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Northeastern Recreation Research Symposium Policy Statement

The Northeastern Recreation Research Symposium seeks to foster quality information exchange between recreation, tourism, and resource managers and researchers throughout the Northeast. The forum provides opportunities for recreation and tourism research managers from different agencies, state, and government levels, as well as those in the private sector to discuss current issues, problems, and research applications in the field. Students and all those interested in continuing education in recreation and tourism management are particularly welcome.

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Proceedings of the 2001 Northeastern Recreation Research Symposium

April 1-3, 2001



On Lake George in Bolton Landing, New York

Compiled and Edited by:

Sharon Todd

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Keynote Address

MAKING RESEARCH MORE RELEVANT: GIVE IT A TRY!

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Abstract: Barriers to research use are common to most scientific disciplines and areas of investigation. This paper addresses three interrelated issues to enhancing the effectiveness of science to aid decision making specifically to outdoor recreation, leisure and tourism: (1) clearly defining and framing research problems, (2) enhancing the flow of research findings to those who need them, and (3) enhancing education and training of researchers and practitioners. Suggestions are offered to help deal with these and related barriers.

Introduction

Problems concerning the effectiveness and utilization of research associated with leisure, outdoor recreation, and tourism are neither a new topic nor a problem unique to these areas of inquiry. Academic and research institutions engage in continual dialogue with both private and public sector administrators to enhance applications of research and related information-gathering activities.

The purpose of this paper is to provoke dialogue among researchers and users of research about enhancing the effectiveness of science to aid leisure, outdoor recreation and tourism decision making. No pretense is made that the author will address all the salient issues germane to this topic nor that the issues addressed are covered to their entirety. The intent is to identify some key issues that serve as barriers to achieving the greatest application of research.

In no particular order or relative importance, three issues are addressed:

1. Clearly defining and framing research problems,
2. Enhancing the flow of research findings to those who need them, and
3. Enhancing education and training of researchers and practitioners.

Of course, these issues are interrelated and tied to other variables impacting research utilization.

Most barriers to effective research application are not unique to the leisure, outdoor recreation and tourism field. Many are self-evident and have been addressed in many writings (e.g., Cole & Cole, 1967; Schweitzer & Randall, 1974; McCool & Schreyer, 1977) at conferences, symposia and workshops (e.g., McCool & Cole, 1997), and in academic classrooms and continuing education sessions (e.g., Anderson et al., 1995). Deliberations at the eleven Northeast Recreation Research (NERR) Symposiums have explored these issues as well.

Research use is impeded at both a macro- and micro-scale level. At the macro-scale, institutional constraints often separate the cultures of the research community and the users of research and other data (hereafter referred to as managers). For example, the reward system for researchers is often tied to the number and perceived quality of refereed publications, "pure" or theory-based research rather than research focused on problem solving and application of research findings, statistics rather than data interpretation and peer recognition in a specific academic or professional discipline. For many researchers or their supervisors, refereed publications are of greater value and count more than applied products. Arguably, many applied projects, while valuable, do not lend themselves well to refereed outlets. Further, many in the academic community are under pressure to obtain funding for graduate students and/or enhance the reputation of their program, sometimes at the expense of effective administration and oversight when their "plate is full."

Managers on the other hand often view research as "ivory tower play" not likely to be useful. Managers are frequently not evaluated or rewarded on the basis of project management for using research or data once it is collected, analyzed and delivered to them. They often do not actively interact with the research community or keep abreast of the scientific literature (like many researchers as well). However, the broadening participation of managers and researchers at the NERR Symposium and other similar gatherings (e.g., Jacobi & Manning, 1996) may demonstrate a growing interest in dialogue and potential collaboration.

At the micro-scale, researchers and managers need to work on communication skills and dialogue to define and frame researchable problems better, and to work collaboratively in problem solving so new information can be analyzed and critiqued and conclusions drawn. While researchers may or may not be involved in shaping decisions, they can help synthesize data into a format that is easily understood and displayed for interpretation. To accomplish such lofty goals requires time and energy spent by both groups in developing mutual interest and respect as well as learning the language representing each other's perspective and discipline. Developing interpersonal relationships is essential in doing so.

Of course, not all research is directly applicable to solving particular resource or management problems. Some theory-based research investigations enhance the knowledge base of a particular discipline, issue or general phenomena. Nevertheless, such research does have a clientele. And a particular group of researchers at some point should be expected to use their findings and contribute to the resolution of real world problems. For example, while basic advances in geographic information system (GIS) technology and interactive computer capabilities might be defined as theory-based research, what is learned has exciting potential to contribute to new and innovative online information systems (e.g., the Internet) that tourists can use to plan travel itineraries and learn about resources and opportunities of specific

locations (e.g., Buhalis, 2000; Lime et al., 1995; Lime et al., 1996; Sheldon, 1997). Commercial and public sector providers are greatly increasing their use of such technologies as well.

Some problems do not require formal research and may be solved through knowledge and experience of managers. Nevertheless, the science community can resolve some problems by contributing to literature reviews and documenting the state-of-knowledge on particular issues. Such activities may lead to the identification of information gaps and important research needs (e.g., Lucas, 1987; Lime, 1996; Lundgren, 1996; Cole et al., 2000; Fulton et al., 2000a; Mattson & Shriner, 2001).

Clearly Defining and Framing Research Problems

Dialogue with researchers and managers, along with various writings (e.g., Bardwell, 1991), frequently confirms that problems and research questions are not well defined. In example after example, participants in research projects lament that often it was not clear what managers wanted to know and/or that researchers did not reaffirm the research question or frame the question in a way that could be effectively investigated. According to Bardwell's (1991) provocative investigation of problem-framing and problem-solving, managers all too often engage in inadequate problem exploration. Bardwell reports on an Interaction Associates (1986) study of problem-solving tendencies which suggests that 90 percent of problem solving is spent: (1) solving the wrong problem, (2) stating the problem so it cannot be solved, (3) solving a solution, (4) stating problems too generally, and (5) trying to agree on the solution before there is agreement on the problem.

How a problem is defined and framed dictates the research direction and whether or not the data generated ultimately will be used in problem solving. In many respects, problem definition is the most important and critical component of a research project. But does this aspect of science receive the emphasis necessary to solve problems? Probably not! Research partners often devote a disproportionate amount of their budget, energy and time to research methods and the actual conduct of the research at the expense of clearly defining and framing the research question(s) before the research gets underway. In such cases managers may come away from a project saying, "That's not what I wanted!" or "I thought I was going to get . . . !" As the *real* problem begins to emerge after the research is underway, researchers may report, "That kind of data isn't possible from this study!" or "To get that, we'll need to do another study!"

Over forty years of research and management to operationalize the carrying capacity concept illustrates the frustration of inadequate problem definition and problem framing. Concern for various issues related to tourism and outdoor recreation impacts has led to discussions of, "How many is too many?" Such thinking is frequently driven by the notion that *visitor numbers* or *amount of development* is the primary force behind the carrying capacity approach and that restricting or limiting human use to some "magic number" is the solution for unacceptable impacts.

By more appropriately reframing the "How many is too many?" question to identify the *desirable or appropriate conditions* for a particular location or region, analysts concerned with unacceptable impacts can more effectively address their "real" problems. Once these challenging questions are answered, then it is appropriate to explore the realities of various management actions to evaluate if they indeed resolve the problems of concern. One such practice may be to limit or restrict the amount or type of use, but until systemic and structural questions are addressed, operational questions, such as the selection of management tools or actions to use for a particular situation, must be delayed (McCool & Lime, in press; Anderson et al., 1998). As such, a systematic process is employed that separates value judgements of *what ought to be* from the more prescriptive judgements of *how to accomplish* desired goals and objectives. Several planning frameworks, including Limits of Acceptable Change (LAC) (Stankey et al., 1985; McCool, 1994), Visitor Impact Management (VIM) (Graefe et al., 1990), Quality Upgrading and Learning (QUAL) (Chilman et al., 1990), and Visitor Experience and Resource Protection (VERP) (USDI, National Park Service, 1997), all call for the formulation of specific management objectives by specifying indicators and standards of quality. Monitoring activities are further required to assess when carrying capacity has been reached or exceeded. Management direction is then deployed to ensure that standards of quality are not violated.

Improving problem definition and problem framing calls for a shift in focus or way of thinking in which more emphasis and energy is directed to defining the specific problem(s) concerning an issue and framing the problem(s) so data or information needs can be articulated to guide the research. Without agreement on the problem, how is it possible to agree on the course of action to address the problem--and ultimately to agree on a solution! In situations where there is assumed agreement that the nature and scope of the problem is self-evident and a certain course of action will be needed to resolve that problem, we easily can become frustrated once into the research and later conclude that we are investigating a solution in search of the problem!

What are some approaches, activities or suggestions to enhance problem identification and framing?

- *A team approach: field manager-researcher partnership to foster communication, collaboration, understanding and buy-in.* Field level managers (e.g., at a park, forest, resort, refuge) need to be key players in project negotiations with the researchers to form a partnership from the get-go. Often, field managers are left out of the loop in identifying research needs because state, regional or national offices strongly dictate research direction and focus. While such an approach can be appropriate for many research questions, resource-specific needs are often best conceptualized and ultimately driven from field locations.

If possible, managers should be actively involved in data collection and analysis to foster ownership in a

project and commitment to seeing the results utilized. Meetings or other forms of active communication are necessary to develop and refine issues and plans. Building such understanding will have the most impact on the specific direction the project takes. The product(s) of such negotiations should be clear and produce a specific understanding of what the manager wants to know and what are the data needs to answering those wants and meeting expectations.

- *Problem analysis before the research begins.* As part of the problem definition and framing of research questions, a careful analysis of the problem is necessary. Perhaps for some projects much more emphasis should be placed on treating the problem analysis as a separate task in the research process. For example, once a manager identifies a general problem or issue, a researcher or research team in collaboration with managers could conduct a state-of-knowledge review to ascertain what is known and not known about the topic. The activity probably should be funded as an independent exercise and the results used to decide if further research is warranted. This approach would suggest such a task could be deployed through an independently conducted analysis by an individual or small group, by a team effort (e.g., Lime et al., 1985; Stankey et al., 1985), or in a workshop setting with a formal collection of published papers (e.g., Lime, 1996; Gregersen et al., 1996; Fulton et al., 2000b). While such an approach might require additional project management and review, it very likely could lead to a more thoughtful articulation of specific problems, a translation of the problems into clearly framed issues or hypotheses and guard against a premature commitment to an array of research activities and funding that might not be necessary at this time. Additional research might be postponed or canceled, thus saving limited resources for other priority uses. On the other hand, the analysis might uncover critical new information needs and shift the research accordingly.

Both suggestions call for management systems in which various management levels are committed to and held accountable for generating information that will find its way into an evaluation and potential implementation process. Resources need to be allocated and responsible employees formally directed to make necessary commitments throughout the life of a project.

Enhancing the Flow of Research Findings to Those Who Need Them

Deciding how to package and deliver the results of research and other information-gathering activities to managers can be frustrating. And what is done may not always result in the most useful products. The problem is neither new nor confined to those in the outdoor recreation, tourism and leisure fields. Adequate reporting of research-related activities falls on the shoulders of both researchers and managers. Funding is often limited or nonexistent for researchers to disseminate their results beyond a basic set of products. Researchers are often not required to produce

more than a basic technical report. A summary of major findings and possible implications may or may not be required.

Managers responsible for overseeing a particular project may not be especially knowledgeable of the research discipline or particulars of a study. They can become intimidated by the jargon used by researchers and/or the nature and scope of a project. Sometimes project management of research becomes an "additional duty as assigned." Frequently project management suffers when an individual has dozens of projects to track and cannot keep up with the administrative responsibilities and oversight. A manager may become reluctant to say "No" to making payments for progress that seems less than complete, or to change or guide the focus of a project. If manager involvement has not been an ongoing responsibility throughout the project, then it will be increasingly difficult to keep current on project details and ensure the work is progressing as planned and the researcher is held accountable. As noted in the previous section, research use remains hampered if managers are not significantly involved in the project, cannot formally allocate or readjust their time effectively to meet responsibilities, and are not held accountable by their superiors for their participation. Upper-level management support and commitment to use the research is extremely critical, as well. Of course, use of the research does not imply *carte blanche* acceptance and deployment of research implications. It seems to imply, however, that the findings would be part of a deliberation and decision making process.

What are some approaches, actions or suggestions to enhance the packaging and delivery of research findings?

- *A final technical report is not enough.* Delivering a final report without some face-to-face dialogue with users of the report may insure very limited review and use. In such cases the reports may be shelved or filed away with the recipient having little idea what the study *means!* Of course, if this is all the recipient of the research wants, the researcher must comply and move on.
- *Quarterly reports, final technical report, summaries, formal publications and meetings.* Depending on the nature and scope of a project, maximum learning, utilization and accountability requires that these five types of reporting mechanisms be required for all research endeavors. In each case, funding should be provided, perhaps for each task independently, to accomplish these activities. Seemingly, and all too often, funding for these activities are not included or are sorely inadequate because of limited funds—the funds are for the research! But, without these activities the chances of success as envisioned by the originators may be thwarted or the outcomes may not achieve expectations.

Quarterly reports ensure accountability and tracking, providing informative progress reports for a variety of interests for review and comment.

Meetings are essential, and if possible should be required throughout the project -- during the pre-project period, at one or more times during the conduct of the research and as a closeout to formally report on and discuss the findings and implications with research clients. Pre-study meetings seem essential if managers are to endorse the research fully and commit staff and other resources to the effort. These early meetings and discussions also provide an opportunity for upper level managers responsible for using the research findings to ascertain if the possible results of the research are appropriate or if the research might be too confining or could hold them accountable in ways which they would not be comfortable. (This is an entirely different topic and begs another set of questions, but it is entirely related to research utilization because it has to do with intellectual honesty of the research community and reporting what is found--not focusing on and reporting what the manager or research client wants to hear!) Meetings help project managers and research clients, as well as researchers, all to stay on top of the project and allow for a broader audience to regularly learn about progress (or lack thereof) and how the potential results of the work may contribute to the specific goals and objectives associated with resolving a problem and meeting management objectives.

Closeout meetings provide an opportunity for thoughtful discussion concerning what the research means and implications for management. When possible these meetings should be held between the time reviewers return comments on the draft technical report to the researcher and the final report is completed. In this way there may be maximum dialogue to insure important points are fully addressed and presented in the final report. Dialogue at this time also can uncover additional or extended analyses that will enhance the usefulness of the research that might not happen following a meeting after all the required documents are delivered.

Final technical reports document the overall context and conduct of the research and provide a detailed description concerning methodologies, data analysis and presentation of results. Sufficient detail should permit replication of the research as needed.

Arguably, technical reports need not extensively discuss the implications of the research findings. Once the author(s) presents the data thoughtfully highlighting the salient findings, the manager and their associates should take the lead in deciding what the findings mean and how to most effectively use the information generated. Of course, the researcher can be part of the dialogue and decision making, as was the case for carrying capacity investigations at Arches National Park during the 1990s (Lime et al., 1994; Manning et al., 1995; Manning et al., 1996). In those studies tabulations and raw data served as grist for several meetings and intense discussion concerning crowding norms and indicators of the quality of the visitor experience. Ultimately the information was

used to specify indicators and standards and to develop monitoring protocols (USDI, National Park Service, 1995).

The point is that managers usually want the research results as soon as possible after the work is completed. So why not provide that data to them as quickly as possible with a minimum of extraneous verbiage and direct the focus of data interpretation to the ultimate benefactors of the information? If an effective manager-researcher partnership is in place, the researcher probably will be brought into "So what?" discussions concerning implications. Furthermore, once the formal reporting requirements of the research have been satisfied, additional analyses and/or dialogue concerning study implications by the researcher could still be negotiated--with or without additional funding.

Summaries provide a concise reporting of the salient findings and implications that, depending on the purpose and scope of the research, can be used by managers or researchers as "press releases" to inform client personnel, the general public, special interest groups and the media. While often required to accompany a final technical report, research summaries or notes can be more formal and published through a technical series by the authors or the funding organization (e.g., Field et al., 1998; Pierskella et al., 1999; Warzecha et al., 2000; Lewis & Baxter, 2001). The intent is to provide a short (no more than 4-6 pages in length), concise and technically-sound statement of the findings that can be readily absorbed and understood by a broad audience. Such inexpensive products can be widely distributed and further summarized or reported on by other users. Consideration also should be given to joint authorship of summaries with management staff who participated in the project (e.g., Lewis & O'Neill, 2001), not so much as a courtesy but as recognition of their ownership and contributions to the completed work.

Formal publications, of course, including refereed journal articles, papers in proceedings, government agency reports and popular magazine articles, also serve as important avenues for research dissemination. For applied research concerning the National Park Service, for example, it might be appropriate in all grants and cooperative agreements to require that at least one manuscript be submitted to *Park Science*, the *Journal of Park and Recreation Administration* or some other management-oriented outlet. Again, including management staff who contributed to the research as co-authors should be considered whenever possible (Manning et al., 1999).

- *Researchers and managers co-author papers at conferences and symposia.* Akin to the joint authorship for research summaries or other publications, project partners should be encouraged to collaboratively present their findings at meetings--as they often do in technical and dialogue sessions at the annual NERR conferences (Jacobi & Manning, 1996).

Not only do these activities enhance opportunities for managers to buy-into the research and its utilization, it also allows individuals from "different cultures" to get to know one another on a personal basis and helps build mutual respect, understanding and learning. Developing a "good chemistry" among people who are trying to work toward mutual goals should not be underestimated!

- *Student papers should be independent of the project scope and purpose.* Normally a funding agency or client would not be in the business of funding student papers. Research assistants seeking to use the research for a master's paper or Ph.D. dissertation should do so as a separate task from the funded research. Keeping the two tasks independent can reduce the time necessary to complete products for the research client and can help students understand there usually are conceptually different purposes and outcomes associated with academic papers and products for managers. Furthermore, keeping the tasks separate can protect a student's interests and research direction because sometimes the funding agency and the principle investigator (i.e., the student's advisor) will change the focus of the project.
- *Multidisciplinary team projects.* More and more frequently team efforts are used to address complex and controversial issues concerning leisure, outdoor recreation and tourism. The goal is usually to bring together a mix of disciplines to tackle problems that require multiple viewpoints and perspectives. Such projects can be fraught with administrative headaches and necessitate strong project management to accomplish their intended purposes. One way to achieve maximum collaboration and communication is to designate a coordinator to provide oversight and to provide timely progress reports (e.g., Lime, 1989; Mahn et al., 1998). Several recent projects focusing on recreation carrying capacity issues in the National Park System seem to have received high marks for the level of collaboration among a variety of researchers and resource managers (e.g., Lime, 1989; USDI, National Park Service, 1995; Hof et al., 1994; Manning et al., 1998). In each case there were extensive pre-study meetings to define and frame research questions, active participation by field managers in data collection and/or oversight, frequent meetings during the conduct of the research to access progress and broad participation by agency staff and researchers in discussions about the implications and use of data generated. Furthermore, funding to accomplish these activities was earmarked *up-front* to ensure they were not omitted or postponed. There was an apparent institutional setting among various levels in the management system committed to and held accountable for implementing, or at least giving strong consideration to implementing, the research. Of course, as key management players move elsewhere or change their perspectives on the issues, there is no assurance the decisions will remain in place or be extended.

An alternative approach to deploying formal research projects per se, is to convene an expert panel or team to visit a site and offer their informed and collective ideas about a particular question (Hof & Lime, 1997). In collaboration with area staff, of course, an interdisciplinary team could spend several days at a location exploring the general problem of concern, defining and framing specific questions pertinent to the problem(s), understanding management objectives and purposes, seeing existing resource conditions and discussing how to resolve the most critical problems. The team would conclude their visit with an interactive meeting with decision makers and offer a set of written recommendations concerning the issue(s) at hand. Depending on the nature and scope of the effort, this activity could be done voluntarily or with varying levels of financial remuneration. The results of such exercises would be useful in further planning activities by area staff and public involvement. Follow up activities with the public could be used to test the advice given and refine future direction. Such "design teams" have been used successfully in Minnesota for more than a decade to explore community development concerns in urban areas (Hof & Lime, 1997).

- *Extension agents to bridge the communication gap.* Specified individuals associated with user client groups (e.g., land management agencies, state tourism organizations, state extension services and academic institutions) could serve an important role as "go-betweens" to aid research use (McCool & Schreyer, 1977). Of course, the research community itself can develop handbooks, manuals and other products to transfer knowledge to a broader audience than the original client (e.g., Cole et al., 1987; Cole, 1989a; Cole, 1989b; Marion, 1991; Anderson et al., 1998; Wang et al., 2000). The most useful contribution of such actions might be in carrying the findings and implications of a particular project to the broadest audience possible without expecting these activities to be conducted by the originators of the information. Besides the written word, a variety of other communication techniques can be deployed to accomplish such objectives. For example, the Internet increasingly is being used to disseminate information for lay as well as working professional audiences.

Enhancing Education and Training of Researchers and Practitioners

Academic institutions and employers increasingly are calling for professional degree programs that develop leaders, communicators and integrative thinkers. Such pleas surely are voiced in programs addressing leisure, tourism, outdoor recreation and natural resources planning and management.

In spite of calls for more liberal education for working professionals, many programs continue to emphasize basic facts and principles and demonstrate a reluctance to increase complementary liberal arts training at the expense of reducing some content coverage (e.g., Wellman, 1995;

Propst et al., 2000). Critics of traditional education argue that growing citizen participation in resource decision making activities, for example, demands that managers gain expertise and confidence in dealing with the general public to address and incorporate diverse values into thoughtful decisions (Propst et al., 2000).

To address the need for a more liberally educated workforce, analysts have called for a change in the learning environment. Professional degree programs must foster a greater balance of learning basic facts and principles with student-driven learning in which students are better prepared to seek out and work with the public and to accept the public's participation in making decisions about resources and multiple values. Many of these "new" professionals would be subject matter experts who facilitate consensus and dialogue building (McCool & Patterson, 2000). In addition to their technical skills, they also should possess effective interpersonal skills to address and solve problems. At the same time, faculty and other researchers would need to know more about the questions, problems and actions of managers taken to fulfill their responsibilities.

What are some approaches, actions or suggestions to enhance the education and training of students, researchers and practitioners concerning the conduct and use of research?

- *Interaction with diverse publics.* Students could benefit greatly by meeting and conversing with various publics interested in leisure- and tourism-related issues. Such activities could be incorporated into professional courses with exposure to children, seniors, persons with disabilities, single parent families, and so forth. The focus could be to learn through face-to-face dialogue about their concerns and how they value resource conditions and opportunities. Group interaction can aid in developing skills in listening, communication and synthesizing diverse opinions and values (e.g., using qualitative research methods).
- *Exposure to real world problems and solutions.* Courses that expose students to problems faced by real world practitioners and researchers help them understand the realities of work beyond the classroom and can aid them in selecting additional course work to hone their skills in fruitful areas. Increasingly, educators are developing courses, seminars and field excursions that involve speakers from various disciplines and perspectives. One example is a course entitled "Social policy and management in National Parks and protected areas" offered at the University of Wisconsin, Madison (by Dr. Donald Field). Visiting practitioners offer real world experiences and lead discussions following their presentations aimed at developing critical thinking and analysis skills for students. Internships and practica reinforce academic lessons, as well (Hartigan, 2001).
- *Group projects and problem solving.* Closely connected to the previous two suggestions are

synthesis courses of one or more academic sessions that address problem solving activities for real world problems. Most are undergraduate courses, but it would seem highly beneficial to mandate similar courses for graduate students. Sometimes called "capstone" courses, students and faculty collaborate with area practitioners to define and frame a research problem, generate data to address the problem(s) specified and conduct problem solving exercises in which new data is analyzed and evaluated. Finally, conclusions are drawn and presented in written form and orally. Client groups participate in the project as appropriate and engage fully in the review of the project. Students are challenged to apply aggressively what they know and learn during the process and, through group interaction, enhance their knowledge base built on actual experience (Kolb, 1984). These experiential learning opportunities take away the fear and inexperience of working in the real world and working within a group setting. They also aid students in finding and performing well in cooperative education positions, internships and other programs that may lead to permanent employment.

- *Incorporating more liberal education courses into the curriculum of professional majors.* By adding liberal education courses to complement students' professional majors such as forestry, recreation and leisure studies or landscape architecture, they should acquire integrative and strategic thinking skills to envision the direct connections to their majors and minors. The capstone courses noted above could benefit greatly from direct links to selected courses in political science, geography, sociology, ethics, history, demography, rhetoric, computer science, professional writing for the major and so forth. To implement such strategies, academic departments and programs must accept that some coverage of traditional course work will have to be eliminated, reduced or integrated into other course offerings.
- *Continuing education.* "Lifelong learning" has gained support as employers and staff try to keep up with changing technologies, principles and ways of doing business. Continuing education is more necessary than ever because the workforce is growing increasingly older and more and more employees have not had formal course work for many years (e.g., Wellman, 1995). Resource management and tourism agencies are increasingly forced to deal with new paradigms, issues and models including sustainability, ecosystem-based management, integrated resource management, benefit-based outcomes, resource and social conflicts, access to resource opportunities and citizen participation in decision making. Those and other new topics require continual upgrading of employees' knowledge base, technical skills, and expertise.

Of course, on-the-job experiences contribute to continual learning, but so do structured programs to expose professionals to new knowledge. Questions about the effectiveness of such programs are

legitimate but some continuing education programs, such as one in the Minnesota Department of Natural Resources, have found that participants exhibit increased self-confidence in their jobs, expand communication networks among employees, are more timely in implementing new ideas and concepts throughout the agency and provide more consistent and informative presentations to the public (Anderson et al., 1995). Efficiency, shared learning and other benefits can be realized through interagency and collaborative training (students as well as instructors) in which various constituency groups share information and perspectives.

Continuing education and learning for managers and researchers also can be realized through conference "dialogue sessions," sabbatical programs at specific sites or institutions, volunteering, personal travel and reading. And, never underestimate the learning potential of observation and constructive listening.

Conclusion

The barriers to research utilization identified in this paper and suggestions to help ameliorate them represent only a few of the issues that are relevant to this topic. These ideas beg a variety of answers to important questions such as how to garner institutional support and how to fund more meetings or special analyses to specify problems and frame research questions, and to discuss progress, final results and implications. Then there are calls for more extensive review of plans and technical reports, and preparation of research summaries and other publications. Efforts to enhance continuing education for working professionals also are costly and compete for scarce financial and other resources. Pleas also have been made to alter the learning environments of undergraduate and graduate education programs so new professionals in the workplace will be able to demonstrate a greater balance between basic knowledge in their major field and liberal education skills. In spite of these and other potential ideas to enhance research utilization, research and management budgets are usually not "fat," and many projects are significantly strapped simply to "make ends meet."

Accomplishing these suggestions requires creating an institutional setting in which *all levels of the management system (management, research or academic) are committed to and are held accountable for activities that enhance research utilization*. Sometimes creating such a setting is hampered by not setting priorities or simply by a reluctance to do things differently. Increased buy-in and accountability could mean incorporating specific elements related to research utilization more explicitly into annual performance standards for affected employees that would result in salary increases and/or advancement.

Accomplishing such lofty goals will not come quickly or without controversy, and skepticism concerning the value of these actions will continue. Nevertheless, a "from-the-ground-up" approach in which dedicated individuals seek institutional change may give credibility to these principles and help market and implement them.

Looking to successful actions by others and replicating or altering them to fit new situations is undoubtedly one important way to demonstrate a need for and benefits of new perspectives. This was illustrated in this paper with examples of successful continuing education programs such as those in Minnesota that gained support at all levels of management throughout a particular Department of Natural Resources division (Parks and Recreation). The successes to date have engendered an employee ground-swell to continue training on a one- or two-year cycle. The successful implementation of capstone courses at many academic institutions suggests another shifting paradigm, as do specific courses to bring into the classroom practicing professionals to expose students and faculty to real world problems and the realities of addressing them. Many research project managers are realizing the benefits of taking sufficient time to frame researchable problems carefully, making sure there is true collaboration of researchers and managers throughout the research, including the reporting, discussion and implementation phases of a project.

For the academic and research community, for example, this approach could mean rewarding applied research and application on an equal or nearly equal footing with the production of theory-based refereed journal articles. Arguably there are ample opportunities to publish aspects of applied research in journals as there are to publish so called pure or theory-based research findings concerning leisure, outdoor recreation and tourism in applied outlets. State-of-knowledge and literature synthesis pieces also are of high scientific and application value, and persistence by interested, respected people in the field should raise their perceived worth. Credit for expanding undergraduate and graduate courses that are successful in developing better leaders, communicators and integrative thinkers also should continue to be recognized and rewarded. Mentoring with students and graduates as well as promising high school students that could be recruited into professional programs also should be acknowledged.

The management community should reward managers who demonstrate exemplary skill in managing research activities as well as conducting their other duties. Such activities should take on an importance of much more than "other duties as assigned." Organizational advancement also could be enhanced by interacting with the research or academic community in student learning activities and mentoring.

Ultimately, how well individuals communicate and work together reflects how well problems and research gets framed, research is used, employees are educated and conduct themselves and institutional settings shift paradigms. Real as well as perceived barriers to successful research utilization will not disappear, but they can be diminished or managed by dedicated and persistent people who strive to *do the right things*. So consider trying some of the suggestions offered in this paper! Striving to be a good example will clone our co-workers, colleagues and students. Hopefully the next generation of managers and researchers will continue to progress by *doing things right* to enhance research utilization.

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Crowding Issues in Resource Management

BALANCING TRADEOFFS IN THE DENALI WILDERNESS: AN EXPANDED APPROACH TO NORMATIVE RESEARCH USING STATED CHOICE ANALYSIS

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Abstract: Wilderness experiences are thought to be comprised of or defined by three dimensions, including social, resource, and management conditions. Decisions about how to manage wilderness recreation in Denali National Park involve potential tradeoffs among the conditions of resource, social, and managerial attributes of the wilderness experience. This study expands the normative approach to wilderness research by developing a decision-making model that considers social, resource, and managerial attributes of the wilderness experience within a holistic context. Specifically, stated choice analysis is used to evaluate the choices overnight wilderness visitors in Denali National Park make when faced with hypothetical tradeoffs among the conditions of social, resource, and management attributes of the wilderness portion of the park.

Introduction

There is general agreement in the recreation literature that wilderness experiences are comprised of or defined by three dimensions. These dimensions include the social conditions experienced (e.g., the number of other groups encountered), the resource conditions experienced (e.g., the amount of human impact at camping sites), and the management conditions imposed (e.g., the number of backcountry permits issued) (Hendee, Stankey, & Lucas, 1990). In general, wilderness recreationists are thought to prefer a wilderness experience characterized as having few encounters with other groups, a pristine natural environment, and a high degree of freedom from management control. While this is the ideal, in reality attempts on the part of managers to provide ideal conditions along one dimension of the wilderness experience typically involve having to make concessions along one or both of the other dimensions of the wilderness experience. As a result, decisions about how to manage wilderness involve potential tradeoffs among the conditions of resource, social, and managerial attributes of the wilderness experience. For example, the number of permits issued for recreational use of a wilderness area could be increased to allow more public access, but this might result in more resource impacts and encounters among groups within the wilderness area. Conversely, reducing the number of recreational use permits issued might reduce resource impacts and encounters among groups, but would allow fewer people to enjoy the wilderness area.

The normative approach to recreation research has been used to study a broad range of wilderness management issues, including crowding, ecological impacts, and management practices (Manning, 1999a). A fundamental element of the normative approach to recreation research is the measurement of indicators and standards of quality. Traditionally, wilderness studies designed to measure indicators and standards of quality have focused on a single dimension of the wilderness experience, without explicit consideration of related and potentially competing issues associated with other dimensions of the wilderness experience (Manning, 1999a). Recent studies in outdoor recreation have suggested that normative research should more explicitly consider the tradeoffs inherent in park and wilderness management decision-making (Hall, in press; Lawson & Manning, 2000; Manning, Valliere, Wang, & Jacobi, 1999).

This study expands the normative approach to wilderness research by developing a decision-making model that considers social, resource, and managerial attributes of the wilderness experience within a more holistic context. Specifically, stated choice analysis is used to evaluate the choices overnight wilderness visitors in Denali National Park make when faced with hypothetical tradeoffs among the conditions of social, resource, and management attributes of the wilderness portion of the park.

Denali National Park and Preserve

Alaska's first National Park, Mt. McKinley National Park, was established in 1917. In 1980, with the passage of the Alaska National Interest Lands Conservation Act, Mt. McKinley National Park was expanded from two million acres to six million acres, and renamed Denali National Park and Preserve. At the same time, most of the original two million acres of the park was designated wilderness. Today, this two million acre wilderness forms the core of Denali National Park and Preserve.

Visitor use of the Denali wilderness is managed through a permit system to maintain the area's primitive, undeveloped character. Through the permit system, the Park administers strict quotas on the number of overnight visitors issued a permit for each of 43 wilderness management units. The quotas exist to prevent resource degradation and to provide visitors with opportunities to experience solitude. During the busy summer months, quotas for many of the management units are regularly reached and some visitors interested in an overnight trip in the Denali wilderness are turned away or forced to hike and camp in less preferred management units.

The primitive character of Denali's wilderness is maintained through other management techniques as well. For example, traditional backcountry facilities such as bridges and trails are not provided in the Denali wilderness. Instead, visitors must navigate by map and compass, and visitors are frequently challenged with technical stream-crossings. There are no established campsites in the Denali wilderness, either. Visitors may camp anywhere within the management unit for which they were issued an overnight permit. As a result, visitors are often able to camp out of

sight and sound of other groups, in places with little or no evidence of previous human use.

Park managers and planners are currently working on updating the wilderness management plan for Denali National Park and Preserve. Revision of the wilderness management plan will include making decisions to maintain, reduce, or decrease the number of permits issued for each of the Denali wilderness management units. Previous research conducted by Bultena, Albrecht, and Womble (1981) studied the extent to which wilderness visitors in Denali National Park and Preserve supported use limitations. The authors conclude that future decisions concerning use limitations in Denali National Park and Preserve will have to weigh the importance of protecting park resources and the quality of visitors' experiences against the benefit of granting more visitors access to the Denali wilderness. This study uses stated choice analysis to provide Denali National Park and Preserve managers with information about overnight wilderness visitors' attitudes and preferences regarding such tradeoffs.

Stated Choice Analysis

Stated choice analysis models have been developed in the fields of psychometrics, econometrics, and consumer marketing to evaluate public preferences or attitudes (Green & Srinivasan, 1978). In stated choice analysis, respondents are asked to make choices among alternative configurations of a multi-attribute good (Louviere & Timmermans, 1990a).¹ Each alternative configuration is called a profile, and is defined by varying levels of selected attributes of the good (Mackenzie, 1993). For example, respondents may be asked to choose between alternative recreation settings that vary in the number of other groups encountered, the quality of the natural environment, and the intensity of management regulations imposed on visitors. Respondents' choices among the alternatives are evaluated to estimate the relative importance of each attribute to the overall utility derived from the recreational setting. Further, stated choice analysis models are used to estimate public preferences or support for alternative combinations of the attribute levels (Dennis, 1998).²

Stated choice analysis has been applied to study public preferences and attitudes concerning a range of recreation-related issues. Louviere and Timmermans (1990a) suggest ways in which stated choice models can be used to evaluate alternative recreation policies. Specifically, the authors state that one of the strengths of choice models is their predictive ability. That is, choice models provide recreation managers with foresight about how the public is likely to respond to various policy alternatives. Further, choice models provide managers with information about people's preferences for arrangements of resources, facilities, and/or services that may not currently exist.

There is a growing body of literature describing the application of stated choice analysis to outdoor recreation management issues in parks (Louviere & Timmermans, 1990b; Louviere & Woodworth, 1985; Schroeder, Dwyer, Louviere, & Anderson, 1990). Other natural resource

related applications of stated choice analysis include studies of river flow management (Adamowicz, Louviere, & Williams, 1994), tourism (Haider & Ewing, 1990), recreational hunting (Boxall, Adamowicz, Swait, Williams, & Louviere, 1996; Bullock, Elston, & Chalmers, 1998; Mackenzie, 1993), hazardous waste facility siting (Opaluch, Swallow, Weaver, Wessells, & Wichelns, 1993; Swallow, Weaver, Opaluch, & Michelman, 1994), watershed management (Johnston, Swallow, & Weaver, 1999), and wildlife management (Adamowicz, Boxall, Williams, & Louviere, 1998).

Study Methods

Selection of Attributes and Levels

Wilderness areas are managed, in general, to provide visitors with opportunities to experience solitude in a relatively unmodified natural environment with few management restrictions and facilities (Merigliano, 1990). Substantial research has been conducted to identify social, resource, and managerial setting attributes that reflect these general management objectives and contribute to or detract from the quality of the wilderness recreation experience (Merigliano, 1990; Roggenbuck, Williams, & Watson, 1993; Shindler & Shelby, 1992; Whittaker, 1992). These attributes are commonly referred to in the recreation literature as indicators of quality.

Manning (1999b) summarizes the results of a number of studies that have focused on identifying potential indicators of quality. Based on a review of this literature, six wilderness setting attributes were selected for this study to define the social, resource, and management conditions of the Denali wilderness setting profiles. Three levels were defined for each of the six wilderness setting attributes, based on recommendations from the Park's director of Resource Management and the Park's Planner. Table 1 lists the attributes and levels used to define alternative Denali wilderness settings in the study.

Pairs of hypothetical Denali backcountry settings were generated by combining the six wilderness setting attributes at varying levels, based on an experimental design. The experimental design resulted in four questionnaire versions, each containing nine pairwise comparisons (Seiden, 1954).³ An example of a typical Denali wilderness setting comparison is presented in Figure 1.

Survey Administration

Overnight wilderness visitors in Denali National Park and Preserve are required to obtain a permit and a bear resistant food container from the Visitor Center prior to their backpacking trip. The stated choice analysis survey was administered to overnight wilderness visitors at the Visitor Center when they returned the bear resistant food container at the end of their backpacking trip. The survey was administered from July 24 through September 2, 2000. The choice experiment was conducted as part of a larger study of Denali overnight wilderness visitors. Individuals who did not participate in other parts of the larger study were

Table 1. Denali Wilderness Setting Attributes and Levels

<p><u>Social conditions</u></p> <p>Number of other groups encountered per day while hiking: Encounter 0 other groups per day while hiking Encounter up to 2 other groups per day while hiking Encounter up to 4 other groups per day while hiking</p> <p>Opportunity to camp out of sight and sound of other groups: Able to camp out of sight and sound of other groups all nights Able to camp out of sight and sound of other groups most nights Able to camp out of sight and sound of other groups a minority of nights</p> <p><u>Resource conditions</u></p> <p>Extent and character of hiking trails: Hiking is along intermittent, animal like trails Hiking is along continuous single track trails developed from prior human use Hiking is along continuous trails with multiple tracks developed from prior human use</p> <p>Signs of human use at camping sites: Camping sites have little or no signs of human use Camping sites have some signs of human use – light vegetation damage, a few moved rocks Camping sites have extensive signs of human use – bare soil, many rocks moved for wind protection and cooking</p> <p><u>Management conditions</u></p> <p>Regulation of camping: Allowed to camp in any zone on any night Required to camp in specified zones Required to camp in designated sites</p> <p>Chance of receiving an overnight backcountry permit: Most visitors are able to get a permit for their preferred trip Most visitors are able to get a permit for at least their second choice trip Only a minority of visitors are able to get a backcountry permit</p>
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Backcountry Setting A
<ul style="list-style-type: none"> • Encounter up to 2 other groups per day while hiking. • Able to camp out of sight and sound of other groups <i>all</i> nights. • Hiking is along continuous, <i>single track</i> trails developed from prior human use. • Camping sites have <i>some</i> signs of human use – light vegetation damage, a few moved rocks. • Required to camp at <i>designated sites</i>. • Only a minority of visitors are able to get a backcountry permit.

Backcountry Setting B
<ul style="list-style-type: none"> • Encounter up to 4 other groups per day while hiking. • Able to camp out of sight and sound of other groups <i>most</i> nights. • Hiking is along intermittent, animal-like trails. • Camping sites have <i>some</i> signs of human use – light vegetation damage, a few moved rocks. • Required to camp at <i>designated sites</i>. • Most visitors are able to get a backcountry permit for their <i>preferred</i> trip.

Figure 1. Example Denali Wilderness Setting Comparison

recruited for the stated choice experiment. Study participants were asked to complete one of four versions of the questionnaire on a laptop computer. In each of the nine choice questions, respondents were asked to read through each setting description (A and B) and indicate which they preferred. The response rate for the stated choice analysis survey was 81.2%, resulting in a total of 311 completed questionnaires (approximately 78 respondents for each version of the questionnaire) and 2,799 pairwise comparisons.

Study Findings

The responses to the stated choice questions were analyzed using logistic regression analysis.⁴ The regression coefficients for the Denali wilderness setting attributes, together with their standard errors, Wald Chi-Square values, and P values are presented in Table 2. All coefficients are significantly different than zero at <.001% level, except the coefficients on "Up to 2 other groups" and "Intermittent animal like trails". The overall fit of the model is supported by the results of the Hosmer and Lemeshow goodness of fit test ($\chi^2 = 3.492$, $p = 0.836$).

The magnitude of significant coefficients reflects the relative importance of the corresponding level of the attribute to Denali overnight wilderness visitors. The values of the coefficients in Table 2 imply that signs of human use at campsites influence Denali overnight wilderness visitors' utility or satisfaction more than any other wilderness setting attribute considered in this study. Specifically, camping site conditions characterized as having "Extensive signs of human use" are evaluated less favorably by Denali overnight wilderness visitors' than any other level of the six wilderness setting attributes studied. Additionally, camping site conditions characterized by "Little or no signs of human use" are preferred more than any level of any other wilderness setting attribute included in the study.

The magnitude of the coefficient estimates in Table 2 indicate that solitude related attributes represent a second tier of importance to Denali overnight wilderness visitors. That is, while the number of encounters with other groups per day while hiking and opportunities to camp out of sight and sound of other groups are less important wilderness setting attributes relative to campsite impacts, they demonstrate a relatively large influence on Denali overnight wilderness visitors' utility. The extent and character of trails, regulations concerning where visitors are allowed to camp in the Denali wilderness, and the availability of backcountry permits are less important to Denali overnight wilderness visitors, relative to campsite impacts and solitude related attributes of the Denali wilderness.

The relationship between the levels of each wilderness setting attribute and the average utility associated with all possible combinations of the six Denali wilderness setting attributes are plotted in Figures 2a-2f. The values on the x-axis of each plot represent the level of the corresponding Denali wilderness setting attribute, and the values on the y-

axis represent the amount by which the utility of the corresponding level of the attribute deviates from average utility or satisfaction. The values on the y-axis are expressed in units of utility, which is a measure of relative preference. Levels of attributes with high utility values are preferred to levels of attributes with lower utility values. The plots provide further insight into the relative importance of the wilderness setting attributes to Denali overnight wilderness visitors. For example, utility drops sharply as campsites change from having "Some signs of human use" (+0.2073) to "Extensive signs of human use" (-0.7896) (Figure 2d), whereas the loss of utility is less dramatic as the opportunity to camp out of sight and sound of other groups changes from "All nights" (0.2952) to "Most nights" (0.1452) (Figure 2b).⁵

The results of the stated choice experiment suggest that Denali overnight wilderness visitors support some level of management over where visitors may camp and a certain degree of visitor use limits. Denali overnight wilderness visitors' utility remains unchanged as regulations over where visitors may camp increases from "Allowed to camp in any zone on any night" to "Required to camp in specified zones" (Figure 2e). However, utility decreases to its lowest point with respect to camping regulations when visitors are "Required to camp in designated sites". A similar trend is observed concerning overnight wilderness use limits. Denali overnight wilderness visitors' utility associated with this attribute is statistically the same whether use limits are at their least restrictive level (i.e., "Most get a permit for their preferred trip") or at the intermediate level (i.e., "Most get a permit for at least their second choice trip") (Figure 2e). Use limits that result in only a minority of visitors receiving a permit lead to the lowest utility related to use limits (i.e., the chance visitors have of receiving a permit). A possible explanation for these results is that Denali overnight wilderness visitors may realize that without certain management restrictions, the resource and social setting attributes of the Denali wilderness are likely to deteriorate beyond acceptable conditions.

An additional use of the model developed in this study is to predict the preferences of Denali overnight wilderness visitors for alternative wilderness management scenarios. As an example, two hypothetical Denali wilderness management alternatives will be considered. The first alternative will be referred to as the "Solitude Alternative" and the second alternative will be referred to as the "Freedom Alternative" (Table 3). Under the "Solitude Alternative", overnight wilderness visitors would encounter zero other groups per day while hiking and be able to camp out of sight and sound of other groups all nights. However, the two management attributes would be at their most restrictive levels. That is, visitors would be required to camp in designated sites and only a minority of visitors would be able to get a backcountry permit. Under the "Freedom Alternative", overnight wilderness visitors would be able to camp in any zone on any night, and most visitors would be able to get a permit for their preferred trip. However, visitors would encounter up to four other groups

Table 2. Coefficient Estimates for Wilderness Setting Attributes

Variable	Coefficient	Standard Error	Wald Chi-Square	P Value
Encounters with other groups per day while hiking:				
0 other groups	-	-	-	-
Up to 2 other groups	0.0649	0.0433	2.2458	0.1340
Up to 4 other groups	-0.5044	0.0438	132.8263	0.0001
Able to camp out of sight and sound of other groups:				
All nights	-	-	-	-
Most nights	0.1452	0.0435	11.1482	0.0008
A minority of nights	-0.4404	0.0452	94.8138	0.0001
Hiking is along:				
Intermittent, animal like trails	-	-	-	-
Single track trails developed from human use	-0.0281	0.0443	0.4028	0.5256
Multiple track trails developed from human use	-0.2912	0.0428	46.3399	0.0001
Camping sites have:				
Little or no signs of human use	-	-	-	-
Some signs of human use	0.2073	0.0440	22.1506	0.0001
Extensive signs of human use	-0.7896	0.0485	264.9717	0.0001
Regulation of camping:				
Allowed to camp in any zone on any night	-	-	-	-
Required to camp in specified zones	0.1398	0.0476	8.6202	0.0033
Required to camp in designated sites	-0.2117	0.0452	21.9484	0.0001
Chance visitors have of receiving a permit:				
Most get a permit for their preferred trip	-	-	-	-
Most get a permit for at least their second choice	0.1430	0.0443	10.4236	0.0012
Only a minority get a permit	-0.2157	0.0434	24.6555	0.0001

Figures 2a-2f. Denali Wilderness Setting Attribute Levels and Corresponding Utility

Figure 2a. Hiking Encounters per Day

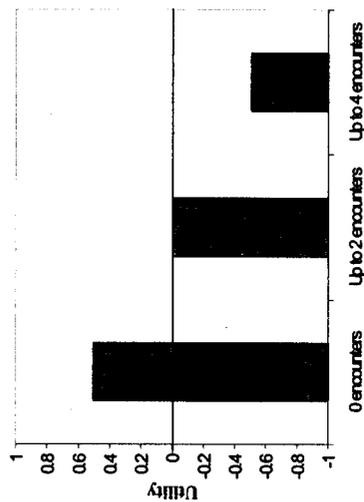


Figure 2b. Able to Camp Out of Sight and Sound of Others

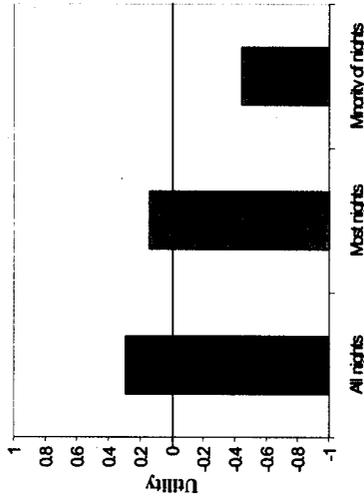


Figure 2c. Extent and Character of Trails

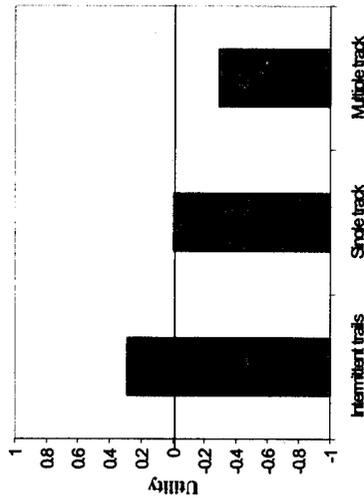


Figure 2d. Extent of Impact at Campsites

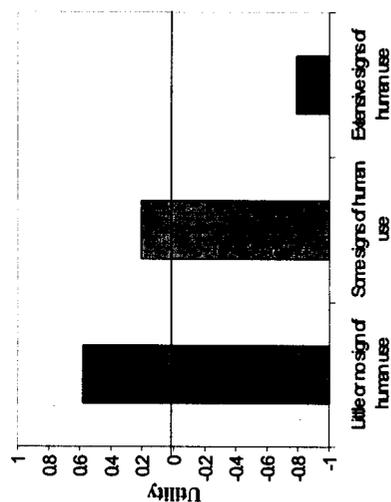


Figure 2e. Camping Regulations

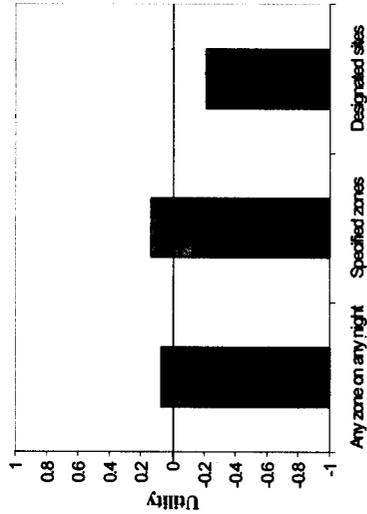
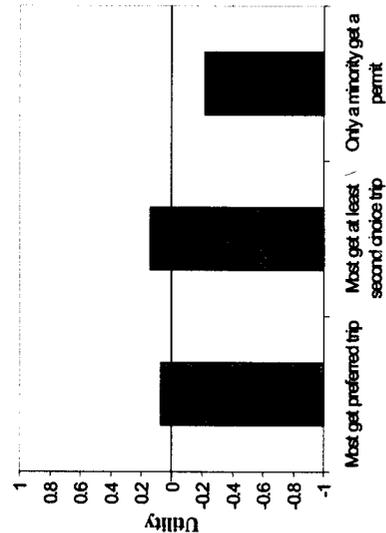


Figure 2f. Availability of Backcountry Permits



per day while hiking, and they would be able to camp out of sight and sound of other groups only a minority of nights. In both alternatives, the extent of social trails, and the amount of impact to campsites would be fixed at the intermediate level.

At the heart of the comparison between the "Solitude Alternative" and the "Freedom Alternative" are Denali overnight wilderness visitors' evaluations of the tradeoff

between freedom of access to the Denali wilderness and the opportunity to experience solitude. The model predicts that in a hypothetical referendum, 75% of Denali overnight wilderness visitors would choose the "Solitude Alternative" and only 25% would choose the "Freedom Alternative" (Table 3).⁶ This result implies that in general, Denali overnight wilderness visitors would prefer to forgo some freedom from management to improve opportunities to experience solitude.

Table 3. Scores for Two Hypothetical Denali Wilderness Management Alternatives

	Solitude Alternative	Freedom Alternative
Hiking Encounters:	0 other groups per day	Up to 4 other groups per day
Campsite Solitude:	All nights	A minority of nights
Hiking Trails:	Single track trails	Single track trails
Campsite Impacts:	Some signs of human use	Some signs of human use
Camping Regulations:	Designated sites	Any zone on any night
Availability of permits:	Only a minority of visitors receive a permit	Most get a permit for their preferred trip
Voting Proportion	75%	25%

Conclusions

In this study, stated choice analysis has been used to expand the normative approach to wilderness research by explicitly considering tradeoffs among the social, resource, and managerial dimensions of the Denali wilderness experience in the measurement of indicators and standards of quality. The results of the stated choice analysis presented in this paper have several important implications for wilderness management in Denali National Park and Preserve.

Consistent with the findings of previous wilderness research, Denali overnight wilderness visitors place particular importance on the extent of impacts at camping sites (Roggenbuck, Williams, & Watson, 1993). Management actions that provide Denali overnight wilderness visitors with places to camp that have no more than some signs of human use will make substantial positive contributions to the quality of their wilderness experiences. Camping conditions characterized by sites with extensive signs of human use greatly detract from the quality of visitors' wilderness experience in Denali. Further, Denali overnight visitors place relatively high importance on having limited contact with other groups while hiking and camping.

Several aspects of the study findings suggest that visitors would be willing to tolerate, and in fact support, management restrictions, including use limits, to achieve

desired social and resource setting attribute conditions. For example, the results suggest that Denali overnight wilderness visitors are indifferent between the current regulation in Denali National Park and Preserve which requires visitors to camp in specified zones and being allowed to camp in any zone on any night. Additionally, the results suggest that visitors' utility does not diminish if limits on the number of backcountry permits issued are increased from the least restrictive level considered in this study to the intermediate level, even though their chances of receiving a permit for their preferred trip would be reduced. As noted above, a possible explanation for these findings is that Denali overnight wilderness visitors might consider a certain degree of management regulations necessary to achieve desirable social and resource conditions in the Denali wilderness.

On a more general level, the model allows managers to evaluate visitor attitudes toward alternative management scenarios. This allows managers to consider combinations of setting attributes that are not currently in place, but may offer a better alternative than the status quo. Additionally, alternatives being considered under the new wilderness management plan can be generalized to the model, and managers can predict public response to each alternative. The results of the example application of the choice model provide further evidence that visitors are willing to trade off freedom from management restrictions for desired social conditions. Specifically, the results demonstrate that in a hypothetical referendum, Denali overnight wilderness visitors would prefer a wilderness setting that emphasizes

solitude through relatively restrictive management actions over a more congested wilderness setting with limited management restrictions by a margin of three to one.

From a management perspective, these results suggest that the majority of Denali overnight wilderness visitors support backcountry permit quotas in Denali National Park and Preserve to protect the primitive character of the park. A moderately restrictive quota system that is designed to enhance overnight wilderness visitors' opportunities to experience solitude and to maintain relatively undisturbed campsite and trail conditions will receive the greatest support from Denali overnight wilderness visitors. However, the results of the example application of the choice model indicate that there is also a substantial proportion of Denali overnight wilderness visitors (25.0%) that place high importance on freedom from management restrictions despite reduced opportunities to experience limited contact with other groups while hiking and camping. This finding suggests that Denali overnight visitors are at least somewhat diverse in their attitudes concerning the management of the Denali wilderness. Managers at the park could address this diversity through management of the Denali wilderness based on the concept of zoning to provide a spectrum of opportunities for visitors. For example, the quota system could be designed in such a way that quotas for most zones within the Denali wilderness are set at levels that emphasize opportunities for visitors to experience solitude, while quotas for a few zones of the wilderness are set at levels that provide greater visitor access.

The results of this study indicate that certain conditions of each of the six Denali wilderness setting attributes provide a greater than average level of utility to Denali overnight wilderness visitors. However, Figures 2a-2f illustrate that when the conditions of the Denali wilderness setting attributes deteriorate beyond "threshold" levels, they provide less than average levels of utility (e.g., when camping sites deteriorate from having some signs of human use to extensive signs of human use). These findings imply that the wilderness experience in Denali National Park and Preserve can be substantially improved by restoring the social and resource conditions of the wilderness from beyond "threshold" levels. Likewise, the wilderness experience can be protected from substantial decline by keeping wilderness setting conditions from deteriorating beyond "threshold" levels.

The threshold levels for each of the six Denali wilderness setting attributes, illustrated in Figures 2a-2f, could be used by park managers to help formulate standards of quality. For example, Figure 2a demonstrates that fewer than two encounters with other groups per day while hiking provides a greater than average level of utility to Denali overnight visitors and that encounters with more than two other groups per day while hiking provides a less than average level of utility. Therefore, a potential standard of quality for this attribute might be set at "up to 2 encounters with other groups per day while hiking". The use of stated choice analysis data to help formulate standards of quality for wilderness setting conditions represents a potential improvement to the conventional normative approach in

recreation research, in that resulting data reflect the tradeoffs visitors are willing to make among the conditions of social, resource, and managerial attributes of the Denali wilderness.

A potential limitation of this study is that the relative importance of the Denali wilderness setting attributes considered are influenced by the levels of the attributes selected. Our findings may have varied if we had used different levels to represent the range of conditions for each attribute. For example, we may have found the relative importance Denali overnight wilderness visitors place on the chance of receiving an overnight backcountry permit to be greater if we had used "Visitors have a 5% chance of receiving a backcountry permit" rather than "Only a minority of visitors are able to get a backcountry permit". However, the levels of the Denali wilderness setting attributes were selected to represent a realistic range of conditions for each of the Denali wilderness setting attributes, based on current conditions in the Park. As a result, it seems reasonable to conclude that the results of this study realistically represent Denali overnight wilderness visitors' attitudes and preferences concerning the conditions of social, resource, and managerial attributes of the Denali wilderness experience.

Previous recreation research indicates that attitudes and preferences concerning indicators of quality may be influenced by personal characteristics of visitors, such as the level of experience an individual has (Bryan, 1977; Ditton, Fedler, & Graefe, 1983; Graefe, Donnelly, & Vaske, 1986; Munley & Smith, 1976). Further research could be conducted to examine differences in the way novice and experienced Denali overnight wilderness visitors evaluate tradeoffs among the conditions of social, resource, and managerial attributes of the Denali wilderness. This information would provide managers with a better understanding of the preferences of different types of overnight wilderness visitors and could be used to identify wilderness setting conditions that are most suitable for different types of overnight wilderness visitors.

The findings of this study reflect the attitudes and preferences of overnight wilderness visitors in Denali National Park and Preserve concerning management of the Denali wilderness. The use of stated choice analysis should be considered for studies of visitors' preferences in other wilderness areas. Results of such studies would provide a basis for comparison of wilderness users' preferences for wilderness setting conditions across different types of wilderness areas. Further, while much attention has been focused on the preferences and attitudes of overnight visitors to wilderness areas, the amount of research focused on day use visitors is more limited (Roggenbuck, Marion, & Manning, 1994). However, day use constitutes a substantial proportion of visitor use in many wilderness areas (Lucas, 1980; Manning, Ballinger, Marion, & Roggenbuck, 1996; Roggenbuck & Lucas, 1987). Stated choice analysis can further inform wilderness management decisions through studies of day use visitors' preferences for the conditions of social, resource, and managerial attributes of the wilderness experience.

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Footnotes

¹ Stated choice analysis is based on the decision making framework of random utility theory, and is the basis of the analytical model used in this study. Refer to Hanemann (1984) for a comprehensive presentation of the random utility framework.

² Stated preference methods, including conjoint analysis, are related to stated choice methods, and are also used to evaluate public preferences for multiple attribute goods. Respondents to conjoint analysis studies are asked to rate or rank alternatives, rather than choose among alternatives. For a detailed discussion of conjoint ranking see Dennis (1998) and Mackenzie (1993). For a detailed discussion of conjoint rating see Mackenzie (1993), Stevens, Belkner, Dennis, Kittredge, and Willis (2000), and Teisl, Boyle, and Roe (1996).

³ The orthogonal fractional factorial design was constructed by Don Anderson of StatDesign Consulting, Evergreen, Colorado.

⁴ See Hosmer and Lemeshow (2000) for information about logistic regression analysis.

⁵ To test whether differences in utility associated with changes in the level of an attribute are significantly different than zero (e.g., the change in utility associated with a change in the opportunity to camp out of sight and sound of other groups from "All nights" to "Most nights"), two additional logistic regression analyses were performed. In the two additional analyses the wilderness setting attributes were represented in the statistical model using *dummy* coding rather than *effects* coding. Results of the additional analyses indicate that the difference in utility associated with being "Allowed to camp in any zone on any night" versus being "Required to camp in specified zones", and the difference in utility associated with "Most visitors are able to get a permit for their preferred trip" versus "Most visitors are able to get a permit for at least their second choice trip" are not significantly different than zero. All other utility differences associated with different levels of the attributes were found to be significantly different than zero.

⁶ See Opaluch, Swallow, Weaver, Wessells, & Wichelns (1993) for a demonstration of the methods used to calculate estimated voting proportions for management alternatives.

COPING, CROWDING AND SATISFACTION: A STUDY OF ADIRONDACK WILDERNESS HIKERS

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Abstract: Hikers in the wilderness areas of New York's Adirondack Park use a combination of physical and cognitive coping behaviors to maintain satisfaction with their wilderness experience. A total of 102 hikers in 16 Adirondack wilderness areas were interviewed and asked to complete a single-page survey. The in-depth interviews and surveys of hikers' importance and satisfaction ratings for a set of wilderness characteristics and conditions were used to measure and describe Adirondack wilderness hikers' employment of the four coping behaviors of spatial displacement, temporal displacement, product shift and rationalization. Results indicate users were employing coping behaviors across four wilderness area use intensity categories, often in combination and with few differences in their overall satisfaction.

Introduction

Since explorers Verplanck Colvin, George Washington Sears and Bob Marshall tramped its woods and waters, and fought for their protection, New York's Adirondack Park has become a popular recreation destination. Of its 6.5 million acres, essentially half are in the public domain, open for various forms of recreational use, and protected by the landmark 'forever wild' clause of the state Constitution. The 1972 Adirondack Park State Land Master Plan (APSLMP) and its subsequent revisions, have established a system of designated wilderness in the Park that parallels that of the federal Wilderness Preservation System (NYS APA, 1987). New York now has 17 wilderness areas within the Adirondack Park, each with distinct natural and social conditions and characteristics and visitor use patterns.

As visitor use of some of these wilderness areas has increased, the ability of a wilderness hiker to have unconfined recreational experiences and to experience solitude may be disappearing in some areas while thriving in others. Hikers who are confronted with wilderness conditions that challenge their ability to have a satisfying recreational experience may rectify this dissonance through one or more of four coping behaviors.

The coping behaviors used by visitors came under study by recreation researchers as a potential explanation for the

consistently high satisfaction levels reported by recreationists despite concurrent reports of crowding (Cole et al., 1995). If wilderness visitors are able to alter their recreational experience, their expectations from it, or their perspectives of it, they may be able to maintain their satisfaction despite encountering conditions, such as crowding, that they saw as dissatisfying. Coping behavior theory is divided into two types of behaviors: physical and cognitive, both of which were adapted for recreation research from studies of stress coping and crowding done by urban sociologists (Graefe et al., 1984; Manning, 1999).

Physical coping, or displacement, occurs when a hiker changes their use pattern, removing themselves from the wilderness environment in which they felt, or expected to feel conflict. The hiker may be *displaced spatially* to a substitute wilderness environment that meets their needs, if one is available, or they may also be *displaced temporally* by altering the time at which they visit the wilderness to avoid conflict. Past research often defined displacement as a visitor movement away from conditions of user-user crowding (Heberlein & Shelby, 1977; Kuentzel & Heberlein, 1992; Shelby et al., 1988). Recent research indicates that this is perhaps too narrow a definition as hikers may be displaced by a number of factors that could cause dissatisfaction or conflict, including management actions (Hall & Cole, 2000).

Cognitive coping can take two forms: product shift and rationalization. *Product shift* is the process by which a hiker alters their expectations or perspectives of the wilderness opportunity to be in line with the conditions they encounter or expect to encounter (Shelby et al., 1988; Hammitt & Patterson, 1991; Shindler & Shelby, 1995). For example, a hiker may come to accept wilderness as a place in which they may encounter large numbers of other hikers and trailside and campsite litter. *Rationalization* is a reevaluating of the wilderness experience that occurs when a user weighs their investment in the wilderness opportunity against any dissatisfying conditions encountered (Manning & Cial, 1980; Stewart, 1992; Manning, 1999). Rather than view the trip as a waste of time or money, for example, the user will devalue dissatisfiers and place a higher value on positive aspects of the experience to rectify cognitive dissonance.

Past research has predominantly sought empirical evidence of user coping behaviors and also sought to determine their cause. While some success has been made documenting shifting patterns of use (Becker, 1981; Anderson & Brown, 1984; Shelby et al., 1988; Kuentzel & Heberlein, 1992), there has been limited success in establishing causal connections between user coping and crowded conditions and other wilderness experience dissatisfiers. Hall and Cole's (2000) recent paper is a decided change in this trend as they were able to document user displacement caused by user dissatisfaction with management actions.

The limited success of many past studies of user coping response is somewhat related to the research methods employed to attempt to measure coping behavior. Most past research has employed self-reporting mail surveys and

other off-site and impersonal methods, which have been unable to capture the complexity and opportunistic nature of user coping responses and satisfactions. This study makes use of a hybrid design, combining in-depth interviews conducted in the field, with field-administered surveys. The field interviews and survey attempted to measure and explain the employment and effectiveness of physical and cognitive coping behaviors by Adirondack wilderness hikers to avoid perceived dissatisfiers.

Methods

This study was exploratory in its design, as it attempted not only to measure the extent to which Adirondack wilderness hikers were employing physical or cognitive coping behaviors, but also to measure their effectiveness. Departing from past studies of coping, this study made use of qualitative in-depth interviews in an attempt to document and describe the complex nature of coping, a distinct advantage of the probing and adaptive qualitative interview method. To better understand the attributes of wilderness that hikers find important and factor in their satisfaction, a brief survey and Importance-Performance analysis of wilderness characteristics and conditions were used. This data was also used to measure the effectiveness of the four coping behaviors.

Both the interviews and surveys were administered in the field so that wilderness hikers could be questioned during the course of their recreational activity. The advantage to this technique is that the interviewer is able to probe hikers responses to questions, leaving less chance for misinterpretation, and encouraging the hiker to respond based on their current or actual experience. This technique attempts to avoid the concern that hikers surveyed through the mail weeks or even months after their wilderness experience may respond to questions either hypothetically, or with unrealistically positive memories of past trips. Individuals may tend to distance themselves from negative experiences and may more often remember the positive aspects of an experience.

The Adirondack Park serves as an excellent location to study coping behaviors as its 17 wilderness areas, that total over 1.02 million acres, provide a range of opportunities, contained in the Wilderness Opportunity Spectrum (Hendee et al., 1990). These areas have a range of visitor use intensity levels from a few hundred per year in the Pepperbox Wilderness to 140,000 in the High Peaks Wilderness Complex, all in relatively close proximity to each other and to major urban settings. One wilderness, the William C. Whitney Wilderness, was removed from the sample, because of its divergent visitor use pattern of canoeing and boating rather than hiking, and the remaining 16 areas were organized into four use level categories based on New York State Department of Environmental Conservation visitor data. Data collection was stratified between each of four Adirondack wilderness use level categories, which were set as: "Intensive Use," for the Eastern Zone of the High Peaks, with its estimated 123,000 user trips a year, with the remaining areas divided among "Heavy Use," "Moderate Use," and "Light Use." As

wilderness use densities are known to fluctuate between weekdays, weekends, and holidays (Dawson et al., 2001), sampling was stratified not only among the use level categories but also between weekdays, and weekends and holidays.

After encountering a hiker along the trail, asking for their cooperation in an interview, and obtaining permission to tape record the interview, each hiker was asked a set of 12 general questions. Opening questions in the interviews served to establish rapport with the hiker, and document their residency and past wilderness hiking experience. Hikers were then asked a series of questions that established whether or not they had coped with dissatisfying conditions in wilderness. Further questions were asked to probe hikers responses and to encourage them to elicit stories of their responses to dissatisfying or unexpected and undesirable conditions in wilderness. For example, hikers were asked if they had ever felt crowded in an Adirondack wilderness area, or encountered dissatisfying social conditions. If they responded that they had, follow-up questions were asked to determine if these dissatisfying experiences had caused them to be displaced from a preferred location, for example. Interviews took place at popular wilderness destinations like mountain peaks and ponds, in campsites, and also along trails wherever hikers were encountered.

After the interviews, which lasted from 15 minutes to an hour in length, each hiker was asked to fill out a single-page survey. The survey was comprised of a set of eight statements of wilderness characteristics and four statements of wilderness conditions. Hikers scored each statement on a six-point importance scale (0 to 5) and a five-point satisfaction scale (-2 to 2). The interview and survey sought similar information using different approaches to attempt to complement each other and capture a clearer understanding of the phenomenon of coping and displacement. The interviews asked hikers to relate stories of their experiences and use patterns of Adirondack wilderness in their own words, while the survey simply asked them to rate certain characteristics and conditions of wilderness.

At the end of the field season, interviews and interviewers comments and observations were transcribed and analyzed, in the qualitative thematic coding tradition, using *The Ethnograph* software package. Interview transcripts were read and analyzed in detail and selections of text were marked or coded as pertaining to a coping strategy or other important thematic elements. Data from the single-page surveys was entered and analyzed using the Statistical Package for the Social Sciences software (SPSS version 10.0 for Windows). Statistical tests included: chi-square statistics to test patterns of coping among the four use levels and independent sample t-tests of importance and satisfaction scores among coping or non-coping groups.

Importance-Performance analysis (I/P analysis) is an effective way to visually assess the relative significance of specific attributes on the overall satisfaction of a recreationist (Hammit et al., 1996; Smith & Tarrant, 1999).

In I/P analysis means of importance and performance – in this case, satisfaction – scores are plotted on the y and x-axis, respectively. Four quadrants are assigned the following labels and represent whether management attention is needed for various attributes: “Keep up the good work” (high satisfaction, high importance), “Possible Overkill” (high satisfaction, low importance), “Low Priority” (low satisfaction, low importance), and “Concentrate Here” (low satisfaction, high importance).

Results and Discussion

A total of 102 wilderness hikers were interviewed between Memorial Day and Labor Day of the summer of 2000, after spending 51 days and 36 nights interviewing on the trail, hiking approximately 390 miles in 16 wilderness areas and driving 5,941 miles between trailheads and home. On only one occasion did hikers decline to be interviewed – both were training for the Ironman Triathlon in Lake Placid and wouldn't stop running.

Of the 102 hikers interviewed, 66 were male and 36 female, ranging in age from 12 to 74 with a mean age of about 35 years. A majority of the sample was overnight hikers, with 72 camping out at least one night. The remaining 30 were day hikers, not spending a night in the wilderness. Most were residents of New York State, with 69 hikers reporting they lived in the state, while 23 were from other states and 10 resided in Canada.

A series of questions was asked to determine whether or not the individual had made use of any coping strategy. For example, one question asked of every hiker was: “Have you ever felt crowded in an Adirondack wilderness area and if so, what did you do about it?” As this series of questions was open ended and responses often the subject of probing following questions, qualitative analysis was used to make determinations regarding the employment of coping behaviors.

Of the 102 people interviewed, 54 had used one or more forms of coping behavior, while 48 had not. Physical coping behaviors were the most prevalent with 35 hikers employing temporal displacement, and 28 hikers employing spatial displacement. Cognitive coping behaviors were used to varying degrees, with 33 hikers using product shift, and 8 hikers using rationalization. What follows are examples of each of the four coping behaviors as reported by hikers in the sample.

Temporal Displacement

Qualitative determinations indicated that the 35 hikers employing temporal displacement were distributed across the spectrum of wilderness use intensity categories and were using the physical coping behavior in two ways. Hikers using temporal displacement were either shifting their time of wilderness use from weekends to weekdays, or from the summer season to either spring or fall. These hikers reasoned that the times they preferred, weekdays and the spring and fall, were times of lower use intensity in their preferred wilderness.

In the course of interviewing a 40-year-old Rochester, New York man in the Five Ponds Wilderness, he explained that

he had felt crowded by other users at various times hiking in the High Peaks Wilderness Complex (HPWC). Still wanting to hike in the HPWC, this man and his wife described their strategy of avoiding dissatisfying situations of crowding this way:

Yeah, like Johns Brook, we [are] going to do towards the end of this month and we're not going to start until Monday. Just because I know going up to Johns Brook Pass there will be a lot of weekend warriors and I hope to let them clear out if they are [hiking] on a weekend. And then, on a non-holiday setting for the week, I'm hoping that [it] is going to cut down on traffic. So, we are going to come in from the Garden [Trailhead] on a weekday just for that reason.

This hiker and his wife were making use of temporal displacement to maintain their satisfaction with the HPWC, avoiding the Johns Brook Valley corridor on a weekend as in the past they had felt crowded by the number of other users there. This man and his wife were not alone in their attempts to avoid feeling crowded by “weekend warriors,” among many other potential dissatisfiers.

Spatial Displacement

A total of 28 hikers interviewed reported changes in the use of Adirondack wilderness areas that indicated they were spatially displaced. Like those hikers temporally displaced, the spatial displaced hikers were using the behavior in two ways. These hikers were either being displaced from one wilderness area to another (inter-wilderness displacement) or from one location in a wilderness area to another (intra-wilderness displacement).

Crowding in the Eastern Zone of the HPWC has spatially displaced one 24-year-old woman, from Warner, New Hampshire, interviewed at the Uphill Brook Lean-to, in the HPWC, a few miles from Lake Colden. She reported feeling crowded and was dissatisfied with litter and waste she saw when hiking past Marcy Dam and Lake Colden.

I am just like, whoa, I can't imagine wanting to stay at either of those places. It is just, it is not really a wilderness experience when you have that many people out there and they're noisy.

She reported she had been displaced to lesser-used parts of the HPWC, indicating she was using intra-wilderness displacement. Though she said she would never camp at Marcy Dam or Lake Colden, she said she would consider hiking through those areas if there was a specific wilderness destination she wanted to access that required passing through there. This is evidence of cognitive coping behavior use as well.

Product Shift

This cognitive coping behavior was the second most commonly used coping behavior among hikers in this study, as indicated by their responses to interview questions. A total of 33 hikers reported cognitive changes

in their expectations or perspectives of a wilderness experience to accommodate conditions they encountered.

For example, one 48-year-old male hiker from Rochester, New York, interviewed in the Siamese Ponds Wilderness placed a high value on solitude and preferred to hike in wilderness areas with a low use intensity level. However, he also liked hiking with a group of friends, who sometimes hiked in the HPWC for the high peaks experience. As a result, he made use of product shift to maintain his satisfaction in the face of dissatisfying crowding on a HPWC peak:

If the other guys all wanted to do one, I would do it. But, I know what to expect and wouldn't be disappointed.

This hiker, based on previous experience with crowding in the HPWC had redefined that wilderness experience and now expected to encounter crowding when hiking there. Product shift was allowing this hiker to join his friends on a HPWC trip and be satisfied overall with that trip despite not being able to experience the solitude he valued. While had redefined the HPWC experience, some hikers used rationalization to revalue the wilderness experience.

Rationalization

For some hikers their investment in the wilderness experience, in time and money for example, is of more value than dissatisfying conditions like crowding, and they are rationalize satisfaction from their trip. This cognitive behavior adaptation proved difficult to measure, perhaps as it likely occurs subconsciously, with only eight hikers in the sample determined to be using it.

A 26-year-old Canadian hiker interviewed on Mount Marcy in the HPWC said the trail erosion, human impacts and large numbers of other hikers he had encountered were "just part of the deal," and would not dissuade him from hiking in the High Peaks because "they are close, they are very accessible, and of course free." Unable to invest the time and money necessary to hike in the wild expanses of northern and western Canada, this Ottawa man chose the HPWC and reported being satisfied overall with his experience there.

Coping behaviors were clearly being used by these Adirondack hikers to maintain their satisfaction with their wilderness experience. Chi-square tests yielded no statistically significant differences between the four wilderness area use intensity categories for those using no coping behaviors and those making use of coping behaviors (Table 1) (Chi-square = 4.3; df = 3; p = 0.24). Theoretically, coping behavior employment should have some relation to wilderness use intensity. Hikers making use of spatial displacement would likely be found in areas with a lower use intensity level, while hikers coping cognitively would likely be found in areas with a higher use intensity level. The equal distribution of physical and cognitive coping behavior use across wilderness area use intensity categories is likely due to a balancing effect of spatially displaced hikers in lesser-used areas while hikers coping cognitively were found in high use intensity areas.

Table 1. Comparisons of Sample Size and Percentage between Coping Behavior Usage and Wilderness Area Use Intensity Category in 16 Adirondack Wilderness Areas in 2000

Wilderness Area Use Intensity	N	No Coping Behavior Use	Coping Behavior Use
Light	N	8	5
Moderate	N	16	28
Heavy	N	16	12
Intensive	N	8	9
Total	N	48	54

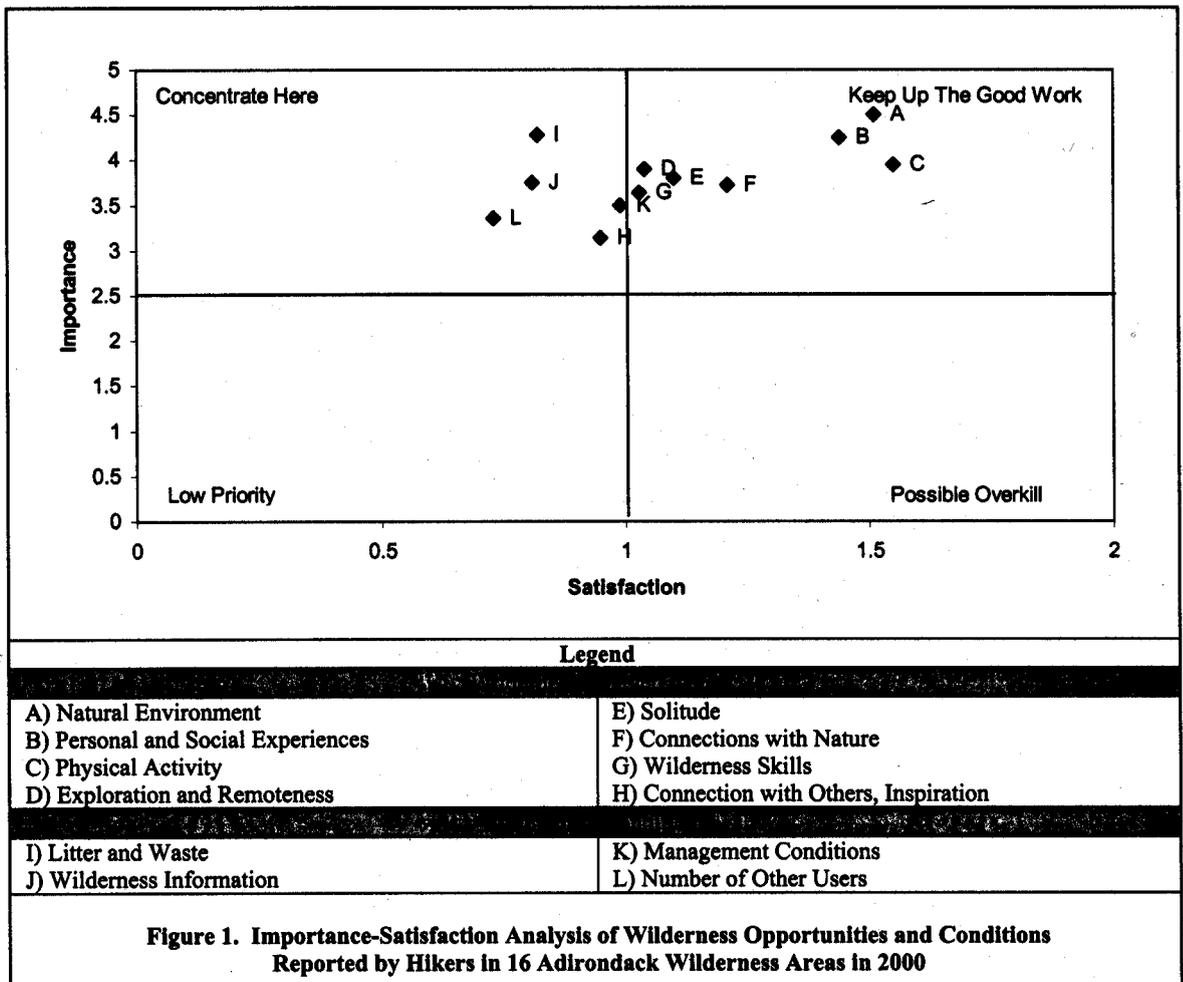
Importance and satisfaction scores from the entire sample indicate that Adirondack wilderness managers are, in general, providing the quality of experience that these Adirondack wilderness users were seeking. Importance and satisfaction means for each of the 12 wilderness characteristics and conditions were high (Table 2). In addition, these high mean scores indicate wilderness visitors are using coping behaviors to maintain their satisfaction.

Table 2. Mean Importance and Satisfaction Scores with 12 Wilderness Characteristics and Conditions for 102 Adirondack Wilderness Hikers Interviewed in 2000

Attribute	Importance	Satisfaction
Natural Environment	4.50 ^a	1.51
Personal & Social Experiences	4.25	1.44
Physical Activity	3.95 ^a	1.55
Exploration & Remoteness	3.90	1.04 ^a
Solitude	3.80	1.10
Connections with Nature	3.72	1.21
Wilderness Skills	3.64 ^a	1.03
Connection with Others, Inspiration	3.14	0.95
Litter and Waste	4.28	0.82 ^a
Wilderness Information	3.75	0.81
Management Conditions	3.50	0.99
Number of Other Users	3.36	0.73 ^a

^a Statistically significant t-test differences (alpha = 0.05) between the mean scores of those using and those not using coping behaviors.

Due to the high importance and satisfaction means for every attribute, the quadrant lines, based on the grand mean of means, were not included in Figure 1, as is traditional in I/P analysis. The reasoning for this change is the very high level of importance ratings for all 12 variables. Rather than drawing quadrant lines on the grand mean of means, the figure was divided on middle of the importance scale at 2.5, and on the upper quarter of the satisfaction scale at 1 (satisfied).



Highest importance and satisfaction were placed on the quality of the natural environment (attribute A), personal and social experiences in wilderness (attribute B) and with the physical activity component of the wilderness experience (attribute C). Hikers were also highly satisfied, but placed a slightly lower importance on their ability to make connections with nature (attribute F).

Interestingly what is considered a hallmark of any wilderness experience, solitude (attribute E) fell almost exactly on the grand mean of means for both importance and satisfaction. Attributes for all four wilderness conditions, such as litter and waste (attribute I), had lower satisfaction ratings in relation to their high importance ratings, indicating each condition should be of some concern to wilderness managers.

The importance and satisfaction survey data was further analyzed in conjunction with the qualitative determinations of whether a hiker was using a coping behavior. The importance and satisfaction scores of those who had made use of any of the four coping behaviors were separated from those who used no coping behavior. Mean scores for each group were compared using independent sample t-tests with a significance level set at $\alpha = 0.05$.

Of the 12 importance attributes, three showed statistically significant differences between those making use of some coping behavior and those not using any (Table 2). Those hikers who had not used a coping behavior in Adirondack wilderness placed a higher importance on the physical challenge of their wilderness experience, improving their wilderness travel skills, and their enjoyment of the natural wilderness environment than those using coping behaviors.

Differences were found for three of the 12 satisfaction attributes, where three were found to have statistically significant differences between those using a coping behavior and those not (Table 2). However, the three statistically significant importance attributes were not the same as the three statistically significant satisfaction attributes. Those using coping behaviors were less satisfied with the amount of litter, number of other users encountered on a wilderness trip, and exploration and remoteness in wilderness than those not using coping behaviors.

Study Implications

High overall satisfaction levels with few significant differences between those who have made use of coping behaviors and those who have not, coupled with the fact

that both groups were evenly distributed across the spectrum of wilderness use level categories, indicates a greater complexity and interaction of coping behavior employment than was previously expected. So, while the hikers in this group who have and have not made use of coping behaviors may have been standing on the same mountain peak or beside the same pond, they were looking at the wilderness around them with different eyes, seeing a different place, and having different experiences.

There were hikers in the sample that were indeed seeking solitude and wildness and were using coping behaviors to ensure that they found those conditions. However, there were also those who, regardless of parking difficulties, frequent contact with other users, eroded trail conditions, and noisy campsites, said they will keep returning to the highly used Eastern Zone of the High Peaks Wilderness Complex, or to the crowded summit of Giant Mountain on a holiday weekend as these things simply do not reduce their satisfaction. Maybe it is a physical challenge and mountain views they are seeking and as long as their ability to feel the burn in their legs and lungs on the way to a summit view is not impeded by social or managerial conditions, their satisfaction remains high.

So while these Adirondack wilderness hikers may, at times, perceive crowding from other wilderness visitors, coping behaviors are working to allow them to maintain high satisfaction levels. Those making use of coping behaviors were less satisfied with the amount of litter, number of encounters with other hikers, and the sense of exploration and remoteness (in other words, the wildness of wilderness) and considered the physical challenge, improvement of wilderness skills, and the natural wilderness environment to be less important than those not using any coping behaviors.

Wilderness managers and recreation researchers should note that results of this study lend empirical evidence to what researchers have long expected about coping behavior employment – that hikers were using coping behaviors to maintain their satisfaction with certain wilderness characteristics and conditions.

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PERCEIVED CROWDING AT BOSTON HARBOR ISLANDS NATIONAL PARK AREA

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Abstract: The increasing popularity of outdoor recreation has led to concerns about the level and types of visitor use that can be accommodated in parks and related areas without causing unacceptable impacts to the recreation experience. Such impacts represent the social component of carrying capacity, and include perceived crowding. Crowding within recreation environments has received substantial research attention. However, most studies have been in wilderness or river recreation settings. Perceived crowding is not free of physical settings. Research indicates that perceptions of crowding do in fact differ by site and therefore exploring crowding perceptions in a diversity of recreation areas. This study focuses on perceived crowding at Boston Harbor Islands National Park Area, a new unit of the national park system in the Boston metropolitan area. During the summer of 2000, randomly selected visitors at the Boston Harbor Islands completed an onsite survey. Results indicate that most visitors to the islands do not feel crowded. However, a number of other impacts that affect the recreation experience were identified. Several management implications are apparent.

Introduction

The increasing popularity of outdoor recreation has led to concerns about the impacts of rising visitation. Initial concerns focused on impacts on environmental resources. However, it soon became clear that the recreation experience was affected too. In his monograph titled "The Carrying Capacity of Wild Lands for Recreation," Wagar (1964) noted that increasing visitor use affected not only environmental resources but the quality of the recreation experience. Concerns over the impacts on the recreation experience led to a growing interest in the issue of crowding. The notion that there is some level of visitor use beyond which the quality of the recreation experience diminishes to an unacceptable degree forms the basis of the concept of social carrying capacity. This concept has

provided a framework for theoretical and empirical research on crowding.

Crowding in parks and related areas is the focus of a large and growing body of scientific literature. Crowding has been defined as "a negative and subjective evaluation that the specified number is too many" (Shelby et al., 1989). Crowding is often interpreted as a normative concept, dependent on a number of factors and circumstances. Most of the early crowding studies were conducted in wilderness or river recreation settings. However, since the early 1990s researchers have begun to study crowding in a variety of other recreation settings such as national monuments (Andereck & Becker, 1993; Manning, Valliere, Wang, Lawson & Treadwell, 1999) and natural history museums (Budruk, 2000).

Factors Influencing Crowding

The literature on crowding in parks and related areas indicates that a variety of factors can influence crowding perceptions (Manning, 1985; Manning, 1999). These can be broadly grouped into three categories: visitor characteristics, characteristics of those encountered and situational variables.

Visitor characteristics such as recreation activity engaged in, motivations for outdoor recreation, preferences and expectations for use levels, experience level and attitudes toward management have been shown to influence crowding perceptions. For example, in their study of visitors at a national park in Alaska, Bultena, Field, Womble and Albrecht (1981), examined hikers' preferences and expectations for seeing others. Respondents indicated feeling more crowded when contacts with others exceeded their preferences or expectations.

The character of others encountered can also influence perceived crowding. Such factors include type and size of group, behavior, and the degree to which groups are perceived to be alike. For example, a study of crowding at an intensively developed outdoor recreation site by Gramann and Burdge (1984), indicated that crowding perceptions were positively related with recreationists' exposure to threatening behavior of other visitors.

The situation in which encounters take place has also shown to influence perceived crowding. Factors such as type and accessibility of a recreation area, location within an area, time or season, and environmental quality and design can influence crowding perceptions. Results of a study of visitors to a wilderness area in West Virginia by Vaske, Graefe and Dempster (1982) indicate that perceived crowding is influenced by environmental impacts left by others.

Measuring Crowding

Over the years, crowding has been measured in a variety of ways, both as a single composite item as well as a multiple-item scale. Examples of single composite items include a four-level categorical response scale ranging from "no, not

at all" to "yes, very crowded" (Westover & Collins, 1987); a seven-point Likert scale with the following categories: "not at all crowded", "slightly crowded", "moderately crowded", and "extremely crowded" (Bultena et al., 1981); and a qualitative measure asking "how do you feel about the number of others around here tonight" (Absher & Lee, 1981). Other studies have used multiple-item scaling techniques. In a study on use levels and crowding on the Colorado River in the Grand Canyon National Park, Shelby (1976), used a nine-item scale with a 0.91 reliability coefficient (as cited in Shelby, Vaske & Heberlein, 1989). However, the use of multiple-item scales has inherent problems even though such scales can be reliable and allow the researcher to examine multiple dimensions of crowding perceptions. Multiple-item scales can place a substantial burden on respondents. Further, combining multiple items into a single crowding scale score can make comparing of results difficult. Finally, the results themselves may be less intuitively meaningful and therefore less directly useful to decision-makers (Shelby et al., 1989).

Heberlein and Vaske (1977) have attempted to overcome these problems by developing a nine-point single-item measure of crowding that asks respondents to indicate how crowded the site was at the time of their visit. The scale is designed such that seven of the nine points measure varying degrees of crowding, therefore allowing the scale to be sensitive to even slight degrees of perceived crowding. This single-item crowding measure has been used in both experimental as well as theoretical studies. It has been shown to be useful in a variety of recreation activities including hunting, boating, hiking, fishing, museum visitation, and recreation settings such as backcountry, frontcountry, rivers and museums. In a study comparing crowding perceptions at multiple locations (Shelby et al., 1989), this single-item nine-point Likert scale was both useful and reliable. This nine-point, single-item measure of crowding has been widely adopted in the crowding literature.

Boston Harbor Islands National Park Area

Unlike other national parks, Boston Harbor Islands National Park Area is managed by a partnership of a thirteen-member board appointed by the U.S. Secretary of the Interior, representing the National Park Service, a range of federal, state and local agencies, and private organizations. It represents a unique recreation setting for a number of reasons. First, the National Park Area is located adjacent to downtown Boston, a major cultural and economic metropolitan area in New England. Approximately forty million people live within 250 miles of the park. Second, the National Park Area comprises over 30 islands, containing a wide diversity of natural, cultural and historic resources. Finally, the islands offer a variety of recreation experiences including camping, wildlife observation, boating, fishing, historic tours and solitude. Currently, six islands are open seasonally to the public, free of charge, and have park staff or volunteers to welcome visitors. Ferries are used to transport visitors from the mainland to the various islands.

Study Objectives and Methods

The overall purpose of this study was to formulate social-based indicators and standards of quality relevant to the Park's management objectives. Specific objectives were to analyze park use patterns, identify potential indicators of quality and evaluate and select indicators of quality for park management zones. Questionnaires were developed for visitors to six areas within the park: the ferry from Long Wharf to George's Island, the ferry from Hingham to George's Island, World's End, Little Brewster Island, Deer Island and Thompson Island. Data collection was conducted during the summer of 2000 using on-site visitor surveys. A total of 695 visitors were surveyed between the end July and the beginning September. The survey was conducted on 8 weekend days and 9 weekdays between 9:00am and 6:00pm.

Study Findings

Visitor Characteristics

The average age of respondents was 41 years. Most visitors were relatively well educated averaging 16.5 years of formal education. The sample was relatively well balanced by gender with 54.2% of respondents female and 45.8% male. Respondents were primarily white (82.6%), followed by Asians (2.6%), African Americans (2.4%), and American Indian or Alaskan Natives (0.6%). The plurality of respondents were from Boston (22.6%) or surrounding communities (48.3%). International visitors comprised 4.1% of the sample.

Visitation Characteristics

A little over half of the sample (54.1%) were first time visitors. However these results varied among sites. Visitors to Deer Island (77.8%), Little Brewster (96.7%), and Thompson Island (76.5%) were primarily first-time visitors. World's End received a comparatively smaller percentage of first-time visitors (26.9%). Two-fifths of respondents (39.1%) on the ferry from Hingham, and a half of those (54.8%) on the ferry from Long Wharf were first-time visitors. Respondents visited primarily in groups consisting of family (39.8%) or friends (23.4%). Average group size was around 15 people with a median of 5.

Visitor Experiences

Popular recreation activities at Boston Harbor Islands include walking/ hiking (80.1%), sightseeing (73.1%), touring historical/cultural sites (46.2%) and picnicking (45.3%). Visitors on the Hingham ferry reported walking/hiking (24.3%) and sightseeing (23.0%) as their primary recreation activity. Visitors on the Long Wharf ferry reported sightseeing (28.3%) to be their main activity. Each island has a variety of recreation activities to offer, and primary activities reported at other sites included sightseeing (43.2%), and touring historical/cultural sites (32.4%) at Little Brewster Island; walking/hiking (36.4%) and touring cultural/ historical sites (27.3%) at Thompson

Island; sightseeing (81.7%) at World's End; and sightseeing (100%) at Deer Island.

Elements of the experience enjoyed most by respondents included scenery/views (20.2%), Fort Warren (12.9%), specific activities like hiking or beachcombing (9.1%), and peace and quiet (9.0%). Respondents indicated that lack of or poor maintenance of facilities (24.3%), lack of information (7.5%) and infrequent ferry schedules (6.9%) detracted from the enjoyment of the visit.

When asked about what they thought should be changed about the way visitors experience Boston Harbor Islands, two-fifths of respondents (40.5%) indicated that everything was fine the way it is. However, others indicated a need for more information/ education (16.8%), and more facilities and services (15.7%).

Crowding at the islands does not appear to be an important issue. Nearly three-fourths of respondents (72.7%) indicated not feeling crowded at all. Overall crowding perceptions averaged a relatively low 2.1 on the nine-point Likert scale. Nearly all respondents indicated that they were satisfied with their recreation experience.

Visitor Impacts

Overall, a little over a tenth of respondents (14.9%) indicated that visitors are causing negative impacts to the Boston Harbor Islands. Litter, broken glass, trash, garbage, graffiti, vandalism, crowding, unsupervised children and noise were the most commonly cited impacts. Around one-fourth of respondents (23.5%) were unsure if any negative impacts were occurring.

Discussion and Management Implications

The Boston Harbor Islands Partnership is in the process of preparing a general management plan that will provide a foundation to guide and coordinate all subsequent planning and management. The plan suggests that managers desire to increase visitor numbers to the park. Findings suggest that most visitors to the Boston Harbor islands do not consider the area to be crowded. This suggests that carrying capacity at the islands has not yet been approached. Management may therefore appropriately encourage an increase in visitor use.

The literature on crowding indicates that party size affects crowding norms (Manning, 1985). A majority of visitors prefer encounters with more small-sized groups as compared to few large-sized groups (Lime, 1972, Stankey, 1973). Study results indicate that around a third of groups that visit the islands consist of ten or more persons, which is fairly large for an outdoor recreation site. An increase in use at the islands may result in a subsequent increase in large visitor groups, potentially detracting from the visitor experience. Managers might therefore need to vary use levels at different islands to ensure a range of experiences from solitude to group related activities.

Crowding is now not an issue at Boston Harbor Islands National Park Area. With increasing use levels however, this may change. As noted earlier, crowding is a normative concept. It is a value judgment influenced by many factors. The literature on crowding suggests that factors other than the number of visitors can influence crowding perceptions. These factors include situational variables and characteristics of others encountered. When asked about negative impacts, 14.9% of respondents indicated they felt visitors were causing negative impacts to the park area. These impacts include litter, broken glass, trash, garbage, graffiti, vandalism, unsupervised children and noise. Such factors may at some point begin to exacerbate crowding perceptions. Managers may therefore need to monitor and evaluate these potential impacts.

Recreation carrying capacity is a useful concept in outdoor recreation, and includes natural resource and social components. Clearly, resource conditions (litter, graffiti) and social conditions (use levels) are inter-related and affect perceived crowding. Managing for perceived crowding will therefore require an integrated approach that includes both natural resource as well as social considerations.

Research on crowding in outdoor recreation indicates that visitors often have standards by which they judge a situation as crowded or not. Shelby et al. (1989) suggest that "when people evaluate an area as crowded, they have at least implicitly compared the impact that they experienced with their perception of a standard." It is therefore important that managers at the Boston Harbor Islands National Park Area develop indicators and standards of quality for both resource and social conditions. These indicators and standards of quality might vary by island, recreation opportunity and management agency.

Conclusion

Boston Harbor Islands National Park Area is a unique recreation setting that offers a variety of recreation activities. The park does not have a crowding problem at current use levels. However, with increasing use levels, this may change. The normative approach toward crowding suggests that crowding is influenced by a number of factors such as impacts to environmental resources. Managers therefore need to pay attention to problems of litter, graffiti, noise, and vandalism that are present on the islands. Managing for carrying capacities at the islands will require an integrative approach that encompasses both natural resource as well as social considerations. Finally, managers are encouraged to establish indicators and standards of quality for both resource and social conditions. These standards might vary by island, recreation opportunity and management agency.

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TRANSPORTATION PLANNING AND SOCIAL CARRYING CAPACITY IN THE NATIONAL PARKS

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Abstract: The U.S. national park system accommodates nearly 300 million visits annually. Most visitors come to the national parks in automobiles, and this poses several management challenges. Delays at national park entrances caused by traffic congestion detract from the visitor experience. Inadequate parking facilities further compromise the visitor experience and lead people to park along roadsides, damaging park resources and causing traffic hazards. At times, visitors must be turned away from some national park areas because transportation infrastructure is not sufficient to meet visitor demand.

National Park Service transportation planning has focused on addressing these issues through development of alternative public transportation systems. A number of national parks are planning and operating public transportation and shuttle systems to reduce visitors' reliance on personal transportation. While new transportation systems may mitigate traffic congestion and parking problems, these systems could potentially cause other problems. For example, the fleet size, scheduling, and routing of transportation systems can directly affect the number and distribution of visitors in a national park. Efforts to design transportation systems that protect and enhance the quality of the visitor experience in national parks can be improved with information about the social carrying capacity of these areas.

This paper presents carrying capacity research conducted to support planning in Yosemite National Park. Crowding-related standards of quality were formulated in heavily visited areas of this national park. A simulation model was developed to estimate the relationship between crowding-

related standards of quality and visitor use levels and distribution. This information can be used to assist national park managers to design and operate transportation systems that integrate considerations of social carrying capacity.

Introduction

Our national parks contain important natural, cultural, and historical resources. Their importance is reflected in the fact that they currently receive nearly 300 million visits per year (National Park Service, 2001b). With increasing visitor use comes potential impacts to park resources and the visitor experience. Most visitors to national parks come via private automobile. Reliance on the automobile challenges park managers with a host of management issues that include traffic congestion, insufficient or inadequately managed parking, noise, and limited opportunities to use non-motorized travel or alternative transportation modes. The interaction between impacts created by automobile traffic, park resources and the visitor experience is the focus of this paper. Changes to transportation systems within national parks can potentially affect the visitor experience. These effects can be positive, or as we will demonstrate, potentially negative, depending on how alternative transportation systems are designed and developed.

In this paper, we will:

- Demonstrate the historic connection between transportation and the national parks
- Outline current thinking about transportation planning in the parks
- Describe management challenges associated with transportation planning
- Demonstrate linkages between transportation and social carrying capacity
- Provide demonstrations of different transportation scenarios as they relate to social carrying capacity
- Demonstrate how transportation planning can be informed by carrying capacity research and vice versa

The Historic Roots of Transportation in the National Parks

Transportation to and in national parks has not always been considered a problem by national park officials. In fact, mechanized transportation was important to the growth and success of the national park system. Early efforts by railroad operators to bring visitors to national parks brought political and economic support to the fledgling park movement. While the motivations of early railroad barons may not have been fully altruistic, their support of the preservation movement lent a utilitarian air to an argument that was passionate, but otherwise lacking in pragmatic basis. In fact, support by railroads may have helped with the creation of the National Park Service. With the Union Pacific railroad's "See America First" campaign, growing numbers of tourists were encouraged to visit the national parks, thus giving the national park movement national recognition (Runte, 1997).

With the advent of the mass produced automobile, the popularity of national parks blossomed. Many early preservationists embraced the presence of automobiles in the national parks. The growing availability of automobiles to the middle class helped the national parks capture even greater public support. The few "purists" or as Edward H. Hamilton, correspondent for *Cosmopolitan* magazine dubbed them, "nature cranks," were outvoted by the large majority of preservationists who initially embraced the automobile as an opportunity to increase public popularity of the national parks (Runte, 1997). In fact, even John Muir accepted automobiles into his beloved Yosemite to increase public support for preservation of the parks. In a letter to Howard Palmer, Secretary of the American Alpine Club, Muir wrote "all signs indicate automobile victory, and doubtless, under certain precautionary restrictions, these useful, progressive, blunt-nosed mechanical beetles will hereafter be allowed to puff their way into all the parks and mingle their gas-breath with the breath of the pines and waterfalls, and, from the mountaineer's standpoint, with but little harm or good" (Bade, 1924).

The popularity of visiting national parks by automobile grew quickly. For example, in Yosemite National Park, by 1916, more visitors entered the park by automobile than by train. The following season, the ratio was nearly three to one, and by 1918, the ratio was almost seven to one (Lillard, 1968). By the mid 1950s only 1 to 2 percent of all park visitors entered by public transportation (Long, 1956). This trend has continued through present times.

Current Thinking and Challenges Facing Transportation Planning in the Parks

In recent years, the National Park Service has taken notice of the deleterious effects of automobiles on both park resources and the visitor experience. According to the National Park Service Transportation Planning Workbook (1999), "much has changed in the past 80 years. Parks have become so popular and so readily accessible that many park roads are inundated with increasingly long lines of vehicles. Many NPS facilities and infrastructure are stretched to their limits. Congestion and its accompanying pollution threatens to degrade the visitor experience as well as the priceless natural and cultural resources that have been so carefully preserved."

In response to the challenges facing park managers, the Department of Interior and the Department of Transportation began working together in 1997 to formulate solutions to park transportation issues. The Department of Interior and the Department of Transportation entered into a Memorandum of Understanding in November of 1997 to respond to high visitation levels and the corresponding problems that result from growing volumes of traffic and spiraling demands for visitor parking. The challenge of balancing stewardship of park resources against the pressure for more public access has become increasingly difficult in recent years. The Memorandum of Understanding lays the foundation for developing more comprehensive, intermodal, and financially efficient transportation systems while

addressing the National Park Service's dual mandate of preserving natural and cultural resources and providing for a meaningful, pleasant visitor experience (National Park Service, 2001c).

In 1999, when unveiling Acadia National Park's new alternative transportation system, then Secretary of Interior Bruce Babbitt remarked "Our parks don't have too many people, but they can, and often do, have too many cars. There is almost a tyranny of the automobile, where honking, fumes and hectic search for parking actually limits and inhibits our experience of nature. Two years ago, we sought a better way. Today I'm proud to announce that we've found it." Secretary Babbitt continued "From Yosemite to Yellowstone, to the Grand Canyon and Zion, the Park Service is looking at emerging technology to help fulfill our 83-year-old mandate to provide access to, and preserve unimpaired, our greatest natural resources" (National Park Service, 2001a).

The emerging technologies former secretary Babbitt spoke of were intelligent transportation systems (ITS), and alternative transportation systems (ATS). Some of the strategies and tools used by these systems include:

- Enhanced roadways
- Provision for non-vehicular travel modes
- Enhanced visitor information
- Encouragement of use of alternate travel modes
- Improved "way-finding" signage (ITS)
- Restricted access to roadways
- Iterative Transportation Systems (e.g., buses, light rail)

One of the primary strategies employed by transportation planners thus far in the national parks has been the use of ATS. In a number of parks, including Grand Canyon, Acadia and Zion, plans for ATS have been created, and in some cases, implemented. These systems offer potential solutions to some of the transportation problems that many parks face. For example, by introducing ATS, the number of private automobiles entering parks will be reduced thereby reducing traffic congestion, alleviating parking problems, and reducing adverse impacts created by noise and air pollution. Additionally, opportunities for further interpretation may become available when groups of people are together on a public transportation system.

Linkages between Transportation and Social Carrying Capacity

Since alternative transportation systems can directly affect the number and distribution of park visitors at various attraction sites within a park, implementation of ATS can potentially affect the carrying capacity of parks. Carrying capacity is generally defined as the maximum number of visitors that can be accommodated in a park or related area without unacceptable impacts on park resources or the quality of the visitor experience (Manning, 1999). Contemporary approaches to managing carrying capacity, including Limits of Acceptable Change (LAC) (Stankey et al., 1985) and Visitor Experience and Resource Protection

(VERP) (National Park Service, 1997; Manning, 2001), rely on formulation of indicators and standards of quality. Indicators of quality are measurable, manageable variables that reflect management objectives for resource protection and the quality of the visitor experience. Standards of quality define the minimum acceptable condition of indicator variables. ATS can potentially affect indicators and standards of quality, and ultimately carrying capacity through variations in fleet size (number of vehicles in fleet and capacity of each vehicle), scheduling and routing.

Case Study: Yosemite National Park

In a study of carrying capacity in Yosemite Valley, visitors at the base of Bridalveil Fall were asked questions regarding park conditions that added to or detracted from the quality of the visitor experience (Manning, Valliere, Lawson, Wang & Newman, 1999). The number of persons at one time (PAOT) at the fall emerged as an important indicator of experiential quality. Visitors were also asked to rate the acceptability of a series of computer-generated photographs showing a range of people at the base of the fall. These data provide a basis for helping formulate a standard of quality for PAOT at this site.

A computer simulation model of visitor use of Bridalveil Fall was also developed (Manning et al., 1999). This model was used to estimate PAOT at the base of the fall. Figure 1 traces PAOT over the minutes of a simulated day. Average daily use at Bridalveil Fall is approximately 3,500 visitors, and the simulated day ran from 7:00am (0 minutes) to 8:00pm (780 minutes). The mean PAOT (69) is represented by a horizontal line.

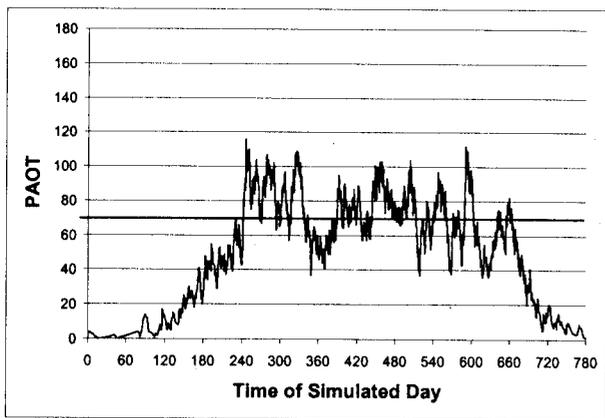


Figure 1. Simulation of Current Conditions at the Base of Bridalveil Fall

Two alternative scenarios were then developed and run using the computer simulation model. These scenarios were designed to simulate visitor use under an ATS. Both scenarios held total daily use of Bridalveil Fall constant at 3,500 visitors, but varied arrival schedules. In the first scenario, visitors arrived in groups of 180 every 30 minutes, and findings from this scenario are plotted in Figure 2. In this scenario, mean PAOT, represented by the

higher horizontal line, increased dramatically to 98. In the second scenario, visitors arrived in groups of 45 every 7.5 minutes, and findings from this scenario are plotted in Figure 3. In this scenario, mean PAOT, represented by the lower horizontal line, decreased to 62.

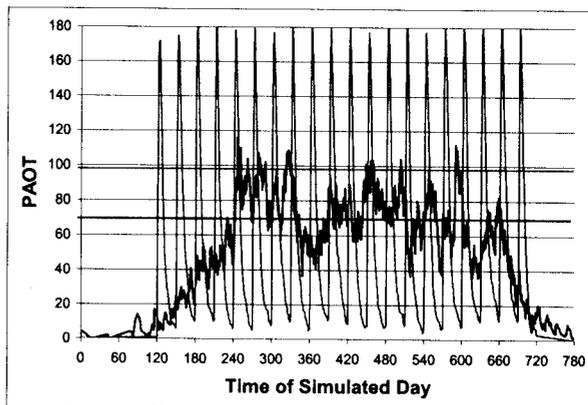


Figure 2. Simulation of Current Conditions and 30 Minute Scheduled ATS at the Base of Bridalveil Fall

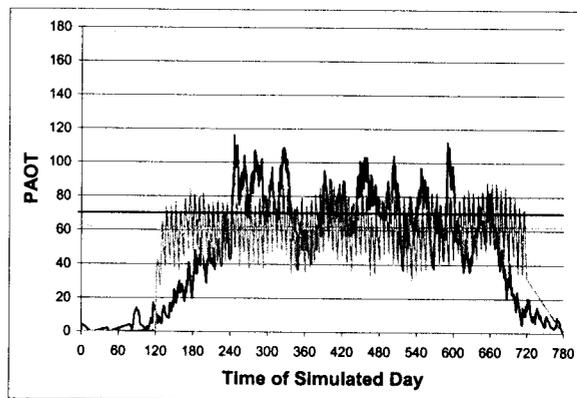


Figure 3. Simulation of Current Conditions and 7.5 Minute Scheduled ATS at the Base of Bridalveil Fall

These results suggest that PAOT, which is a salient indicator of the quality of visitor experience is transportation dependent. Infrequent, large groups can increase average PAOT, thereby effectively decreasing carrying capacity. Further, more frequent, moderately sized groups, can decrease average PAOT, thereby effectively increasing carrying capacity.

Conclusions

Instituting ATS may improve conditions on park roads, but has the potential to both improve and degrade social conditions at park attraction sites. In general, small groups delivered frequently at regular intervals tend to decrease PAOT, while large groups, delivered less frequently, will tend to increase PAOT.

Transportation systems can affect social carrying capacity as measured by indicators of visitor experiential quality. Transportation planners therefore need to carefully consider carrying capacity issues. Integration of transportation planning and social carrying capacity is necessary to institute park planning that does not degrade the quality of the visitor experience. By doing so, park managers can address issues of transportation capacity and social carrying capacity within a single framework. Computer simulation modeling allows manipulation of several dynamic variables at one time (e.g., rate of delivery, group size, scheduling, routing) offering a more comprehensive assessment of potential transportation alternatives, and can be an effective tool integrating transportation planning and social carrying capacity research.

Potential exists for future research into the integration of social carrying capacity and transportation planning. First, applying a variety of transportation scenarios to a park-wide computer simulation model could provide a more complete picture of the interaction between social carrying capacity and transportation systems. Second, inclusion of indicator variables that apply to both transportation planning and social carrying capacity into studies and planning could give managers a broader understanding of how park systems function.

Integration of transportation planning and carrying capacity offers potentially important mutual benefits. Carrying capacity can provide estimates of appropriate use levels at strategic sites within a park, and these data can be used to help design the routing and scheduling of a transportation network. Moreover, an appropriately designed transportation network can be a vital tool in implementing a carrying capacity plan.

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The Role of Information in Travel Planning Decisions

ASSESSING INFORMATION NEEDS AND COMMUNICATION BEHAVIORS OF NATIONAL FOREST SUMMER VISITORS

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Abstract: Information needs and satisfaction with various media are studied on the San Bernardino National Forest. Personal contact with rangers or staff is preferred, and about one-third to one-half of all visitors reported using various print media (brochures, maps, etc.). Least used were websites or mass media. Second, an adaptation of communication theory, uses and gratifications, is tested. Results suggest that the uses and gratifications scales are reliable and stable, and that visitors want orientation, reassurance and educational messages, in decreasing order of importance. Each of these topics was compared between day and overnight visitors.

Introduction

Participation in various outdoor recreation activities has significantly increased over the past decade. Increases have been particularly high in forestlands that are adjacent to urban areas. Of particular concern is the knowledge that visitors from these areas may have about natural resource management policies or proper use of forestlands for recreation. One approach is to study the communications between recreation area managers and current or potential visitors. Included would be an investigation into visitors' information needs and communication behaviors (Absher, 1998). Upon knowing visitors' information needs and communication behaviors, managers would be able to enact more effective and efficient ways to reach out to visitors, and better focus management efforts in terms of environmental education, minimal impact information, alerting visitors of policy changes, or simply assuring that visitors are able to achieve the highest quality experience.

Group Differences

Visitor communication in resource management has typically employed various print and non-print communication media such as interpretive bulletin boards, flyers, and brochures. Often the task has been to instill awareness, generate interest, and influence or modify behavior. Programs are only effective if the information positively influences recreationists' attitudes, and more

importantly, creates an acceptable behavioral ethic during and after the visit to a recreational setting (Cole, 1999). For example, Oliver, Roggenbuck and Watson (1985) identified a fifty percent decrease in tree damage and litter in a campground as a result of creating awareness among campers via brochures about low-impact camping. Correspondingly, Cole, Hammond and McCool (1997) found that hikers exhibited a significant increase in knowledge after exposure to environmental messages encouraging low-impact practices.

However, the overall effectiveness of various print and non-print communication media is questionable, as the message is constrained due to the inability to reach all recreationists (Cole et al., 1997). Face to face communication can be much more effective, due to the credibility of the source of information (Knopf & Dustin, 1992; Vander Stoep & Roggenbuck, 1996), as in the case of a backcountry ranger informing a backpacker about the risks involved in the backcountry. Roggenbuck and Berrier (1982) found greater effectiveness with the combination of brochures and personal contacts among campers. Similarly, Olson, Bowan and Roth (1984) noted an increase in visitors' knowledge and attitudes via the use of brochures and direct personal communications, while the use of signs was much less effective among visitors. When given a choice, forest visitors seem to prefer face-to-face interaction to written or displayed information (James, Absher & Blazey, 1999).

However, visitor communication is typically concentrated on-site where the learning environment is informal and attention to the educational message is optional. It has been suggested that specific user groups with low awareness, knowledge or experience should be targeted with offsite communications (Confer, Mowen, Graefe & Absher, 2000). If information is received prior to site visitation or activity participation, there is the possibility that users will be more aware of appropriate behaviors and will choose to visit the 'right' place/setting (Vander Stoep & Roggenbuck, 1996). To achieve this objective, it is essential to understand the process of information search, as well as preferences for communication media among visitors (Brown, McCool & Manfredi, 1987).

Finally, information needs and communication behaviors often lack homogeneity across all users because they are dependent upon various factors such as level of experience, proximity to the destination, ethnic background, and activity participation. First time visitors are more likely than repeat visitors to seek information about a new setting. Hence, they might be more inclined to read the information provided by management, such as interpretive bulletin boards, flyers, and brochures. They might also be expected to seek basic and additional information about the setting (Rogers & Ramthun, 1998). On the other hand, more experienced visitors or skilled recreationists may be more likely to pursue personal contacts to gather information about the setting, or may in fact feel comfortable in acting on incomplete or inaccurate information. For example, Williams and Huffman (1986) noted a difference in the process of information use by more and less experienced

visitors; wherein specialized hikers demonstrated a greater propensity to seek additional information than non-specialized hikers. Finally, ethnic or group composition variables may be a factor. Parker and Winter (1996) reported that Hispanics were less likely to approach a management agency for information, and more likely to obtain information about a recreation area via family or friends. Also, Hispanics have shown a greater proclivity to learn about the rules and regulations, while their preferred medium of communication was print media (Winter & Chavez, 1999). In summary, information needs and behaviors may vary by user group.

Communications Approach

Based on the above review, it is apparent that information services may be critical links enabling managers to communicate effectively with a broad range of visitors. Information needs and communication behaviors have been a relatively new subject of study within the outdoor recreation field, and research has primarily focused on the application of social psychological theories, notably persuasion theory and/or close variants of theories of reasoned action (Absher, 1998). Although the use of social psychological theories offers a valuable way to understand communication behaviors, research should incorporate other existing theories from various disciplines to further extend our understanding of communication patterns. To be clear, the dismissal of currently used theories, notably socio psychological derivatives, is not advocated here. Rather a more integrated interdisciplinary approach is encouraged — one that may complement, advance or provide a more complete assessment (Absher, 1998).

A relatively untested approach to deciphering information and communication behaviors comes from the mass communication field. A popular theory known as “uses and gratifications” (U&G) has been employed over the last 50 years to study the public’s perception of gratifications sought and obtained via engagement in mass communications across a variety of modalities such as television programs, phone usage and print media. It is important to note that gratifications sought and gratifications obtained are not synonymous. Gratifications sought (GS) are defined as ‘needs, expectations, or motivations for media use,’ while gratifications obtained (GO) reflect ‘actual fulfillment’ of the gratifications sought (Dobos, 1992, p. 30). The causal link between gratifications sought and gratifications obtained is important because, if sought after gratifications are not obtained during the process of media engagement, then the likelihood of further engagement is reduced, and future communication opportunities may be lost.

Basically, the U&G approach assumes that viewing audiences differ in the gratifications they seek and obtain while engaged in the mass media (Vincent & Basil, 1997). Also, this theory assumes that viewing audiences are not passive receivers but rather are actively involved in making a conscientious and motivated attempt to seek various

gratifications (Anderson, 1987; McQuail, 1983). It is due to the various purposes or gratifications sought by the audiences that the outcome of the viewing experience fluctuates among individuals engaged in similar mass media outlets (Anderson, 1987).

That said, U&G might vary by setting. In other words, various media outlets may be sought for different gratifications. For example, newspapers were sought for sociopolitical knowledge and self-understanding was obtained by books, while broadcast media such as interpersonal channels, film, and television programs granted ‘more affective gratifications’ when compared with newspapers (Katz, Gurevitch & Haas, 1973 in Dobos, 1992, p. 31). Recently, Vincent and Basil (1997) indicated that newspaper reading resulted in better knowledge of current events when compared with newsmagazine reading among college students. It is evident that individuals resort to various media types to seek and fulfill various gratifications. It is unclear at this time which information needs are fulfilled in outdoor recreation settings.

Even though U&G has been extensively employed in media studies (mass communications), rarely has there been an attempt to incorporate this theory or other mass communication theories in the context of outdoor recreation, although the applicability is implicitly evident and strongly recommended (Absher, 1998). To date, a few exploratory studies have been conducted (Absher & Picard, 1998; Absher, 1999).

Uses and Gratifications Scales for Outdoor Recreation

The basic U&G principles were adapted and pilot-tested among Forest visitors to establish theoretical validity by Absher and Picard (1998). Based on this work this study focused on a four-dimension implementation of U&G scales: *Orientation*, *Instrumental*, *Educational* and *Reassurance*. Each dimension highlights one practical aspect of the outdoor recreation experience. The first dimension, *Orientation*, refers to seeking information about forest activities, events and various places within the forest. The second dimension, *Instrumental*, refers to visiting the Forest or Forest Service sites to gather logistic information about parking facilities, day-use permits and operating hours. The third dimension is *Educational*. As the name implies, it refers to seeking or visiting the forest to learn about various plants, wildlife, and preservation and conservation ideas and concerns. The fourth dimension, *Reassurance*, refers to the use of information to avoid getting lost, avoid potentially dangerous situations, and know where to get help if the need arises. A total of 24 uses and gratifications items were randomly arranged using a six-point, Likert scale format, ranging from strongly agree to strongly disagree. The dimensions demonstrated reliability alpha values ranging from .78 to .87. Analysis based on these scales indicated clear differences in the use of communication services across users groups (Absher, 1999).

Objectives

The work reviewed above provides a platform to build upon in terms of better understanding of visitor communications and further refinement of the U&G scales. Information services use needs to be systematically investigated. This involves various media as well as new measurement scales. Following from Absher and Picard (1998) and Absher (1999) the U&G scales need to be further tested to determine reliability among various user groups. Thus, the objectives of this paper are to:

1. Apply U&G theory to the assessment of information needs, preferences and uses among two major segments of National Forest summer visitors (overnight and day users), and
2. Assess the use of and satisfaction with various information sources (media) by these user groups.

Methods

Data were collected within the Angeles and San Bernardino National Forests, both located in Southern California. Both of these National Forests offer a diverse array of recreational opportunities including camping, hiking, swimming, boating, picnicking, sightseeing and fishing. A sampling plan was designed to target users on six days during the months of July, August and September 1997. The sampled sites included ten campgrounds and nine day-use areas.

Interviewers attempted to sample all users at each site on the designated sampling periods. A single member of each group was requested to respond to the interview questions, which took about ten minutes to complete. A total of 633 subjects were approached, of which 566 users completed a questionnaire and 67 refused to be interviewed, yielding an 89 percent response rate. There were 379 respondents that were sampled at campgrounds and 217 in day-use areas. The three-page survey instrument was administered onsite, and a Spanish version was also available. The Spanish version was needed because California has a high Spanish speaking population and some of those users might feel more comfortable responding in their native tongue.

Respondents were asked about their frequency of visitation to National Forests within the last 12 months, and the primary activity undertaken during the course of their trip. A total of 16 items related to information needs and communication behaviors based on U&G theory as adapted by Absher and Picard (1998) were employed. As explained earlier, the U&G scales was conceptually designed with four dimensions that demonstrated to be reliable based on Cronbach's alpha values: *Orientation*, *Instrumental*, *Educational* and *Reassurance*. The original scales had 24 items, but 8 items were dropped due to redundancy or lack of statistical power, as recommended by Absher and Picard (1998). The remaining 16 items, four for each U&G sub-scale, were randomly ordered on the questionnaire with a six-point Likert type scale format, ranging from strongly agree to strongly disagree. These variables were subsequently reverse coded so that higher levels of agreement resulted in higher U&G scores.

Other sections of the questionnaire asked respondents to indicate the media sources they used in planning their trip and their satisfaction with the same media in terms of their usefulness. Basic sociodemographic and recreation use questions completed the questionnaire.

Results

Profile of Subjects

Among the 566 respondents, 65% reported they were White/Caucasian, 22% claimed to be Hispanic, and below 13% classified themselves into other ethnic groups (Black/African American, Native American or Alaska Native, Asian or Pacific Islander). About 39% reported incomes between \$40,000 and \$75,000, 28% indicated between \$20,000 and \$39,999, 13% reported below \$20,000, and about 20% noted above \$75,000. Visitors were predominantly from the Southern California region (97%), with about 3% from other states.

Within the past 12 months, 23 percent of the respondents indicated they visited the National Forest six or more times, while an equal number (23%) reported one visit. During their current visit, 23 percent reported a stay of 1 day or less (day users), while 77percent were overnight visitors. This data is the result of an intentional stratification in the sample, and should not be used as a general estimate of the day use proportion in the forest. This variable was used to define the two analysis groups below.

Activities pursued at the forest varied with visitor ethnicity. About half of the day users (51%) were White, compared to nearly three-quarters of the overnight users (72%). Hispanics were twice as prevalent among day users (34%) than among overnight users (16%). About one-eighth of both campers (12%) and day users (15%) were members of other minority groups.

Information Needs and Communication Behaviors

Table 1 shows that the most used information sources were family/friends (60% or the respondents), followed by maps (55%), brochures and flyers (54%), and rangers/staff (53%). Next came three moderately used media: trail/road signs (49%), bulletin boards (42%) and guidebooks (37%). Only the World Wide Web (Internet) and radio/TV/newspapers/magazines registered low usage (13% each).

Independent of how often the various media were actually used, respondents were asked to rate their satisfaction with the sources they did use. Technologically newer and conventional mass media, such as the World Wide Web (Internet) and radio/TV/magazines/newspapers, registered low levels of satisfaction as well as relatively low use levels. Information from rangers or other Forest Service employees, and from family and friends, received the highest levels of satisfaction. These are, of course, the two personal media on the list. Maps, brochures & flyers, bulletin boards, guidebooks, and signs along roads or trails (all print media) seem to fall in the middle in terms of satisfaction.

Table 1. Communication Media Use and Usefulness (Satisfaction) by Group

Variable	Day User	Overnight User	All	Significance Test
1. Media used²				
Brochures/flyers	53.8%	53.7%	53.7%	.535 ²
Rangers/ FS employees	44.5	55.5	52.9	.023
Bulletin boards/notices at sites	42.0	42.0	42.0	.539
Signs along roads/trails	52.1	47.6	48.6	.224
Maps	47.1	57.8	55.3	.026
Websites	7.6	14.2	12.7	.034
Radio/TV/newspaper/magazines	15.1	12.7	13.3	.296
Guidebooks	32.8	32.2	36.9	.169
Family/friends	57.1	60.6	59.8	.287
2. Medium usefulness (satisfaction)³				
Brochures/flyers	3.34	3.34	3.33	.964 ¹
Rangers/ FS employees	3.69	3.69	3.62	.459
Bulletin boards/notices at sites	3.54	3.38	3.41	.131
Signs along roads/trails	3.51	3.26	3.31	.024
Maps	3.55	3.39	3.42	.192
Websites	3.00	2.94	2.95	.732
Radio/TV/newspaper/magazines	3.23	2.90	2.99	.028
Guidebooks	3.49	3.37	3.39	.296
Family/friends	3.50	3.59	3.56	.427

¹ This section is based on a t-test between groups.

² This section reports the percentage that used the medium listed, and significance test is based on Chi-square test (Fisher's exact) of groups by use percentage.

³ Scale is 1= "Not at all satisfied" to 5= "Extremely satisfied."

In order to better understand these results, they were compared between the day and overnight groups. The significance tests in Table 1 show that there were few differences. Overnight visitors reported using three media sources more often than their day use counterparts: rangers/employees, maps, and websites. And they rated their satisfaction (usefulness) with signs along roads/trails and radio/TV/newspaper/magazines lower.

Uses and Gratifications Scales

The items within each U&G dimension were subjected to a Cronbach's alpha reliability analysis to identify their internal consistency (see Table 2). The first dimension, Orientation, had a standardized alpha of .78; the second dimension, Instrumental, registered .78; the third dimension, Educational, had .87, while the fourth dimension, Reassurance, was .83. These reliability values are considered good to very good, and are consistent with the earlier works of Absher and Picard (1998) and Absher (1999), with no one scale differing by more than .05 from the pilot test. This suggests that the U&G scales are stable and reliable at least for this user population.

As far as the actual needs these scales measure, the Instrumental scale was the lowest rated at 2.78 out of 5. Then came Educational (2.86), Reassurance (3.07) and finally Orientation (3.30), the highest rated of the four. This suggests that orientation concerns are the predominant need followed by reassurance and educational functions.

To check this further, the day and overnight users were compared with a t-test of the mean scores (Table 2). The differences for each scale were relatively small, ranging from .06 to .13 scale points. None of the group comparisons were statistically significant, which suggests that the information needs are the same for each group. Apparently it makes no difference whether they are day users or longer term visitors in terms of the kinds of information visitors are seeking.

Summary and Conclusions

In summary the results show that visitors reported personal interaction (family/friends or rangers/staff) when communicating about outdoor recreation more than other forms of communication. Printed media (bulletin boards, guidebooks, maps, brochures, and signs) were in the middle range of use, and mass media outlets (Internet, radio, TV, newspaper, magazines) were used relatively infrequently.

There were some differences between those who stayed overnight and day users, with overnight users always reporting more use of those media that were significantly different (rangers/employees, maps, and websites). One management implication from these results is that personal services are highly valued. Whether they are provided by a staffed office, roving patrols, or non-agency employees such as volunteers or partners (e.g., chambers of commerce), the users rate these information sources highly.

Table 2. Uses and Gratifications Scales, Alpha Reliability and Group Comparisons

U&G Subscales ¹	Cronbach's Alpha:		Mean Scores and Group Comparison:				
	Standardized Item Alpha	Previous Alpha ²	Overall Mean (Std. Dev.)	Overnight Users' Mean	Day Users' Mean	t-test Signif.	
Orientation Scale	.83	.78	2.70 (1.46)	2.71	2.65	.92	
Instrumental Scale	.74	.78	3.22 (1.18)	3.23	3.17	.89	
Educational Scale	.85	.87	3.14 (1.22)	3.18	3.06	.15	
Reassurance Scale	.88	.83	2.93 (1.26)	2.97	2.84	.33	

¹ Questions used a six-point Likert Scale format, reverse coded, so that 6= Strongly Agree and 1= Strongly Disagree.

² Compared to pilot study results (Absher, 1998).

The print media are also being accessed by many visitors (roughly a third to a half of all visitors). Managers will need to more carefully assess the impact of these media to assure effectiveness in message delivery. The websites and mass media are not being used much and in some cases are low rated in terms of usefulness. The application of these technologies/media would need to be improved if they are to be more successful for a broad range of visitors.

The U&G scales were shown to be reliable and consistent for these forest visitors. Orientation concerns were the top rated need, followed by reassurance and educational functions. Moreover, there were no significant differences in these needs between the two groups studied. Managers may want to review the mix of messages they, and perhaps their partners, provide through various media to ensure that these functions are met in ways that are accessible to both day and overnight users.

Finally, this study provides only a brief account of U&G scale performance. The original U&G development work intended to produce scales that could be used broadly in outdoor recreation, and the results from this application of the scales is encouraging. Nonetheless, they should be more fully tested across a variety of outdoor recreation settings and activity types to gauge their suitability and impact in general use.

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THE COMMODIFICATION PROCESS OF EXTREME SPORTS: THE DIFFUSION OF THE X-GAMES BY ESPN

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Abstract: The purpose of this study was to explore the commodification process of extreme sports. Specifically, this study is to investigate how X-Games as a sport event has been spread among the teenagers by ESPN in order to use extreme sports commercially. The diffusion theory was utilized as a theoretical framework to explain this process because the diffusion theory is a useful perspective to explain how new ideas are spread among the members of a social system. In other words, X-Games as an innovation has been diffused through both ESPN (mass media channel) and the participants and viewers of X-Games (interpersonal channel) over time among teenagers (the members of a social system). Especially, this study focused the role of ESPN as a change agent in the diffusion process of X-Games. For the purpose of this study, a research question was suggested, "Does ESPN influence the consumption of commodities related to extreme sports?". A path model was constructed to examine this research question. This model was designed to investigate the causal link between the amount of X-Games televised by ESPN and the consumption of commodities related to extreme sports. The result indicated that the model was consistent with the data.

Introduction

Individual sports and outdoor activities, like skateboarding, in-line skating, rock climbing, parasailing, mountain biking, skyboarding, disc golf, and snowboarding, that contain a certain degree of risk have become increasingly popular in the 1990s. These leisure activities are known by various names, such as "thrill seeker" vacations (du Lac, 1995), "whiz" sports (Midol, 1993; Midol & Broyer, 1995), "panic" sports (Kroker, Kroker, & Cook, 1989), "risk" sports, and "extreme" sports (ESPN, 1995; Rinehart, 1995; Robinson, 1992). Two terms, risk sports and extreme sports, are broadly accepted.

Robinson (1992) argued that risk sport activities differ from traditional sport activities by posing elements of real or perceived physical danger within a context of outcome

uncertainty. He also defined the risk sports "as a variety of self-initiated activities that generally occur in natural-environment settings and that, due to their always uncertain and potentially harmful nature, provide the opportunity for intense cognitive and affective involvement" (p. 53). The origin of using the word "extreme" in those activities goes back to the 1970s in France when two Frenchmen referred to their conquest of Chamonix couloirs as "ski extrême" (Youngblut, 1998). Youngblut described the word "extreme" as "far beyond the bounds of moderation; exceeding what is considered reasonable; radical" (p. 24). Pedersen and Kelly (2000) contended that the term "extreme" was used in the context of sports to describe any sporting activity that was taken to "the edge." Then, they defined it as "a variety of sporting activities that have almost nothing in common except for high risk and an appeal to females and males from the ages of 12-to-34" (p. 1). Synthesizing the definitions of Robinson and Pedersen and Kelly, extreme sports are defined as a variety of individual sporting activities that challenge against uncertain and harmful nature to achieve the enjoyment itself, especially, among the young generation.

The Entertainment Sports Programming Network (hereafter, ESPN) X-Games is a commercialization of extreme sports. According to ESPN's Director of Programming, Ron Semiao, he got the idea for ESPN's X-Games in 1993. The idea was to create a sport event, such as the Olympic Games, held in both Summer and Winter every four years. Thus, ESPN began hosting X-Games in Summer and Winter annually, called them Summer X-Games and Winter X-Games. The idea of ESPN's Director, wishing to innovate a sport event in Summer and Winter, such as the Olympiad, has come true as X-Games. Needless to say, in terms of a communication channel to people, ESPN has played an important role to disseminate X-Games to people. ESPN claimed that "the 1998 X-Games attracted a record 250,000 spectators and gathered more than 400 of the world's top alternative sports athletes to compete for prize money/medals in nine sports categories" (X Games fact sheet - X at V, 1999, p. 1). In addition, they said that they reached 76 million households through ESPN, 64.4 million households through ESPN2, and approximately 171 million households worldwide via ESPN International in 1999 Summer X-Games. Since ESPN changed the name from "The eXtreme Games" to "X-Games in 1996, ESPN has hosted "The X-Games" each year in both Summer and Winter, as planned.

In the meantime, extreme sports are alternative sports against the mainstream. In spite of its uncommercial characteristic as the alternative sports, they have flourished commercially. Maurstad (1998) noted, "The X-Games present a sporting event for a post-punk audience raised on MTV. ... This wide world of sports represents a complete inversion of the old order in which team sports and team ideals were the standard that jocks lived by" (p. 1). The X-Games was created in 1995 by ESPN in order to enhance profit and entertainment in the form of sponsorship and endorsement of non-sports and sport-related activities, goods, services, and merchandise. In other words, the X-Games is a sports event created to commercialize extreme sports by a media company.

In fact, not only ESPN, the first network to televise extreme sports as a sport event, but also the other television networks (e.g., Fox Sports Net, NBC, MTV, and XOZ) are dealing with extreme sports or have a plan to do so (Larson, 1999). Many major advertisers have paid attention to extreme sports and have even sponsored them. It is said that the main reason why they are interested in the X-Games is that most of participants and viewers are teenagers who have strong purchasing power. For this reason, it is expected that many television networks will make efforts to commodify the extreme sports continuously. Moreover, this type of intervention by media or sponsors demonstrates the commodification process of extreme sports regardless of the nature of alternative sports. In other words, the extreme sports, which have tried to resist commercialized and competitive forms (Rinehart, 1998), are becoming new objects of commodification.

The purpose of this study is to explore the commodification process of extreme sports. This study is also to examine how extreme sports evolved into X-Games as a sport event by ESPN. Thus, it is assumed that ESPN has played an important role as a change agent to diffuse extreme sports among people in order to use extreme sports commercially. In this matter, diffusion theory provides a useful theoretical framework to achieve the purpose of this study. According to Rogers (1995), "diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system" (p.5). Thus, diffusion theory is useful approaches to explain how new ideas are spread among the members of a social system. Therefore, this study is to explore the commodification process of the extreme sports by applying diffusion theory. Specifically, it is investigated how X-Games as a sport event has been spread among people by ESPN in order to use extreme sport commercially.

Method

The purpose of this study was to explore the commodification process of extreme sports. Specifically, this study is to investigate how X-Games as a sport event has been spread among people by ESPN in order to use extreme sports commercially. The diffusion theory was utilized as a theoretical framework to explain this process because the diffusion theory is a useful perspective to explain how new ideas are spread among the members of a social system. In other words, X-Games as an innovation has been diffused through both ESPN (mass media channel) and the participants and viewers of X-Games (interpersonal channel) over time among teenagers (the members of a social system). Especially, this study focused the role of ESPN as a change agent in the diffusion process of X-Games.

For the purpose of this study, a research question was suggested, "Does ESPN influence the consumption of commodities related to extreme sports?" In addition, hypotheses to test this research question were proposed as follows:

Hypothesis #1: There is a positive association between the amount of X-Games televised by ESPN and the number of participants in X-Games.

Hypothesis #2: There is a positive association between the number of participants in X-Games and the amount of consumption of commodities related to extreme sports.

Based on these hypotheses, a path model was constructed (Figure 1). The path model was applied because it is a causal model for understanding relationships between variables. It is assumed that independent variable, the amount of X-Games televised by ESPN, will have an impact on the number of participants in X-Games as a control variable, and in turn will have an impact on the amount of consumption of commodities related to extreme sports as a dependent variable.

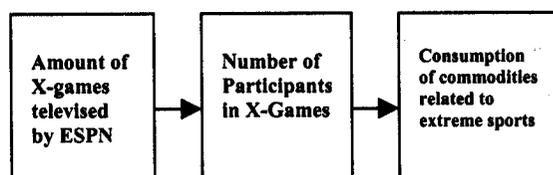


Figure 1. Path model

In order to test this path model, the second data were collected as follows. The amount of X-games televised by ESPN 1 and ESPN 2 in a yearly base from 1993 to 1999, the number of participants in X-games in a yearly base from 1991 to 1998, and the amount of consumption of commodities related to extreme sports from 1990 to 1999 in a yearly base were tabulated. Moreover, a least squares path analysis program by Hunter and Hamilton was employed to analysis.

Results

In order to assess the fit of the model, the amount of X-games televised by ESPN (X) → the number of participants in X-games (Y) → the amount of consumption of commodities in extreme sports (Z), it should be compared by the predicted value of the correlation between X and Z to the obtained value of that. If this model is correct, the predicted value and the obtained value of the correlation between X and Z are equal. Thus, the predicted value of the correlation between X and Z is the product of the correlation between X and Y and the correlation between Y and Z (Tables 1 & 2).

The predicted correlation between ESPN (X) and Participants (Y) was $(0.74)(0.91) = 0.63$. Thus, the error in predicting this correlation is approximately $(0.93) - (0.63) = 0.26$. This error is trivial. Furthermore, the significant test of the error size ($z=1, p > .05$) indicated that the data are consistent with this model. In addition, $\chi^2(1) = 0.99$, so that $p > 0.05$, again indicating that this model is consistent with the data (Figure 2).

Table 1. Correlation Coefficients

Variable	ESPN (X)	Participants (Y)	Consumption (Z)
ESPN (X)	1.00		
Participants (Y)	0.74*	1.00	
Consumption (Z)	0.93*	0.91*	1.00

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

Table 2. Path Coefficients

Variable	ESPN (X)	Participants (Y)	Consumption (Z)
ESPN (X)			
Participants (Y)	0.74		
Consumption (Z)		0.91	

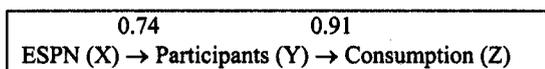


Figure 2. Path Model with Path Coefficients

Discussion

According to the test of the path model, the hypotheses were supported; that is, there is a positive association between the amount of X-Games televised by ESPN and the number of participants in X-Games; there is a positive association between the number of participants in X-Games and the amount of consumption of commodities related to extreme sports.

One of the limitations of this study will be that this study examines the commodification process of the extreme sports in the macro level. Therefore, the future researches in the micro level should be followed. For instance, the specific roles of ESPN to diffuse extreme sports, the psychological or sociological motive of participants for extreme sports, the characteristics of individual participants in terms of adopter categories, and the interpersonal network of participants should be examined in the future research.

Despite this limitation, this study will have several implications. First, this study will be worthy as a pilot study on extreme sport or X-Games. In fact, there have been few researches on extreme sports or X-Games. Especially, there has been no research, which empirically examine the commodification process of X-Games. Furthermore, this study will provide theoretical base for the future research on X-Games. The various researches on X-Games or extreme sports in the micro level or individual level can be conducted. As previously noted, one of the strengths of diffusion theory is its broad applicability. Another implication of this paper will be that it tries to apply diffusion theory to another field, namely, the field of leisure sports marketing.

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MARKETING NATIONAL PARKS: OXYMORON OR OPPORTUNITY?

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Abstract: Although the "national park" concept is universally acknowledged, marketing of the 4,000+ areas so designated worldwide varies dramatically. Some park systems – such as those of Canada and Australia – are extensively marketed, in the sense that considerable resources are devoted to traditional strategic and tactical approaches to the potential user. Other systems pay relatively little attention to these concerns, because of entrenched avoidance of the marketing process (U.S.) and/or perception that the total visitor count is either so high that marketing is unwarranted (U.S.) or so low that marketing is unaffordable (many developing nations). This paper reviews selected issues of "national park" marketing from the viewpoints of the varied interests: managerial (park unit, region, and system); commercial (concessions, external enterprises, and visitor/tourism bureaus); and target audience (actual and potential visitors). Its primary objective is to raise awareness of the possibilities for (and limitations of) greater marketing effort and mutual benefit, in terms of effectively influencing consumer attitudes, beliefs, and purchase decision making.

Marketing and the National Park Philosophy

The concept of marketing to draw additional visitors to national parks is oxymoronic to many park administrators. As management of national parks has come to embrace not only internal challenges, but external ones as well, the visitor is often regarded as exactly the latter. Resource preservation is seen as the clear priority (Arnberger, Views) (Lowry, Paved). Very little has been published/researched on the "purchase decision" behavior of the visitor, and little has been committed for either accomplishing such research or implementing broad market appeals. The default influences have, therefore, been publicity (media coverage, independent photographic essays, etc.), highway signage, and on-site brochure distribution. If, however, the concept of marketing is not wholly alien, who is best equipped to address the challenge? Should it be a coordinated system effort? An opportunity for unit initiative? The role of the commercial interests that will most directly benefit? Or the task of visitor promotion agencies at all levels, whose mission already includes marketing? We shall begin by examining the traditional 4Ps of marketing in the context of the "national park."

Product

"National parks" are variously defined. In the broadest sense, they are areas held in the global interest by national authorities, or under national guidelines, absent an international governance other than United Nations/UNESCO World Heritage designation. Most "national park" systems have capitalized on the idealized image of the "national park" by applying this designation as liberally as possible. Park-administrating authorities generally differentiate "national parks" (superior scenic and/or wildlife-based areas) from other areas (primarily historic sites, but also including, as in the U.S. case, numerous subcategories: national monuments, national preserves, national recreation areas, national historical parks, etc.) (National Park Service, Index). Hereafter, despite the above caveats, all "national" areas will be referred to as national parks.

Parks (including most of the subcategories noted above) are also administered by state, provincial, county, and city agencies. Non-national parks are generally seen as more oriented to regional recreation, but may nonetheless be marketed proactively (Iowa, Marketing Plan/SHOW). While the most outstanding areas are generally protected within the national systems, there are significant exceptions. For example, Niagara Falls is a state park; Mount Vernon, Williamsburg, and the sites of the National Trust are run by independent foundations; and Monument Valley is within a native American reservation. National parks are designated by national governments, generally through legislative bodies (Congress, Parliament), but also via Executive declaration, and almost always with broad "public" approval (although not necessarily corresponding to local interests). The most common denominator is that national parks designate existing lands and/or waters as having a protected status. These may be naturally pristine (Yellowstone, Glacier, Auyuittuq), but they may also require significant rehabilitation/conversion (Shenandoah, Great Smokies, Golden Gate), restoration (Castle Clinton), or outright re-creation (Bent's Old Fort, Fort Stanwix, Louisbourg), and all require ongoing management. While many units are the result of political expediency, more recently, park systems have attempted to be proactive in unit designation, identifying ecosystem and historic theme components, and actively seeking appropriate areas for donation/purchase to add to the roster. Three of the more successful efforts of this type are the spectacular lands set aside in Alaska in 1978 and 1980, and the ongoing Canadian and Australian expansion based on biome categories.

Nationally-protected areas are the enlightened withdrawal of lands and waters in the "public" interest. They are most often found in advanced economies that can afford such withdrawals, or developing economies that recognize the self-serving commercial value of such withdrawals or are coerced into making them by external pressures. National park units vary widely in what they offer the visitor

(natural and scenic values, military-industrial-cultural themes, anthropological sites, recreational opportunities), making marketing a particular challenge on a system basis. The primary unifying characteristic of national park units is their extraordinary diversity (National Park Service, Index).

Price

Fees for park entry are on average, extremely low; many units are free, and even the most expensive U.S. units charge only \$20 for a carload. Annual passes make the cost of any single visit even less expensive. However, access significantly affects total cost, particularly in reaching remote areas. The cost of reaching units in Alaska and the Canadian Arctic, outlying U.S. possessions in the Caribbean and Pacific, and virtually all parks in developing economies, at least in terms of foreign visitors, renders such visits infeasible for most potential visitors.

Promotion

Park Administrators (Federal, Region, State, Unit)

Promotion of parks varies widely; four examples will serve to illustrate the disparity. The United States National Park Service, within the Department of the Interior, has never broadly embraced marketing as a system concept. (Of the Federal entities embracing marketing, only the military, the Post Office, and Amtrak actively promote their services.) Some park regions have issued pamphlets featuring the units within their jurisdiction, and each unit offers superb standardized brochures on request or arrival, but these are passive approaches (National Park Service, Organ Pipe Cactus et al). The long-standing NPS compilation, "Visiting a Lesser-Known Park," is basically an effort to divert visitation from overcrowded units rather than a promotional device per se (National Park Service, Visiting). The primary NPS "National Park Index" is issued infrequently, and is also primarily a passive listing (National Park Service, Index).

The historic rationale for avoiding marketing is readily apparent. Even the modest fees collected by most NPS units have been transferred to the Federal Treasury, rather than retained for the benefit of the unit; given this reality, and the NPS focus on resource protection and management, it is little wonder that marketing seems irrelevant. At numerous "lesser-known" sites, "marketing" consists of little more than often-inappropriate count-enhancement activities barely related to the commemorative purpose of the site (e.g. noonday concerts at Federal Hall National Memorial in New York's Wall Street district) (Hogenauer, Courier). A quasi-independent entity, the National Park Foundation, whose basic mission is encouraging private sector (largely corporate) philanthropy (National Park Foundation, Charter and Mission), has implemented an ambitious promotional device, the National Park Passport (National Park Foundation, Passport/SHOW), intended to

motivate unit visitation by providing inked-impression stamps and a pocket-sized "passport" for their entry. While this has doubtless increased awareness of the extent and diversity of units, and motivated some to visit additional units to collect the stamps, the lack of other than a self-motivating incentive limits its viability as a true marketing tool.

Reams of information are available to those who seek it out - everything from coffee table photographic essays, to those superb brochures obtained in advance or on-site, to - more recently - creative Internet websites offering considerable detail. But active marketing has been limited. The earliest majestic Western parks were marketed, by the railroads benefiting from the carriage of visitors without alternative access (Runte, Promoting). However, aside from in-house tours including parks, today's bus companies and airlines (and rental car companies dependent on them) do little to market national parks (or most of their other destinations, to be fair). Tour books (such as Birnbaum, Fodor, or the AAA series) list parks in objective fashion as attractions to visit once in the area. Today's larger units rely in part on independently produced commercial brochures supported by national advertisers (e.g. Yosemite Magazine, one of American Park Network's 17 national park titles; these have a total circulation of some 3.8 million) (American Park Network, Yosemite, 1998), and on non-profit "cooperative association" publications (Southwest Parks).

In recent years, a proliferation of Presidentially-declared national monuments has been assigned to non-NPS agencies for administration. These have included the Bureau of Land Management (especially most recently with the flurry of new declarations by Bill Clinton), the U.S. Forest Service (Mt. St. Helens), and the U.S. Fish and Wildlife Service. None of these is presently involved in wide-scale marketing activity.

Nationally-directed national park marketing is perhaps best exemplified by the extensive efforts of Parks Canada. For several years, both regional support groups and individual unit marketers have taken on the challenge of marketing the national parks. This is evidenced by such innovations as the "Heritage Logs" and accompanying stamps (Parks Canada, Heritage), as well as the widespread use of the beaver logo, focused on Parks Canada's 1985 centennial. However, marketing has been impelled particularly in the most recent years, as revenue generation at the unit level has been elevated in importance, and overall market awareness has increased significantly (Parks Canada, Policy). To an extent, "marketing" within Parks Canada is more a term, and/or a plan, than a system-wide implementation, but its inclusion does indicate awareness of the need for positioning, quality service delivery, target audience identification, and increases in visitor counts (Parks Canada, Halifax). As in most systems, heavily-visited areas represent the greatest challenge: maintaining the balance between preservation and steadily increasing

popularity (University of Calgary, Communiqué) (Zinkan, Changing).

As a fourth specific example, Australia has, in recent years, solidly embraced tourism development, national park designation, and marketing, with a particular focus on the vast, remote, and thinly-populated regions. Areas like Kakadu (home territory of Crocodile Dundee) and Uluru (the former Ayers Rock) are widely promoted, in part as a result of ancillary commercialization in their otherwise-empty vicinities. The administration of Australia's "national" parks has, uniquely thus far, been delegated to the respective states and territories, and there is no visible federal oversight agency as found elsewhere (New South Wales, About Us). Nevertheless, the active promotion of the areas has contributed greatly to a significant expansion of tourism, particularly by international visitors.

Commercial Enterprises

One of the key arguments raised against national park marketing is the widely-held view that national parks themselves are not commercial enterprises, and therefore there is no role for marketing. However, few national park areas are immune to the exploitation of their visitors. Since visitor needs are diverse, and the national parks themselves rarely accommodate most, let alone all, reliance upon supplemental suppliers is essential. Few visitors are satisfied with the "natural" state of the parks, but even fewer are aware of the extent to which the units are "managed" for their visiting pleasure (wildlife control; trail, road and facility development; point of interest identification and improvement; etc.). Most in-park concessions to date have been limited to accommodations, food service, and ancillary sales (souvenirs, clothing), but there is considerable pressure to privatize more, including visitor center construction and management, interpretation and guided tours, and the like. The in-park concessionaire has generally been a limited marketer, because demand - highly concentrated in short seasons - has exceeded supply, and rates (i.e. revenues) are proscribed by concession agreement. However, the emergence of the Internet and the relative ease of maintaining e-mail lists of potential purchasers have enabled in-park concessionaires to tap this avenue of marketing (Amfac/Furnace Creek Inn).

Commercial enterprises in the immediate environs of national parks are the most numerous, most at risk, and most likely to already be spending considerable sums on self-serving marketing effort, almost always tied in to the innate appeal of the park itself. At the Tusayan complex south of Grand Canyon National Park's south rim, in Arizona, a host of businesses competes for the tourist's attention in what has become a full-fledged strip of attractions, even offering high-tech interpretations that visitors might anticipate finding within the park (e.g. National Geographic's IMAX Theater) (National Geographic, IMAX). Similar commercialization is found in the vicinity of many units (all communities near the Great

Smokies; St. George, UT; Bar Harbor, ME; etc.). Such commercialization is not limited to the more popular units of park systems. Even in remote Wrangell-St. Elias National Park and Preserve in Alaska, a portion of which is only accessible via a 61-mile unpaved road, tourism development is having a major impact ("indeed, much of the increased exposure [to tourism] can be attributed to the residents [of isolated Kennicott] themselves (particularly the owner of the lodge...), who have succeeded in marketing the community as a recreation destination") (Ringer, Growth).

Increasingly, national/global enterprises - global brands or major national advertisers already heavily involved in traditional marketing effort - are seen as the saviors of national park marketing, in that "modest" proportions of their budgets are allocated to approaching national park visitors directly, in support of the park "cause" (American Park Network, Yosemite).

Visitors Bureaus (National, State, Local)

These entities accept at least partial responsibility for marketing national parks within their respective jurisdictions. Virtually all U.S. states and Canadian provinces utilize the same techniques for marketing their inventory of tourist offerings: a comprehensive brochure, a map, a toll-free number, and an Internet site. Given that virtually all are mandated to promote "equally," passively including all attractions, however worthy or unworthy, is the norm, generally in the context of "tourist regions" that cover all of their respective geography. More locally, Chambers of Commerce often serve as the umbrella vehicle for promoting "area businesses" as a group. Thus, there is a clearly-evident body of interests seeking more active marketing of the units themselves, whereby they might reap a portion of the ancillary economic benefit. These interests primarily include area accommodations, restaurants, and attractions (even those wholly unrelated to the park's theme[s]), eager to attract the visitors' dollars.

Place (Distribution)

In terms of **place**, accessibility of the various areas, most likely regarded as a given by most potential visitors, is one of the most critical aspects of marketing, particularly as more remote sites enter the systems. There are three categories of accessibility: routine, challenging, and inaccessible.

Routine access cannot be presumed, particularly as more remote areas are included in national park systems. There is no objective definition of routine access, but at least two sub-categories can be presumed: a road leads directly to the site; or access is only by water, but frequent boat service is available. The first category is the least problematic for the visitor; most national park sites are in fact routinely accessible. Routine driving access, whether via private car, rental car, or tour bus, renders the site easily included in

any trip plan. Routine water access is limiting only in terms of schedules or - for the more popular experiences (e.g. Gros Morne's Western Brook Pond, or Golden Gate's Alcatraz) - vessel capacity.

Challenging access includes accessible units that cannot be regarded as routine given the time, cost, or distance involved. At least four sub-categories can be presumed: challenging because access is seasonally constrained or precluded (e.g. sites in the Canadian Rockies and Alaska); challenging because access is only by costly aircraft (scheduled or charter) (e.g. sites in American Samoa, the Queen Charlotte Islands, Alaska); challenging because scheduled boat service is not readily available for water access (e.g. Beaubear's Island, St. Croix Island); and challenging because access is via long and/or arduous (uphill) hiking (e.g. Abbott Pass Refuge Hut, Howse Pass, Athabasca Pass). (Challenging access is actually desirable in some locations to preserve the natural integrity of the site - and not incidentally, concurrently limit visitation).

Inaccessible access comprises units that despite their designation are "unreachable." (Units rendered inaccessible due to temporary weather phenomena, disasters, or access interruptions are not included.) Units are inaccessible because they are officially closed to the public (e.g. Yucca House, Hohokam Pima); inaccessible because they have been "lost," or "misplaced" due to obscurity or lack of ready information (e.g. Loyalists Exhibit); or inaccessible because they are surrounded by restricted private lands (e.g. Bois Blanc Lighthouse).

Target Audience

Who constitutes the market for these places? While this question may superficially be answered "visitors," the market for national parks is the total present - and future - global population for whom these areas are held in perpetual trust. But inasmuch as little in the way of traditional marketing segmentation has been undertaken, generally the emphases are on *total visitors*, by unit and overall (National Resources Defense Council, Reclaiming), and *seasonal peaking*, with its attendant problems.

Specific categories of present-day visitors can be generalized, which suggest various avenues of marketing approach. In order of proximity, there are four categories of visitors: those at home or office, remote from the park; those en route to the area of the park, but still distant; those near the park; and those actually in the park. Within each of these groupings, there are potential markets by age, income, lifestyle, ethnicity, even gender, and of course persons exhibiting interests relevant to the unit's primary attributes (historians, Civil War buffs, transport buffs, hikers, campers, etc.). Unfortunately, most national park visitors come with only a vague notion of what the park has to offer, relying on on-site specifics to determine the length and focus of the actual visit. While this may not match the

idealized conception, it clearly affects the nature of the marketing approaches that might be useful.

What is Appropriate Marketing, Anyway?

Marketing is most commonly regarded as a process, one to which members of most societies are subjected - often to their discomfort. It is concerns over the process - specifically, the costs and "inappropriateness" of its implementation - that most deter the national park marketing process from moving forward. But more than a process, marketing is a philosophy - one that embraces proactive methods of encouraging the market's response to the product. Support for the marketing philosophy relative to national parks is what is most needed; the specific techniques, and the budget for their implementation, are less problematic. While the total number of U.S. NPS visitors is impressive (287 million in 1998), consideration of the total population of the United States (265 million, 1996), the number of units (officially, 384), the increasing number of foreign visitors, and the deceptive effect of multiple counting suggests that only a minuscule fraction of the U.S. population visits multiple parks or parks multiple times. Marketing can certainly help ensure that more people benefit from all the parks have to offer.

In terms of **product**, the national park will always be many products in one: wilderness, nature, history, interpretation, recreation, commercialization, even civilization (e.g. Riding Mountain, Prince Albert, Grand Canyon south rim). Emphasis on several seriously-overcrowded units diverts attention from the vastly more numerous underutilized areas whose quality is no less evident upon examination (National Park Service, Visiting). Often there is little or no control within the administering agency as to product proliferation (i.e. additional units, failing to be "nationally significant"); this in part was the motivation for proposed legislation mandating a more thorough examination of units both within, and proposed for addition to the existing system (Congress, Common Sense). Over the years, some existing park units have been delisted (i.e. de-classified), but these are relatively rare (Hogenauer, Gone). Perhaps most significantly, park nomenclature is confusing in its proliferation. One response to this, as well as clear evidence of an underlying marketing strategy, is the recent tendency to rename NPS units as national parks, rather than monuments (Black Canyon, Death Valley, Joshua Tree) or recreation areas (Cuyahoga Valley).

In terms of **price**, fees should be commensurate with the customer-desired benefits, not simply amounts offsetting expended costs. Marketing expenses, if such were to be incurred, would have to be offset by increased fees and/or appropriations. The traditional low- (or no-) fee park entry concept is being rethought, often to the consternation of unsuspecting visitors (in 1996, significant fee increases in Canadian parks created considerable difficulty for both visitors and staff). Fees collected should be retained at the

unit level, with supplemental appropriations provided where necessary to optimize unit performance. An income tax deduction for park visits, based on the educational value therefrom, should be implemented, partially offsetting actual visitor cost, and stimulating visitation (and benefits) across the board.

In terms of **promotion**, appropriate national park marketing is that which cost-effectively reaches the proper target audience, encouraging this audience to partake of the visitation benefits provided. More than anything, marketing is information, placed so as to effect the purchase decision in favor of the marketer. Information on national parks has historically, as noted, been largely passive, not active. Evidence of marketing interest at the highest levels of NPS administration can be found, but the speed of marketing integration into system operations has been glacial. A 1998 planning articulation of NPS "goals" lists 31 long-term goals to be achieved in 3 to 20 years; *none* refer to marketing of the units or system (National Park System Goals). A 1999 Director's Order (Director's Order #17: National Park Service Tourism) mandates extensive interaction with, and proactive approaches to the "tourism industry," thus relating the NPS itself to another category (Order, sections 4.1, 4.5). The Order further provides for hierarchical implementation at the international, national, regional and park levels (Order, section 5). Funding for the mandated activities, however, is not clear, and in at least one NPS unit, detailed specifications for a person to assume responsibilities for many types of marketing activity are assumed to be filled by a *volunteer!* (City of Rocks). Clearly, there is a dissonance between maintaining resources "unimpaired for future generations" and making them available now through effective promotion to the current ones.

An even more elaborate exposition of the possibilities is found in the premiere issue of an Employees & Alumni Association newsletter, "Arrowhead" (Arrowhead), in which an extensive "Message Project" examined visitor perceptions and NPS response at length. The Project, evolving from an earlier effort to promote the Golden Eagle Passport (an annual pass to multiple federal agency lands), concluded that there was "an extraordinarily limited understanding, or even awareness, of the depth and breadth of the National Park System." The public was seen to perceive national parks as "a handful of natural wonders, Western wilderness areas, and vacation destinations." In response to this, the NPS undertook a broad review of methods and management of the "communications" process, and found that materials all look different, the arrowhead is inconsistent, the System is overlooked, there are only 25 public information officers among (then) 379 units, there is inadequate attention to visitor segmentation, and parks are protected "from" people, rather than "for" them. These are major findings that most at NERR2001 will see as valid, particularly in the context of possible proactive marketing in response. These are also of major

significance in advancing the prospects for NPS marketing overall (Arrowhead).

In terms of **place**, parks should "guarantee" access to a visitor. Any officially-designated "national park" unit should be readily-accessible to the public, either routinely, or, at the very least, periodically on a scheduled guided visit offered on a non-profit basis. Inaccessible units – including those not yet "open" for visitation, should be delisted (i.e. otherwise-classified).

In terms of **target audience**, the aforementioned four categories of visitor suggest possible marketing approaches. *Those at home or office, remote from the park*, by far the most numerous, need to be motivated to initiate a visit. Marketing should be undertaken by the overall agency, with national advertising, 1-800 information, and spot advertising in local markets, supported by a substantial Internet presence. *Those en route to the area of the park, but still distant* need to be motivated to include the site in their itinerary. En route signage and appropriate print media, as well as possible outdoor advertising are required.

Those near the park likewise need to be motivated to include the site in a trip-in-progress. Again, en route signage, print media, and outdoor are recommended. And finally, *those actually in the park* need to be motivated to spend more time enjoying the park's benefits. More effective promotion of the available activities is required, including accommodation incentives to extend length of stay in the area. In many units, creation of additional activities will also be required. Further, trade promotion – reaching out to, rather than defensively responding to the tourism industry – should be undertaken, with the appreciation that any park authority IS part of the tourism industry.

Conclusions

In summary, national park marketing should adopt traditional methods, but apply them to their specific circumstances. Nomenclature should be simplified, detached units should be treated independently, and product mix and line should be periodically revisited.

Fees collected should be retained at the unit level, with supplemental appropriations provided where necessary to optimize unit performance. An income tax deduction for park visits, based on the educational value therefrom, should be implemented, partially offsetting actual visitor cost and boosting visitation.

Any officially-designated "national park" unit should be readily-accessible to the public, either routinely, or, at the very least, periodically on a scheduled guided visit offered on a non-profit basis. Inaccessible sites should be relegated to some alternative category, rather than designated as part of a national park system.

Marketing should focus on expanding the overall market substantially, by actively encouraging the "right" target audience for each unit. Four visitor groups must be addressed: those at home/office, those en route yet still distant, those nearby, and those already in the unit.

"National park" units should be actively marketed on a coordinated system-wide basis, with the involvement of unit managers and local interests benefiting from such marketing. The most successful efforts will be those where unit management and local interests are mutually supportive, and where the target audiences most effectively addressed by marketing are correctly identified. Tourism industry promotion should also be implemented.

Marketing national parks should be a cooperative effort, spearheaded by a competent group within the administrative agency, but including state/provincial and local government, and related commercial interests (transport, in-park concessions, and area businesses). Controlling authority should come from the largest feasible component of the park system, most often the national authority. But cooperation is essential, and likely to be more readily forthcoming from the respective interests if the effort is well-coordinated. Goals such as those in the laudable NPS Message Project should be vigorously pursued. While marketing activities may appear irrelevant or detrimental to some, expansion of overall awareness of, interest in, and trial of national parks is highly desirable and likely to pay enormous dividends in terms of engendering public support.

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Demographic Trends in Outdoor Recreation Participation & Travel

WILDLIFE-ASSOCIATED RECREATION IN THE NORTH CENTRAL REGION: PARTICIPATION PATTERNS AND MANAGEMENT IMPLICATIONS

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Abstract: The North Central Region (IA, IL, IN, MI, MN, MO, WI) is a diverse area of the United States. Compared to the remainder of the country, the region as a whole is demographically similar in terms of mean age, education, household income, and gender. However, the North Central region has a higher proportion of Whites and a slightly lower proportion of people residing in urban areas. Compared to the remainder of the United States, residents of the region are more likely to have hunted and/or fished during their lifetime and are more likely to have hunted and/or fished in 1995, the year of the latest National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Residents of the region are also more likely to participate in nonconsumptive wildlife-associated recreation activities such as observing, feeding, photographing, and maintaining natural areas for wildlife around the home; and taking trips for the purpose of observing, feeding, and photographing wildlife. Thus, residents of the region are more likely to participate in all wildlife-associated recreation activities addressed by the survey. Within the region, there is considerable diversity. Household income differs by about 25% among states in the region and ethnic diversity differs considerably as well. States within the region range from predominately white rural to ethnically diverse urban. Wildlife-associated recreation participation differs considerably among states. Some of the differences are easily explained while others are not. Easily explained is that the highest proportion of hunters resides in the most rural state while the lowest proportion of hunters reside in the most urban state. This pattern does not apply to fishing or any of the nonconsumptive activities. Participation differences within the region are probably attributable to combinations of population characteristics and available natural resources. The diversity of participation patterns within the region affects public natural resource managers and suggests treating the region as subunits to more effectively address resource management issues.

Introduction

States in the North Central Region (IA, IL, IN, MI, MN, MO, WI) are diverse in terms of demographic characteristics and wildlife-associated recreation participation levels. This presents challenges for managers who must allocate funds and manage the natural resources of these states. The

purposes of this paper are to examine participation in wildlife-associated recreation in the region and in each state, to compare the region to the remainder of the United States, and to compare states within the region in order to provide managers with some insight into the patterns and challenges in the region. The activities examined are hunting, fishing, and wildlife watching. Wildlife watching consists of observing, feeding, photographing, and maintaining natural areas for wildlife within one mile of the home (residential activities) and taking trips of one mile or more for the purpose of observing, feeding, and/or photographing wildlife (nonresidential activities). First, the region is compared to the remainder of the U.S. in terms of participation. Then, states are compared demographically and in terms of participation. Finally, because of space limitations, one activity (hunting) is examined in greater detail, including the relationship between hunting participation and available natural resources.

Methods

The 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was used in this analysis. The survey has been conducted by the Census Bureau for the US Fish and Wildlife Service approximately every 5 years since 1955 (U.S. Dept. of Interior, 1997). The survey actually consists of three surveys that result in three data sets. The screening survey consists of demographic and limited participation data and is considered to be representative of the population of the United States in general. The sportsmen survey consists of detailed participation and expenditure data about hunting and fishing and is considered to be representative of hunters and anglers residing in the United States. The wildlife watching survey consists of detailed participation and expenditure data about nonconsumptive wildlife associated recreation activities and is considered to be representative of wildlife watchers residing in the United States. The screening survey was the primary source of data used in this analysis. Although the screening survey contains only limited participation data, it permits comparisons of participants with nonparticipants as well as participation among participants in all activities (fishing, hunting, and wildlife watching). Participation data collected using the screening survey are for 1995 and most of the data presented in the summary publication (U.S. Dept. of Interior, 1997), which are collected using the detailed surveys, are for 1996. Because of the methodology used by the Census Bureau to select and adjust the weights for the detailed surveys, and the fact that the data are collected for different years, the total numbers of participants calculated using the screening survey differ from the total numbers of participants calculated using the detailed surveys.

Results

Comparison of the Region to the Remainder of the U.S.

Residents of the North Central Region were more likely than residents of the remainder of the U.S. to hunt, fish, and participate in all wildlife watching activities (Table 1). A higher percentage of residents of the region (28% vs. 22%)

Table 1. Participation Comparisons of North Central Region and Remainder of Country: Age 16 and Older

Characteristic	North Central Region	Not North Central Region	Ratio NC/Not NC
	Mean	Mean	
% ever hunted	28%	22%	1.25
% of above who hunted in 1995	42%	32%	1.33
95 hunting expenditures-category	3.23	3.38	0.95
95 hunting days-category	3.18	3.10	1.03
% ever fished	58%	51%	1.14
% of above who fished in 1995	50%	45%	1.10
95 fishing expenditures-category	2.54	2.57	0.98
95 fishing days-category	3.28	3.06	1.07
% observed wildlife	33%	25%	1.30
% feed wildlife	38%	29%	1.29
% photo wildlife	12%	9%	1.29
% wildlife plantings	14%	11%	1.23
% taking wildlife trips	17%	14%	1.23
95 trip expenditures-category	2.02	2.22	0.91
95 trip days-category	2.50	2.49	1.00

have ever hunted and a higher percentage of those who have ever hunted (42% vs. 32%) continued to hunt in 1995. Expenditures and days of participation are collected as categorical data in this data set and the means of these categories are listed in Table 1. Larger numbers mean higher levels of participation. Because of the limited number of categories, differences in expenditures and days of participation can be expected to be small. Hunters in the region spend slightly less and hunt slightly more than hunters who reside outside the region. The last column in Table 1 is an index derived by dividing the region column by the column for the remainder of the U.S. This is a quick reference to the differences. A number greater than one, indicates the region exceeds the remainder of the U.S. in this respect. A number that is less than one indicates the remainder of the U.S. exceeds the region. The magnitude of the ratio indicates the amount of the difference.

The patterns for fishing were similar to those for hunting. A higher percentage of residents of the region (58% vs. 51%) have ever fished and a higher percentage of those who have ever fished (50% vs. 45%) continued to fish in 1995 (Table 1). Although the patterns are similar, the differences are not as great as for hunting. Again, anglers in the region spend slightly less and fish slightly more than anglers who reside outside the region. The row labeled "% of above who fished in 1995" can be viewed in a loose way as a fishing retention

rate. This rate is higher in the region than outside of it. The same was true of hunting. It should be noted that, the retention rate for fishing is higher than the rate for hunting.

This may be due, in part, to the more strenuous nature of hunting, which causes people to drop out as age limits activities. In the case of the angler who is also a hunter, there may be some substituting of fishing for hunting as the participant ages.

The data set does not contain the same type of participation data for wildlife watching activities as for hunting and fishing. Data exists only for 1995 participation. Expenditures and days of participation are given for nonresidential wildlife watching activities only (i.e., for "% taking trips" in Table 1). Residents of the region are considerably more likely to participate in all of these activities than residents of the remainder of the U.S. They spend slightly less and participate about the same number of days as residents of the remainder of the U.S.

Thus, residents of the region appear to be more active than residents of the remainder of the U.S. by almost all participation measures presented in Table 1. Although the differences are small, residents of the region spent less in 1995 on all activities than residents of the remainder of the U.S. This is interesting because they spent at least as many days participating in the activities.

Comparison of States within the Region

Demographics -- States within the region differ considerably in terms of key demographic characteristics (Table 2). Residents of IA have the lowest income (\$39,535) while residents of WI have the highest at \$49,788, a difference of over \$10,000 (over 25%). There are also considerable differences in racial/ethnic diversity and residence (urban/farm) among states. IA has the least diversity (98% white) while IL has the most (82% white). IA is the least urban (55%) while IL is the most urban (82%). Most of the extremes (highs or lows) occur in IA and IL. The three states with the lowest incomes have with the highest proportion of residents living on farms. There are considerable differences between states in demographic characteristics that can affect probability of participation as well as participation levels. The more rural nature of IA, for example, can provide more opportunities for certain kinds of recreation while the relatively low income can affect types and levels of participation.

Hunting -- The most noticeable difference in hunting participation across states (Table 3) is the low proportion of residents who have ever hunted in IL (17%), the most urban state. Not only does IL have the lowest proportion who have ever hunted; it also has the lowest retention of hunters in that only 29% of those who have ever hunted continued to hunt in 1995. This suggests that IL residents are more likely to drop out of hunting than residents of the other states. We cannot state this with certainty because tenure at a specific location is not measured in the survey. It is possible that people lived and hunted in another state and then moved to IL into perhaps, a more urban environment, and stopped hunting at that time. It is also possible that people lived and hunted in a rural area and then moved to an urban area within the same state and then stopped hunting. This is valuable information for managers and marketers concerned with decreases in numbers of hunters.

Table 2. Demographic Comparisons of North Central Region by State: Age 16 and Older

Characteristic	Means						
	IA	IL	IN	MI	MN	MO	WI
Age (yrs)	45.9	44.2	45.5	44.4	43.9	46.7	44.3
Education (yrs)	12.8	13.4	12.8	13.1	13.1	12.9	13.3
Household Income	\$39,535	\$49,481	\$42,411	\$49,122	\$45,696	\$41,648	\$49,788
% Working	69%	67%	65%	65%	71%	62%	73%
% White	98%	82%	89%	85%	92%	91%	94%
% Black	0%	11%	8%	12%	2%	7%	3%
% Asian	1%	3%	1%	1%	3%	1%	1%
% Hispanic	1%	6%	3%	2%	2%	1%	2%
% Reside Urban	55%	82%	60%	68%	61%	63%	66%
% Reside Farm	33%	14%	32%	28%	26%	35%	29%

Table 3. Participation Comparisons of Hunting in North Central Region by State: Age 16 and Older

Characteristic	Means						
	IA	IL	IN	MI	MN	MO	WI
% ever hunted	36%	17%	25%	29%	37%	32%	33%
% of above who hunted in 1995	42%	29%	36%	46%	50%	40%	50%
95 expenditures-category	2.88	3.45	2.86	3.22	3.34	3.20	3.39
95 days-category	3.12	3.20	3.45	3.30	2.74	3.18	3.27

Three of the lower income states with the highest percentage of residents living on farms (IA, IN, and MO) have the lowest expenditures for hunting. The two highest income states have the highest expenditures for hunting. Even though the income is reported as household income for all residents, and the expenditures are reported only for participants, it is interesting to note that there appears to be an association between these variables. Days spent participating do not appear to be related to income. This may be attributable to several factors. Often, higher income individuals have less time available for recreation. Also, because hunting is usually done in a rural environment, proximity of the resource may be an important factor in frequency of hunting.

Fishing -- As is the case for hunting, IL has the lowest proportion of residents who have ever fished (51%) and the lowest proportion of those who have ever fished and who continued to fish in 1995 (Table 4). However, the differences between states do not approximate those seen in Table 3 for hunting. This suggests that fishing appeals to a wider range of individuals and/or that there are more opportunities available to fish than there are to hunt. Certainly, urban residents in the Chicago area of IL have a great lakes fishing opportunity relatively close at hand. MN, with its abundant water resources, has the highest proportion of residents who

ever fished and the highest proportion who fished in 1995. Expenditures for fishing across the states have a narrower range than hunting expenditures and do not appear to be strongly associated with income.

Wildlife watching -- The proportion of residents involved in wildlife watching activities in 1995 is given in Table 5. Overall, residents were most likely to observe and/or feed wildlife and least likely to photograph wildlife within one mile of the home. Expenditures and days participating tended to lie in a fairly narrow range. Again, residents of IL were least likely to participate in all wildlife watching activities. Residents of IA ranked second in probability of taking a wildlife watching trip, but spent the least on wildlife watching trips.

A closer look at hunting -- The previous sections discuss participation from the standpoint of proportion of the population participating. This section reviews this information for hunting and looks at hunting from different perspectives that may be important to those managing the resources and/or marketing the activity. This section shows how this information can be used and interpreted in different ways to facilitate different management/marketing objectives. The lowest proportion participating in hunting (17%) and the

Table 4. Participation Comparisons of Fishing in North Central Region by State: Age 16 and Older

Characteristic	Means						
	IA	IL	IN	MI	MN	MO	WI
% ever fished	61%	51%	54%	58%	70%	62%	62%
% of above who fished in 1995	54%	45%	51%	48%	56%	49%	52%
95 expenditures-category	2.47	2.63	2.35	2.44	2.65	2.65	2.52
95 days-category	3.26	3.14	3.45	3.27	3.17	3.59	3.19

Table 5. Participation Comparisons of Wildlife Watching in North Central Region by State: Age 16 and Older

Characteristic	Means						
	IA	IL	IN	MI	MN	MO	WI
% observed wildlife	36%	26%	32%	33%	39%	38%	33%
% feed wildlife	40%	30%	41%	41%	39%	40%	42%
% photo wildlife	10%	10%	10%	14%	14%	13%	14%
% wildlife plantings	15%	12%	14%	14%	14%	13%	18%
% taking wildlife trips	21%	15%	15%	17%	23%	16%	18%
95 trip expenditures-category	1.68	2.03	2.11	1.96	2.04	1.98	2.22
95 trip days-category	2.35	2.62	2.63	2.51	2.32	2.35	2.59

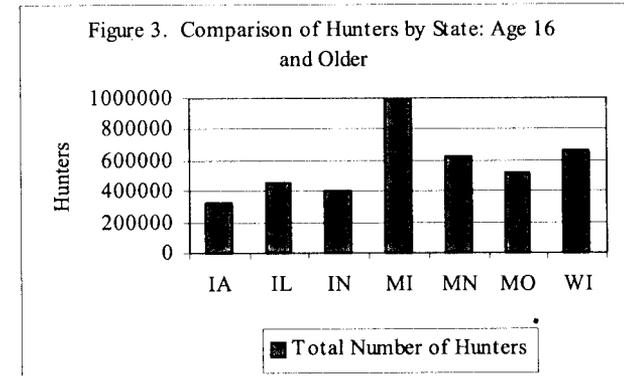
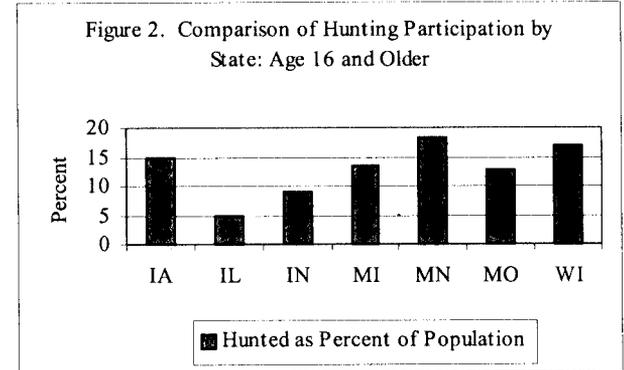
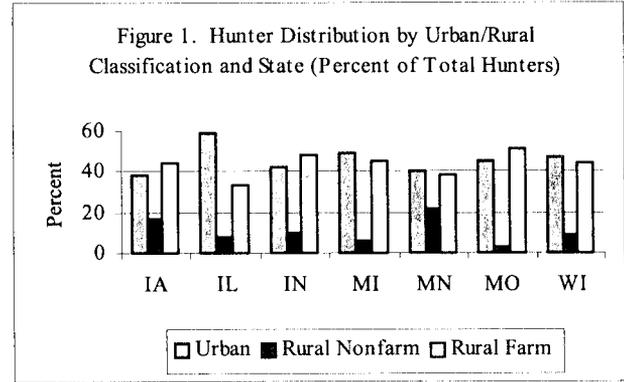
lowest retention rate (29%) both occur in IL (Table 3). The highest proportion participating (37%) and the highest retention rate (50%) both occur in MN. Because it has the lowest rates, IL might be targeted as a state in which an effort is to be made to increase hunting and to identify the reasons for the low retention rate. From another perspective, because it has the highest rates, MN might be targeted as a state in which efforts to increase hunting and retention rates might meet with greater success. MN might be seen as having a more solid base on which to build hunting. Or, a manager may wish to study a high participation state such as MN in order to identify reasons for the higher rates. Information from such a study might be of value in increasing participation in a state such as IL.

Managers and marketers are interested in the location of their clientele. An education program or marketing campaign can be implemented more effectively if the location of the clientele can be narrowed down as much as possible. Hunting is usually thought of as a rural activity and hunters might be expected to be likely to live in rural areas. This is true for most states in the region (Figure 1). Once again, however, IL stands out. More than half of the hunters in IL reside in urban areas (using Census urban/rural classifications). This means that campaigns targeting rural areas will miss almost 60% of the hunters in IL. In MI and WI, almost half of the hunters reside in urban areas. Even in IA, the most rural state, almost 40% of the hunters reside in urban areas. In most states, hunters are likely to be found either in urban areas or on farms. Only IA and MN have more than 10% of their hunters residing in rural nonfarm areas.

Residents of IL are unlikely to hunt (Figure 2). Residents of MN are over three times as likely to hunt as are residents of IL. Obviously, a campaign targeting hunters by way of the general population would meet with more success and be more cost effective in MN than IL. Figure 2 can easily be misinterpreted resulting in the erroneous conclusion that MN has the most hunters and IL has the least. This is not true because of the differences in population among the states. Figure 2 shows the probability that an individual in each state is a hunter. It does not quite show the probability that an individual selected at random is a hunter when hunters are not distributed uniformly throughout the state (Figure 1). Figure 2 gives some insight into how education programs and marketing campaigns can and cannot be conducted effectively in each state.

Managers and marketers are also interested in the size of the market. Someone interested in targeting a campaign toward current hunters would do well to look in MI, which has considerably more hunters than any other state in the region (Figure 3). As Figure 3 also shows, IL with its low participation rate has more hunters than IA with its higher participation rate. This is due to the large population differences between these states. The hunters in IL are harder to find than those in IA (Figure 2). This is also due to the large population differences between these states.

Links between the resource and activity are important to managers and marketers. MI contains the largest number of acres and highest percentage of forest land and the largest



number of hunters in the region. It does not, however, have the highest proportion of hunters (as a proportion of the population). Across these states, the probability of participation is positively correlated with the total amount of forest land (Pearson correlation coefficient .59) and with per capita forest land (.79) (Powell et al., 1993; U.S. Dept. of Interior, 1997). A stronger correlation (.87) was found between the total number of hunters and the total amount of forest land in a state. This could indicate that the abundance of resources in a state has resulted in a hunting ethic in that state. It is possible that the resources had a larger impact on probability of participation in the past which has decreased as interest in hunting in general has decreased. An earlier study by Allen and Dwyer (1978), however, did not find acres of forest land to be a significant predictor of hunting license sales by county in IL. This is an area that warrants further study.

Summary and Conclusions

This study has shown numerous differences between the North Central Region and the remainder of the United States. Probability of participation is greater in the region than in the remainder of the U.S. for all activities considered. Retention rates for hunting and fishing are also greater in the region.

Variation among the states is also considerable. IL ranks last in terms of probability of participation for all activities considered and for retention rates for hunting and fishing. However, due to its large population, IL does not rank last in terms of total number of hunters. These differences present challenges for managers and those interested in identifying and marketing to hunters in these states.

Finally, positive correlations exist between various measures of forest land and measures of participation among the states in the region. Larger amounts of forest land imply more hunters and a higher probability of participation in hunting. This study did not address whether increasing or decreasing the amount of forest land in a state would increase or decrease hunting.

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THE NEW ENGLAND TRAVEL MARKET: GENERATIONAL TRAVEL PATTERNS, 1979 TO 1996

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Abstract: Generations of travelers who select New England as a primary destination are examined over time from the years of 1979 through 1996 and the analysis serves to update an earlier review of generational travel patterns of the region (Warnick, 1994). Changes in travel patterns are noted by overall adjusted annual change rates by demographic and geographic regions of residency. Generations, as defined by Strauss and Howe (1991), are then reviewed as the generation cohort ages over time during this 18 year period. New England was found to be an evolving market and it had rebounded from early decline trends of popularity in destination as noted in the 1994 study. Travel was up in the '90s across all age categories; however, generational trend patterns indicated that the 13th Generation and the older half of the Baby Boom Generation held only slightly higher participation rates in choosing New England as a primary destination over eight 10-year lag periods as each generation aged. Other generational participation rates declined at rates greater than the overall population during the same time periods. When the lag periods were examined, participation rates declined from 1984 through 1994 for each generation examined, but they were positive after the 1985 to 1995 lag period for each of the generations. Keywords: travel trends, New England destination travel, travel markets, generations, participation rates.

Introduction

During the last decade this author has extensively examined the New England travel market (Warnick, 1999; 1997a-c; 1995a-b; 1994; 1993a-c; 1992a-b; 1991; 1990; 1989). These studies have examined such concepts as overall travel trend patterns and rates of travel, geographic markets and the propensity to travel, target market regions for New England destinations, and outdoor recreation activity patterns and volume of participation of Northeast and New England destination travelers. In 1994, the domestic travel patterns to New England on demographic and geographic dimensions were examined and provided the first insights into generational travel patterns. Warnick has also examined generational travel patterns in several other studies (1994; 1993c; and 1995b).

The NERR 1994 study revealed the following major findings: 1) the choice of New England as a primary destination indicated that New England had become a mature destination choice among U.S. domestic travelers; 2) no gain or a declining popularity for New England as a travel destination among 18- to 24-year-olds; 3) the Baby

Boom generation appeared to offer potential; but the real question was whether they would come to New England in the '90s and beyond; 4) the decline in market demand for New England, put into question potential losses for activity pursuits such as skiing, hiking and other outdoor recreation activities; and 5) generational findings, although preliminary in nature due to limited long term data, suggested that as younger generations aged New England was less popular whole only older generations held a stronger desire to visit New England as a primary destination as they aged.

The concept of generations was first advanced by Strauss and Howe (1991). It was been found to be a new way to examine trends and changes in participation patterns in both recreational activity pursuits and travel behavior (Warnick, 1994, 1993c, 1995b). It also becomes a way to provide some insights into the future as one examines the past and existing behavior of current generations. One can make some assumptions based on our current knowledge of existing generations. For example, the members of the Baby Boom generation are moving into the 55 and over age cohorts and we have traditionally marketed to this segment; but other segments are also becoming important. An older, but large segment of the population, the Baby Boomers, will, within this decade, begin to enter their pre-retirement and retirement years. In addition to being empty nesters and they should have more travel time and more diversity in travel choices as they age. Second, by reviewing age categories, generations and generational cycles in participation in travel over time, new patterns about travel behavior can be revealed. Third, Strauss and Howe (1991) developed the theory of the "cycle of generations" and they suggested by understanding these cycles and the generational characteristics insights into current and future behavior may be also appreciated. For example, the Silent Generation reaches a period of time in their life span where Strauss and Howe (1991) predict and document that they will become more "sensitive" as a generation while at the same time many of their grandchildren, members of the Millennial Generation are in a "protected" period of their life spans. Thus, intergenerational travel (grandparent and grandchild) travel or destination promotional activities may become an evolving trend. Thus, by tracking the generation or age group through the stages or process of aging is an improved and new way to predict future consumer trends is possible.

Purposes of Study

The purposes of this research paper are three-fold: 1) to examine domestic travel to New England during the '80s and through the mid-'90s within the context of generations; 2) to determine how participation rates in domestic travel within individual age categories changed over time (from 1979 through 1996); 3) to determine how participation rates in domestic travel of generations changed as these groups passed from one age category into the next (i.e., from 25 to 34 in 1980 to 35 to 44 in 1990)? Do lag periods of generational change indicate any different patterns of travel participation trends? Does a particular generation travel more or less as it ages and how do generations compare during similar period of their life spans (i.e., young adults or rising adult stages).

Method

Data for this study was drawn from the Simmons Market Research Bureau's *Study of Media and Markets* (1979 through 1996). An average annual adjusted percentage change rate, two-point moving average and descriptive statistics were the basic statistics used to examine the data. Participation rates and generations served as the primary variables. Lag periods, covering ten-year spans, were also used to determine increases or declines in participation rates of New England destination travel as a generation aged. The generations and their birth years examined as defined by Straus and Howe (1991) included: G.I. Generation – born between 1904 & 1925, Silent Generation – born between 1926 & 1943; Baby Boom Generation – born between 1944 & 1960; and the 13th Generation – born between 1961 & 1982. Other generations, the Lost/Missionary Generations (born before 1904) – are passing on and were not statistically sufficient in numbers to be represented in the database. The Millennial Generation – the newest generation – born from 1982 to the present has not yet reach the adult age in 1996 to be represented in the data base. The theory of the "Cycle of Generations" (Strauss & Howe, 1991) indicated that each generation is type caste and takes on a personality cycle which is predictable. The types and personality cycles (with the level currently existing underlined here) include the following: 1) "Idealist" – the Baby Boom Generation which cycles through levels of indulged, narcissistic, moralistic, visionary; 2) "Reactive" – the Thirteenth or X Generation which cycles through levels of criticized, alienated, pragmatic, reclusive; 3) "Civic" – GI and Millennial Generations which cycle through the protected (Millennial), heroic, powerful, busy (GI); and 4) "Adaptive" – the Silent Generation which cycles through levels of suffocated, conformist, indecisive, and sensitive. Strauss and Howe indicate that the type and personality cycle are has repeated over the time, and are impacted by concepts such as social moments or significant changes in generational thinking. The Simmons data base includes data on travelers who pick New England as a primary destination and with 18 years of data, one can monitor who is going to New England and how has those markets have changed over time by generations.

Selected Findings

The participation rate of all adults selecting New England as a primary destination averaged 3.7% over the 18-year period. The adjusted annual change rate indicated 1.5% growth per year. This translates into gain on average of about 200,000 primary destination travelers per year. The peak years were 1995 and 1996 at 9.5 and 9.4 million destination travelers respectively. The year with the fewest destination travelers was 1991 when 4.2 million destination travelers selected New England as a primary destination but the down year rebounded in 1992. However, these summary statistics are misleading as dramatic gains were experienced in the economic recovery period of 1995-1996 when travel nearly doubled to New England as a primary destination. Prior to 1995, travel to New England appeared to generally decline overall with only slight or periodic positive changes.

The New England's demographic markets participation rates, which selected New England as a destination choice, changed positively for all six age cohorts and included the following results: 18- to 24-year-olds – grew by 2.6%; 25- to 34-year-olds – grew by 8.6%; 35- to 44-year-olds – grew by 3.7%; 45- to 54-year-olds – grew by 1.8%; 55- to 64-year-olds – grew by 6.5%; 65 and older – grew by 5.5%. Thus, the age group with the largest increase and from previous studies we recognize are also active outdoor participants are the 25- to 34-year-olds. The two oldest age categories also had large average annual increases. However, these patterns also reflected the large gains in the 1995-1996 period which offset the declines experienced in earlier years.

The New England's geographic markets, which selected New England as a primary destination choice, changed positively for all four major markets areas and included the following results: the Northeast market grew by 5.1%; the South grew by 3.4%; the Midwest grew by 5.6%; and the West grew by 11.5%. The composition of New England's geographic markets of primary destination travelers indicated the following changes that 1) the Northeast comprises 62.4% of New England's market (compared to 66% in 1994); 2) a larger portion of the New England travel market were now from more distant markets, particularly the Midwest which accounted for about 18% on average but has exceeded 20% of the market of New England destination travelers in the '90s.

When age categories were examined over time a different view of travel to New England was revealed. The overall changes of domestic travel within age categories indicated that the rate of growth appears more pronounced or dramatic in recent years for age categories under 35 years of age. Rates grew at a rate of 5+% per year. The rates of age groups over 35 also grew; but, the rates grew at a slightly slower rate of just under 3% percent per year or less for those 35 to 54 years of age. Age categories where New England destination grew the most in popularity was the 55 to 64 and older category (up 6.5% per year) and 25- to 34-year-olds (up 8.6% per year). However, the problem with these data changes are we are only looking at static age categories. Furthermore, the changes reflect an age category analysis where members of different generations pass through the age years. In addition, the data also were impacted by dramatic changes in the mid-'90s after a decade of almost continued decline. Thus, a need exists to look at generations as they move through time as an age cohort. (See Table 1.)

First, some observations about the changes in overall generational impacts. In 1979, Baby Boomers were 35 or under. By 1989, a watershed year, Baby Boomers were in the 25 - 34 and 35 - 44-year-old categories and a portion were moving into the 45 to 54-year-old categories. Within the 18 to 24-year-old category for example, domestic travel participation rates declined steadily from '79 through '91 and then began to rebound after 1991 and then more than doubled by the year 1996. Boomers were being replaced by the 13th Generation during this time period. The "Baby Bust" or "13th Generation" fully comprised the 18 - 24-year-old cohort after the year 1983. Overall, the

Table 1. New England Travel Market, 1979 to 1996

	Decade										Two-Point			
	1980	1982	1984	1985	1986	1988	1990	1992	1994	1995	1996	Average	Change Rate	Moving Ave.
<i>New England Summary:</i>														
Adult Part. Rate	4.3%	4.2%	4.1%	3.5%	3.8%	3.0%	3.3%	2.9%	2.5%	5.0%	4.9%	3.6%	3.2%	1.5%
#New Eng. Trav. ('000)	6,814	6,772	6,889	5,960	6,581	5,324	5,903	5,307	4,727	9,467	9,395	6,285	4.4%	2.6%
<i>Age Cohorts:</i>														
Adult Overall Rate	4.3%	4.2%	4.1%	3.5%	3.8%	3.0%	3.3%	2.9%	2.5%	5.0%	4.9%	3.6%	3.3%	1.5%
18 to 24	3.3%	3.4%	3.0%	3.0%	2.8%	2.5%	1.9%	2.3%	2.0%	3.9%	4.2%	2.8%	2.6%	1.5%
25 to 34	5.8%	3.5%	4.0%	3.8%	4.4%	2.6%	3.5%	1.9%	2.1%	5.8%	5.5%	3.7%	8.6%	3.1%
35 to 44	5.2%	5.5%	5.3%	4.3%	4.3%	3.7%	4.5%	3.5%	3.0%	5.0%	5.4%	4.2%	3.7%	0.6%
45 to 54	5.1%	5.3%	5.0%	4.0%	3.9%	3.9%	3.9%	3.5%	3.6%	5.4%	5.1%	4.2%	1.8%	0.5%
55 to 64	3.5%	4.2%	4.7%	3.3%	4.6%	3.7%	2.5%	3.2%	2.6%	5.8%	5.6%	3.8%	6.5%	3.5%
65 and Older	2.3%	3.7%	2.7%	2.5%	3.0%	2.1%	2.6%	3.2%	1.8%	3.8%	3.2%	2.7%	5.5%	2.7%
<i>Target Region:</i>														
Northeast	14.3%	13.4%	13.1%	10.8%	11.5%	8.8%	10.2%	8.4%	5.7%	13.2%	14.3%	10.6%	5.1%	1.1%
South	1.8%	1.9%	1.6%	1.4%	1.5%	1.3%	1.4%	1.3%	1.4%	1.8%	2.0%	1.6%	3.4%	1.2%
Midwest	1.3%	1.5%	1.7%	1.8%	2.1%	1.7%	1.7%	1.2%	2.0%	3.0%	2.8%	1.8%	5.6%	4.9%
West	1.3%	1.3%	1.2%	1.0%	1.2%	1.3%	0.9%	1.9%	1.5%	3.9%	2.7%	1.6%	11.5%	8.4%
<i>Target Region Composition:</i>														
Northeast	72.9%	70.7%	70.5%	66.7%	65.6%	61.5%	66.3%	61.3%	47.0%	54.4%	58.7%	62.4%	-0.6%	-1.3%
South	10.6%	12.0%	9.9%	10.1%	9.7%	10.7%	10.2%	10.8%	13.1%	8.4%	9.4%	10.9%	2.3%	0.1%
Midwest	10.3%	11.6%	14.2%	17.6%	18.9%	19.3%	17.8%	14.4%	27.5%	20.9%	20.1%	17.9%	6.2%	4.6%
West	6.3%	5.7%	5.3%	5.6%	5.8%	8.5%	5.8%	13.5%	12.4%	16.3%	11.4%	8.7%	8.9%	6.1%
<i>Total Travel Destinations of Northeast Market ('000):</i>														
All Destinations	130,431	132,419	126,112	119,659	121,750	122,738	130,839	139,497	130,938	187,340	187,988	135,001	2.3%	2.2%
Northeast	25,426	21,642	28,141	24,064	22,931	23,877	21,780	19,585	21,019	34,822	34,908	24,270	2.7%	2.3%
New England	4,965	4,788	4,860	3,975	4,318	3,276	3,913	3,252	2,220	5,152	5,519	3,958	5.6%	1.8%
Mid-Atlantic	7,135	8,064	8,307	7,276	6,268	6,978	5,772	4,435	4,210	7,450	7,917	6,560	2.0%	1.2%
Other Regions	13,326	8,790	14,974	12,813	12,345	13,623	12,095	12,171	14,589	22,220	21,472	13,767	3.9%	3.4%
NE Share of All	3.8%	3.6%	3.9%	3.3%	3.5%	2.7%	3.0%	2.3%	1.7%	2.8%	2.9%	2.9%	1.4%	-1.0%
NE Share of NoEa	19.5%	22.1%	17.3%	16.5%	18.8%	13.7%	18.0%	16.6%	10.6%	14.8%	15.8%	16.3%	1.5%	-0.7%
Mid-Atl Share of NoEa	28.1%	37.3%	29.5%	30.2%	27.3%	29.2%	26.5%	22.6%	20.0%	21.4%	22.7%	27.2%	-0.4%	-0.9%

Source: Simmons Market Research Bureau. 1979 to 1996. Study of Media and Markets. Vol. P-4, Travel. New York, New York.
 NOTE: Years 1979, 1981, 1983, 1987, 1991, and 1993 are not shown due to space limitations; however, data are included in statistical analysis.
 Use summary statistics (average, annual change rate, moving average) with caution.

entire population participation rates for the selection of New England as a primary destination were off by "0.7%" after each of the eight 10-year lag periods from 1979 through 1996.

Second, "Silent Generation" members were largely in the 35 to 54 age categories from 1979 through 1983; then moved ahead into 45 to 64-year-old groups. Their domestic travel behavior participation rate to New England declined from 1979 - 1983 in the 35 to 44 age category. In 1979, the New England travel participation rate was 5.4% and it declined to 3.6% in 1983. The older half of the "Silent Generation," age 45 to 54, experienced a decline in New England travel participation from 5.2% in 1979 to 3.9% in 1996 and after all of the 10 year lags were examined the average decline change was an overall decline of "-1.0%". With only a few years of data available, the travel tendencies of the 13th Generation actually grew as they aged from 18 to 24 and then later as they moved to the 25 to 34-year-old segment of their life span. Rates nearly doubled from 1985 to 1995 and 1986 to 1996.

Third, the "Baby Boom Generation" held the most stable New England travel participation rate over the decades when the other generations were examined. However, the oldest of the Baby Boomers showed signs of increased participation rates. These rates grew from 4% to over 5% after a decade of aging. The Silent Generation for the decade lags of 1979 to 1984 generally found their rates declining; however, these rates changed the least in 1986 to 1996 lag periods and less decline was noted in the older portion of this generation.

Fourth, the 1989 and 1995 years were watershed years when noted directional changes occurred in nearly all of the age category participation rates. These findings represent a positive note for the domestic travel industry in New England. In particular, the participation rates have appeared to have rebounded in the mid-'90s; particularly in the 1995-1996 years. Will these changes and growth trends be maintained? However, a word of caution must be observed because participation rates only indicate what percent the overall population and individual members of age categories participate and not how frequently they participate. (See Table 2.)

The generation change data can also be compared by generations. For example, the depth and wealth of the data now allows us to compare the young life stage of Baby Boomers to the 13th Generation. In the mid-'90s, the rates for the 13th Generation were higher than for the Baby Boomers a decade earlier when they were at the same life span stages. (See Table 3.)

When the transition of generational participation rates were examined by domestic travel to New England, one may examine the data by the pure change or examine it within the context of overall population change in participation from one decade to the next. Within the context of eight periods examined here (1979 to 1986 and 1989 to 1996), decade lag changes could be tracked by participation rates of age categories and generations. Although there was growth over time; the rates were not as high as they were after a decade of

aging and transition for most generations tracked here with the exception of the 13th Generation. Travel to New England overall, was up 3.2% on average; however, significant gains were most noteworthy in the mid-'90s. The Baby Boom Generation's participation rate in New England destination travel actually declined after a decade of change with the exception of the oldest Boomers. The older half of the Baby Boom Generation (those aged 35 to 44 in the mid-'80s), had participation rates which actually increased slightly. For example, the 35 to 44 rates in 1986 were 4.3% and in 1996 the rates were 5.1% after a decade of aging. No real patterns of change can be read into the changes in the GI Generation's travel patterns. Limitations of the data do show through here. For example, the decades of travel data here are not all purely of one complete generation, as each generation spans more than 10 years and over time, the age category will change in composition of generations.

Conclusions

Over time and a replication of previous research with more data, reveals new and different changes. New England is an evolving or a rebounding market destination choice. After a downturn in the early '90s, the New England destination choice has rebounded and contributed to an overall growth trend is destination choice. The size of the market is up, the Northeast market rebounded in participation choice and more distant markets are also selecting New England as a primary destination. Furthermore, nearly all age categories have rebounded in participation.

The value of examining generations as suggested by Strauss and Howe (1991) does provide a new and somewhat different look of travel behavior as generations are examined and their participation over time changes as they age. New questions are raised after examining these data. For example:

1. Why is New England not growing as rapidly as we might expect in popularity with the current young adults? Rates are up significantly in the mid-'90s; but will they last? Why are the most active travelers isolated within two separate age segments (25- to 34-year-olds and 55- to 64-year-olds)? Is the popularity of the Millennial Generation simply a short-term event?
2. The Baby Boomers still appear to a potentially strong future market. Will they continue to travel more as they age and will they continue to travel to New England?
3. The best news appears to be the rebirth in interest of traveling to New England among the youngest adults, those 18 to 24. The 13th Generation is coming to New England and rates are increasing in their travel choices of New England even as they age.

More data is still needed and it would be even better if the data were available by actual individual birth year and by volume of travel instead of simple number of destination travelers. Individual and regional travel destination businesses and attractions would do well to monitor the behavior of their markets over time. This would reveal changes in patterns of interest and overall choice behavior as each individual generation ages and makes new life cycle choices and plans in the future.

Table 2. Generational Changes in New England Domestic Travel Participation Rates: 1979 to 1989 through 1986 to 1996

Generation, Age Category and Year	1980	1990	1982	1984	1985	1986	1996	Ave. Decade Change Rate
<i>13th Generation</i>								
18- to 24-year-olds (83-86)				3.0%	3.0%	2.8%	5.5%	0.8%
↳>25- to 34-year-olds (93-96)				2.1%	5.8%	2.8%	2.7%	
<i>Baby Boom Generation</i>								
18- to 24-year-olds (79-86)	3.3%	3.5%	3.4%					
↳>25- to 34-year-olds (89-96)		0.2%	2.3%	3.0%				-1.1%
25- to 34-year-olds (79-86)	5.8%		3.5%	4.5%				
↳>35- to 44-year-olds (89-96)		-1.3%	3.5%	3.0%	4.3%	4.3%	5.1%	-1.2%
35- to 44-year-olds (79-86)				5.3%	5.4%	1.1%	0.8%	0.1%
↳>45- to 54-year-olds (89-96)								
<i>Silent Generation</i>								
35- to 44-year-olds (79-86)	5.2%		5.5%					
↳>45- to 54-year-olds (89-96)		-1.3%	3.5%	3.6%	4.0%	3.9%	5.6%	-1.6%
45- to 54-year-olds (79-86)	5.1%		5.3%	5.0%	5.8%	1.8%	1.7%	-1.0%
↳>55- to 64-year-olds (89-96)		-2.6%	3.2%	2.6%	5.8%	3.9%	5.6%	-1.0%
<i>G.I. Generation *</i>								
55- to 64-year-olds (79-86)	3.5%		4.2%	4.7%	3.3%			
↳>65 and over (89-96)		-0.9%	3.2%	1.8%	3.8%	3.8%	3.8%	-1.3%
<i>Overall Population Travel Rate</i>								
Early Rate	4.3%		4.2%	4.1%	3.5%	3.8%	4.9%	-0.7%
↳> One Decade Later Rate		-1.0%	2.9%	2.5%	5.0%	1.5%	1.1%	

* The generation change of the GI Generation is reported for consistency only; this generation's domestic travel participation rates are confounded by the presence of two other older generations (those 85+).

Source: Simmons Market Research Bureau. 1979-1996. Study of Media and Markets, Vol. P-4. Travel.

Note: Lag periods 1979 & 1989, 1981 & 1991, 1983 & 1993 are not shown due to space limitations; however, data are included in statistical analysis.

Table 3. Generational Diagonal in Domestic Travel Behavior in New England

Year----->>> Life Stage and Age Cohort	-----The Early '80s-----					-----The Early '90s-----										
	1979	1980	1981	1982	1983	1984	1985	1986	1989	1990	1991	1992	1993	1994	1995	1996
<i>Elder</i>																
65 and Older Travel Part. Rate	Lost/GI 3.1%	Lost/GI 2.3%	Lost/GI 3.0%	Lost/GI 3.7%	Lost/GI 2.4%	Lost/GI 2.7%	Lost/GI 2.5%	Lost/GI 3.0%	GI 2.3%	GI 2.6%	GI 2.0%	GI 3.2%	GI 2.5%	GI 1.8%	GI 3.8%	GI 3.2%
<i>Midlife</i>																
55 to 64 Travel Part. Rate	GI 4.2%	GI 3.5%	GI 3.9%	GI 4.2%	GI 3.4%	GI 4.7%	GI 3.3%	GI 4.6%	Silent 4.0%	Silent 2.5%	Silent 3.2%	Silent 3.2%	Silent 3.0%	Silent 2.6%	Silent 5.8%	Silent 5.6%
45 to 54 Travel Part. Rate	Silent 5.2%	Silent 5.2%	Silent 5.2%	Silent 5.3%	Silent 4.0%	Silent 5.0%	Silent 4.0%	Silent 3.9%	Silent 2.9%	Silent 3.9%	Silent 3.0%	Silent 3.5%	Silent 3.9%	Silent 3.6%	Silent 5.4%	Silent 5.1%
<i>Rising Adult</i>																
35 to 44 Travel Part. Rate	Silent 5.4%	Silent 5.2%	Silent 5.4%	Silent 5.5%	Silent 3.6%	Silent 5.3%	Silent 4.3%	Silent 4.3%	Boom 3.1%	Boom 4.5%	Boom 2.6%	Boom 3.5%	Boom 3.4%	Boom 3.0%	Boom 5.0%	Boom 5.4%
25 to 34 Travel Part. Rate	Boom 4.5%	Boom 5.8%	Boom 4.7%	Boom 3.5%	Boom 4.5%	Boom 4.0%	Boom 3.8%	Boom 4.4%	Boom 2.7%	Boom 3.5%	Boom 1.9%	Boom 1.9%	Boom 2.5%	Boom 2.1%	Boom 5.8%	Boom 5.5%
<i>Youth</i>																
18 to 24 Travel Part. Rate	Boom 4.6%	Boom 3.3%	Boom 3.4%	Boom 3.4%	Boom 3.9%	Boom 3.0%	Boom 3.0%	Boom 2.8%	13th 1.8%	13th 1.9%	13th 1.6%	13th 2.3%	13th 1.9%	13th 2.0%	13th 3.9%	13th 4.2%

Source: Simmons Market Research Bureau. (1979 through 1996).

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WELCOME CENTER RESEARCH: HOW VALUABLE IS SECONDARY RESEARCH?

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Abstract: Community tourism research often focuses on characteristics and patterns of visitors to an area. Issues such as economic impacts, length of stay, travel plans and demographic descriptions are common topics of research projects conducted for tourism development agencies. However, research often fails to utilize readily obtainable information, such as guest book information that may be routinely collected. Conversely, data collected in guest books at Welcome Centers is often collected, quickly tabulated, reported monthly then ignored. When collected over a period of time and analyzed, data collected using this relatively unobtrusive method may provide a rich source of information about tourism in an area. In addition, it may provide insights into the validity of other tourism studies conducted.

Introduction

This paper was part of a larger study funded by the Alachua County Visitors' Bureau. The aim of the overall project was to determine the frequency and use patterns of the Alachua County Welcome Center. The purpose of this portion of the study was to examine data routinely gathered to determine any possible patterns that may be evident. The variables of interest were gender, city and country of origin, destination, and time of year and day. This study was an initial step in demonstrating how secondary information can be used by tourism agencies either as primary or as supporting information.

Community tourism research has focused on economic impacts, length of stay, travel plans and demographic descriptions. Welcome Centers provide a stopping point for tourists to rest, gain information, use facilities, and

picnic. They help to contribute to the economic impact of tourism to the area, and are crucial for setting the stage of the travelers' experience. Welcome Centers are usually located at state borders but can also be found at the county level. Visitors stopping at the state border welcome centers tend to be out-of-state residents, traveling for business or pleasure searching for information (Pennington-Gray & Vogt, 2000). Furthermore, visitors to the interior welcome centers tend to be in-state residents traveling for leisure (Pennington-Gray & Vogt, 2000).

Past research has focused on the reasons for stopping compared to the actual behavior of visitors. For example, people may stop in order to take a break, stretch their legs or to use the facilities, but while doing this may inadvertently gain information which influences their future behavior. Additionally research has focused on users versus non-users, demographic information has shown that when compared to non-users, people who stop at welcome centers typically have higher incomes, larger party size, and tend to be on pleasure trips. Furthermore, much research has focused on the economic impact of visitors and the effect of the welcome centers on their actual behaviors and expenditures. More recently research has focused on the location and available facilities at the welcome centers as well as their impact on visitors.

Methodology

Since opening in December 1997, all people visiting the Alachua County Welcome Center were asked to sign a guest book. Information requested included questions pertaining to their city and country of origin, destination, party size, date, and time of visit. The information collected was used only to measure the volume of visitations, thus making the case for the continued funding of the center. Over a three-year period, a total of 12,000 responses were collected. A random selection of approximately 6,000 entries were entered into SPSS version 10.0 and analyzed. Frequencies provided information about gender, location, and destination, and the results were then further analyzed in order to better describe the usage patterns of the Welcome Center.

Findings

This study yielded the following results: 54% of the visitors to the Alachua County Welcome Center were male (Table 1). Visitations occurred mostly during the afternoon hours (12-3 pm) with 40.3% of visitations at this time period (Table 2-4). There was 65.6% of visitors coming from outside of Alachua County and the top five states of origin were Florida, Georgia, Michigan, Ohio, and Tennessee respectively. There was also a fair representation of International visitors with the top five countries of origin being Canada, Australia, Great Britain, Germany, and France. For the travelers, the top five counties of destinations were Alachua, Orange, Hillsborough, Marion, and Pinellas (Table 5).

Table 1. Gender of Visitors

Gender	Frequency	Percent
Male	2803	54.0
Female	2385	46.0
Total	5188	100.0

Table 2. Time of Visitation

Time	Frequency	Percent
Morning	1590	33.6
Afternoon	1908	40.3
Evening	1232	26.0
Total	4730	100.0

Table 3. Year of Visitation

Year	Frequency	Percent
2000	1196	20.2
1998	1158	19.5
1999	3571	60.3
Total	5925	100.0

Table 4. Month of Visitation

Month	Frequency	Percent
January	343	5.8
February	407	6.9
March	554	9.4
April	744	12.7
May	766	13.0
June	356	6.1
July	620	10.6
August	985	16.8
September	684	11.6
October	413	7.0
November	4	.01
Total	5876	100.0

Table 5. Visitors' Origin

County	Frequency	Percent
Inside Alachua	2057	34.4
Outside Alachua	3915	65.06
Total	5972	100.0

Discussion

The results of this study indicated that readily obtainable information received at Welcome Centers could provide insight into travel behaviors of tourists. However, the information may be limited depending on the types of questions that are asked. Demographical information and open ended questions should be included in guest books in order to better understand such things as purpose of travel, length of stay, and reasons for stopping at the Welcome Center. Future studies should examine economic feasibility of county funded Welcome Centers in light of technological advances and ease of access to information.

Conclusions and Recommendations

Welcome Center Research is an interesting area that suggests the need for further research in order to better gain insight into the travel habits and behaviors of visitors to a particular area. Secondary research allows the individuals to examine what habits may already exist, however, more

intrusive methods must be utilized in order to gain more detailed information such as reasons for stopping. Welcome centers provide information that may be useful to travelers, however, through this research study it was observed that location of the center may also affect visitor type. Much research has examined such issues as county verses state welcome centers, as well as theme of the welcome center. Providing incentives for completing guest book sign in may also help to increase the amount of information offered by visitors. Future research should continue to examine travel habits as this information may greatly help to affect the tourism industry as a whole.

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