

VISITOR EMPLOYED PHOTOGRAPHY: ITS POTENTIAL AND USE IN EVALUATING VISITORS' PERCEPTIONS OF RESOURCE IMPACTS IN TRAIL AND PARK SETTINGS

Catherine E. Dorwart
Department of Parks, Recreation and Tourism
Management
North Carolina State University
Box 8004 Biltmore Hall
Raleigh, NC 27695
cedorwar@ncsu.edu

Roger L. Moore, Ph.D.
North Carolina State University

Yu-Fai Leung, Ph.D.
North Carolina State University

Abstract.—The purpose of this study was to examine visitors' perceptions and to determine how their perceptions affected overall recreation experiences along a 2.9-mile segment of the Appalachian Trail in the Great Smoky Mountains National Park. A purposive sample of 28 visitors was selected for this study. The study consisted of three parts, including a trail impact assessment of the target trail, a visitor employed photography (VEP) exercise, and a brief post-trip interview. This paper focused specifically on the VEP exercise. After analysis was completed, four perceptual themes emerged: nature-oriented details, scenic values, management influences, presence of other people, and depreciative behavior. We concluded that using VEP could help improve understanding of the relationships among resource impacts, perceptions, and outdoor recreation experiences. In addition, it could be useful to future trail management and supplement other visitor data collection methods.

1.0 INTRODUCTION

Park and trail managers are generally charged with a dual mission, to protect natural resources and to provide for the appropriate public enjoyment of these resources. A significant component of this responsibility is understanding visitors' experiences. Various techniques for collecting data such as surveying, interviewing, and evaluating written material have been used to capture, assess, and understand park and trail visitors' perceptions and experiences. One popular visual method is photo elicitation, which often uses 35mm or computer edited

photographs generated by the researcher to assess visitors' preferences, acceptability of impacts, or standards of quality (Kaplan & Kaplan 1989, Manning et al. 1996, Kim et al. 2003). Visitor employed photography (VEP) is another visual technique that shows promise for outdoor recreation research. Outdoor recreation researchers have used VEP successfully to assess visitors' perceptions of parks and other recreation places, to understand the scenic value of trails, and to explore the processes inherent in participants' outdoor experiences (Cherem & Driver 1983, Cherem & Traweck 1977, Loeffler 2004, Taylor et al. 1995).

Due to VEP's potential for assessing what people find important, it was employed in this qualitative study to examine visitors' perceptions and experiences along a high-use segment of the Appalachian Trail (AT) in Great Smoky Mountains National Park (GRSM). The purpose of this grounded theory study was to understand GRSM visitors' perceptions of a specific hiking trail environment and to determine how their perceptions affected their recreation experiences. The study objectives were to determine the following: Did visitors perceive certain elements and resource conditions on GRSM trails? If so, what was the nature of their perceptions? And, in what ways did visitors' perceptions affect their outdoor recreation experiences?

2.0 BACKGROUND

Many studies of people's evaluations, conceptualizations, and relationships with the natural environment (in particular perception and preference in relation to experiences of nature, landscape, and the environment) have been guided by the landscape perception paradigm. This paradigm provides a framework for explaining how different people form perceptual categories to identify characteristics that are most important in terms of the ways the environment is experienced. The paradigm further helps identify why something (e.g., encounters with others, trail impacts, scenic views, design of the path, social or environmental conditions) will be perceived as negative or positive to the experience.

Ndubisi (2002) clarified that studies of “landscape perception seek to understand human values and aesthetic experiences in order to take them into account in creating and maintaining landscapes that are socially responsible and ecologically sound” (p.197). Central to this ideology is a belief that visitors interpret the environment that they are in, in terms of their needs, and prefer settings in which they are likely to function more effectively (Kaplan & Kaplan 1989). Further, essential to environmental perception research is the recognition that perception is an interaction between humans and environment that is dynamic, inextricably linked to the whole psychology of the observer, and immersed in the environment that is experienced (Taylor et al. 1995).

Therefore, different methods of data collection will be needed to measure these different elements of visitor behavior, meaning, and knowledge. It is crucial to understand the inherent differences in applying each method (Shelby & Harris 1985). Further, in light of varying resources, funding, visitor accessibility, and technologies available, managers and researchers will need to find the best method when collecting data on visitors’ perceptions and experiences.

2.1 Current Methods

A review of the current research related to visitors’ perceptions of recreation impacts found that there are various approaches to collecting visitor data, and demonstrates that there are positive and negative factors associated with each method.

Mailed questionnaires, post-trip interviews, written evaluations, photo elicitation, and videos have been the predominant instruments used to collect off-site data. Research concentrating on visitors’ perceptions has used survey questions regarding hypothetical situations (Shafer & Hammitt 1995), evaluations of written descriptions (Shelby & Harris 1985), and post-visit mail surveys (Noe et al. 1995) to investigate the acceptability of resource impacts. Several have noted that the use of hypothetical survey questions may be a relatively ineffective method because it forces respondents to make judgments separate from actual site conditions, so respondents may interpret different things from the same list of impacts (Kim et al. 2003, Shelby & Harris, 1985). Moreover,

respondents may react to the *idea* of an impact rather than an actual *perception* of the impact (White et al. 2001). Finally, Kim et al. noted that “respondents may also interpret or imagine quite different things, even on the same list of items” (p. 283) when taking a written survey. Therefore, selecting the correct wording is often challenging. All of these issues may limit the validity of findings from written descriptions, post-visit, and mailed surveys. However, such off-site survey methods could be less costly and more convenient, and they can be administered without additional impacts to the resource.

A majority of such studies have employed on-site open-ended interviews (Farrell et al. 2001) and on-site closed-ended surveys (Kim et al. 2003) to assess visitors’ perceptions and evaluations of impacts. Farrell et al. (2001) chose to use open-ended interviews rather than written surveys for the following reasons: first, written surveys may cue visitors to respond “properly” by using words like “destruction,” and second, interviews would allow them to detect important elements of evaluation that would be lost with a written survey. On-site methods are advantageous because they provide the most realistic exposure to the impacts being evaluated. In addition, respondents evaluate the impact while they are exposed to it, which reduces mental processing of impacts. Therefore, it seems probable that on-site methods will produce a more valid, reliable assessment of impact perceptions.

Conversely, scenic views or other site attributes may distract on-site respondents from evaluating specific impacts. Several studies have used a photo survey method to address this weakness of on-site assessments (Kim et al. 2003, Shelby & Harris 1985). Shelby & Harris (1985) explained that “If the goal is to evaluate a specific environmental condition, such as the extent of bare ground, photos...may allow respondents to better focus on that characteristic, without being influenced by other features such as the quality of the view or proximity to water” (p. 59). Using photos may lead respondents to rate their perception of impacts without considering other factors. In addition, respondents do not have to imagine impacts, as they do with a written survey method, so there is less likelihood for error from wording and interpretation (Kim et al. 2003). Photographic

evaluations may also be more economical, timely, and convenient than on-site visits.

Photographs have been used extensively in landscape assessment studies, and have been confirmed as a valid substitute for on-site evaluations (Kellomaki & Savolainen 1984, Shuttleworth 1980). Photographs have also been utilized in recreation management studies to assess crowding norms (Heywood & Murdock 2002, Manning et al. 1996, Manning et al. 2001, Manning et al. 1999). In fact, Manning et al. (1999) suggest that visual presentations of normative scenarios may result in more valid crowding norms. Past studies of recreation impacts have also implied that evaluations of impacts based on photographs are similar to ratings made in the field (Kim et al. 2003, Shelby & Harris 1985). Meitner (2004), who used “surrogate methods” to assess people’s perceptions of scenic beauty (methodological approach was to use different types of photos, 360 degree views, panoramic, slides, etc.), concluded that the use of alternate methods is necessary. He claimed that they are a preferred and cost-effective method of assessing human perceptions and evaluations of natural environments (p. 4). Addressing “representational validity”, he also stated that various studies report high levels of consistency between perceptual judgments and expressed preference based on photos versus direct experiences of landscapes. Although some researchers suggest that photos may allow respondents to better perceive specific features within the landscape, Zube et al. (1974) found that photos were less reliable for the perception of specific features within the landscape. Furthermore, photos cannot display non-visual impacts like odors and sounds, nor can photos adequately represent hard-to-photograph components like overall forest condition (Kim et al. 2003).

However, research has found that VEP, which is a method that takes a camera out of the researcher’s hands and places it into the control of the visitor (participant), actually captures the dynamic perceptual interaction as it happens, without redefining the visitor’s recreation experience. In addition, it may provide better focus on specific impacts and better represent the conditions under examination. Researchers have found that responses stem as directly as possible from the perceptions of on-site visitors (Cherem & Driver 1976, 1983) and VEP has

high potential as a resource tool in terms of reducing experience intrusion (Taylor et al. 1995).

3.0 METHODS

3.1 Site

This study took place in GRSM, located in North Carolina and Tennessee. GRSM is the most visited National Park in the country and one of the most threatened, appearing on the America’s Ten Most Endangered National Parks list for six consecutive years (NPCA 2006). Nearly all of the 800 square miles of forested parkland within this International Biosphere Reserve and World Heritage Site are proposed as designated wilderness, and are therefore managed for “unimpaired” resources and outstanding opportunities for primitive and unconfined recreation. The park’s trail system is essential in both these regards, providing visitors with a diversity of recreation experiences depending on interest, level, and outcome desired. Therefore, within this park, a 2.9-mile segment of the AT headed north out of Newfound Gap was selected that exhibited the following criteria: a single-track natural trail with a variety of resource conditions, well traveled, scenically beautiful, and allowing for a variety of uses.

3.2 Sample

A purposive sample (using theoretical sampling methods) of 28 AT day hikers headed north out of Newfound Gap were asked to participate in the study. Participants were intercepted at the trailhead during September and October 2005. Only those participants who planned to hike up and back along the 2.9-mile stretch between the Newfound Gap Trailhead and Icewater Spring Shelter that day were chosen.

3.3 Instruments

The VEP method employed was adapted from previous studies (see Kim et al. 2003, Lynn 2000, Taylor et al. 1995) and entailed having participants take pictures along the trail, documenting information about their pictures and experiences in a log, and participating in an interview after they finished their trail trip. Once the park visitor agreed to participate, he/she was given a disposable 24-exposure digital camera, and asked to photograph those elements/features of the trail environment that added to or detracted

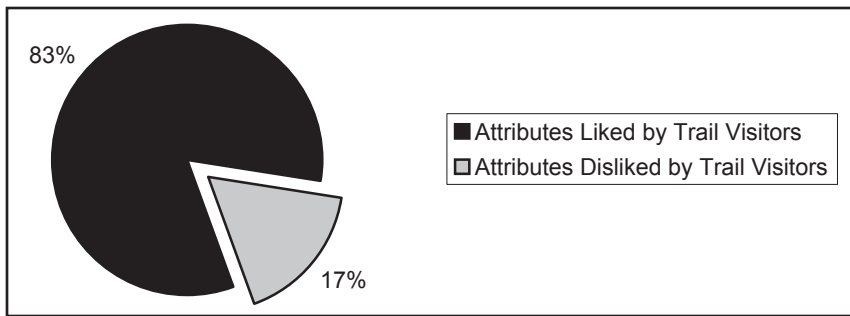


Figure 1.

from the quality of their experience. The goal was to capture images of those elements or locations in the trail environment that had the strongest effects on the quality of the participant's trail experience. In addition, each participant was given a "Photograph Log Booklet" and asked to record details for each photo that related to their general experience on the trail. Specifically, the photograph log asked such questions as: What element/feature of the trail environment did you photograph? Describe why you selected this element/feature of the trail environment to photograph. Describe what type of effect this element/feature of the trail environment had on your overall experience. This provided the researcher with the photographers' intentions regarding the objects photographed. After each participant returned from the hike, he/she was asked to turn in the camera and answer several open-ended questions related to their trip. A general interview guide approach was used (Patton 1990) and the answers to these questions were recorded. The semi-structured interviews supplemented the VEP assessment and led to richer and thicker descriptions of each participant's experience. After visitors completed their journals and interviews, they were asked to fill out a brief note card which asked them how many times they visited the park, their level of income and education, their age, and whether they were willing to be contacted for follow-up questions.

3.4 Data Analysis

Data analysis involved constant comparison (journals) and content analysis (photos) based on work by Strauss and Corbin (1998) and Henderson (1991). Once the data sets were compiled, the researchers began a process of constant comparative analysis, which involved open and axial coding. In open coding, the researchers formed

initial categories of information about the visitors' perceptions and their outdoor recreation experiences. In each category, properties or subcategories were located and several properties emerged. Next, the data were coded using axial coding, through which we began to identify central themes. Finally, enumerative strategies were used to supplement descriptive data resulting from analysis of the journals (Henderson 1991). Photos were divided into two piles based on whether the participant had indicated in their photo log that the elements photographed were positive or negative. Then each group was organized, based on themes. In addition, pictures were coded and numbered (noting how many times certain elements came up in each picture) so that the investigators had an idea of how many times each theme was photographed. The investigators also coded and counted data within each photograph to see which attributes of the trail (i.e., scenic vistas, fallen trees, exposed tree roots, people, etc.) were photographed most often. These attributes were then categorized.

4.0 RESULTS

In general, study participants were well educated, came from households with a high income level, and were first-time users of this part of the AT. Thirteen of the participants were male, and fifteen were female. Analysis of the photographs ($n=274$) and photo logs ($n=28$) found that participants noticed both negative and positive aspects of the trail environment. In addition, 83 percent of the pictures taken contained attributes that visitors liked and 17 percent of the pictures contained attributes that were disliked.

Interestingly, in both sets of photographs (those that reflected attributes that visitors liked and disliked), the

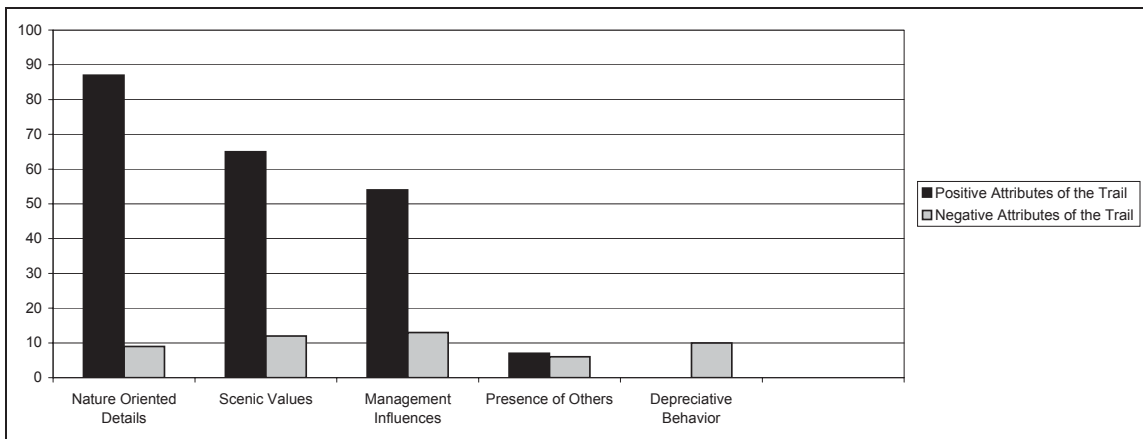


Figure 2.

same perceptual themes emerged—nature-oriented details, scenic values, management influences, presence of other people, and depreciative behavior. These elements were organized in order—from the element that was captured most often in the pictures to the element that was least photographed by visitors along the trail. However, from analysis of the transcribed photograph logs we found that noticing these attributes did not detract significantly from the participants’ overall outdoor experiences.

These findings were consistent with past trail perception and preference research, which found that people prefer trails that are compatible with the natural surroundings and that perceptions of only *certain* aspects of the trail environment affect experiences.

4.1 Themes

As noted above, after an analysis of the photograph logs and photographs was completed, several themes emerged from the data. These themes are explained in greater detail in the following sections.

Nature-oriented Details

Whether hiking alone or with a group, each participant given a camera during the day-hike overwhelmingly noticed nature-oriented details such as plants and wildlife. This is consistent with Kaplan and Kaplan (1978), who found that most people prefer settings that are “green” and that nature content is an important characteristic of preferred scenes. This was reflected in subjects’ pictures as well as through an analysis of the photograph logs. These

photographs were supplemented by themes emerging from an analysis of the logs. When asked what they were photographing and the type of effect seeing these elements had on the recreation experience, one couple noted their appreciation of the “flowers and bees...nature working its lifecycle” and the “calming” effect that perceiving these elements had on their visit. Two middle-aged women also noted the positive effect the plants had on their experience. “Dead tree with mushroom [and] moss...[which was] allowing dead growth to support existing growth - ecosystems” was reminiscent to them of “how nature wanted it to be.” In addition, two women in their late 20’s found solace in the “green ground cover [and] moss in roots of the tree” because it was “so delicate in texture...brilliant green [and] soft.” They noted, “It is the simple small parts of nature that we are amazed by even in a large massive forest.”

The same nature-oriented details (that so many visitors found to have a positive affect on the experience) contrarily had a negative effect on others. For instance, one young couple claimed that the “dead tree [and] moss” had a negative effect on their experience because they “did not like the formation” and that it created a “bad view.” Similarly, a young mother visiting with her family wrote that seeing a natural “cave” was a negative experience because it made her a “little scared because [she] wasn’t sure what was living in it.”

Scenic Values

It came as no surprise that the number one reason that people were taking a day-hike along the Newfound Gap

trail was for the scenic views. As previous research has found, visitors prefer scenic vistas, restorative settings, and sites along the water's edge. These elements seem to affect the perception of visitors' surroundings and of the trail environment or landscape. Therefore, this was the second most photographed element. One middle-aged male hiker—who had once visited this trail many years ago—found joy in the “high altitude vistas” writing, “It’s one of the reasons I chose this hike [for the] inspiration (hey I’m a pastor—inspiration is my business).” An older gentleman agreed. It is the “vista with [the] clouds... beautiful expansive views [I am] in awe...unfortunately you can hear the vehicles on the road below.”

This contradictory type of response was prevalent, because though each participant appeared to love the views, such negative aspects as perceiving invasive species, woolly adelgid damage, pollution or smog, and acid rain came up often in their logs as negative aspects of the view. For instance, one man wrote seeing both the “view and haze” had a positive and negative affect on his experience. “Hiking for views is an important part of [the] Smokies experience. [I] love the views but [am] concerned about the air quality.” Similarly, two female science teachers were deeply disturbed by the dead trees. “I hate to see the dead trees because they are dying from disease” they noted. “[We] are sad and concerned for the future use of the forest.” Thus, perceptions of the same scenic elements along the trail emerged as both positive and negative contributors to visitors' experiences.

Management Influences

The third theme to emerge was an overwhelming perception (and often an appreciation) of trail and park management practices along this 2.9-mile stretch of the AT. One male hiker enthusiastically wrote next to his picture, “Shelter at Icewater Spring...very nice...I’ll be back to camp!” Another participant recorded, “Stairs on a long uphill stretch...somebody went to the trouble and expense of trail maintenance.” He appreciated the “ease of use and safety” and the erosion control. Similarly a young couple photographed “natural steps” because they “liked the natural rock formation incorporated into [the] trail.” It left them “pleased” with the experience.

As with other themes, the same elements that some hikers found positive were those that left others with a less than perfect experience. For instance, one participant was frustrated when he got lost, noting the lack of “white blaze markers...I found myself looking for them when unsure of trail direction.” A family agreed writing, “Signs...lack of info...we went the wrong way.” They further recommended that better marked trails would increase “ease of use and [lead to] less frustration.” Visitors' experiences were also affected by the “log stairs [which]...detracts from [the] natural trail.” In accordance, two young males found that the stairs were “too many...too close together.”

Presence of Others

There has been a significant amount of research on the effects of encountering others during a recreation engagement. Studies on recreation conflict often take into consideration visitors' perceptions and preferences when assessing recreation experiences. Analysis of the pictures and reflections found that people were almost equally split between whether seeing others had a positive or negative effect on their experience. One middle-aged couple noted the positive experience they attained from seeing others. “Friendly hikers, people you meet...what’s not to like about the AT,” they wrote. The two female science teachers appreciatively noted “backpackers...hot hikers...people getting away from crowds and taking advantage of the park...wow, I’m always impressed with backpackers!”

However, many visitors had a negative experience noticing other people on the trail. This may be because visitor conflict is often asymmetrical (one group consistently reports that it has a conflict with a competing group all or most of the time; and conversely the competing group reports experiencing little or no conflict) (Hoger & Chavez 1998). Another reason that visitors may have had these contradictory experiences may be their attitudes and norms. “The social power of a norm is a function of the interaction between the cognitive component (expectations about behavioral standards and/or obligations) and the emotional component (the costs or benefits of sanctions for the behavior)” (Heywood & Murdock 2002, p. 284). One

lone hiker claimed that “people [had a] substantial effect on the wilderness experience” and that he “would prefer to encounter fewer people” during a hike on the AT. Another young couple had a similar perception, writing “People...every other minute you run into other people [there is] no seclusion or privacy,” indicating possible crowding problems. A middle-aged woman also did not like all the people, stating, “People ‘hiking’ on [the] trail aggravated the experience.” This led to a negative experience with “impatient hikers ‘pushing’ [her] along the hike.”

Depreciative Behavior

Unlike the other four themes, this theme was the only one that included pictures, comments, and attributes that were all negative and wholeheartedly disliked on the trail. Elements that were included in this theme also had only a negative effect on visitors’ experiences. This finding supports previous research on trail and park research. In their study, Roggenbuk et al. (1993) found that such factors as damage to trees, noise, and litter influence the wilderness experiences. Visitors in their study rated site impacts as having more of an influence on their wilderness experiences than encounters with others on the trails. Similarly, Lynn et al. (2003) discovered that litter, tree and plant damage, and fire rings were all noticed by hikers, and had the greatest effects on hiking experiences.

One male relayed his disgust with some people’s actions by including a photograph of a “tree used as a bathroom...[noting] it definitely affected my experience today...Some guy had just stopped to crap about 6 feet from the trail and it reeked!” Another participant wrote that seeing a “water bottle in the brush...it shouldn’t be there...it’s discouraging to see people can’t carry their trash out with them,” negatively affected her experience. Finally, two middle-aged women photographed a “cigarette butt on [the] trail” explaining, “people should leave no trace behind—it is a nuisance when people are smoking on the trail.”

5.0 DISCUSSION

This analysis of visitor data initiates the process of asking whether VEP is a viable approach for capturing visitors’ perceptions and experiences and for assessing what it

is that visitors find important during their park visits. We feel that these are questions that all researchers need to ask themselves before undertaking a visitor behavior study. Researchers have found that using this method alone or with other qualitative methodologies such as interviews or participant observations can illuminate dynamics and insights not otherwise found through other methodological approaches (Clark-Ibanez 2004). We concur, and found that the use of respondent-generated photographs and photo logs were keys to gathering perceptions and to the memory of the park experience (Taylor et al. 1995). We also found that using this approach empowered the interviewees and produced richer data. While there is a large body of knowledge on biological and physical assessments of recreation impacts, very few studies have examined visitors’ perceptions of the trail environment and how resource conditions affect visitor experiences. However, information on visitor perceptions is integral to carrying out both parts of the National Park Service’s mandate. By understanding visitors’ perceptions of resource conditions, managers will be better able to identify the most critical areas in the system and prioritize trail resource elements or conditions to be addressed. In addition, it could help managers with the design of future trail systems.

In conclusion, this method shows great potential in capturing this information and could be a powerful approach in the future when combined with other methods such as surveys or interviews. When the social/human dimension was introduced into the predominantly hard science field of natural resource management, we created an opportunity for integrating qualitative approaches into our research. Further, mixed-methods research can be used to develop integrated research that actually addresses the questions visitors, managers, and researchers are asking. Introducing qualitative research into integrative research creates thicker descriptions and richer data, and addresses different questions from quantitative data. Research that combines both approaches can provide more valuable data in guiding future management. Further research is needed that integrates information on visitors’ perceptions, the measurement of actual resource conditions, and the effects of perceptions on outdoor recreation experiences. This study could serve as a basis

for future research focused on the development of a conceptual model for measuring these aspects and for guiding management strategies.

6.0 CITATIONS

- Cherem, G.J.; Driver, B.L. 1983. **Visitor employed photography: A technique to measure common perceptions of natural environments.** *Journal of Leisure Research.* 15: 65-83.
- Cherem, G.J.; Traweek, D.E. 1977. **Visitor employed photography: A tool for interpretive planning on river environments.** In: proceedings of river recreation management and research. St. Paul, MN: GTR-NC-28. U.S. Department of Agriculture, Forest Service, North Central Research Station: 236-244.
- Clark-Ibanez, M. 2004. **Framing the social world with photo-elicitation interviews.** *American Behavioral Scientist.* 47(12): 1507-1527.
- Farrell, T.; Hall, T.; White, D. 2001. **Wilderness campers' perception and evaluation of campsites impacts.** *Journal of Leisure Research.* 33(3): 229-250.
- Henderson, K. 1991. **Dimensions of choice: A qualitative approach to recreation, parks, and leisure research.** State College, PA: Venture Publishing, Inc.
- Heywood, J.; Murdock, W. 2002. **Social norms in outdoor recreation: Searching for the behavior-condition link.** *Leisure Sciences.* 24: 283-295.
- Hoger, J.; Chavez, D. 1998. **Conflict and management tactics on the trail.** *Parks & Recreation.* 33(9): 41-51.
- Kaplan, R.; Kaplan, S. 1989. **Experiencing nature: A psychological perspective.** Cambridge: Cambridge University Press.
- Kellomaki, S.; Savolainen, R. 1984. **The scenic value of forest landscape as assessed in the field and the laboratory.** *Landscape Planning.* 11: 97-108.
- Kim, S.; Lee, C.H.; Shelby, B. 2003. **Utilization of photographs for determining impact indicators for trail management.** *Environmental Management.* 32(2): 282-289.
- Loeffler, T.A. 2004. **A photo elicitation study of the meanings of outdoor adventure experiences.** *Journal of Leisure Research.* 36(4): 536-556.
- Manning, R. 1999. **Studies in outdoor recreation: Search and research for satisfaction (2nd ed).** Corvallis, OR: Oregon State University Press.
- Manning, R.; Lime, D.W.; Freimund, W.A.; Pitt, D.G. 1996. **Crowding norms at frontcountry sites: A visual approach to setting standards of quality.** *Leisure Sciences.* 18(1): 39-59.
- Manning, R.; Morrissey, J.; Lawson, S. 2005. **What's behind the numbers? Qualitative insights into normative research in outdoor recreation.** *Leisure Sciences.* 27(3): 205-224.
- Manning, R.; Newman, P.; Valliere, W.A.; Wang, B.; Lawson, S. 2001. **Respondent self-assessment of research on crowding norms in outdoor recreation.** *Journal of Leisure Research.* 33(3): 251-271.
- Manning, R.; Valliere, W.A.; Wang, B.; Jacobi, C. 1999. **Crowding norms: Alternative measurement approaches.** *Leisure Sciences.* 21(2): 97-115.
- National Park Conservation Association. 2006. **Across the nation: America's 10 most endangered national parks.** Retrieved on June 9, 2006 from http://www.npca.org/across_the_nation/ten_most_endangered/
- Ndubisi, F. 2002. **Ecological planning: A historical and comparative synthesis.** Baltimore: Johns Hopkins University Press.
- Noe, F.; Hammitt, W.; Bixler, R. 1997. **Park user perceptions of resource and use impacts under varied situations in three national parks.** *Journal of Environmental Management.* 49: 323-336.

- Shafer, C.S.; Hammitt, W.E. 1995. **Purism revisited: Specifying recreational conditions of concern according to resource intent.** *Leisure Sciences*. 17(1): 15-30.
- Shelby, B.; Harris, R. 1985. **Comparing methods for determining visitor evaluations of ecological impacts: Site visits, photographs, and written descriptions.** *Journal of Leisure Research*. 17(1): 57-67.
- Shuttleworth, S. 1980. **The use of photographs as an environmental presentation medium in landscape studies.** *Journal of Environmental Management*. 11: 61-76.
- Stewart, W.; Floyd, M. 2004. **Visualizing leisure.** *Journal of Leisure Research*. 36(4): 445-460.
- Strauss, A.; Corbin, J. 1998. **Basics of qualitative research: Techniques and procedures for developing grounded theory.** Thousand Oaks, CA: Sage Publications.
- Taylor, J.G.; Czarnowski, K.J.; Sexton, N.R.; Flick, S. 1995. **The importance of water to Rocky Mountain National Park visitors: An adaptation of visitor-employed photography to natural resources management.** *Journal of Applied Recreation Research*. 20(1): 61-85.
- Vining, J.; Orland, B. 1989. **The video advantage: A comparison of two environmental representation techniques.** *Journal of Environmental Management*. 29: 275-283.
- White, D.; Hall, T.; Farrell, T. 2001. **Influence of ecological impacts and other campsite characteristics on wilderness visitors' campsite choices.** *Journal of Park and Recreation Administration*. 19(2): 83-97.
- Zube, E.H.; Pitt, D.G.; Anderson, T.W. 1974. **Perception and measurement of scenic resources in the southern Connecticut River Valley.** (Pub. R-73-1, 191 p.) Amherst, MA: Institute for Man and His Environment, University of Massachusetts.