests between full-time and part-time residents ($p < .05$).

¹ Strongly Disagree=1, Strongly Agree=5.

Because Aransas County has seen so much growth in the last decade, we explored the relationship between length of residence and attitudes toward growth using Multiple Analysis of Variance (MANOVA). Residents were categorized into five groups by length of residence: less than 1 year, 1 to 5 years, 6 to 10 years, 11 to 15 years, and more than 15 years. In the

analysis, significant differences were found between these groups (Wilks' lambda $F=1.863$, $p=.000$). When we explored these differences using MANOVA, the post-hoc results showed that residents who lived in Aransas County the longest (more than 15 years) had different attitudes from more recent residents (Table 3). For example, the longer-term residents had

Table 3.—MANOVA and post-hoc results for growth, quality of life and length of residence items

Items	F	Sig	Length of Residence				
			<1 year	1-5 years	6-10 years	11-15 years	>15 years
Percentage in total sample			27%	32%	17%	13%	11%
Aransas County needs growth in order to prosper ¹	3.92	.004	3.50	3.69 ^a	3.64 ^b	3.34	3.08 ^{ab}
City and county government should play a role in guiding the character of future growth	2.83	.024	3.97	4.19 ^a	4.02	3.99	3.77 ^a
Seeing and interacting frequently with neighbors is important to me	4.07	.003	4.08 ^a	4.16 ^b	3.92	3.89	3.70 ^{ab}
I would like to be able to drive less and walk more	3.06	.016	3.40 ^a	3.49 ^b	3.32	3.39	2.92 ^{ab}
The less I see my neighbors the better	4.40	.002	1.84 ^a	1.98 ^b	2.02	2.12	2.49 ^{ab}
I will be willing to endure a slight increase in taxes to preserve important remaining natural areas	4.10	.003	3.30	3.03	2.97 ^a	2.83 ^b	3.51 ^{ab}
There are already enough natural areas preserved in Aransas County to ensure my grandchildren enjoy the same natural environment as I do	2.71	.029	2.58	2.80 ^a	2.62	2.72	2.27 ^a
Population growth has had a positive effect on the character of our community	.81	.519	3.49	3.55	3.40	3.48	3.30
Aransas County has adapted well to the arrival of new people over the last 20 years	.67	.614	3.38	3.46	3.39	3.51	3.27
Citizens and citizen groups should play a role in guiding the character of future growth	.95	.433	4.35	4.44	4.44	4.26	4.37
Tourism is likely to remain the mainstay of the Aransas County economy	.27	.897	4.29	4.26	4.30	4.18	4.25
I live close enough to walk to local stores	.65	.631	2.59	2.48	2.33	2.55	2.56
I like the small-town feel of downtown Rockport and Fulton	.95	.435	4.27	4.40	4.36	4.24	4.21
I prefer to shop at a large chain retailer rather than small local stores	.84	.502	2.55	2.38	2.54	2.55	2.36
Interesting shopping is important in a tourism-based economy	.93	.449	4.14	4.24	4.16	4.00	4.21
I enjoy purchasing fresh seafood from local boats and docks	.56	.696	4.26	4.17	4.18	4.18	4.36
I would be willing to give up some yard space in return for more walkable neighborhood and closer proximity to shops and retail	.91	.459	3.19	3.00	2.98	3.17	2.92
It is important to preserve the remaining areas of windswept oaks	1.79	.130	4.40	4.42	4.44	4.31	4.67
Natural areas, such as oak motts, floodplains, wetlands, and prairies are important to the economy of Aransas	1.96	.100	4.27	4.08	4.34	4.19	4.34

Note: Similar superscripts indicate significant differences using Tukey's post-hoc comparisons.

¹ Strongly Disagree=1, Strongly Agree=5.

less desire for community growth than respondents in the 1- to 5-year or 6- to 10-year resident groups. The longer-term residents also felt that they should rely less on government to guide future development than respondents in the 1- to 5-year resident groups. Longer-term residents were also less active in communicating with neighbors and less willing to drive less and walk more than people in the 0- to 1-year and 1- to 5-year groups. On the other hand, longer-term residents were more concerned about the sustainability of natural resources and open space and more willing to endure a slight increase in taxes to preserve important remaining natural areas than was any other group.

4.0 CONCLUSIONS AND IMPLICATIONS

The findings of this study affirm the importance of identifying and understanding the attitudes of local residents towards economic, cultural, environmental, and quality of life issues that impact coastal communities. The study also found differences by residence status (part-time/full-time and years in residence) and community attitudes that require more investigation. These results suggest possible conflicts between amenity-oriented and economic-oriented residents. Study findings could enable extension educators in Aransas County and other areas along the Texas coast to better help local citizens explore the tradeoffs involved in tourism development and natural area conservation. Through such programs, Texas' coastal residents could take quality of life issues more fully into consideration so that potential conflicts could be anticipated and minimized for all local stakeholders. The findings also suggest that there may be widespread support for growth policies that benefit both amenity-related and economic-related features of the community. However, other important information about county residents like racial and ethnic diversity and homeownership provide excellent baseline data that may help local officials and extension agents gain support for tourism development or conservation programs in any county.

It should be noted that one limitation of this research is the convenience sampling method. These data are cross-sectional and study participants were not randomly selected residents from Aransas County. The large number of questionnaires collected, however, does reveal some very significant trends, and suggests that properly designed and administered convenience-sampled surveys can still provide extremely useful information for extension educators. The results of this survey have already been instrumental in encouraging local county and city officials to engage the public on growth issues.

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IDENTIFYING THE EFFECTS OF COGNITIVE, AFFECTIVE, AND BEHAVIORAL COMPONENTS ON RESIDENTS' ATTITUDES TOWARD PLACE MARKETING

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Abstract.—Part of a successful marketing program for a tourism product is an advertising campaign that reflects its target audiences' characteristics (Mohsin 2005). This study sought to understand the attitudes and opinions of local residents regarding place marketing using attitude formation theory presented by Eagly and Chaiken (1993). Consistent results were found across three Michigan counties when attitude toward place marketing was regressed on cognitive, affective, and behavioral components. Overall, the "cognitive component" of attitudes (i.e., beliefs) was found to be more influential on residents' attitudes toward place marketing than were affective or behavioral components. These findings contribute evidence to the theory on the role of the cognitive component on positive attitude formation toward place marketing.

1.0 INTRODUCTION

Successful marketing of a tourism product is closely linked to an effective advertising campaign, which needs to consider the characteristics of its target audiences (users) including wants, needs, and social or cultural values (Ashworth and Goodall 1990, Mohsin 2005). Who are the major target users in tourism or destination marketing? Bramwell (1998) states that the users of place products in cities and elsewhere

include residents and leisure and business tourists who experience varying levels of product satisfaction and dissatisfaction. He also suggests that the development and marketing of place products should focus on meeting the needs and demands of identified target users, including residents. Buhalis (1999) and Sautter and Leisen (1999) suggest that marketing strategies and actions should take into account the wishes of all stakeholders or at least the professional and personal interests of those who live and work in the area. As Philo and Kearns (1993) point out, it can be wasteful when places invest their limited resources in developing and promoting a place product if the residents themselves are not fully satisfied with the resulting products.

In addition to these researchers and scholars, many studies have suggested that resident stakeholders' involvement in community-based planning and marketing should be a part of the early stages of tourism development (Doxey 1975, Butler 1980, Murphy 1985, Buhalis 1999, Andereck and Vogt 2000, Jurowski and Gursoy 2004, Liu and Wall 2006). However, few studies have directly examined residents' attitudes toward and involvement in tourism planning and marketing processes of a "place" product. Thus, this study proposed to explore the attitudes and opinions of local residents regarding place marketing.

To accomplish its objectives, this study utilized attitude formation theory presented by Eagly and Chaiken (1993). Their model suggests that individuals' attitudes are formed primarily or exclusively on the basis of any one of three types of components: cognitive, affective, and behavioral. Cognitive factors are created when individuals gain information about the attitude object and thereby form beliefs (Ajzen and Fishbein 1975, 1980; Eagly and Chaiken

1993). Information (knowledge) is gained by direct experience (participation, involvement) and indirect experience with objects (Simmons and Lynch 1991).

As Eagly and Chaiken (1993) suggest, an affective factor is based on emotional experiences or preferences. Both positive (e.g., delight) and negative affect (e.g., anger) can arise from experiences with the product or service attributes (Derbaix and Pham 1991). Positive affect and negative affect make independent contributions to satisfaction or dissatisfaction judgments about products or services (Horley and Little 1985). For instance, people who have positive affect reactions to an experience with product or service attributes are more likely to evaluate an attitude object favorably (satisfactorily), and people are unlikely to evaluate the attitude object favorably if they experience negative affect reactions (Westbrook 1987, Eagly and Chaiken 1993, Oliver 1993).

A behavioral factor is connected to a person's overt actions in relation to the attitude object (MacKenzie and Lutz 1989, Eagly and Chaiken 1993). According to Havitz and Dimanche (1999) and McIntyre (1992), involvement is viewed as a core concept in explaining individuals' participation in activities and their actions with respect to the attitude object. Involvement has been conceptualized in relation to both products and actions by many researchers. For example, Driver et al. (1990) conceptualize involvement as a behavioral commitment differentiated by individuals in term of their activity. Hupfer and Gartner (1971) suggest that involvement is related to "a general level of interest in or concern about an issue" without reference to a specific position. In this context, the variable "involvement" can be represented as an indicator of a behaviors factor.

The idea that attitudes are formed on the basis of cognitive, affective, and behavioral (conative) components has been proposed in numerous discussions of attitudes, particularly in the area of marketing (Lutz 1991, Eagly and Chaiken 1993). Smith and Swinyard (1983) identified attitude-behavior consistency in advertising and showed that cognitive and affective components were important in

forming attitudes. Mackenzie and Lutz (1989) propose that cognitive responses—such as individuals' thinking and knowledge about objects—primarily influence (mediate) their perceptions of and attitudes toward advertisements. Hence, this study applied the concepts of attitude formation theory (Eagly and Chaiken 1993) to examine the role of cognitive, affective, and behavioral elements in the formation of attitudes toward place-based marketing (Fig. 1).

2.0 METHODS

A survey was used to assess the role of cognitive, affective, and behavioral elements in the formation of residents' attitudes about place-based marketing across three Michigan counties that have different levels of tourism development (i.e., S= most developed; E=moderately developed; T=least developed). A self-administered questionnaire was developed from a review of existing literature on residents' attitudes toward tourism marketing and was later modified based on input from university researchers and managers in two of the three counties.

Attitude toward place marketing was assessed with a single item on the survey: "A successful tourism economy is dependent on place promotion and marketing campaigns." The three components (cognitive, affective, and behavioral) were operationalized as follows: 1) "Belief in place marketing (PM)" was assessed as a **cognitive component** proposed by Eagly and Chaiken (1993) and Pike and Ryan (2004). Residents' belief in PM

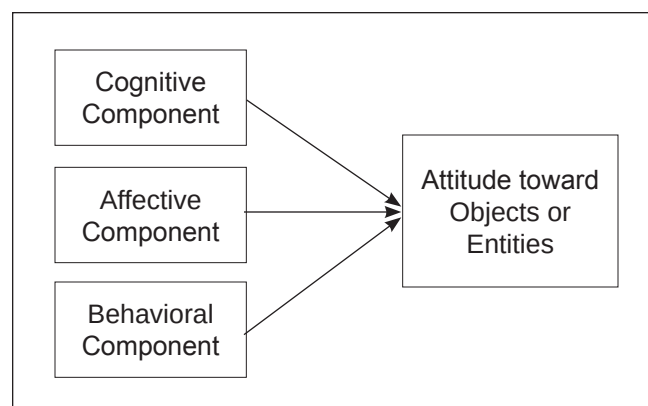


Figure 1.—A model of attitude formation (Eagly and Chaiken 1993).

was measured by two questions: “Please *evaluate* the outcome of each of the following statements about promotion and marketing campaigns;” and “How certain are you that promotion and marketing campaigns for tourism products can bring benefits to a county? Please indicate the level of *certainty* with each of the following statements.” Each question used seven items as follows: improve tourists’ attitudes towards the county; stimulate travel demand in the county; attract tourists to the county; create a strong identity for the county; improve the image of the county; make residents proud of the county; and make a good financial investment in the county; 2) “Satisfaction with tourism development and satisfaction with tourism promotion” was evaluated for the **affective component** as proposed by Westbrook (1987) and Oliver (1993); and 3) “Personal influence from and involvement in decision-making of tourism development and promotion” was assessed as the **behavioral component** adopted from Eagly and Chaiken (1993) and Madrigal (1993). All responses were on a 5-point scale. The multi-item components (affect and behavior) met the reliability test of 0.70 or more (recommended Cronbach alpha coefficient is 0.7 or above) (Nunnally and Bernstein 1994).

The mail questionnaire was administered following Dillman’s (2000) methodology from May 4 to May 28, 2006. The population for this study was homeowners, including full-time and seasonal residents. The sample households were randomly selected from a database for the 2006 winter property tax bill for each county. From a total sample of 3,008 homeowners, 90 surveys were undeliverable, and 809 were returned and completed for an overall response rate of 28 percent. To assess biases in the dataset, a nonresponse survey was conducted. The nonresponse survey was two pages long and consisted of the questions related to key variables (e.g., beliefs, involvement) used in the study model. Eighteen percent of the initial nonrespondents (n=300) returned the nonresponse survey. Overall, the results from nonrespondents were found to be indistinct from the main study results.

3.0 RESULTS

The socio-demographic profile of the respondents in each county was collected to address the representativeness of each of the three samples (Table 1). Overall, a majority of respondents in the three study sites were between 50 and 69 years old. The three counties’ homeowners were most likely to be permanent residents; a smaller portion were seasonal residents. In all study sites, few respondents were employed either directly or indirectly in the tourism industry. Homeowners lived or had owned a home in the county for an average of 34 years (S county), 23 years (E county), and 37 years (T county). Additionally, in E county, seasonal homeowners responded at a higher rate than permanent homeowners, and the data were weighted to avoid bias in the estimates obtained from this sample. After the data were weighted, the population mix consisted

Table 1.—Socio-demographic profile of homeowners by county

Socio-Demographic Variables	S (%) (n=213) ^a	E (%) (n=321) ^a	T (%) (n=232) ^a
Age			
19-39	14.0	6.4	10.4
40-49	29.4	15.4	15.8
50-59	26.4	26.6	29.7
60-Over 60	30.3	51.6	44.2
Education			
Less than high school	1.0	0.0	4.8
High school graduate	26.7	7.0	31.6
Technical school degree	8.6	3.1	7.5
Some college	20.5	13.7	26.3
College degree	28.1	37.9	20.2
Advanced degree	15.2	38.4	9.6
Income			
Less than \$49,999	43.5	15.2	47.2
\$50,000-\$99,999	41.5	34.3	39.7
\$100,000 or more	15.0	50.5	13.1
Residential Status			
Permanent resident	92.8	65.3	87.8
Seasonal resident	5.8	34.7	10.9
None	2.4	0.0	2.3
Employed in Tourism Industry			
Employed	10.2	15.8	3.1
Not employed	89.8	84.2	96.9
Length of Residency			
1-10 years	14.1	31.5	12.7
Over 10 years	85.9	68.5	87.3

^a The total number of cases used for the main part of the analysis

of 65 percent permanent homeowners and 35 percent seasonal homeowners, a proportion approximately matching the 2000 U.S. Census.

Table 2 shows the profile of residents' beliefs in place marketing (as the cognitive component) for each county. This study used Ajzen and Fishbein's (1975) measurement protocol from the theory of reasoned action to identify residents' beliefs in place marketing. This theory has been considered "a reference point" for most of human behavior research, in particular, testing an individual's attitude from beliefs (Funkhouser and Parker 1993). Based on the measurement protocol, the five points of the bad-good scale were revised. Instead of the original scale of 1 to 5, the five points used were -2, 1, 0, +1 and +2. Then, the seven items of each outcome evaluation were multiplied by the corresponding belief strength, and the multiplied values of each item were summed. The average of the respondents' beliefs in a tourism promotion and marketing campaign (TPMC) was:

21.53 in S county; 24.02 in E county, and 16.82 in T county. A positive belief in TPMC was found in respondents from all three counties. As shown in Table 3, the affective component was operationalized by two indicator variables: "satisfaction with Tourism Development" (TD) and "satisfaction with Tourism Promotion" (TP). The homeowners in E county were somewhat satisfied with TD (mean = 3.22) and TP (mean = 3.23) of the county, whereas S and T county respondents showed less satisfaction with tourism development and promotion in their county.

The behavioral component was operationalized by the two indicator variables, "personal influence" and "involvement in decision-making of Tourism Development and Promotion (TDP)" with a 5-point scale, where 1 represented "none" and 5 represented "a lot." A low level of personal influence and involvement in TDP was found in the three counties (Table 4). Respondents from all three counties answered that they had little personal influence

Table 2.—Beliefs in place marketing profile of homeowners by county using Ajzen and Fishbein's (1975) measurement protocol

Variable ^a	S (n=213)		E (n=321)		T (n=232)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Beliefs in place marketing	21.53	22.25	24.02	21.03	16.82	20.34

^a Sum of the multiplied seven items in two dimensions revealed a possible range of -70 through 70.

Table 3.—Satisfaction with tourism development (TD) and promotion (TP) profile of homeowners by county

Variable ^a	S (n=213)		E (n=321)		T (n=232)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Satisfaction with TD	2.41	1.05	3.22	1.00	2.26	1.02
Satisfaction with TP	2.40	1.07	3.23	1.03	2.20	.98

^a The scale was anchored with 1 = not satisfied at all; 3 = somewhat satisfied; 5 = very satisfied

Table 4.—Personal influence and involvement in tourism development and promotion (TDP) by homeowners by county

Variable ^a	S (n=213)		E (n=321)		T (n=232)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Personal influence in TDP	1.38	.67	1.76	.87	1.46	.78
Involvement in decision-making of TDP	1.46	.78	1.74	.90	1.46	.76

^a The scale was anchored with 1 = none; 3 = some; 5 = a lot

on decisions related to tourism development and promotion and were not very involved in the tourism development and promotion of their county. As shown in Table 5, residents' attitudes toward place marketing were measured by the statement, "A successful tourism economy in your county is dependent on TPMC." On average, respondents from all three counties highly agreed, with mean scores of 3.71 (E county), 3.74 (S county), and 3.57 (T county).

To achieve the study objectives, the following three hypotheses were tested:

- H1: There is a positive relationship between cognitive, affective, and behavioral components and attitudes toward place marketing
- H2: Cognitive components will be stronger or more influential than affective and behavioral components in predicting attitudes toward place marketing
- H3: The relationship between the three components and attitudes toward place marketing will differ among communities.

In the first hypothesis, multiple regression analysis was conducted to test the impact of cognitive,

affective, and behavioral components on attitudes toward place marketing. The multiple regressions were overall significant [$F = 16.8, p < .001$ (for S county); $F = 24.1, p < .001$ (for E county); $F = 18.6, p < .001$ (for T county)]. The results indicate that "*cognitive components*" were positively related to attitude toward place marketing for respondents from all three counties when we control across affective and behavioral component levels. The relationship between E county respondents' beliefs and attitudes toward TPMC ($\beta = .44, t = 8.0, p < .001$) was stronger than in S ($\beta = .40, t = 6.0, p < .001$) and T ($\beta = .42, t = 6.5, p < .001$) county respondents (Table 6).

With regard to the relationship between "*affective components*" and attitudes toward place marketing, when we control for cognitive and behavioral component levels, the results showed a significant positive relationship between affective components and attitudes toward place marketing in respondents from E ($\beta = .12, t = 2.1, p < .05$) and S ($\beta = .19, t = 2.9, p < .01$) counties, whereas there was a nonsignificant relationship between the two variables in T county respondents ($\beta = .08, t = -1.2, p > .05$).

As for the relationship between "*behavioral components*" and attitudes toward place marketing,

Table 5.—Homeowners' attitudes toward place marketing by county

Variable ^a	S (n=213)		E (n=321)		T (n=232)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
A successful tourism economy in your county is dependent on place marketing	3.74	.96	3.71	.95	3.57	1.02

^a The scale was anchored with 1 = strongly disagree; 3 = neutral; 5 = strongly agree

Table 6.—Regression analysis for the prediction of attitude toward TPMC based on cognitive, affective, and behavioral components

	S (n=213) ^a			E (n=321) ^a			T (n=232) ^a		
	β	t	p	β	t	p	β	t	p
Cognition	.40	6.0	< .001	.44	8.0	< .001	.42	6.5	< .001
Affect	.19	2.9	< .01	.12	2.1	< .05	-.08	-1.2	ns
Behavior	.03	.51	ns	-.02	-.32	ns	.17	2.5	< .05
	F = 16.8, p < .001 Adjusted R ² = .21			F = 24.1, p < .001 Adjusted R ² = .22			F = 18.6, p < .001, Adjusted R ² = .21		

^a "n" indicates the total number of cases used for the main part of the analysis

when we control for cognitive and affective component levels, the behavioral components significantly predicted “attitudes toward place marketing” in respondents from T county ($\beta = .17$, $t = 2.5$, $p < .05$), whereas a nonsignificant prediction of attitudes toward TPMC from the involvement facet was found in respondents from E and S counties. In addition, a smaller proportion of variance in cognitive, affective, and behavioral components that can be accounted for by an attitude toward place marketing was identified by respondents from all three counties (adjusted $R^2 = 21$ percent for S county, 22 percent for E county, and 21 percent for T county).

In the second hypothesis, this study tested whether cognitive components are stronger or more influential than affective and behavioral components on attitudes toward place marketing. The findings from all three counties supported this second hypothesis by showing a stronger effect of cognitive components on attitude toward place marketing (standardized beta (β) = .40, .44, and .42 for S, E, and T counties, respectively) compared to the effects of affective and behavioral components (Table 5). In the third hypothesis, the results revealed that the attitudes of respondents from the least developed area were most strongly influenced by behavioral factors, the attitudes of respondents from the moderately developed area were most strongly influenced by cognitive factors, and the attitudes of respondents from the most developed area were most strongly influenced by affective factors and least strongly influenced by cognitive factors.

4.0 CONCLUSIONS

Consistent results were found across the three counties when attitude toward place marketing was regressed on cognitive, affective, and behavioral components, with adjusted R^2 values ranging from .21 to .22. The “cognitive component” was positively related to attitude toward place marketing in all three counties, with beta values ranging from a low of .42 in the most developed county (S) to a high of .44 in the moderately developed county (E). The affective component was found to be significantly and positively related to place marketing attitude in S and

E counties, but not T county. Only T county predicted place marketing attitudes from a behavioral component when we control for affect and cognition. This result shows Eagly and Chaiken’s (1993) attitude formation model is adequate to explain the impacts of the three components on attitudes toward place marketing. However, the results raise some questions with regards to the predictive power of the behavioral component on attitudes as only one county reached significance in this factor.

Overall, the “cognitive component” of attitudes (i.e., beliefs) was found to be more influential on residents’ attitudes toward place marketing than affective or behavioral components. This result contributes to theoretical evidence of the “adequate” role that the cognitive component had on positive attitude formation toward place marketing (as defined by Ajzen and Fishbein 1980). Furthermore, the magnitude of affective and cognitive influences on place-based marketing attitudes was found to be different across the three counties at different development stages. Attitudes in the least developed area were most influenced by behavioral factors, attitudes in the moderately developed area were most influenced by cognitive factors, and attitudes in the most developed area were most influenced by affective factors and least influenced by cognitive factors. These results were inconsistent with Doxey’s Irridex model (1975), which predicted that attitudes of the least developed county’s residents would be more optimistic as the county experienced initial economic growth because of tourism activities (i.e., tourism development, promotion), compared to the most and moderately developed counties. In the moderately and most developed counties, residents were expected to feel and express a strong dislike toward more tourism activities or a greater number of tourists.

The results have significant implications for tourism marketing endeavors by place or destination marketers and developers. To induce residents’ positive attitudes toward place marketing with regard to further development plans, planners and developers should use place marketing and promotion strategies that meet

residents' needs, wishes, and demands and that directly influence local residents' or homeowners' "*levels of belief opportunities*." Based on study findings from the three counties, place marketing can create a strong identity for a county and increase residents' belief in PM by: improving the image of a county, making residents proud of the county, or making a good financial investment in a county.

Moreover, while the study results were inconsistent with the concepts of Doxey's Irridex model (1975), the results verified that residents' attitudes toward place marketing are related directly to the community's stage of tourism development. These stages vary in terms of the destination's attributes, residents' attributes, the community's capacity to absorb tourists, and the level of economic lifecycle (Doxey 1975, Butler 1980). Therefore, understanding residents' perceptions of or attitudes toward place marketing within a community or across communities can be one of the most important tasks for future place marketing planning.

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BOATING AND WATERWAYS

EXPLORING THE CROWDING-SATISFACTION RELATIONSHIP BETWEEN DAY AND OVERNIGHT USERS IN THE LOWER COLORADO RIVER BASIN, TEXAS

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Abstract.—As the boating population and number of boats in use have grown in the United States, boaters' perceptions of density at recreation sites and the associated impacts on their experience (e.g., satisfaction) are becoming increasingly important. This paper explores a recreational boating crowding-satisfaction model derived from previous work using safety and enjoyment as mediating variables. We also tested our crowding-satisfaction model among day and overnight users at three lakes in the Highland Lakes region within the lower Colorado River basin. Our analysis revealed no significant difference between day and overnight users for any of the relationships tested. The final model indicated that as respondents' expectations for seeing people increased along with their feelings of being crowded, they were more inclined to consider conditions on the lake unsafe. They were also more inclined to indicate that the number of people they had seen on the lake detracted from their boating experience. Respondents' satisfaction was tied to their perceptions

of crowding. Mediating variables illustrated that the relationship was conditioned by perceptions of safety and enjoyment.

1.0 INTRODUCTION

Boating is a rapidly growing outdoor activity in the United States. Recreational boating participation increased by an estimated 2.3 million participants from 2004 to 2005, reaching a level of 71.3 million boaters. In 2005, Texas ranked as the third largest state in total expenditures for new powerboats, motors, trailers, and accessories (Natl. Marine Manufacturers Assoc. 2005). Due to the limited boating opportunities for Americans residing away from the coast, lakes and other interior waterways are undergoing some of the strongest growth in use. Consequently, issues related to boaters' perceptions of setting density and the associated impacts on their experience (e.g., satisfaction) are becoming increasingly important.

Beyond the increasing boating population, much of the growth in use is also represented by day users. For example, in 1983, day users were about 43 percent of all users at Bureau of Land Management sites, 62 percent of users at National Park Service sites, and 83 percent of users at Fish and Wildlife Service sites (Manning 2007a, p. 227). At U.S. National Park Service (NPS) areas, the average percentage of day use has remained around 60 percent from 1983 to 2004 (Manning 2007a, p. 227). Last, in a survey of 87 NPS wilderness managers (Abbe and Manning 2007), most managers believed that day users held different perceptions of and values about wilderness compared to overnight users. They suggested that day users had substantial impacts on the resources and social conditions of wilderness areas. Little research has been directed explicitly at this type of use, however. Understanding the differences in perceptions of

crowding, enjoyment, and satisfaction between day users and overnight users would provide more accurate assessments and evaluations for managing day use in recreation settings.

2.0 LITERATURE REVIEW

2.1 Crowding and Satisfaction in Outdoor Recreation

According to normative theory (Stokols 1972), use level is defined as a physical concept relating the number of people per unit of space. Crowding, on the other hand, is the negative and subjective evaluation of use level with psychological meaning (Manning et al. 2000). An inconsistent relationship between use level and crowding has been observed in past work (Absher and Lee 1981). Furthermore, the relationship between crowding and satisfaction was found to be generally weak or nonexistent (Manning 1999).

Previous studies have suggested that visitor perceptions of crowding are affected by many variables that interact with their perceptions of the number of people at the recreation setting (Ditton et al. 1983). Social interference theory suggests that crowding occurs when the number of other people present interferes with one's goals or desired activities (Manning 1999). Shelby (1976), Schreyer and Roggenbuck (1978), and Heberlein et al. (1979) all noted that the standards people use to evaluate a setting are influenced by their expectation for the experience. For example, Ditton et al.'s (1983) study of recreationists on the Buffalo National River in Arkansas found that floaters who felt crowded were more likely to report having seen more people and experienced more contacts than expected. This antecedent variable of crowding—expectations—was often measured by asking respondents “the number of visitors encountered” or “the type of experience sought” (Heberlein et al. 1979) as compared to what was expected.

As noted, the lack of empirical evidence supporting the hypothesized relationship between crowding and satisfaction was evidenced in the low variation explained in Lee's (1977) and Shelby's (1980)

research. However, Manning (1999, p. 116) and Cole (2000, p. 14) suggested that the absence of a relationship may be due to mediating variables, given the multitude of variables reported to be associated with satisfaction. In the context of boating activities, perceptions of crowding not only occur when use density increases, but may also occur when other people interfere with an individual's activities, intentions, or goals (Ruddell 1989). Heatwole and West (1982) indicated that the likelihood for conflict between recreational boating and other human uses of the waterway also increases as traffic increases, particularly near large metropolitan areas. For example, some recurring on-water conflicts were reported by boaters with the increased use of jet skis and other small personal watercraft. Boaters perceived that their encounters with these vessels were putting them at risk (Department of Water Resources 2004). This conflict resulted in a negative evaluation of setting density that also led to the detracting of satisfaction (Adelman et al. 1982). Reckless operation, use of alcohol or drugs, and issues of safety associated with jet skis were reported as the most common at-risk behavior in boating (Responsive Management 2000). However, the safety issue has received little attention in recreational boating research.

Last, in a study of campground users at the Katmai National Park in Alaska, Womble and Studebaker (1981) found that as the number of recreationists increases, visitors will begin to feel crowded and consequently their enjoyment will diminish. However, Mowen and others (2003) indicated that at certain developed recreational sites where larger numbers of people are expected, crowding can be a positive factor. Eroglu and Harrel (2003) coined the term “functional density” to refer to a good version of crowding where additional numbers of people increase visitors' enjoyment. In addition, visitors' subjective evaluation of overall enjoyment was a component of satisfaction measurement in Graefe and Fedler's (1986) recreational fishing research. Irrespective of the nature of the sites, managers need to address the question, “At what point does use level affect perceived crowding, visitor enjoyment and, ultimately, visitor satisfaction?”

2.2 Day and Overnight Users

Evidence suggests that the manner in which some user groups interpret encounters with others in natural recreation settings differs. In the context of this investigation, we focus on day and overnight users. Roggenbuck et al. (1994) observed that day users may create more crowding problems than overnight users. For example, early work by Lucas (1980) found that day users visit recreation sites more often in family groups, are less concerned about solitude, are more interested in scenic beauty, and are more satisfied with their trip than overnight users. At the same time, visits to parks and wilderness areas are becoming shorter, in part because of dwindling leisure time and the growing number of two-income households. Day use warrants more management attention given the likelihood that the proportion of facility/amenity use by this user group is likely to increase. However, the magnitude of differences in perceptions, preferences, and values between the two types of users has received little attention. In other work, Roggenbuck et al. (1979) found that day users were sometimes less likely to consider litter and crowding to be problems. Hall (1996) also indicated that day users noticed fewer environmental impacts than overnight users in her Mount Jefferson and Three Sisters Wildernesses (Oregon) research. In research at Zion National Park in Utah, Manning (2007b) found that overnight wilderness visitors were slightly less tolerant of large groups than were day visitors, but the former had a stronger norm intensity than the latter. An understanding of the crowding perceptions and management preferences of day users is essential for gaining insight into effective management of popular day-use areas.

3.0 METHODS

We collected data from visitors at three lakes in the Highland Lakes region of the lower Colorado River basin in Texas: Lake Austin, Lake Travis, and Lake Lyndon B. Johnson (LBJ).

3.1 Sampling

Six sampling days were selected to conduct exit interviews of boaters across the three lakes. Sampling

occurred at both public and private boat ramps between Memorial Day weekend (May 28) and the end of June 2007. We approached 469 boaters for the survey; participants completed 291 questionnaires, for a response rate of 62 percent.

3.2 Measures

In recent research, recreation satisfaction has been conceptualized and measured as a function of the multiple satisfactions derived from a spectrum of specific and separate experience elements (Graefe and Fedler 1986). It has become almost a maxim in satisfaction research that, holding all else constant, the more items in self-report measures of psychological constructs, the better. However, Manning (1999, p. 117) pointed out that “when satisfaction measures were intermixed with questions evaluating specific aspects of the trip, average satisfaction scores were lower than when the satisfaction measures were presented alone.” From a practical perspective, the use of single-item measures during the onsite data collection for the present study lowered our respondent burden and likely minimized respondent refusal (Bergkvist and Rossiter 2007). The use of single-item measures of satisfaction also has a lengthy history in the literature (Cronin and Taylor 1992, Howat et al. 1999). In this study, boaters’ overall satisfaction was measured using a 10-point Likert-type scale (Matlock et al. 1991).

Perceived crowding was measured using a 9-point Likert-type scale developed by Heberlein and Vaske (1977). Respondents were asked, “*How would you describe the overall boating conditions?*” The single-item crowding measure has been widely used in outdoor recreation research (Shelby et al. 1989). The expectation, safety, and enjoyment items were modified from Graefe and Fedler (1986) and Hall and McArthur (1994). Expectation was measured using a 5-point Likert-type scale.

4.0 RESULTS

4.1 Model testing

We tested our hypothesized model across day and overnight visitors using manifest-variable regression in

LISREL 8.70 (Jöreskog and Sörbom 2004). Selected goodness-of-fit indices were used in reporting the results. All subsequent analyses were performed using manifest-variable regression and tests of invariance. The results of path model testing are shown in Table 1. These findings indicate that our hypothesized model fit the data well for both day users ($\chi^2 = 3.571$, $p = .168$) and overnight users ($\chi^2 = 1.987$, $p = .370$). Invariance testing was then used to examine whether the hypothesized relations varied by different user groups. In essence, this procedure tested whether the beta weights were significantly different between user groups. In the invariant regression coefficient model, beta coefficients were constrained to be invariant (i.e., equal) across the two user groups. Results indicated that the imposition of these constraints did not significantly affect model fit. Given that the invariance testing revealed no significant difference between the two groups with regard to our hypothesized model, our discussion of findings is based on the analysis of the pooled data.

4.2 Summary of Effects

Table 2 depicts the statistically significant direct effects among the five manifest variables. The

discussion that follows describes the nature of these relationships:

1. Predictors of crowding: Crowding was positively influenced by expectation ($\beta = .38$, t -value = 6.93). This finding suggests that respondents' perceptions of crowding were influenced by the number of people they expected to see on the lake. Expectation accounted for 14.2 percent of the explained variance in crowding.
2. Predictors of safety: Safety was negatively influenced by crowding ($\beta = -.21$, t -value = -3.40) and expectation ($\beta = -.18$, t -value = -3.03). That is, as respondents' expectations for seeing people increased along with their feelings of being crowded, they were more inclined to consider the conditions on the lake unsafe. Crowding and expectation accounted for 10.3 percent of the variance in safety.
3. Predictors of enjoyment: Enjoyment was positively influenced by safety ($\beta = .14$, t -value = 2.41) and negatively influenced by crowding ($\beta = -.15$, t -value = -2.41) and expectation ($\beta = -.21$, t -value = -3.46). These findings suggest that as respondents' expectations for seeing

Table 1.—Goodness-of-fit indexes for day users and overnight users path models

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	NNFI	CFI
Path Model	0.535 (P=0.765)	2			0.000	1.040	1.000
Baseline							
Day Users	3.571 (P=0.168)	2			0.063	0.951	0.990
Overnight Users	1.987 (P=0.370)	2			0.000	1.003	1.000
Invariant Regression Coefficients	15.946 (P=0.194)	12	10.388	8	0.043	0.964	0.979

Table 2.—Regression coefficients for pooled sample

Path	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²
Expectation → Crowding	.633	.091	.377	6.928***	.142
Crowding → Safety	-.090	.026	-.205	-3.409***	.103
Expectation → Safety	-.134	.044	-.182	-3.028**	
Crowding → Enjoyment	-.078	.032	-.145	-2.412*	.132
Expectation → Enjoyment	-.188	.054	-.208	-3.462***	
Safety → Enjoyment	.171	.071	.139	2.412*	
Safety → Satisfaction	.476	.122	.222	3.896***	.112
Enjoyment → Satisfaction	.355	.099	.204	3.576***	

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

people increased along with their feelings of being crowded, they were more inclined to indicate that the number of people they had seen on the lake detracted from their boating experience.

4. Predictors of satisfaction: Recreational satisfaction was positively influenced by safety ($\beta = .22$, t -value = 3.90) and enjoyment ($\beta = .20$, t -value = 3.58). These relationships indicate that respondents' overall satisfaction with their experience on the lake was positively associated with their perceptions of safety and their enjoyment. Safety and enjoyment accounted for 11.2 percent of the variance in recreation satisfaction.

5.0 DISCUSSION

The primary purpose of this investigation was to explore a recreational boating crowding-satisfaction model derived from previous work using safety and enjoyment as mediating variables. We also tested our hypothesized model among day and overnight users. Our results illustrated that as boaters' expectations for seeing people were exceeded and their feelings of being crowded increased, they were more inclined to consider the conditions on the lake unsafe and less enjoyable. These negative evaluations resulted in lower satisfaction.

One of the important findings of our investigation was that there was no variation between day and overnight users with regard to the relationships tested. Although past work has found that day users are generally more tolerant of encountering others during their leisure experiences and are usually more satisfied than overnight users (Roggenbuck et al. 1979, Lucas 1980), our analysis revealed no significant differences between the two groups. These findings are more congruent with other work illustrating that day users and overnight users are not profoundly different (Cole 2001). In the context of this investigation (referring to sites, sample, and the issue of crowding), these findings suggest that initiatives directed toward the management of crowding would apply equally to both day and overnight users.

One explanation for the similarity between day and overnight users is that most overnight users tend to be nonlocal visitors who have more invested in their visit (e.g., time, transportation costs, accommodations). These investments or "side bets" bind them to a consistent pattern of behavior (Buchanan 1985). A product of these investments is a level of commitment that promotes the rationalization of potentially negative impacts on their experience. Few studies, however, have addressed the process of rationalization and other related coping mechanisms (i.e., displacement, substitution, or product shift) when recreationists are confronted by negative conditions or situations (e.g., crowding). As Manning (1999) has suggested, the weak relationship between crowding and satisfaction may be due to mediating variables such as recreationists' coping mechanisms. These coping mechanisms could act as mediators in reducing cognitive inconsistencies and associated stress. In these contexts, coping negates negative elements, resulting in high satisfaction despite changing use conditions. Further investigation of the crowding-satisfaction relationship should consider the inclusion of various coping mechanisms (e.g., rationalization) to better understand its complexity.

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RESEARCH TO SUPPORT ANALYSIS AND MANAGEMENT OF CARRYING CAPACITY AT LAKE UMBAGOG NATIONAL WILDLIFE REFUGE, NEW HAMPSHIRE AND MAINE

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resources, and may also cause crowding and other social impacts that degrade the quality of the visitor experience. How many visitors can ultimately be accommodated on public lands? How much resource and social impact should be allowed? These and related questions are commonly referred to as carrying capacity (Graefe et al. 1984, Shelby and Heberlein 1986, Stankey and Manning 1986, Manning 1997, Manning 1999a, Manning 2001).

Abstract.—Lake Umbagog National Wildlife Refuge (New Hampshire and Maine) contains significant natural and recreational resources. The area accommodates an estimated 50,000 visits per year, with accompanying resource and social impacts. A 2-year study of the area was conducted beginning in summer 2006. The first year of the study focused on identifying indicators of quality for the refuge and the second year of research focused on determining standards of quality for indicators identified in first-year research. Visitor and camp/home owner surveys included normative questions addressing the maximum acceptable impacts to indicator variables. Findings from this study are being used to guide management of carrying capacity at the refuge.

1.0 INTRODUCTION

America's public lands contain natural and cultural resources of great importance to the nation and, in many cases, to the international community. Given the significance of this resource base, public demand to see and experience these areas is not surprising. Data on visitation to public lands dramatically support this premise.

The popularity of public lands presents substantial management challenges. Too many visitors may cause unacceptable damage to fragile natural and cultural

The U.S. Fish and Wildlife Refuge System, and Lake Umbagog National Wildlife Refuge in particular, can serve as case studies of the issues noted above. According to refuge estimates, the natural and recreational resources of Lake Umbagog National Wildlife Refuge attract more than 50,000 visits per year, which can result in substantial resource and social impacts. How much and what types of visitor use can ultimately be accommodated at Lake Umbagog National Wildlife Refuge?

1.1 Carrying Capacity Framework

Research on carrying capacity has led to development of several planning and management frameworks that can be used to analyze and manage carrying capacity. The most recent is the Visitor Experience and Resource Protection (VERP) developed by the U.S. National Park Service (National Park Service 1997, Manning 2001). As the name suggests, this planning framework is aimed at maintaining the quality of the visitor experience and protecting natural resources in the face of increasing visitor use. VERP is built upon the same basic principles and concepts that drive other contemporary carrying capacity and related public land planning/management frameworks, including Limits of Acceptable Change (Stankey et al. 1985) and Visitor Impact Management (Graefe et al. 1990). In VERP, management objectives must be formulated for the area. Management objectives are broad narrative

statements that define desired conditions. Indicators of quality—measurable, manageable variables that help define the quality of natural resources and the visitor experience—must then be developed. Standards of quality define the minimum acceptable condition of indicator variables. Research suggests that visitors and other stakeholders often have norms or standards about the resource and social conditions acceptable in a park or related area, and that such norms can be useful as a means of formulating indicators and standards of quality (Shelby and Heberlein 1986, Shelby et al. 1992, Manning et al. 1996a, Manning et al. 1996b, Manning 1999b, Lawson and Manning 2001, Lawson and Manning 2002, Manning and Lawson 2002).

1.2 Study Objectives

The overall purpose of this study was to gather information that would help support application of VERP to Lake Umbagog National Wildlife Refuge. Study objectives focused on identifying indicators and standards of quality for the visitor experience.

2.0 RESEARCH METHODS

Two surveys of representative samples of visitors to the refuge were conducted using self-administered questionnaires on-site at boat access areas. As visitors completed their visits, every visitor group was asked to complete a survey. One member of the group age 18 or older was asked to complete the questionnaire. The first survey was conducted on randomly selected days during July and August 2006 to measure indicators reflecting the quality of the visitor experience (Manning et al. 1996a, Manning et al. 2003). Both open- and close-ended questions were used to ask visitors to report variables that significantly added to and/or detracted from the quality of their experience. One hundred ninety-seven usable questionnaires were collected and a response rate of 77 percent was obtained for the survey.

The second survey was conducted on randomly selected days during July and August 2007 to measure standards of quality for selected resource and social indicators (Manning et al. 1996a, Manning et al. 2002, Manning et al. 2003). The same sampling procedures

as the first survey were used. A total of 193 usable questionnaires were collected, yielding a 76-percent response rate for this survey. When appropriate, visual approaches to measuring standards of quality were employed using computer-generated photographs to represent a range of visitor-caused impacts (Manning et al. 1996a, Manning et al. 1999, Manning and Freimund 2004).

A community resident survey was administered to members of communities in and immediately around the refuge in fall 2007. The survey was mailed to a census of residents derived from town property tax records and was addressed to the person listed on tax rolls for each property. The community resident survey was similar to the visitor survey described above. The purpose was to include this important interest group (residents) in refuge planning and management. A total of 132 completed questionnaires were returned and a response rate of 73 percent was obtained using slightly modified procedures described in Dillman (2000).

3.0 RESULTS

Results from the first phase of research to determine indicators of quality for Lake Umbagog are presented below. Only visitors to Lake Umbagog National Wildlife Refuge participated in the 2006 survey. Respondents were asked several open-ended questions to probe for potential indicator variables. The things visitors enjoyed most about their visit were wildlife-related encounters, participating in recreation activities while visiting the refuge, the peaceful nature of the refuge, and the natural beauty associated with it. About one in nine visitors reported that “motor boats” were the aspect of their visit that they enjoyed least. Improvement of facilities (e.g., docks, restrooms, aids to navigation) was a change recommended by 15 percent of respondents, while banning or limiting motorboats, limiting the size of motors, or having speed limits on the lake was recommended by 12.3 percent of respondents. Based on these responses, the number of motor boats on the waterways in the refuge and the ability to see wildlife are useful indicator variables.

Respondents were also asked close-ended questions about whether several issues caused problems at the refuge. The vast majority of respondents indicated that none of the issues were currently problems. More than a quarter of respondents, however, felt that too many motor boats on the lake, boats going too fast, and boats being noisy were either a small or big problem. A fifth of respondents thought that too many boats on the rivers and litter were small or big problems.

The surveys conducted in 2007 were used to help identify standards of quality for both visitors and residents. Respondents were shown a series of photographs depicting increasing levels of boat use on the lake, on the rivers, and in sheltered bays. Visitors

were also asked to respond to questions about the maximum acceptable number of boats in a group and minimum acceptable percentages of visitors who should see wildlife and catch fish.

Figure 1 shows the series of photographs depicting increasing boat use on the lake. Respondents were asked to evaluate the *acceptability* of the six photographs showing increasing levels of boat use on the lake (called “acceptability”). Acceptability was measured using a 9-point Likert-type scale ranging from -4 (“Very Unacceptable”) to 4 (“Very Acceptable”). Results from acceptability ratings are shown in Figure 2. In general, both residents and visitors found photographs with more boats less



Figure 1.—Photographs showing varying numbers and types of boats on Lake Umbagog.

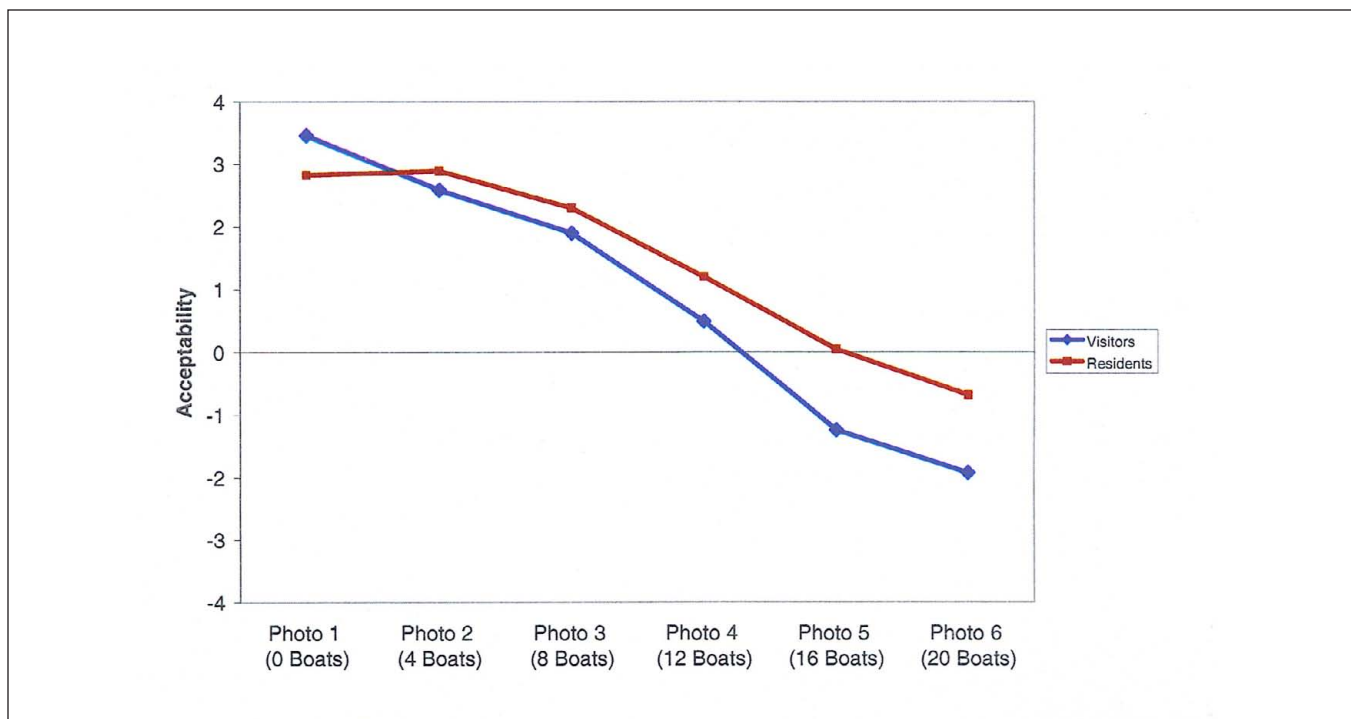


Figure 2.—Social norm curve for number and type of boats on Lake Umbagog.

acceptable than photographs with fewer boats, but residents found the photographs with 12, 16, and 20 boats significantly more acceptable than did visitors. Additionally, residents found the photograph with no boats significantly less acceptable than did visitors ($p < .05$).

Respondents were also asked a series of four additional questions to further elaborate their standards of quality using alternative evaluative dimensions (Manning et al. 1999). First, respondents were asked to indicate which photograph showed the number of boats on the lake that they preferred to see (called “preference”). Next, respondents were asked to indicate the photograph that showed the condition that would be so unacceptable that they would no longer visit Lake Umbagog National Wildlife Refuge (called “displacement”). Respondents were given the opportunity to indicate that “none of the photographs are so unacceptable that I would no longer visit this area.” The next question asked visitors to select the photograph representing the highest number of boats on the lake that they thought the Fish and Wildlife Service should allow, or the point at which visitor use

should be restricted (called “management action”). Respondents were given the opportunity to indicate that none of the photographs showed a high enough number of boats to restrict use or that use should not be restricted at all. Finally, respondents were asked to indicate the photograph that best represented the condition they “typically see/saw.” Residents found 8.6 boats on the lake at one time preferable, while visitors found 5.7 boats preferable. This difference is statistically significant ($t(266) = 4.57$, $p = .000$). No significant differences were found between visitors and residents for any of the other evaluative dimensions noted above. However, a significantly higher percentage of residents than visitors indicated that “none of the photographs are so unacceptable that I would no longer visit this area” ($\chi^2(1, N=333) = 49.28$, $p = .000$) for the displacement question. Additionally, a significantly higher percentage of residents than visitors indicated that “none of the photographs showed a high enough number of boats to restrict use” or that “use should not be restricted at all” ($\chi^2(2, N=333) = 45.63$, $p = .000$) for the management action question.

Similar questions were asked of respondents who used the rivers in the refuge (Figs. 3 and 4) and those who fished during their visit (Figs. 5 and 6) and similar patterns of results were found. Photographs depicting increasing numbers of boats on the rivers within the refuge are shown in Figure 3. Results from acceptability ratings for river users are shown in Figure 4. Again, both residents and visitors found photographs with more boats on the river less acceptable than photographs with fewer boats,

but residents found the photographs with 12 and 15 boats significantly more acceptable than did visitors. Additionally, residents found the photograph with no boats significantly less acceptable than did visitors. Residents found 5.3 boats on the rivers at one time preferable, while visitors found 4.1 boats preferable. This difference is significant ($t(213)=-2.46$, $p=.015$). Additionally, residents indicated that they typically see significantly more boats on the rivers than visitors do (5.3 vs. 4.3; $t(208)=-2.57$, $p=.011$). No significant

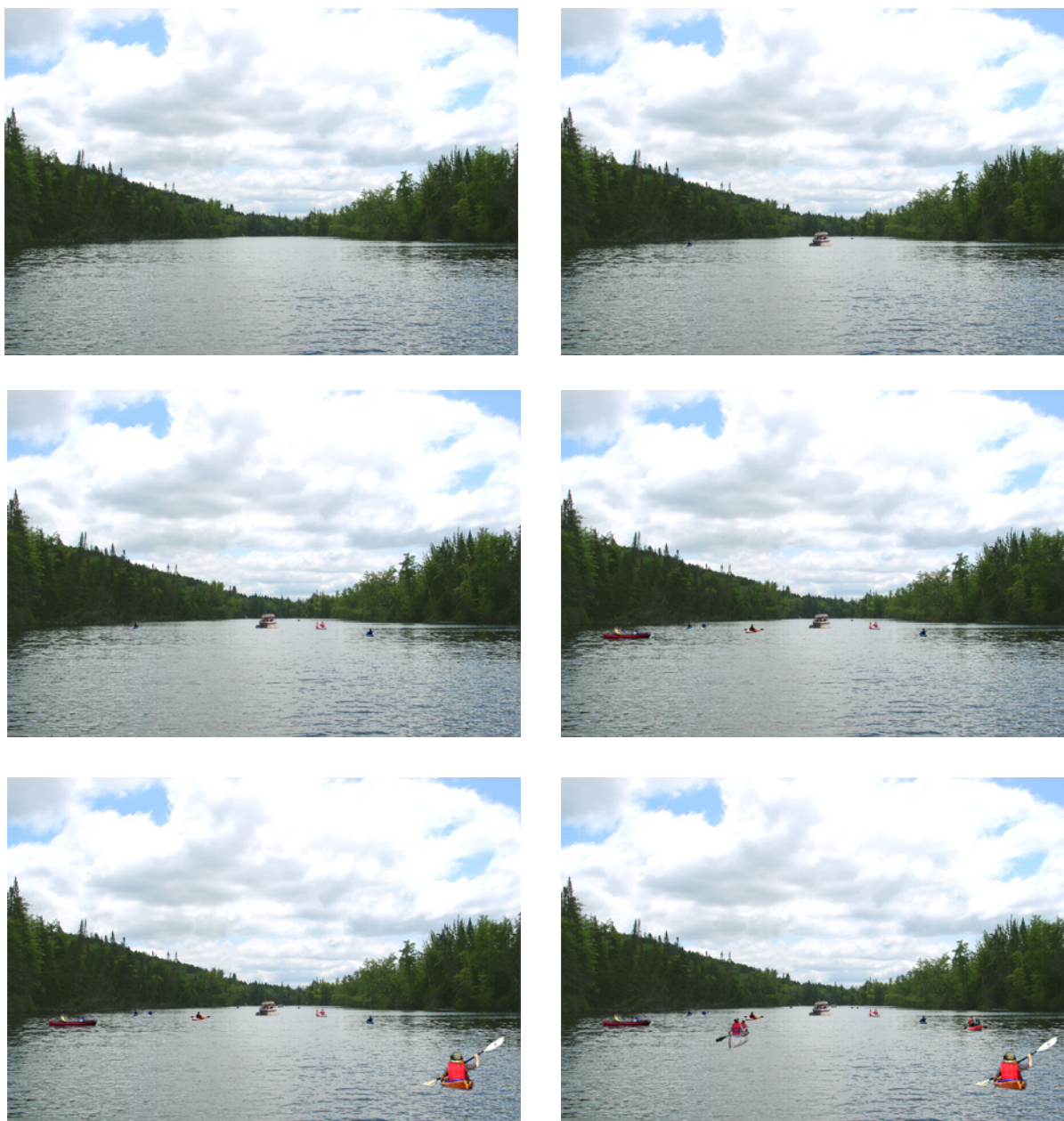


Figure 3.—Photographs showing varying numbers and types of boats on the river.

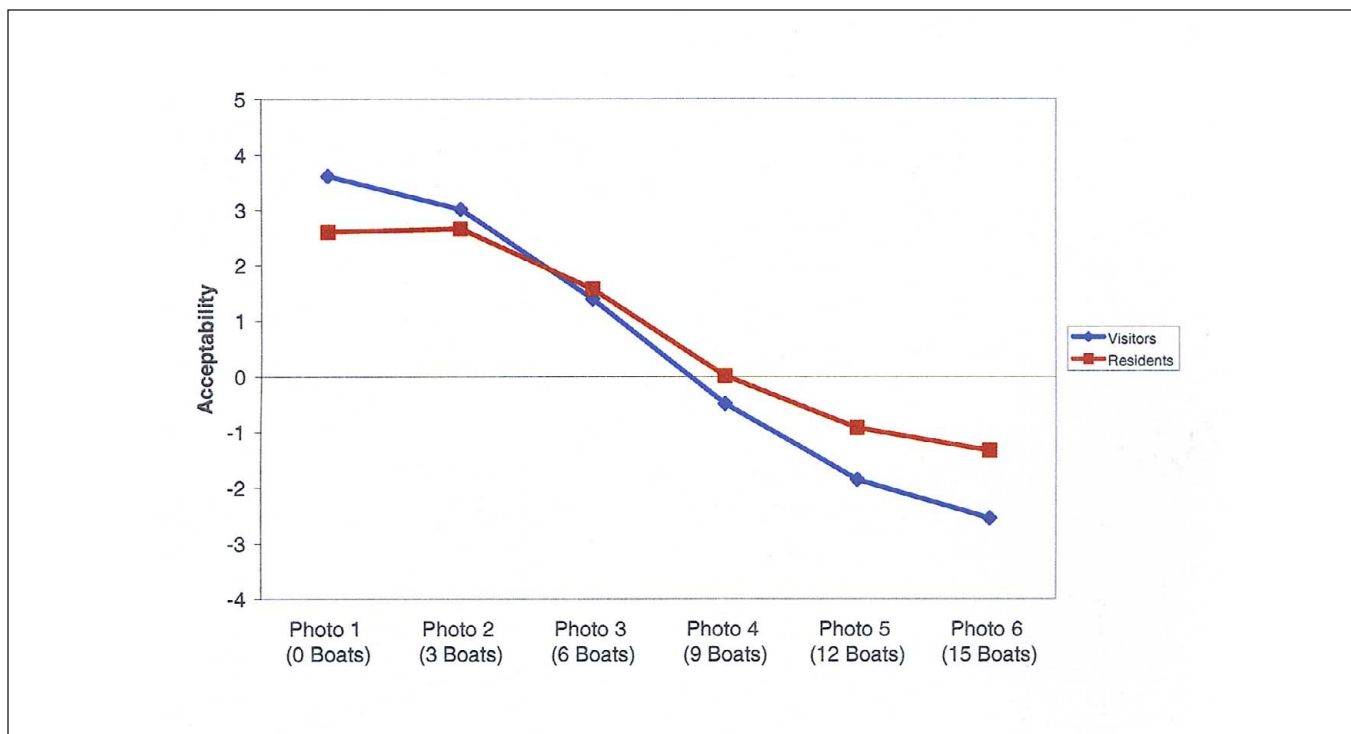


Figure 4.—Social norm curve for number and type of boats on the river.

differences were found between visitors and residents for any of the other evaluative dimensions noted above. However, like the questions about number of boats on the lake, a significantly higher percentage of residents than visitors indicated that “none of the photographs are so unacceptable that I would no longer visit this area” ($\chi^2(1, N=333) = 24.61, p=.000$) for the displacement question. Additionally, a significantly higher percentage of residents than visitors indicated that “none of the photographs showed a high enough number of boats to restrict use” or that “use should not be restricted at all” ($\chi^2(2, N=333) = 40.34, p=.000$) for the management action question.

Photographs depicting increasing numbers of fishing boats on the lake are shown in Figure 5. Results from acceptability ratings for river users are shown in Figure 6. Slightly different results were found for this question. Again, both residents and visitors found photographs with more boats less acceptable than photographs with fewer boats, but residents found the photographs with 0, 4, and 8 boats significantly less acceptable than did visitors.

There were no significant differences between the standards expressed by residents and visitors to the questions using alternative evaluative dimensions. However, like the previous two sets of questions, a significantly higher percentage of residents than visitors indicated that “none of the photographs are so unacceptable that I would no longer visit this area” ($\chi^2(1, N=333) = 35.69, p=.000$) for the displacement question. Additionally, a significantly higher percentage of residents than visitors indicated that “none of the photographs showed a high enough number of boats to restrict use” or that “use should not be restricted at all” ($\chi^2(2, N=333) = 58.06, p=.000$) for the management action question.

With regard to group size, both residents and visitors found larger groups less acceptable than smaller groups, but residents found group sizes of six boats or more significantly more acceptable than did visitors. Additionally, residents found group sizes of one or two boats significantly less acceptable than did visitors.

Questions that asked respondents to indicate the minimum acceptable percentage of visitors to the



Figure 5.—Photographs showing varying numbers of fishing boats on Lake Umbagog.

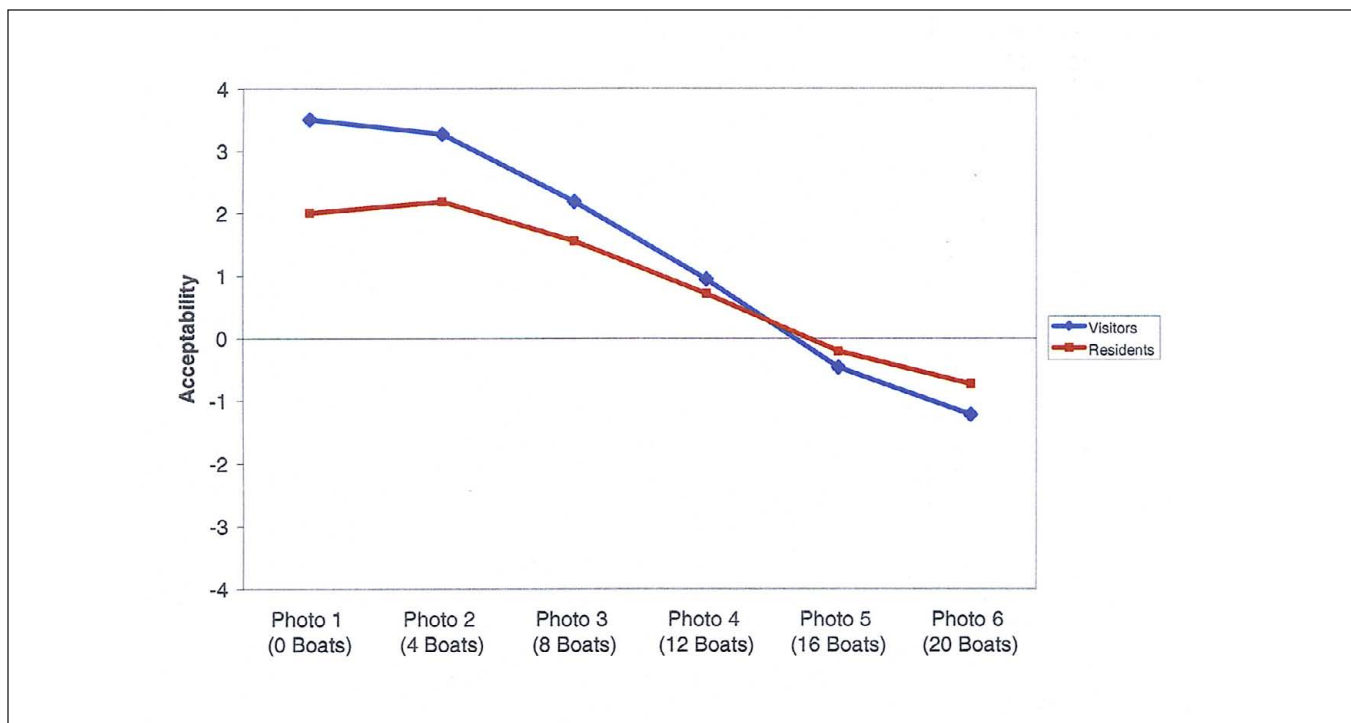


Figure 6.—Social norm curve for numbers of fishing boats on Lake Umbagog.

refuge who should see loons, eagles, osprey, other waterfowl, and moose found that on average, visitors and residents indicated similar percentages. They felt that at least two-thirds of visitors should see loons and other waterfowl, while at least half of visitors should see eagles, osprey, and moose. Questions that asked respondents to indicate the minimum acceptable percentage of visitors to the refuge who should be able to catch bass, trout, salmon, and other fish species found that on average, visitors and residents indicated similar percentages. Respondents felt that a minimum of just under two-thirds of visitors should be able to catch bass and other fish species, while at least half of visitors should be able to catch trout or salmon.

4.0 DISCUSSION AND CONCLUSIONS

Findings from the study help provide an empirical foundation for applying the VERP framework to Lake Umbagog National Wildlife Refuge. While all wildlife refuges are primarily managed to support and maintain diverse species of wildlife, considerable recreation is allowed and occurs in these areas. That recreation is typically focused on wildlife-dependent activities, with other types of recreation viewed as

secondary. However, when the VERP framework was applied to Lake Umbagog National Wildlife Refuge, results were similar to places where nonwildlife dependent recreational activities are primary. Many of the indicator variables identified at Lake Umbagog National Wildlife Refuge were similar to the indicator variables identified in more than 15 years' worth of research in national parks around the country. The number of other users present, the ability to enjoy the natural setting with a minimum of disruption from other visitors, availability of facilities like restrooms and campsites, and the ability to see wildlife in natural habitats are as important to visitors to this wildlife refuge as they are to visitors to many national parks. The similarity of priorities may explain why the VERP framework can be so readily applied to Lake Umbagog National Wildlife Refuge.

Residents who owned or rented year-round or seasonal homes adjoining the waterways within the refuge tended to be more tolerant of larger numbers of boats, and less tolerant of conditions with fewer boats than were visitors. No differences were observed between visitors and residents for minimum acceptable

percentages of visitors able to view wildlife or catch fish during their visits. This result seemed somewhat surprising since previous studies of residents who live near protected areas indicate that residents are sensitive to the effects of large numbers of visitors on their experience of the resource. In fact, evidence of substantial displacement and coping behaviors exhibited by residents of communities near Acadia National Park has been found in response to increasing recreation use (Manning and Valliere 2001). A possible explanation for the current finding is that residents and camp owners were responding strategically to preserve their access to the refuge.

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CAMPERS' PERSPECTIVES ABOUT BOATING IN THE SARANAC LAKES WILD FOREST, NEW YORK

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Abstract.—This study examines the beliefs and attitudes of campers in the Saranac Lakes Wild Forest in New York's Adirondack Park with respect to participation in nonmotorized boating, motorized boating, and personal watercraft use. Initially, qualitative interviews with land managers provided insight into campers' beliefs and attitudes about boating; these insights were used to develop a questionnaire for campers. In 2007, a mail survey of 1,000 registered campers was conducted with the assistance of the New York State Department of Environmental Conservation. Descriptive statistics were calculated to quantify camper demographics, trip characteristics, recreational experience, and beliefs and attitudes towards the three types of boating. A confirmatory factor analysis was used to validate the belief and attitude factors. Correlations between factors were calculated to analyze relationships between recreational experience and participation in each type of boating. Results indicate positive attitudes towards nonmotorized boating, neutral attitudes towards motorized boating, and negative attitudes towards personal watercraft use.

1.0 INTRODUCTION

The Saranac Lakes Wild Forest (SLWF) of New York's Adirondack Park comprises 79,000 acres of forest and water resources and contains 142 water bodies used for motorized and nonmotorized boating, swimming, and

fishing (New York State Department of Environmental Conservation [DEC] 2008). Interspersed with these state-owned lands and water bodies are private lands owned by local residents, business owners, and organizations. Thousands of campers come to the area annually to enjoy the recreational benefits these forest and water resources provide. Boating-related conflicts perceived by both managers and campers over the past several years make it necessary to better understand beliefs and attitudes towards boat use in the area. The objective of this study is to identify the perceptions of campers towards participation in three types of boating in the SLWF area.

The focus of this study is on the beliefs and attitudes of campers concerning participation in nonmotorized boating (e.g., kayaking and canoeing), motorized boating (i.e., with a gas-powered engine), and the use of personal watercraft (e.g., jet skis). Ajzen's (1991) *The Theory of Planned Behavior* provides the theoretical framework for the beliefs and attitudes included in this study. While beliefs are defined as an individual's conceptions about a specific behavior (Ajzen 1991), attitudes are defined as an individual's positive or negative evaluations of performing the behavior (Ajzen and Fishbein 1980). According to the Theory of Planned Behavior, beliefs influence attitudes towards the behavior, attitudes towards the behavior influence an individual's intention to carry out that behavior, and intention directly influences actually carrying out the behavior (Ajzen 1991).

A mixed methods approach (comprising land manager interviews and a mail survey of campers) was used for this study. Mixed methods research combines the theoretical and/or technical components of quantitative and qualitative research in one study (Rocco et al. 2003, Mertens 2005). According to Creswell and Plano Clark (2006), a mixed-methods study can provide a better understanding of research problems than either

the qualitative or quantitative approaches alone. While mixed-methods research requires a knowledge of both qualitative and quantitative methods and can be more expensive and time-consuming than single-method studies (Johnson and Onwuegbuzie 2004), Shah and Corley (2006) assert that the benefits of obtaining a more in-depth understanding outweigh the costs of time and effort. This study utilized a sequential, mixed-methods design, with a dominant quantitative phase. An initial phase of qualitative data collection (i.e., public and private land manager interviews) was followed by quantitative data collection (i.e., mail surveys of campers). The qualitative phase (which provided a basic understanding of beliefs and attitudes towards participation in boating) was used to formulate survey questions used in the quantitative phase of the study. This approach was considered necessary due to the sensitive nature of the ongoing debate about motorized boat use versus nonmotorized boat use in the area.

2.0 METHODS

Interviews with 20 land managers were conducted by phone or in-person in 2005. Nine state agency personnel, four commercial recreation property managers, and seven directors of nongovernmental organizations involved with land management were interviewed. Interviewees were asked to identify three important issues related to water-based recreation in the Saranac Lakes Wild Forest, and their beliefs and attitudes related to these issues. Interviews were recorded (with interviewee permission), transcribed, and analyzed. The issues most commonly mentioned were related to boat use in the area; thus, the

subsequent surveys focused on boating. Interviewees' beliefs and attitudes related to boating were used to write the statements included on the mail survey questionnaires.

In 2007, a mail survey was sent to 1,000 individuals who had registered to camp at the state campgrounds in the SLWF in 2006. The survey included questions about demographics, recreational experience, and trip characteristics for the 2006 calendar year. Respondents were also asked to indicate the degree to which they agreed or disagreed with statements about each of the three types of boating (Table 1) using a 5-point scale (-2 = strong disagreement, -1 = disagreement, 0 = neutral, 1 = agreement, and 2 = strong agreement). Because of space limitations on the questionnaires, statements related to motorboats referred only to boats with gas-powered engines, not electric motors.

Contact information for 1,000 campers was collected with the assistance of the New York State DEC. Specifically, a proportional sample of campers using one of the three state-managed campgrounds in the SLWF (Fish Creek, Rollins Pond, and Saranac Lake Islands State Campgrounds) in 2006 was randomly selected as follows: 564 campers were selected from Fish Creek, 366 from Rollins Pond, and 70 from Saranac Lake Islands.

The survey protocol based on Dillman (2000) consisted of four mailings, each 2 weeks apart. The first and third mailings contained the questionnaire, a postage-paid return envelope, and a cover letter; the second and fourth mailings were reminder postcards.

Table 1.—Concepts and the corresponding statements used on the questionnaires

Concept	Statement included on questionnaire
Behavioral beliefs	• I believe that [type of boating] is harmless to the high quality and cleanliness of the SLWF's natural resources (e.g., lakes, ponds, and forests). • I believe that [type of boating] helps maintain a natural setting in the SLWF that is free of conflicts between [type of boater] and other water body users. • I believe that that [type of boating] preserves the peaceful, quiet natural setting of the SLWF.
Attitude towards behavior	• I have a positive attitude towards [type of boating] in the SLWF. • I think [type of boating], in general, is well suited to the natural setting of the SLWF area • I think [type of boating] is a good recreational activity to have in the SLWF.

The DEC conducted the mailings of the camper survey with detailed instructions from and close monitoring by the researchers out of respect for privacy issues.

Nonresponse bias was examined by surveying 60 nonrespondents. Two independent-sample t-tests and z-tests ($p < 0.05$) were used to identify significant differences between respondent and nonrespondent groups concerning demographic characteristics and attitudes towards the use of nonmotorized boats, motorized boats, and personal watercraft.

Data from completed questionnaires were entered into SPSS (Chicago, IL) to generate descriptive statistics for demographics, trip characteristics, and recreational experience. Recreational experience in various water-based recreational activities was based on the following scale: 0 = no participation in 2006; 1 = participated 1 or 2 times in 2006; 2 = 3 to 5 times; 3 = 6 to 10 times; 4 = 11 to 20 times; and 5 = more than 20 times. Responses to the questions concerning attitudes and beliefs were grouped into factors based on an exploratory and confirmatory factor analysis. Suitable fit in the confirmatory factor analysis was identified by a comparable fit index of 0.9 or greater, and a root mean square error of approximation of 0.05 or less (Hair et al. 1998). Three belief and three attitude questions for each type of boating were averaged together to obtain a value for each of the following six factors: beliefs towards (1) nonmotorized boating, (2) motorized boating, and (3) personal watercraft use, and attitudes towards (4) nonmotorized boating, (5) motorized boating, and (6) personal watercraft use. Factor means were calculated and the reliability of each factor was checked using Cronbach's alpha; an alpha of 0.70 or greater was considered suitable for further analysis (Hair et al. 1998). Correlations between beliefs and attitudes for each type of boating, and between recreational experience and attitudes towards each type of boating, were also calculated.

3.0 RESULTS

3.1 Response Rate

The response rate for campers was 46 percent (442 completed questionnaires out of the qualified

sample of 950 campers). The response rate for each campground was 43 percent for Fish Creek, 43 percent for Rollins Pond, and 60 percent for Saranac Lake Islands. Eighteen nonresponding campers completed and returned the short, one-page nonresponse questionnaire. Results from two independent-sample t-tests and z-tests indicate no significant differences ($p < 0.05$) between respondents and nonrespondents for the following: the number of trips and camping trips made to the Saranac Lakes area in 2006; proportion of campers who had visited prior to 2006; proportions of campers who used motorboats, nonmotorized boats, and personal watercraft; and attitudes towards the use of nonmotorized boats, motorized boats, and personal watercraft.

3.2 Campground Use

From April through October 2006, 8,683 individuals registered for campsites in the Fish Creek, Rollins Pond, and Saranac Lake Islands State Campgrounds. The three campgrounds combined received an estimated 34,700 campers during this time (based on a group size of 4.0 people per site; this figure does not include those who camped on multiple sites in groups of 10 or more). Of the 1,000 campers included in the original survey sample, 56 percent had registered at Fish Creek State Campground, 37 percent at Rollins Pond, and 7 percent at Saranac Lake Islands. Of the total population of registered campers, 4,505 had registered to camp at Fish Creek, 2,916 at Rollins Pond, and 1,262 at Saranac Lake Islands. The average number of campers per campsite was 4.1 people for Fish Creek, 3.7 at Rollins Pond, and 4.3 at Saranac Lake Islands (these averages do not include those who camped on multiple sites in groups of 10 or more). These means were used to calculate the following estimates for total number of campers in 2006: 18,500 for Fish Creek, 10,800 for Rollins Pond, and 5,400 for Saranac Lake Islands.

3.3 Demographics

The average age of responding campers was 51 years with a range of 23 to 84 years. Sixty-three percent were males; 96 percent were Caucasian, 3 percent were of Native American descent, and less

than 1 percent each were African American or Asian. Respondents had an average of 15.7 years of education (i.e., 12 years of high school plus 3.7 years of college or vocational training). Respondents camped in groups of approximately five people (group size included the respondent). Most groups consisted of family (42 percent), friends (6 percent), or both (48 percent); 9 percent camped in groups of 10 or more. Of the 8683 registered campers in 2006, the majority were from New York State (5721 people or 67 percent). In addition, many campers also came from surrounding or nearby states (4 percent from New Jersey; 2 percent each from Massachusetts, Connecticut, and Vermont; 1 percent each from Ohio and New Hampshire) and Canadian provinces (11 percent from Quebec and 3 percent from Ontario). Demographic characteristics for campers using each state campground are shown in Table 2.

3.4 Trip Characteristics

Of the responding campers, 88 percent had visited the Saranac Lakes Wild Forest for recreational purposes before 2006. The average camper made 2.5 trips to the SLWF in 2006, an average of 1.8 of which were camping trips. The average trip was 4 days. Trip characteristics for campers using each state campground are shown in Table 2.

3.5 Participation in Recreational Activities

Campers participated in diverse recreational activities during their stays in the SLWF in 2006. They participated most often in nonmotorized boating, swimming, hiking, fishing, and camping (Table 3). Moderate percentages of respondents participated in motorboating (39 percent), while small percentages participated in personal watercraft use (8 percent) or hunting (6 percent).

Differences in the mean level of participation in activities in the SLWF in 2006 were also noted between campgrounds. For example, the mean level of motorboat use was higher for Fish Creek State Campground respondents than for either Rollins Pond or Saranac Lake Islands respondents. The mean level of nonmotorized boat use was higher for Fish Creek and Rollins Pond campers than for Saranac Lake Islands campers. The mean levels of participation in swimming, fishing, and personal watercraft use were similar for the three campgrounds.

3.6 Beliefs and Attitudes

The factor mean of belief towards nonmotorized boating was high and positive (factor mean = 1.31

Table 2.—Demographic and trip characteristics of campers registered in the three state campgrounds in 2006

Characteristic	Percentage of respondents by campground		
	Fish Creek ^a	Rollins Pond ^b	Saranac Lake Islands ^c
Gender	65% males 35% females	57% males 43% females	79% males 21% females
Age (average years)	51.6 years	50.2	46.9
Race	95% Caucasian 4% Native American <1% Black <1% Asian <1% Hispanic	97% Caucasian 2% Native American <1% Black <1% Asian	100% Caucasian
Education (average years)	15.4 years	15.9	17.2
Average number of Saranac Lakes trips	3.0 trips	2.0	1.4
Average number of Saranac Lakes camping trips	2.1 trips	1.6	1.3
Average days per trip	4.4 days	4.3	4.0
Average number in group	5 people	4	5

^a n = 236

^b n = 159

^c n = 42

Table 3.—Percent of responding campers (n = 416) by level of participation within SLWF in 2006 for each type of activity

Type of recreational activity	n	Percent participation in 2006					
		Never	1 to 2 times	3 to 5 times	6 to 10 times	11 to 20 times	Over 20 times
Motorized boating (excluding personal watercraft)	416	61%	15%	10%	5%	4%	5%
Personal watercraft use	408	92	3	2	1	1	1
Nonmotorized boating (kayaking and canoeing)	434	14	20	30	18	10	8
Kayaking	411	42	24	16	10	4	4
Canoeing	422	26	30	23	13	4	4
Fishing	411	40	23	16	12	4	5
Hunting	384	94	2	1	1	1	1
Swimming	423	11	32	22	17	8	10
Hiking	422	12	40	30	10	5	3
Camping	437	2%	52%	22%	12%	5%	7%

on a scale of -2 [strong disagreement with belief statements] to 0 [neutral] to 2 [strong agreement with belief statements]). This number indicates that, in general, the average responding camper believed that nonmotorized boating does not negatively impact local natural resources or cause social conflicts. The factor mean for attitude towards nonmotorized boating (1.65) was also highly positive, indicating that the average responding camper had a positive attitude towards nonmotorized boating.

The beliefs and attitudes of campers towards motorized boat use varied. The average responding camper believed that motorized boating had a moderate, negative impact on the natural and social setting of the SLWF (factor mean = -0.95). However, the factor mean for attitude toward motorized boating was nearly neutral (-0.14).

The average belief of responding campers towards personal watercraft use was strongly negative (factor mean = -1.31). This value indicates that, in general, the average responding camper believed that personal watercraft use does negatively impact local natural resources and cause social conflicts. The factor mean for attitude towards personal watercraft use was moderately negative (-1.02), indicating that the average responding camper had a moderately negative attitude towards personal watercraft use.

3.7 Relationships between Beliefs and Attitudes

Positive, significant relationships were found between beliefs and attitudes for participation in each of the three types of boating ($p < 0.01$). For participation in nonmotorized boating, a correlation (r) of 0.501 was identified, while correlations of 0.741 and 0.736 were identified for motorized boating and personal watercraft use, respectively.

3.8 Relationships between Attitudes and Recreational Experience

The relationships between the level of recreation participation of respondents and their attitudes towards each of the three types of boating were examined using correlations. Significant, positive relationships ($p < 0.05$) were found between the following: attitudes towards nonmotorized boating and participation in nonmotorized boating ($r = 0.197$); attitudes towards motorized boating and participation in motorized boating ($r = 0.586$); attitudes towards personal watercraft use and participation in personal watercraft use ($r = 0.411$); attitudes towards motorized boating and participation in fishing ($r = 0.277$); and attitudes towards personal watercraft use and participation in fishing ($r = 0.122$). Significant, negative relationships were identified between: participation in nonmotorized

boating and attitudes towards personal watercraft use ($r = -0.104$); participation in motorized boating and attitudes towards nonmotorized boating ($r = -0.296$); participation in personal watercraft use and attitudes towards nonmotorized boating ($r = -0.164$); and participation in fishing and attitudes towards nonmotorized boat use ($r = -0.141$).

4.0 DISCUSSION AND CONCLUSION

Boating is an important traditional activity in the Saranac Lakes Wild Forest. Accordingly, survey responses indicate generally strong beliefs about and/or attitudes toward the three types of boating. Participation in nonmotorized boat use was perceived very positively, while motorboating had a strongly negative belief but neutral attitude; personal watercraft use was associated with strongly negative beliefs and attitudes. The negative belief and neutral attitude towards motorized boating is understandable in the context of the SLWF, where motorboating is a long-standing tradition in the area. Because of the importance of this activity to campers, there is a positive attitude towards motorboating overall, even though the average respondent believed that the activity had some negative environmental and social impacts. There were positive, significant relationships between beliefs and attitudes towards each type of boating, indicating that beliefs likely do influence attitudes as indicated by the Theory of Planned Behavior (Ajzen 1991).

When relationships between recreational participation and attitudes were analyzed, significant correlations were found between participation in boating activity and attitudes toward the three types of boating. Respondents who frequently participated in a type of boating had more positive attitudes towards that activity. Conversely, the more frequently respondents participated in nonmotorized boating, the less positive were their attitudes towards motorized boating and personal watercraft use. Similarly, the more frequently respondents participated in motorized boating or personal watercraft use, the less positive were their attitudes towards nonmotorized boating. These findings can be explained in light of a current conflict

in the area: some nonmotorized boaters have sought to further restrict motorized boat use and some motorized boaters have been irritated by this suggested change in the regulations.

Overall, understanding the perceptions of stakeholder groups can be essential to residents and land managers as they seek to enhance the local quality of life and create opportunities for recreation. This study indicates that the campers who provided information are concerned about conserving the quality of the natural resources in the SLWF. Furthermore, understanding the attitudes and beliefs related to each type of boating can help land managers identify issues of consensus and/or conflict between different user groups (e.g., nonmotorized boat users and motorized boat users). Developing consensus is an essential goal as land managers seek strategies to provide positive recreational experiences for users of the SLWF.

5.0 ACKNOWLEDGMENTS

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HUNTING AND ANGLING II

FINDING ARTEMIS: PATHWAYS FOR RECRUITING AND CONSTRAINTS TO RETAINING FEMALE HUNTERS

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Abstract.—A total of 321 women (73 percent) responded to the 2001 Illinois Becoming an Outdoors-Woman (BOW) Survey. All had signed up for and/or participated in BOW workshops. Eighty-three percent of the women had attended one or more workshops and most participated in these workshops to develop or improve their skills in outdoor activities. During the previous 12 months, 72 percent of the women had participated in hiking, 60 percent had fished, and 19 percent had hunted. Three-fourths of the women participated in outdoor activities with their husband/boyfriend. “No one to go with” was identified by participants as the most important constraint to participating in outdoor activities. The most important inducements for participation were “Training to develop skills,” “Someone to go with,” and “More time.” Survey respondents’ personal characteristics and levels of participation in hunting and other outdoor activities are also presented.

1.0 INTRODUCTION

Hunting and fishing license sales have steadily declined across the United States since 1996 (U.S. Dept. of Int., Fish and Wildlife Service, and U.S. Dept. of Comm., Bureau of the Census 1991, 1996, 2001, 2006). This decrease is detrimental to conservation agencies and programs, many of which derive a portion or all of their funding from license sales. Moreover, hunting- and fishing-related expenditures support conservation projects and programs through the Federal Aid in Wildlife Restoration Act and the

Federal Aid in Sport Fish Restoration Act (more commonly known as the Pittman-Robertson and Dingle-Johnson acts, respectively). During 2006, more than 37 million fewer people participated in outdoor activities than in wildlife viewing (U.S. Dept. of Int., Fish and Wildlife Service, and U.S. Dept. of Commerce, Bureau of the Census 2006). However, outdoor sportspersons spent \$30 billion more than wildlife viewers on their respective outdoor activities.

Though the past century has seen a change in traditional women’s roles, women still do not participate in various activities in the same numbers as their male counterparts. It is possible that the number of females participating in hunting and fishing has increased during the past century due to this shift of roles; however, the U.S. Fish and Wildlife Census Bureau’s hunting participation data are not available by gender before 1991. During 2006, 25 percent of anglers and 9 percent of hunters were female (U.S. Dept. of Int., Fish and Wildlife Service, and U.S. Dept. of Comm., Bureau of the Census 2006). Looked at from the perspective of the whole U.S. population, only 6 percent of all females in the United States fished during 2006 and only 1 percent hunted compared to 20 percent and 10 percent of males, respectively. Attracting and retaining additional females to hunting and fishing activities could financially benefit conservation agencies and programs. Ensign (1999) found that the Becoming an Outdoors-Woman program positively influenced sales of hunting and fishing licenses and park permits. Studies have shown, however, that females encounter a variety of constraints to participation in hunting and fishing which may or may not apply to males (Crawford and Godbey 1987, Henderson et al. 1988, Jackson 1990, Crawford et al. 1991, Henderson and Bialeschki 1991, Shaw et al. 1991).

Recruitment of new hunters tends to be within families that have a tradition of hunting participation;

a network of hunting family and friends usually maintains the individual's participation in the sport (Adams and Thomas 1983). Adams and Thomas (1983) found that the majority of male hunters were initiated into the sport during childhood by their father or another male relative while the majority of female hunters are initiated into hunting by their husbands. Research has also shown that those who are introduced to hunting as a child are more likely to remain in the sport throughout their lives than those who are introduced to the sport as an adult (O'Leary et al. 1987). Adams and Steen (1997) found that most females were initiated into hunting in their early twenties by their husbands. These studies suggest that women adopt the leisure preferences of their male companions or husbands and tend to choose family-oriented leisure activities.

Once recruited into hunting, women face a variety of constraints that inhibit participation. Crawford and Godbey (1987) categorize these constraints into three groups: intrapersonal, interpersonal, and structural. Crawford et al. (1991) expand this theory to include a hierarchical relationship among constraints. Before an individual will participate in an activity, intrapersonal constraints such as perceived lack of skill, prior experiences, or fear must be overcome. Then interpersonal constraints such as not having someone to go with or interactions with friends, family, and society must be worked through. Finally, structural constraints, such as lack of time, lack of funding, or lack of a place to go, must be overcome. Life stage is another factor that impacts women's leisure activities; outdoor activity levels typically decrease during early motherhood (Brown et al. 2001).

In 1990, a workshop was held at the College of Natural Resources at the University of Wisconsin-Stevens Point, to explore the barriers to outdoor recreation participation faced by women and strategies for overcoming them (Lueck 1995). The Becoming an Outdoors-Woman (BOW) program, established in 1991, was a direct outcome of this workshop. Three-day workshops are held in more than 40 U.S. states, Canada, and New Zealand in which women learn a variety of skills used in hiking, boating, camping,

hunting, shotgun and pistol shooting, and fishing in a supportive, comfortable, and non-threatening environment. In 1998, more than 12,000 women participated in more than 100 workshops (Ensign 1999).

2.0 STUDY PURPOSE AND OBJECTIVES

This study investigated the attitudes and activities of women who participated in an Illinois BOW workshop in 1999, 2000, and/or 2001. Specific research objectives were to: 1) determine perceived constraints to outdoor activities; 2) describe the relationship between women's place of residence and their participation in outdoor activities; and 3) determine the effects of the workshop on subsequent participation in outdoor activities.

3.0 METHODS

Data were collected using a mail questionnaire. The survey method followed a modified version of Dillman's (1978) Total Design Method. The mailing list was derived from the names and addresses of 453 women who signed up for and/or participated in a BOW workshop in Illinois during June or October 1999, June or October 2000, or June 2001. On July 12, 2001 survey participants were sent an eight-page, self-administered questionnaire that solicited information on workshop participants' outdoor activities and their attitudes toward the BOW workshops and related issues. A follow-up postcard sent 10 days after the questionnaire thanked recipients for participating in the survey and reminded nonrespondents to return the completed questionnaire. On September 10, nonrespondents were sent a second questionnaire followed by a postcard 10 days later.

4.0 RESULTS

Twelve surveys were returned by the U.S. Postal Service as undeliverable, reducing the mailing list to 441 potential participants. Three hundred twenty-one usable questionnaires were received for a response of 72.8 percent. Coded data were transferred from questionnaires to a computer file and analyzed using SPSS, Pearson's chi square, and cross tabs.

4.1 Perceived Constraints

Seventy-three percent of the study participants conducted their outdoor activities with their husband/boyfriend, which is similar to findings in other research (Adams and Steen, 1997). However, 37 percent of participants reported seeking the company of other women when going afield. A majority (55 percent) of participants indicated that “No one to go with” was the most important factor that hinders them from participating in outdoor activities. Moreover, 67 percent selected “Training to develop skills” and 47 percent selected “Someone to go with” as inducements to participate in listed activities. Although not statistically significant, one finding indicated that women were more likely to have a male companion than a female companion while hunting (Table 1). However, women who participated in archery for 1 day or for 5 or more days (Table 2) or hiked for 2 or more days were more likely to have a female companion (Table 3).

4.2 Place of Residence and Hunting

Thirty-nine percent of the respondents reported living in a rural area or small town, and about a quarter (26 percent) lived in a medium or large city. Sixty percent of the respondents had no children living at home. Fifty-one percent listed “Not enough time” as the most important factor that hinders them from participating in outdoor activities. While 31.3 percent of rural residents hunted 5 or more days, only 14.3 percent and 15.0 percent of medium- and large-city residents, respectively, hunted 5 or more days (Table 4). However, this difference was not significant. A majority of residents of medium and large cities did not hunt at all (71.4 percent and 80.0 percent respectively). Residents of medium and large cities who did hunt most often participated for 2 or more days.

4.3 Workshop and Participation

Respondents participated significantly less in rifle shooting, fishing, canoeing, hiking, boating, and archery after attending the workshop(s) (Table 5). However, respondents camped significantly more after

Table 1.—Number of days spent hunting and gender of companion

Number of days spent hunting	Female Companion	Male Companion
1	1	3
2-4	4	12
5 or more	13	26

p=.805

Table 2.—Number of days spent participating in archery and gender of companion

Number of days participating in archery	Female Companion	Male Companion
1	14	3
2-4	4	10
5 or more	17	12

p=.010

Table 3.—Number of days spent hiking and gender of companion

Number days spent hiking	Female Companion	Male Companion
1	8	11
2-4	31	27
5 or more	78	52

p=.291

Table 4.—Number of days spent hunting and current place of residence

Place of Residence	Days Hunted (% response by type of residence)			
	0	1	2-4	5+
Rural area	54.2	4.2	10.4	31.3
Small town	62.5	3.1	15.6	18.8
Suburbs	74.1	3.7	3.7	18.5
Small city	63.3	0	6.7	30.0
Medium city	71.4	0	14.3	14.3
Large city	65.2	0	5	15.0

attending the workshop(s). Participation in hunting and shotgun and pistol shooting did not change significantly after attending the workshop(s).

Table 5.—Participation in outdoor activities by respondents before and after attending BOW workshop(s)

Activity	n before	n after	T	p
Shotgun	78	77	0.126	.900
Hunting	65	53	1.669	.096
Pistol	54	40	1.950	.052
Rifle	70	53	2.266	.024
Fishing	231	153	8.347	.000
Canoeing	172	108	6.414	.000
Hiking	227	169	6.664	.000
Boating	160	102	6.414	.000
Archery	59	54	4.383	.000
Camping	94	142	9.901	.000

5.0 CONCLUSIONS AND IMPLICATIONS

Similar to previous studies, we found that “not enough time,” lacking “someone to go with,” and needing “more training to develop skills” were critical constraints to women’s participation in outdoor activities. The gender of women’s outdoor activity companions differed slightly with regard to activity. Study participants were more likely to have a male companion while hunting than a female companion; however, they were more likely to have a female companion while hiking or participating in archery. Our findings indicate that constraints differed by activity; in particular, more complex activities induced more constraints. For example, hunting is a more complex activity than hiking or archery because it requires more specialized skills and equipment and an array of knowledge about wildlife, wildlife habitat, and specific terrain. Introduction to hunting by husbands or boyfriends later in life is reflected in the gender of women’s companions for that activity. Initiating more females to hunting during childhood may increase their knowledge and skills, and minimize intrapersonal constraints. Jones (2007) found that women with fewer constraints had higher participation levels. Participating in workshops such as BOW will also aid in overcoming the “someone to go with” and “training to develop skills” constraints.

Current place of residence may be related to participants’ reported constraints on time. Females in rural areas hunted for 5 or more days more frequently

than females in urban areas. This difference may be because rural residents live closer to hunting sites and do not require as much travel time to participate in hunting. Hunting opportunities near urban areas do exist but are limited. Hunters who must travel from urban centers may be able to do so only once or twice a season. BOW workshops can introduce and encourage these urban women to participate in hunting as well as other outdoor activities, and programs such as Beyond BOW provide opportunities to utilize skills learned.

Women reported participating significantly less in the majority of activities after attending the BOW workshop(s), with the exception of camping. We attribute this increase in camping to workshop attendance where women encountered potential companions for the oftentimes sociable activity. Our small sample size and short time frame may have produced results that differ from previous studies, which found significant participation in outdoor activities increased after workshop attendance (Lueck 1995, Welch 2004, Jones 2007). Welch (2004) also noted that her results suggest that the BOW program helps women negotiate and diminish the effects of leisure constraints. Jones (2007) found women who attended BOW workshops had relatively lower levels of perceived leisure constraints and higher levels of perceived self-efficacy than their non-attendee counterparts.

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DEER HUNTING AND TELEVISION: ARE TV SHOWS CREATING EXPECTATIONS AMONG DEER HUNTERS?

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Abstract.—Throughout the past two decades new media outlets emphasizing trophy deer hunting have come to dominate hunting culture. Using data collected through a mail survey of Illinois deer hunters ($n = 2,683$, 78.5-percent response), we tested two hypotheses to determine factors that contribute to preference for hunting trophy deer. In particular, we examined the relationship between trophy deer hunting and: 1) watching television shows about deer hunting, and 2) frequency of viewing shows about deer hunting. Preference for hunting trophy deer was measured using three variables: hunting motives directed toward hunting trophy deer, preference for management programs emphasizing trophy deer, and management programs focused on producing bucks with large antlers. Results confirm a significant relationship between preference for hunting trophy deer and both watching hunting television shows and frequency of viewing shows about deer hunting.

1.0 INTRODUCTION

Since the early 1990s emphasis on hunting trophy white-tailed deer (*Odocoileus virginianus*) has increased throughout the United States (Miller 2004, Miller and McDonald 2004). Multiple new media outlets have inundated hunting culture with a focus on harvesting trophy animals, particularly white-tails. The main outlet for this focus has been television. The relatively recent introduction of the Outdoor Channel

and similar cable television channels has resulted in a greater number of hunting shows. These channels, combined with easy access to cable (or satellite) television, have allowed the idea of harvesting a “record-book” deer to reach countless hunters (Enck et al. 2000, Memood et al. 2003, Miller and Vaske 2003). Programs like “Whitetail Freaks” and “Buckmaster’s Classic” are two examples of shows that promote trophy hunting.

2.0 METHODS

Between March and May 2003, a self-administered mail questionnaire was sent to licensed deer hunters throughout the State of Illinois. A random sample of hunters was used ($n=3,500$) and was stratified based on hunting permit type (shotgun, archery, or muzzleloader). The questionnaire was 16 pages long and examined hunting participation, estimates of deer harvests, attitudes toward hunting behaviors, and management opinions.

The purpose was to determine whether deer hunting television programs influence hunters’ expectations about harvesting trophy deer. We proposed two hypotheses: (H1), watching shows about deer hunting contributes to a preference for hunting trophy deer and (H2), frequency of viewing shows about deer hunting is related to preference for hunting trophy deer. We measured preference for hunting trophy deer using three variables: (1) hunting motives directed toward hunting trophy deer; (2) preference for management programs that emphasize trophy deer; and (3) preference for management programs focused on producing bucks with large antlers.

Respondents were first asked, “Do you watch deer hunting shows on TV?” Response choices were binomial (“Yes” or “No”). To measure frequency of viewing shows about deer hunting, we asked respondents to answer the question: “How often do

you watch deer hunting shows?” Possible responses were “Every week,” “About 3 times a month,” “5-12 times in the past year,” and “<5 times in the past year.”

The first variable “hunting motives directed toward hunting trophy deer” was measured by asking respondents to consider the statement, “The chance to harvest a trophy buck is an important part of why I hunt deer.” The second variable “preference for management programs that emphasize trophy deer” was measured by asking respondents to reflect upon the statement, “More emphasis should be placed on producing trophy deer.” The third variable “preference for management programs focused on producing bucks with large antlers” was measured by asking respondents to answer the statement “Deer managers should focus on providing bucks with larger racks.” Responses were measured using a 7-point Likert-type scale for all of these questions (1=strongly disagree, 7=strongly agree).

To test our hypotheses, we used crosstab analysis with Pearson’s chi-square (SPSS v. 14). A p-value of less than .05 was considered significant.

3.0 RESULTS

The survey response rate was 78.5 percent ($n=2,683$). Eighty-two members of the original sample were excluded because the surveys had incorrect addresses or duplicate names, or were undeliverable for other reasons, leaving 3,418 hunters in the sample.

Opportunity to harvest a trophy buck as a motive for participating in deer hunting was significantly related

to watching TV shows about deer hunting ($\chi^2=66.87$, $p<.001$) (Table 1). Of hunters who *did not* watch deer hunting shows, 19.9 percent somewhat agreed, 15.7 percent agreed, and 8.3 percent strongly agreed with the statement, “The chance to harvest a trophy buck is an important part of why I hunt deer.” By contrast, among hunters that watched deer hunting shows, 24.9 percent somewhat agreed, 20.7 percent agreed, and 18.5 percent strongly agreed with the above statement.

Frequency of viewing television shows about deer hunting was significantly related to harvesting a trophy buck as a motive for deer hunting ($\chi^2= 54.04$, $p<.001$) (Table 2). There was little difference among responses of those watching such shows “Every week,” “About 3 times a month,” and “5-12 times in the past year.” A greater difference is evident in the responses of viewers watching “Every week” compared to “<5 times in the past year.” Of those who watch hunting shows weekly, 24.7 percent somewhat agreed, 21.1 percent agreed, and 21.7 percent strongly agreed with the statement, “The chance to harvest a trophy buck is an important part of why I hunt deer,” whereas of those watching shows less than five times in the past year, 24.4 percent somewhat agreed, only 14.0 percent agreed, and only 15.0 percent strongly agreed.

Preference for management programs that emphasize trophy deer management was also significantly related to watching hunting shows ($\chi^2=54.92$, $p<.001$) (Table 3). Of hunters who did not watch deer hunting shows, 14.1 percent somewhat agreed, 9.1 percent agreed, and 5.5 percent strongly agreed with the statement, “More emphasis should be placed on

Table 1.—Importance of potentially harvesting a trophy buck vs. watching hunting shows on TV

The chance to harvest a trophy buck is an important part of why I hunt deer	Do you watch deer hunting shows on TV?		
	% No (n=362)	% Yes (n=2,267)	Total (%)
Strongly Disagree	17.7	8.6	9.8
Disagree	25.4	17.8	18.9
Somewhat Disagree	10.2	8.0	8.3
Unsure	2.8	1.5	1.7
Somewhat Agree	19.9	24.9	24.2
Agree	15.7	20.7	20.0
Strongly Agree	8.3	18.5	17.1

($\chi^2=66.87$, $p<.001$)

Table 2.—Importance of potentially harvesting a trophy buck vs. frequency of watching hunting shows on TV

The chance to harvest a trophy buck is an important part of why I hunt deer	How often do you watch deer hunting shows?				Total (%)
	% Every Week	% About 3 times a month	% 5-12 times in the past year	% <5 times in the past year	
Strongly Disagree	9.0	6.9	6.8	13.7	8.4
Disagree	16.5	19.8	16.7	20.8	17.8
Somewhat Disagree	5.8	8.7	9.5	8.1	8.0
Unsure	1.3	1.0	0.9	3.9	1.5
Somewhat Agree	24.7	25.2	25.6	24.4	25.1
Agree	21.1	21.8	22.4	14.0	20.7
Strongly Agree	21.7	16.6	18.1	15.0	18.5

($\chi^2=54.04$, $p<.001$)

Table 3.—Emphasis on producing trophy deer vs. watching hunting TV shows

More emphasis should be placed on producing trophy deer	Do you watch deer hunting shows on TV?		
	% No (n=362)	% Yes (n=2,267)	Total (%)
Strongly Disagree	10.2	6.4	6.9
Disagree	26.6	16.1	17.6
Somewhat Disagree	14.4	13.3	13.4
Unsure	19.9	16.3	16.8
Somewhat Agree	14.1	20.9	20.0
Agree	9.1	16.2	15.2
Strongly Agree	5.5	10.9	10.1

($\chi^2=54.92$, $p<.001$)

producing trophy deer.” Among hunters who did watch hunting shows, 20.9 percent somewhat agreed, 16.2 percent agreed, and 10.9 percent strongly agreed.

A significant relationship was also found between preference for management programs that emphasize trophy deer management and *frequency* of watching deer hunting television shows ($\chi^2=44.48$, $p<.001$) (Table 4). Percent responses were similar to the first variable (opportunity to harvest a trophy as a primary motive). There was little difference between hunters

watching “Every week,” “About 3 times a month,” and “5-12 times in the past year,” though greater differences existed between those who watched these shows every week and those who watched them less than five times in the past year. Hunters who watched hunting shows every week answered “Somewhat agree” less than those who watched shows less than five times in the past year. However, those who watched more frequently constitute a higher percentage of responses for “agree” and “strongly agree.”

Table 4.—Emphasis on producing trophy deer vs. frequency of watching TV shows about deer hunting

More emphasis should be placed on producing trophy deer	How often do you watch deer hunting shows?				Total (%)
	% Every Week	% About 3 times a month	% 5-12 times in the past year	% <5 times in the past year	
Strongly Disagree	7.4	6.1	5.2	7.1	6.4
Disagree	13.6	14.0	16.9	21.8	15.9
Somewhat Disagree	12.2	14.6	13.0	15.3	13.4
Unsure	14.7	16.5	17.3	17.5	16.4
Somewhat Agree	19.0	23.2	21.5	20.1	20.9
Agree	18.0	16.5	16.1	12.0	16.2
Strongly Agree	15.1	9.2	9.8	6.2	10.8

($\chi^2=66.16$, $p<.001$)

Preference for management focused on producing deer with large racks (trophy bucks) was significantly related to watching deer hunting shows on television ($\chi^2=66.16$, $p<.001$) (Table 5). Among hunters who did not watch deer hunting shows, 17.8 percent somewhat agreed, 11.1 percent agreed, and only 1.4 percent strongly agreed with the statement, “Deer managers should focus on providing bucks with larger racks.” Of hunters who watched deer hunting television shows, more of them agreed with the statement: 27.6 percent answered “somewhat agree,” 13.6 percent answered “agree,” and 7.5 percent answered “strongly agree.”

There was also a significant relationship between preference for management focused on producing bucks with larger racks and the frequency of watching deer hunting shows on TV ($\chi^2=50.756$, $p<.001$) (Table 6). There was little difference in responses between those who watch the hunting shows “Every week,” “About 3 times a month,” and “5-12 times in the past year.” However, when comparing “Every week” and “<5 times in the past year,” we found larger differences. Of those who watched the shows

every week, 27.2 percent somewhat agreed, 15.0 percent agreed, and 9.6 percent strongly agreed with management focused on producing bucks with larger racks. Those who watched less than five times in the past year did not agree to the same extent: 22.5 percent somewhat agreed, 9.5 percent agreed, and 6.2 percent strongly agreed.

4.0 DISCUSSION AND CONCLUSIONS

Results of this study suggest that hunters who watch hunting television shows, especially those who watch them more often, are more likely to have a preference for hunting trophy white-tailed deer. These hunters are also more likely to have expectations of harvesting a trophy animal. Hunting shows have recently been introduced to the hunting culture and continue to grow in popularity. More recognized sponsors and outfitters are joining this growing form of entertainment and it does not appear that hunting shows will be going off the air any time soon. This trend can be viewed by deer managers in two ways: first, they could see this as an increase in pressure from hunters to produce trophy deer, something that cannot be completed

Table 5.—Emphasis on managers providing trophy bucks vs. watching hunting TV shows

Deer managers should focus on providing bucks with larger racks	Do you watch deer hunting shows on TV?		
	% No (n=362)	% Yes (n=2,267)	Total (%)
Strongly Disagree	9.2	3.7	4.4
Disagree	20.9	13.7	14.7
Somewhat Disagree	16.2	15.6	15.7
Unsure	23.4	18.3	19.0
Somewhat Agree	17.8	27.6	26.2
Agree	11.1	13.6	13.3
Strongly Agree	1.4	7.5	6.6

($\chi^2=66.16$, $p<.001$)

Table 6.—Emphasis on managers providing trophy bucks vs. frequency of watching hunting TV shows

Deer managers should focus on providing bucks with larger racks	How often do you watch deer hunting shows?				Total (%)
	% Every Week	% About 3 times a month	% 5-12 times in the past year	% <5 times in the past year	
Strongly Disagree	3.9	2.7	3.0	6.5	3.7
Disagree	13.7	10.3	13.8	17.0	13.5
Somewhat Disagree	13.1	15.9	18.8	13.7	15.7
Unsure	17.5	19.5	16.2	24.5	18.4
Somewhat Agree	27.2	30.4	28.7	22.5	27.7
Agree	15.0	15.3	12.9	9.5	13.6
Strongly Agree	9.6	5.9	6.6	6.2	7.3

($\chi^2=50.756$, $p<.001$)

overnight and could lead to disappointment among deer hunters. State agencies can have difficulty with this pressure due to the nature of their organization (funding, supervisory approval, and other constraints). The second way in which managers could perceive this trend is as an educational opportunity. With so many hunters watching these television shows and basing ideas and management opinions on them, managers could use the shows to promote sound management techniques. As of this writing, there are a few television programs on the air that discuss deer management techniques that benefit the landscape, trophy deer, and other wildlife. One example is Quality Deer Management Association's "Quality Whitetails." This show portrays hunters hunting quality deer and provides advice about land management practices and deer herd management. Such education programs could encourage hunters to do more on an individual basis to meet their own goals and expectations.

Further research regarding the media's influence on hunters and anglers should be conducted to help managers understand and respond to new demands and developing trends. As our society becomes more technologically advanced, mass media is assailing the public from all directions. This study provides one example of how media can influence our perception of those things we enjoy most.

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***TOURISM—AGRICULTURAL
AND RURAL***

A COMPARISON OF AGRITOURISM AND OTHER FARM ENTREPRENEURS: IMPLICATIONS FOR FUTURE TOURISM AND SOCIOLOGICAL RESEARCH ON AGRITOURISM

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Abstract.—Agritourism research has been approached from both the tourism and sociology disciplines. Both have focused on understanding the complex set of goals—including those economic and intrinsic in nature—that drive entrepreneurial development. This study examined differences between agritourism farmers and other farm entrepreneurs to consider whether both the tourism and sociology disciplinary approaches should continue independently or be integrated. Differences between agritourism and non-agritourism farm entrepreneurs related to the goals driving entrepreneurial development, farm household arrangements, and business structures suggest that it is necessary to continue both disciplinary approaches.

1.0 INTRODUCTION

Agritourism, also known as farm tourism, has been studied from both the tourism and sociology disciplines. Tourism literature defines agritourism as the process of attracting people to the farm (Evans and Ilbery 1992) while sociology literature defines it as one type of entrepreneurial venture developed to enhance farm revenues or values (Che et al. 2005, Barbieri et al. 2008). Thus, while the tourism perspective regards agritourism as a unique entrepreneurial venture, the sociological perspective considers it a component of the entire farm structure.

Both tourism research and sociological research have tried to identify the goals of entrepreneurial

development. The rationale behind this research emphasis is that goals, defined as internal representations of desired outcomes, govern entrepreneurial behaviors and venture performance (Hornsby and Kuratko 2002). Consistent with early sociological studies on farmers' motivations (Gasson 1973), farm diversification and agritourism are driven by a complex set of goals including those economic and intrinsic in nature (McGehee and Kim 2004, Ollenburg and Buckley 2007).

This study examined differences between agritourism and other farm entrepreneurial ventures to consider whether tourism and sociological research efforts should continue independently or be integrated. Given that both disciplines have placed emphasis on entrepreneurial goals, this study first examined the set of goals driving farm entrepreneurial development. Then, farm household and business characteristics were analyzed between groups of agritourism farmers and other farm entrepreneurs. The findings have important implications for state and federal agencies in North America that have been encouraging the development of different enterprises to diversify farm incomes in an effort to retain farmers in business, attract new entrants to agriculture, and promote regional development.

2.0 METHODS

A Web-based survey was used to collect data from farms with diversified business enterprises (i.e., diversified farms) in North America. The initial sample frame was the member list of the North American Farmers' Direct Market Association (NAFDMA), which was used for purposive and snowball samplings. Although this sample frame prevents the study from being representative, it was convenient because it was not restricted to a specific agricultural sector, it facilitated study referrals, and

it included members from the United States, Canada, and Mexico. The survey collected information about the characteristics of the farms and farmers, their diversified enterprises, their entrepreneurial goals, and performance indicators. In 2005, 423 NAFDMA farmers were invited to take the survey and asked to give the questionnaire to others (snowball sampling). One mail postcard and four reminder emails were sent to nonrespondents. The survey produced 1,135 valid answers, 192 from the original NAFDMA list (45.4-percent response rate) and 943 from snowball referrals.

A principal factor analysis with Varimax rotation was performed on the rankings that farmers assigned to 20 different diversification goals representing a wide spectrum of economic and intrinsic motivations. Goals were ranked using a 5-point Likert scale rank anchored in (1) “not important” and (5) “extremely important.” Eigenvalues over 1 and loadings over 0.50 were used in the factor analysis. ANOVA and chi-square tests were used to analyze differences between agritourism and nonagritourism farm entrepreneurs.

3.0 RESULTS AND DISCUSSION

3.1 Profile of Respondents and their Farms

Participating diversified farms averaged 304 acres (median=64.5) in size. About half (53.3 percent) had at least one full-time year-round employee (mean=2.7, median=1), including owners and family members hired full-time by the farm business. Almost half (48.1 percent) reported total gross sales of at least \$50,000 in 2004 and over a third (36.2 percent) reported gross sales of at least \$100,000. Approximately a quarter (23.6 percent) of the respondents were younger than 45 years old and only 11.4 percent were 65 years old or older. Two-thirds of the respondents (66.0 percent) had at least one college degree and the vast majority (86.1 percent) had at least some college education. Results also showed an active role of women in farm entrepreneurial diversification. Almost a third (32.8 percent) of the diversified farms had female principal operators, compared with 11 percent of all U.S. farms (USDA: NASS 2005) and 26 percent of all Canadian farms (Statistics Canada 2002).

The breadth of entrepreneurial diversification among respondents was examined using the North American farm enterprise diversification model developed by Barbieri et al. (2008). The analysis found that respondents were engaged in eight types of diversified enterprises, encompassing a wide breadth of entrepreneurial ventures: New Marketing and Distribution (100 percent); Non-Traditional Crops, Livestock, and Practices (71.5 percent); Value-added (64.8 percent); Recreation, Tourism, and Hospitality (51.4 percent); Historic Preservation and Adaptive Re-use (47.8 percent); Expertise, Consulting, and Education (30.2 percent); Leases, Easements, and Time-shares (11.5 percent); and Contracting and Services (7.9 percent). Some of these activities may foster the development of more than one enterprise. For example, the conversion of an historic barn into a wine-tasting room is an historic restoration enterprise although it includes tourism activities. On average, respondents reported activities in 3.8 diversification categories on their farms, confirming simultaneous development of different enterprises already reported in the European literature (Ploeg et al. 2000).

3.2 Motivations behind Entrepreneurial Development

Results reveal a broad range of economic, intrinsic, and market-based goals related to respondents' decisions to diversify their farms (Table 1). The goals with the highest average importance ratings were economic and intrinsic in nature: “generate additional income” (mean=3.85); “continue farming” (mean=3.23); and “enhance personal/family quality of life” (mean=3.02). The varimax-rotated factor analysis performed on the rankings that farmers assigned to 20 different diversification goals resulted in four factors accounting for 51.5 percent of the variance. Overall reliability (Cronbach's alpha) was 0.83 and coefficients within factors higher than 0.50 indicated internal consistency. Two goals, “to generate additional income” and “to qualify for state/federal assistance programs,” were dropped from further analysis since they did not load on any factor; perhaps they were the most and least important goals across all participants, respectively. Each of the factors was assigned a label

Table 1.—Goals behind farm enterprise diversification

Diversification Goals (n=1,135)	Mean ^a	Standard Deviation
Generate additional revenues	3.85	1.54
Continue farming	3.23	1.84
Enhance personal/family quality of life	3.02	1.86
Increase/diversify the market	2.66	1.71
Respond to a market need/opportunity	2.59	1.63
Keep the farm in the family	2.59	1.85
Educate customers	2.55	1.72
Generate revenues from existing resources	2.45	1.70
Generate revenues during off-season	2.26	1.65
Interact with customers	2.16	1.59
Make farm less dependent on outside factors	2.05	1.61
Capitalize on an interest or hobby	2.03	1.50
Reduce impacts of catastrophic events	2.02	1.54
Offset fluctuations in farm revenues	2.01	1.59
Provide a new challenge	1.99	1.51
Provide current customers with new products	1.90	1.45
Enhance ability to meet financial obligations	1.88	1.58
Reduce overall farm debt	1.81	1.52
Provide employment for family members	1.80	1.45
Qualify for a state/federal assistance program	1.19	0.77

^a Based on a 5-point Likert scale where 1 = "not important" and 5 = "extremely important"

based on the nature of the goals that loaded on it: (F1) Firm profitability, (F2) Market Driven, (F3) Family Connections; and (F4) Personal Pursuits.

The seven goals that loaded on the Firm Profitability factor (F1; variance=17.8 percent; eigenvalue= 4.9; $\alpha=.78$) relate to maximizing farm revenues, fostering economic independence from outside factors, and minimizing the economic uncertainty and risk associated with agriculture, including fluctuations of commodities prices and losses from catastrophic events (Table 2). The Market Driven factor (F2; variance=16.1 percent; eigenvalue= 1.8; $\alpha=.75$) consisted of four goals associated in various ways with retaining, serving, and expanding farm markets. The three goals that defined the Family Connection factor (F3; variance=10.13 percent; eigenvalue= 1.3; $\alpha=.61$) relate to strengthening the current and future links of family members with their farmland and the agriculture industry as a whole. The final factor, Personal Pursuits (F4; variance=9.8 percent; eigenvalue= 1.2; $\alpha=.58$) contained three goals that are intrinsic in nature: capitalizing on a hobby, personal challenge, and quality of life enhancement.

3.3 Differences Between Agritourism and Non-Agritourism Entrepreneurs

Respondents were sorted into two different groups according to the enterprises developed on their farms: 1) farms offering any recreation, tourism, or hospitality activity (n=582; 51.4 percent) and 2) farms diversified through other than agritourism entrepreneurial ventures (n=551; 48.6 percent). Three factors were analyzed to identify differences between the groups: 1) motivations for entrepreneurial development, 2) farm household structure, and 3) business structure.

To identify the goals driving diversification of agritourism versus non-agritourism ventures, a composite mean of each factor was calculated averaging the importance ratings of the variables loaded on each factor. ANOVA tests reveal significant differences between the motivations of the two groups and suggest a stronger entrepreneurial drive among agritourism providers. Specifically, agritourism providers are significantly more motivated by firm profitability ($F=41.941, p<.001$), market needs and opportunities ($F=54.318, p<.001$), and family pursuits ($F=84.50, p<.001$) than non-agritourism farm entrepreneurs (Table 3). No significant differences in personal pursuits were found between the two groups.

Table 2.—Rotated factor matrix of the goals behind farm enterprise diversification

Factors and Attractions (n=1,020)	Factor Loadings	Explained Variance (%)	Eigenvalue
Firm Profitability (F1) ($\alpha=.78$) ^a		17.53	4.94
Offset fluctuations in farm revenues	.735		
Reduce impacts of catastrophic events	.705		
Enhance ability to meet financial obligations	.666		
Reduce overall farm debt	.620		
Generate revenues during off-season	.553		
Make farm less dependent on outside factors	.507		
Generate revenues from existing resources	.505		
Market Driven (F2) ($\alpha=.75$)		14.06	1.83
Interact with customers	.713		
Educate customers	.712		
Provide current customers with new products	.635		
Respond to a market need/opportunity	.609		
Increase/diversify the market	.554		
Family Connection (F3) ($\alpha=.61$)		10.13	1.29
Keep the farm in the family	.826		
Continue farming	.673		
Provide employment for family members	.568		
Personal Pursuits (F4) ($\alpha=.58$)		9.81	1.20
Capitalize on an interest or hobby	.712		
Provide a new challenge	.628		
Enhance personal/family quality of life	.610		
Total Variance Explained		51.52	

^a Cronbach's alpha reliability coefficients for domains; overall reliability ($\alpha=.83$)

Farm structure characteristics—including farm acreage, type of agriculture production, on-farm stewardship practices, and location—were examined for agritourism and non-agritourism diversified farms. Location was the only structural farm characteristic found to be associated with different types of diversification. Agritourism farms are generally located closer to a paved highway ($F=5.766$, $p=.017$), an urban cluster ($F=7.327$, $p=.007$), and an urbanized area ($F=4.923$, $p=.027$) than farms with non-agritourism diversified enterprises. These results confirm the finding of previous research (Ilbery et al.

1998) that external stimuli such as place, market proximity, and accessibility influence the goal construction of farm entrepreneurs.

Significant differences were also found in the social and personal attributes of agritourism farmers versus non-agritourism farmers, including gender, type of education, farm household income, and farm household composition (Table 4). Farmers engaged in agritourism are more likely to hold business degrees than other farm entrepreneurs. Very importantly, agritourism providers reported farming/ranching as

Table 3.—Differences in entrepreneurial goal factors between agritourism and non-agritourism entrepreneurs^a

	Non-agritourism (48.6%)	Agritourism (51.4%)	All (100%)	Sig.
F1 - Firm Profitability (n=1,132)	1.86	2.26	2.06	$F=41.941$, $p<.001$
F2 - Market Driven (n=1,127)	2.08	2.57	2.33	$F=54.318$, $p<.001$
F3 - Family Connections (n=1,125)	2.23	2.78	2.51	$F=84.50$, $p<.001$
F4 - Personal Pursuits (n=1,129)	2.28	2.34	2.31	<i>Not sig.</i>

^a Measured on a 5-point Likert scale where 1 = "not important" and 5 = "extremely important"

Table 4.—Comparison of personal and household attributes between agritourism and non-agritourism entrepreneurs

	Non-agritourism (48.6%)	Agritourism (51.4%)	All (100%)	Sig.
Farmer's Gender (n=968)				
Female	40.4%	26.1%	32.7%	$\chi^2=22.618, p<.001$
Male	59.6%	73.9%	67.3%	
Farmer's Education Field (n=908)				
Agriculture related	21.4%	20.5%	20.9%	$\chi^2=11.345, p=.010$
Business related	14.4%	17.8%	16.2%	
Agriculture & business	6.1%	11.4%	8.9%	
Other	58.1%	50.3%	54.0%	
Farmer's Main Occupation (n=998)				
Farming or ranching	61.4%	73.1%	67.6%	$\chi^2=15.659, p<.001$
Other than farming	38.6%	26.9%	32.4%	
Farm Household Income (n=961)				
Less than \$25,000	20.9%	13.3%	16.9%	$\chi^2=19.354, p<.001$
\$25,000 – \$49,999	28.7%	29.3%	29.0%	
\$50,000 – \$99,999	35.2%	32.8%	33.9%	
\$100,000 or more	15.1%	24.6%	20.2%	
Household Farm Attachment (n=1,096)				
First-generation farmers	63.4%	48.7%	55.7%	$\chi^2=24.096, p<.001$
At least second-generation farmers	36.6%	51.3%	44.3%	
Farm Household Composition (n=1,134)				
Adult kids (>21 yrs) living on-farm	28.9%	40.4%	34.8%	$\chi^2=16.564, p<.001$

their main occupation and had adult children living at home more frequently than non-agritourism providers. These results suggest that besides reducing the need for off-farm employment, agritourism may be creating job opportunities for young family members which may, in turn, encourage youth retention in rural areas. The household income of agritourism farmers was also significantly higher than that of other farm diversifiers. No significant differences were found in the farmers' age distribution, level of education, and retirement condition between both groups.

Business structural differences were also found between the two groups. Agritourism farms had more business capabilities in terms of firm network (i.e., number of association memberships) and strategic managerial resources (i.e., availability of business and marketing plans) than other diversified farms (Table 5). Not surprisingly, they also appeared to be more proactive about marketing. On average they used about five (4.9) marketing methods compared to 2.4 employed by other diversifiers ($F=280.959, p<.001$). Since agritourism entrepreneurs assigned

Table 5.—Differences in business structure between agritourism and non-agritourism diversified farms

	Non-agritourism (100%)	Agritourism (48.6%)	All Respondents (51.4%)	Sig.
Business Capabilities				
Number of association memberships (n=1,133)	0.54	0.42	0.65	$F=38.418, p<.001$
Availability of business plan (n=1,025)	35.0%	29.3%	40.1%	$\chi^2=12.986, p<.001$
Availability of marketing plan (n=1,020)	48.5%	40.0%	56.0%	$\chi^2=25.841, p<.001$
Marketing Strategies				
Number of marketing methods (n=1,133)	3.65	2.35	4.88	$F=280.959, p<.001$
Diversification Development				
Number of enterprises (n=1,133)	3.83	2.91	4.71	$F=636.802, p<.001$
Phased entrepreneurial development (n=1,016)	73.4%	57.7%	87.0%	$\chi^2=110.575, p<.001$
Future expansion plans (n=1,133)	24.7%	17.1%	32.0%	$\chi^2=33.768, p<.001$

more importance to firm profitability and market-related goals than other farm entrepreneurs, it was expected that they would also differ in their business managerial and marketing approaches.

Interestingly, agritourism farmers had also developed significantly more diversified enterprises (mean=4.7) than the other diversified farmers (mean=2.9), increasing their offerings to current and potential customers ($F=636.802, p<.001$). These results suggest a synergistic relationship between agritourism and other farm enterprises. Agritourism may be serving as a marketing tool to increase or strengthen awareness and sales of other farm products. The marketing role of agritourism in other farm products and services deserves a closer examination in the future.

4.0 CONCLUSIONS

This study examined differences between agritourism providers and other farm entrepreneurs to consider whether tourism and sociological research efforts should continue independently or be integrated.

The results show that agritourism entrepreneurs are different from other farm entrepreneurs regarding:

- 1) the importance assigned to diversification goals;
- 2) their farm structure in terms of farm characteristics and household composition; and
- 3) business structure in terms of managerial capabilities and marketing strategies.

Differences found between the agritourism and non-agritourism respondents suggest that it is important to continue the scrutiny of agritourism as a unique farm enterprise (tourism research approach). However, business structural differences regarding the simultaneous development of multiple farm enterprises suggest that it is also important to continue examining agritourism as an element of a broader entrepreneurial diversification scheme (agriculturalist research approach) to further investigate the influence of agritourism on other farm products and enterprises.

The findings of this study have important policy and research implications. From a policy development perspective, the findings are important because farm

entrepreneurial diversification has been heavily promoted by several state and federal agencies as a development tool for rural revitalization. Since motivation ratings are different for agritourism farmers versus non-agritourism farmers, efforts promoting diversification should be differentiated depending on the type(s) of farming enterprise. Potential tourism developers, for example, may be more effectively approached with market opportunity arguments than other farm diversifiers. This study also highlights the need to assess differences between agritourism and non-agritourism diversifiers regarding their venture performance. Such research may include, for example, evaluations of the extent to which diversification goals are accomplished, the impact(s) of diversification on farm revenues and profits, and the effects of farm diversification on market share and customer bases.

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NORTHERN VIRGINIA WINERIES: UNDERSTANDING VISITOR MOTIVATIONS FOR MARKET SEGMENTATION

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Abstract.—The wine industry is a rapidly growing sector of Virginia's economy, yet little research has been done on this topic. The purpose of this study was to obtain a better understanding of northern Virginia winery visitors' motivations to help winery operators better focus their marketing efforts. This exploratory research project collected basic information about the preferences, needs, and demographics of winery visitors. Almost two-thirds of the respondents were from Virginia and about 88 percent were Caucasian. Their average age was 40, average education level was an undergraduate degree, and most had an above average annual household income. Most popular motivations for visiting the winery included to enjoy the surrounding scenery and to be with people who shared similar interests. They were most likely to buy a new variety of wine if it was recommended by a friend or if they saw it featured in a wine magazine article. Possible marketing strategies based on the findings are discussed.

1.0 INTRODUCTION

The tourism industry is an important part of Virginia's economy, particularly the wine tourism sector, which attracts more than 300,000 visitors a year (Lewis

2003). This unique sector's growth includes an increasing number of wineries and the expansion of related products, events, and press attention. In 2002, Virginia wineries contributed \$95.7 million to the State's economy through wine production, sales, and tourism-related expenditures (Wine Business Insider 2002). Although the number of wineries and visitors increased in recent years, limited research is available to help winery owners understand current and potential visitors.

Existing information on wineries is varied. Studies targeting wine regions such as New Zealand (Treloar et al. 2004), for example, have found that many younger people prefer other alcoholic beverages to wine. Alant and Bruwer's (2004) research explored a motivational framework based on visitor characteristics, winery profiles, and visit dynamics. They found that repeat winery visitors' primary purpose for visiting was to relax while first-time visitors were seeking a short getaway or leisure activity. There is little available information about the characteristics and motivations of visitors to wine regions in the eastern United States. Therefore, this study was designed to systematically assess those variables.

2.0 RESEARCH PRIORITIES

The purpose of this research was to identify what motivated people to visit northern Virginia wineries. Winery operators who participated in this study were mostly small business owners who have a limited ability to systematically assess visitor characteristics and motivations. This limitation in turn hampers their ability to meet consumer needs and to market effectively. Previously tested measures from Driver's (1983) Recreation Experience Preference (REP) scale were adapted and used in the assessment process.

Because northern Virginia wineries had limited visitor data available, this study was designed to be

exploratory in nature, focusing on three primary goals: (1) identifying visitor demographics, (2) analyzing differing characteristics of current northern Virginia winery visitors, and (3) identifying the motivations of visitors to northern Virginia wineries. These three focal points guided the research, with the ultimate goal of providing winery operators with information about their customers' preferences, needs, and demographics.

3.0 METHODS

Thirty-nine wineries, identified as northern Virginia wineries by the Virginia Wine Association, were invited by email to participate in the study. During October and November 2007, nine of those wineries participated in a half-day study of winery visitors. Researchers spent approximately 4 hours at each winery on Friday, Saturday, or Sunday during anticipated high visitation times. Each visitor was asked to complete a four-page written questionnaire and to return it to the researchers before leaving the winery. A total of 283 people returned completed and usable questionnaires. Nonresponse data were not collected as part of this study.

4.0 FINDINGS

While 62 percent of study participants resided in Virginia ($n = 176$), the wineries also received visitors from as far away as Florida ($n = 2$), Texas ($n = 1$), Colorado ($n = 1$), and Washington State ($n = 1$) (Fig. 1). Respondents were predominantly female (59.9 percent), ranged in age from 21 to 79 (mean = 40.1, standard deviation = 12.3), and had a mean education level of 16.1 years (s.d. = 1.3 years). The majority of respondents identified themselves as white or Caucasian (87.8 percent), 4.4 percent were Black or African American, 3.7 percent were Asian, 0.7 percent were First Nation or Alaskan, and 0.4 percent were Pacific Islander. About 10 percent of the sample did not answer the question about income; of the 90 percent that did, 41.3 percent indicated that their annual income was over \$125,000, 35.5 percent had income between \$75,001 and \$125,000, and 23.2 percent had income of less than \$75,000. Just over 7 percent of respondents were from rural areas, 20.1 percent were from small towns, 12.3 percent were from large towns/small cities, 21.6 percent were from

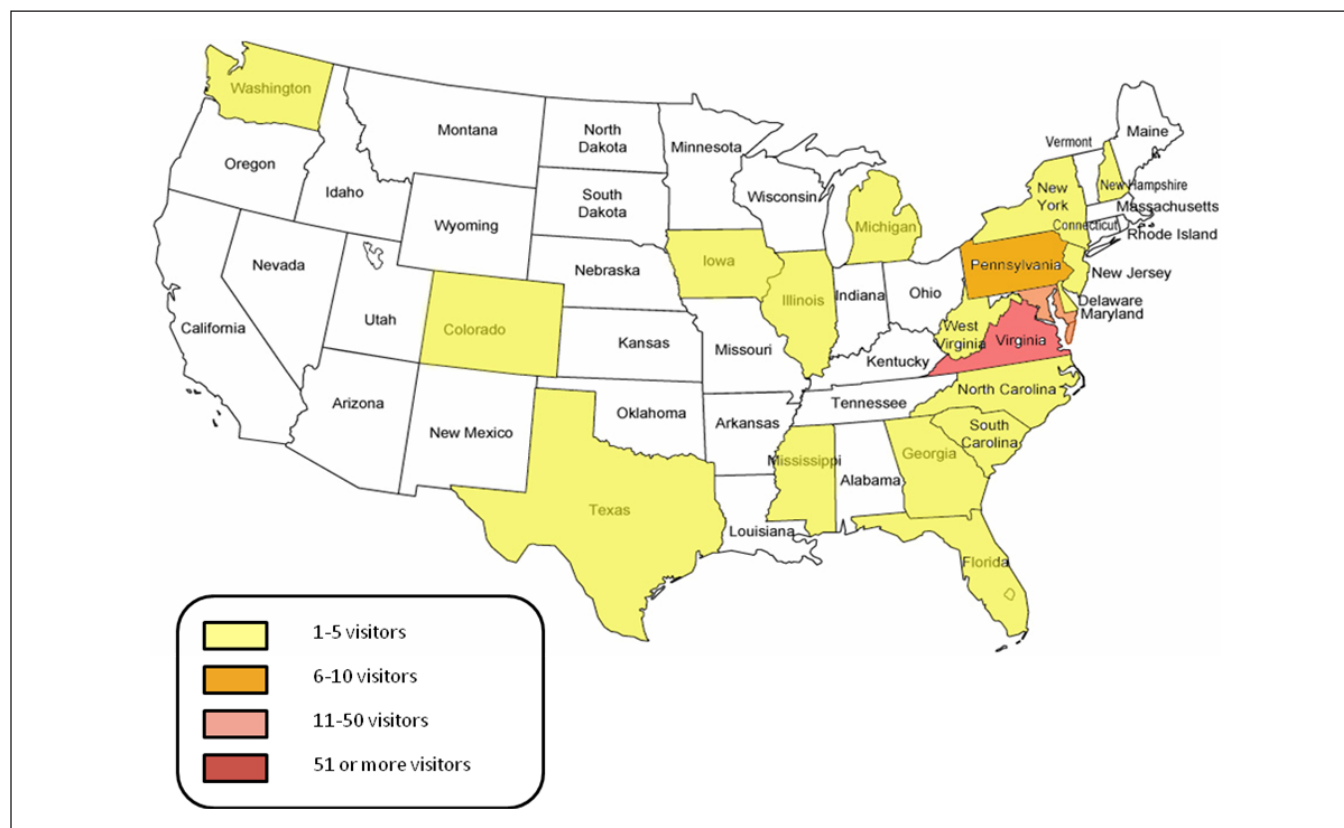


Figure 1.—Study participants' home states.

medium-sized cities, and 39.0 percent were from large cities or accompanying suburbs. Data were examined for demographic differences between visitors to different wineries and no significant differences were found in age distribution, sex, race, income, education, or residence. On the questionnaire, participants were asked to indicate the importance of 12 items adapted from Driver's (1983) REP scale in planning their trip to the winery. Four dimensions were measured and all had acceptable levels of reliability: 1) enjoyment of nature; 2) being with similar people; 3) escape from pressures; and 4) learning about wine (Table 1).

Although respondents indicated that learning about wines was slightly less important to them than the other three motivational dimensions, all dimensions

were moderately important to very important in their decision to visit a particular winery. In addition to their planning for this particular visit, respondents were further asked to indicate their reasons for visiting their favorite Virginia wineries in general. About 56 percent of the respondents (n = 158) identified a favorite winery and identified 10 particular reasons for visiting that winery (Table 2). The top three reasons were "I enjoy the surrounding scenery", "The wines are a high quality", and "There is an enjoyable place to drink a glass or bottle of wine after tasting." This information may be of special interest to winery operators.

Participants were also asked to indicate how much they enjoyed 11 different wine varieties using a 5-point scale, where 1 = "strongly dislike" and 5 = "strongly

Table 1.—Means and reliability analyses for winery visitation preference items and indices

Theorized construct and individual statement	Dimension and Item Means	s.d.	Item-total correlation	α if item removed	Index α
Enjoy nature	2.86				.841
To view the scenery	2.82	.87	.726	*	
To view the scenic beauty around the winery	2.91	.86	.726	*	
Similar people	2.64				.732
To be with people who enjoy the same things I do	2.82	1.07	.552	.657	
To be with members of my group	2.69	1.19	.562	.649	
To be with people having similar values	2.01	1.20	.375	.762	
To be with friends	3.05	1.01	.633	.615	
Escape personal-social pressures	2.62				.819
To have a change from my daily routine	2.58	1.04	.694	*	
To have a change from my everyday life	2.64	.99	.694	*	
Learning	2.24				.851
To become better at wine tasting	1.92	1.12	.782	.770	
To develop my skills and abilities in wine tasting	1.95	1.11	.737	.791	
To experience new and different things	2.57	1.03	.691	.812	
To discover something new	2.51	1.08	.564	.862	

Note that items were measured on a 5-point scale with 4 = extremely important and 0 = not at all important

*Reliability unavailable for a single item

Table 2.—Reasons that a particular Virginia winery is respondent's favorite

It's my favorite Virginia winery because...	Item Means	s.d.
I enjoy the surrounding scenery.	4.65	.75
The wines are a high quality.	4.59	.76
There is an enjoyable place to drink a glass or bottle of wine after tasting.	4.56	.93
It's a relaxing place to visit.	4.53	.79
It's a fun place to visit.	4.41	.83
The tasting room staff is knowledgeable.	4.38	.93
There are many choices of different wines to taste.	4.30	.95
There are additional wineries to visit nearby.	4.10	.96
It's easy to get there.	4.01	1.01
The tasting room is attractively decorated.	3.87	1.03

Note that items were measured on a 5-point Likert-type scale with 1 = strongly disagree and 5 = strongly agree

like.” The varieties listed may or may not have been available at each of the wineries. All of the varieties received positive average scores (i.e., scores above 3, “neutral”). Average scores for the Rosés tended to be near neutral and the Cabernet Sauvignons received the highest average scores (Fig. 2).

When the research project was being designed, winery operators expressed interest in finding out whether there were differences in wine preferences, purchasing characteristics, and/or motivations between men and women or between visitors of different ages. In the data analysis, respondents were grouped into four age categories: 21-30 years old (n=87); 31-40 years old (n=61); 41-50 years old (n=60); and older

than 50 (n=63). Visitors in all age groups reported an approximately equal number of visits to *Virginia* wineries in the past 12 months. However, 21- to 30-year-old visitors reported fewer visits to *any* winery than visitors 41-50 years old. No differences were found between men and women (Table 3).

Visitors purchased an average of two to three bottles of wine ($\mu = 2.79$, $s = 3.16$) at each winery they visited and there were no differences between people in different age groups. Respondents between 21 and 30 years old, however, reported that they were more likely than individuals over 30 to try a new wine based on a friend’s recommendation (Table 4). Women were significantly more likely than men to try

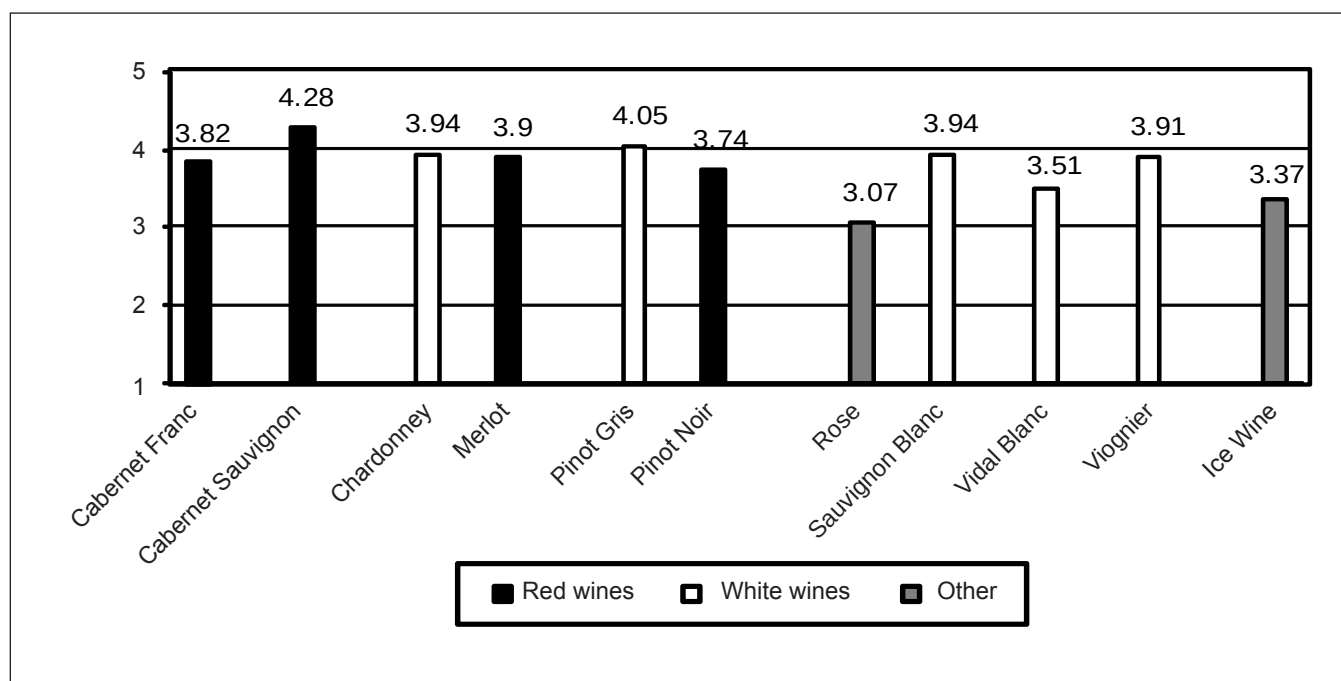


Figure 2.—Average scores for different wine varieties. Note that items were measured on a 5-point Likert-type scale with 1 = strongly dislike, 3 = neutral, and 5 = strongly like.

Table 3.—Respondents’ number of winery visits in the past 12 months by age and gender

Item	Means							Test Value
	Overall	Men	Women	Ages 21-31	Ages 31-40	Ages 41-50	Ages 51+	
Visits to Virginia wineries in past 12 months	5.45							
Visits to any winery in past 12 months	6.95			4.65*	6.52	10.30*	7.04	F = 2.778 p = .006

* Denotes significant differences between groups
Blank cell denotes no significant difference between groups

a new wine based on the attractiveness of the label. Among all identified influences, visitors were most likely to be affected by a friend's recommendation or a wine feature story and least likely to be affected by a salesperson's recommendations.

When asked about their interest in different types of winery-associated clubs, respondents over 50 years old

were significantly less likely ($F=3.156$, $p=.025$) than younger respondents to be interested in a dinner club and less likely ($F=5.339$, $p=.001$) to be interested in winery day tours (Table 5). Women were more likely than men to participate in wine dinner clubs ($t=2.60$, $p=.010$) and more likely to take a chauffeured day tour of a winery ($t=2.72$, $p=.007$). Among all club types, respondents were least interested in cork clubs.

Table 4.—Effectiveness of wine marketing strategies by age and gender

Marketing influence	Means							Test Value
	Overall	Men	Women	Ages 21-31	Ages 31-40	Ages 41-50	Ages 51+	
A friend's recommendation	2.97			3.15*	2.81*	2.93	2.90	$F = 2.859$ $p = .038$
A salesperson's recommendation	2.17							
An attractive display of the new wine	1.54							
An attractive label on the new wine bottle	1.67	1.52*	1.78*					$t = 2.07$ $p = .039$
A feature story on the new wine in a wine-related magazine	2.44							

Note that items were measured on a 5-point scale, where 0 = "Not at all effective" and 5 = "Extremely effective."

* Denotes significant differences between groups

Blank cell denotes no significant difference between groups

Table 5.—Interest in wine-related activities by age and gender

Activity	Means							Test Value
	Overall	Men	Women	Ages 21-31	Ages 31-40	Ages 41-50	Ages 51+	
A wine dinner club	1.95	1.81	2.04	1.89	2.03	2.15*	1.77*	$t = 2.60$ $p = .010$ $F = 3.156$ $p = .025$
A cork club (members collect corks and receive gifts when returned)	1.40							
A case club (members receive discounts on purchases based on annual purchase)	1.90							
Wine-of-the-month club	1.98							
A wine trail (includes collecting stamps for prizes upon completion of trail)	2.05							
A day tour via chauffeured driver	2.18	2.02	2.29	2.26	2.26	2.36	1.84	$T = 2.72$ $P = .007$ $F = 5.339$ $P = .001$

Note that items were measured on a 5-point scale, where 0 = "Not at all interested" and 5 = "Extremely interested"

* Denotes significant differences between groups

Blank cell denotes no significant difference between groups

5.0 CONCLUSION

Almost two-thirds of the survey participants were from Virginia and neighboring states. However, as Virginia wines gain stature within the industry, owners and operators should be prepared to address possible demographic shifts among winery visitors. Study participants' annual incomes were moderate to high, suggesting an availability of discretionary income and, in fact, respondents purchased an average of 2.79 (s.d. = 3.16) bottles of wine during their visits. Although data were not collected regarding other items purchased, it seems clear that visitors generally spent beyond the initial tasting fees.

This research also found that marketing influences did not vary dramatically across visitors of different ages and genders. Women were slightly more likely than men to try a new wine based on the appearance of the label, while women and men 21-30 years old were slightly more likely than all other age groups to try a new wine if a friend recommended it. No differences were found between men and women or by age group in other influential items suggesting that broad marketing strategies for encouraging patrons to try a new wine need not be segmented in order to be effective. One item that was not expected to be strongly influential was magazine feature stories on a new wine. However, results suggest this medium could be as influential as a friend's recommendation. Further, this finding suggests developing a press kit that includes high-resolution photographs and core winery information and pursuing other avenues to connect with the media may be worthwhile marketing strategies.

In terms of wine preferences, respondents tended to prefer Cabernet Sauvignons and were most ambivalent about Rosé wines. This preference does not mean, however, that wineries should limit their production of least preferred wine types; each winery needs to consider the base knowledge of its own visitors and consumers. Rosé wines are often considered an entry level wine (i.e., a wine more enjoyed by a first-time or inexperienced consumer).

Finally, when reviewing overall motivations for visiting a Virginia winery, owners expected to find that visitors were most likely to choose a winery based on the quality of the wine. However, this research found that visitors were most likely to choose a winery based on the surrounding scenery and tended to prefer settings described as natural, scenic, and peaceful. Additionally, it was important for them to be able to spend time with their social groups and to be in a place where they could relax. These preferences were true for respondents from both urban and rural areas and is important for winery owners and operators to consider as they plan for development of their operations.

Suggestions for future studies include broadening the scope of data collection to include the remainder of Virginia as well as other states representing the eastern region of the United States. Sub-regional differences may exist based on wine preferences of consumers and varieties of wine most successfully produced within each sub-region. Further, data collected during peak spring and summer seasons may also reveal differences not captured by limiting data collection to autumn visitors. Future research may also consider tapping into non-winery visiting individuals who consume wine purchased from places other than their local region.

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Keywords: fish and wildlife, environmental attitudes, leisure, recreation, tourism, wildland-urban interface

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