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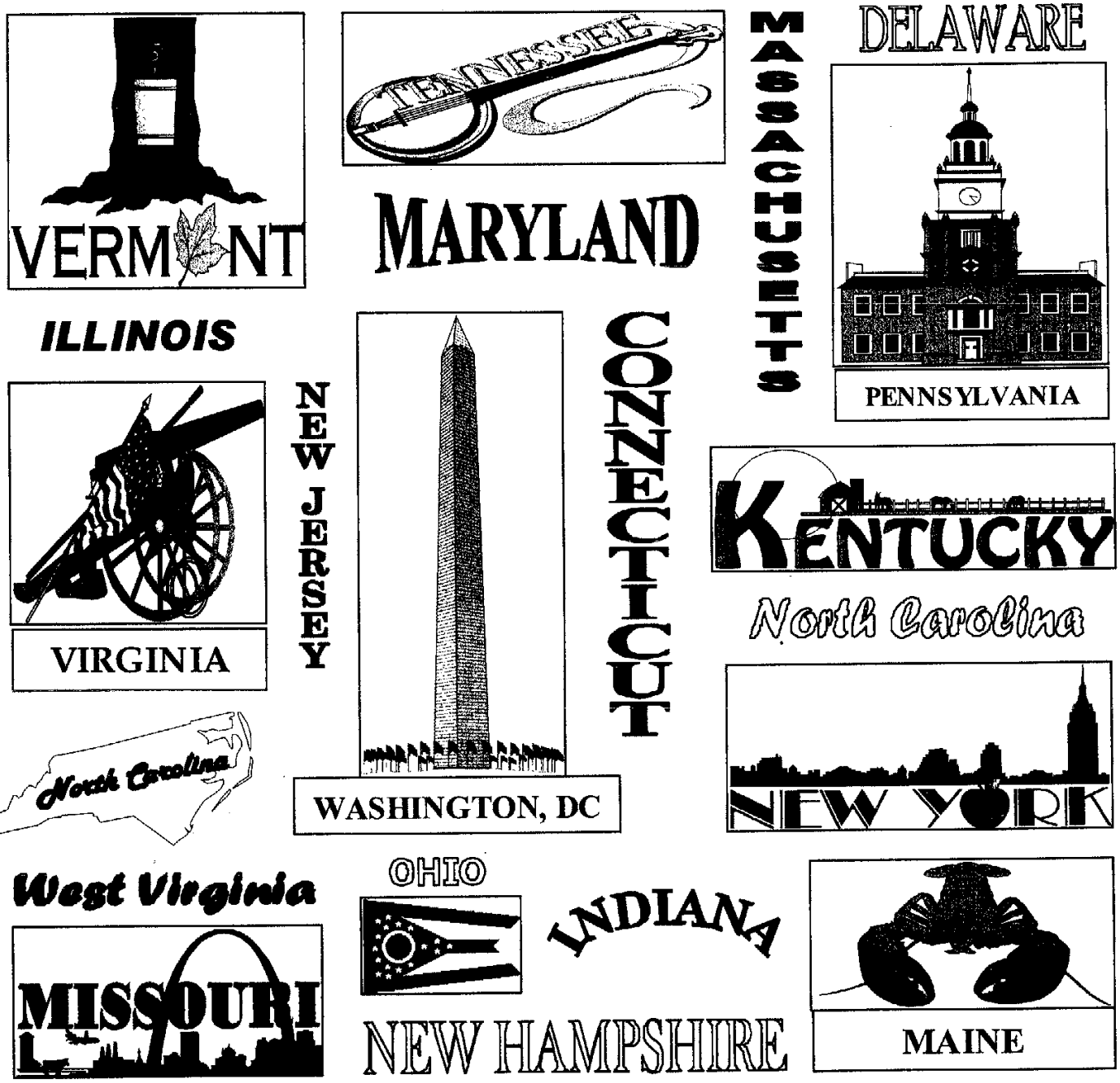
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April 13 - 16, 2002
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Northeastern Recreation Research Symposium Policy Statement

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 2002 Northeastern Recreation Research Symposium

April 13-16, 2002



On Lake George in Bolton Landing, New York

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Table of Contents

Broad Based Recreation and Resource Management Policy Issues 1

Future scenarios of Korea national parks: Results of Delphi survey of Korea national parks.
Byung-Kyu Lee and Wilbur LaPage 2

Competing definitions: A public policy analysis of the recreation fee demonstration program.
Thomas A.E. More 8

Demography, Ethnicity, and Culture 14

Are New Hampshire "natives" different? A study of New Hampshire native and three cohorts of in-migrants to New Hampshire.
Robert A. Robertson 15

Public access to New Hampshire state waters: A comparison of three cohorts of residents across three distinct geographic locations.
Kim Pawlawski and Robert A. Robertson 22

African American and Hispanic sportsmen in the north central region.
Al Marsinko and John Dwyer 28

Potential and pitfalls of researching ethnic communities in recreation: A Puerto Rican case study.
Edwin Gomez 33

Customer Service and Satisfaction in Recreation and Leisure 40

A methodological comparison of customer service analysis techniques.
James Absher, Alan R. Graefe, and Robert Burns 41

Customer satisfaction and overall satisfaction with angling experiences.
Thomas Wickman, Alan Graefe, and Robert Burns 47

Assessing indicators relative to overall tourist satisfactions of ecotourism developments in eastern North Carolina.
Christopher Ellis and Hans Vogelsong 52

Urban and Municipal Recreation Issues 58

Rural life in the city: The chalet garden in Denmark.
Amy Damin and James F. Palmer 59

A practical approach to city tourism sustainability.
Sotiris Avgoustis and Francis Achana 65

Understanding landscape change in open space neighborhoods: Views from developers and residents.
Christine Vogt and Robert Marans 72

Skrammellegepladsen: Denmark's first adventure play area.
Amanda Rae O'Connor and James F. Palmer 79

Featured Posters 86

Exploring quality standard for New River Gorge climbing sites: Establishing a baseline for the future.
Roy Ramthun and Andrew Blake 87

Understanding the leisure constraints of Hispanic-Americans in northern Virginia: An exploratory analysis of constraints, socioeconomic status and acculturation.
Edward F. Byrne II and Ellen B. Drogin Rodgers 90

Attributes affecting campsite selection at two types of campgrounds in the Adirondack Park.
Kye-Young Choi and Chad P. Dawson 94

Bridging race and gender divides in forest recreation.
John Houghton, Michael Schnell, Christine Thomas, and Diane Lueck 102

An examination of variables distinguishing accredited from non-accredited recreation park resources and leisure services programs.
Jerry L. Ricciardo and Eric L. Longsdorf 104

The nature of the interest construct and its utility in the study of leisure behavior.
Ellen B. Drogin Rodgers and Brenda P. Wiggins 109

Michigan's agricultural heritage: Using historical data to develop authentic heritage attractions.
Craig Wiles, Terry Shaffer, and Gail Vander Stoep 113

Social Psychological Aspects of Outdoor Recreation I 118

Emotional coping response to hassles and stress experienced in wilderness settings.
Rudolph M. Schuster and W. E. Hammitt 119

Differences in motivations over time by level of development: An examination of pre/post adventure recreation experiences.
Sharon Todd, Lynn Anderson, Anderson Young, and Dale Anderson 125

Tourism Destinations 132

Profile of winery visitors of Michigan wineries based on behavioral segmentations.
Tzu-Ching Chang, Mi-Kyung Kim, and Seung Hyun Kim 133

Economic impacts of wine tourism in Michigan.
Mi-Kyung Kim and Seung Hyun Kim 140

Attitudes toward New England fishers: A study of tourists to the New Hampshire seacoast.
Jennifer Hafner, Robert Robertson, and Erika Carlsen 147

Social Psychological Aspects of Outdoor Recreation II 151

A comparison of leisure constraints among three outdoor recreation activities: Whitewater rafting, canoeing, and overnight horseback riding.
Gyan Nyaupane, Duarte Morais, and Alan R. Graefe 152

Attitudes Toward Management of Recreational Resources 158

Urban perceptions of national forests: Three examples from the northern United States.
John F. Dwyer 159

Public attitudes toward programs designed to enhance forest related benefits on private lands.
Donald F. Dennis, Mark J. Twery, Michael A. Rechlin, and Bruce Hansen 163

Influence of benchmarking on wilderness visitor and manager perceptions of campsite conditions.
Joseph P. Flood 165

Public attitudes toward forest management: A Shawnee National Forest example.
Joanne Vinning 173

Tourism Behaviors and Motivations 178

Predicting nature-based tourist roles: A life span perspective.
James Murdy, Heather Gibson, and Andrew Yiannakis 179

How important is a casino to a community and how important is a community to a casino: An empirical basis for cooperative marketing between casinos and community tourism promotion agencies.
Omar Moufakkir and Dan Holecek 184

Developing a typology for understanding the VFR as a primary purpose vs. VFR as a type of accommodation.
Lori Pennington-Gray, Charles Lane, and Andrew Holdnak 190

A model of destination image promotion with a case study of Nanjing, P.R. China.
Xiang (Robert) Li and Hans Vogelsong 194

Recreation and Resource Management Issues 200

Collaborative recreation and tourism planning within a national park context: The process, stakeholder identification, and expected outcomes.
Richard Makopondo 201

A changing landscape in the wildland-urban interface: Permanent and seasonal home owners, recreation, and fuel management.
Christine Vogt and Stan Cindrity 208

Carrying Capacity in Recreation Settings 215

Crowding-related norms in outdoor recreation: U.S. versus international visitors.
Megha Budruk and Robert Manning 216

Exploring satisfaction among paddlers in two Adirondack canoeing areas.
Becky J. Pfaffenback, Harry C. Zinn, and Chad P. Dawson 222

Carrying capacity and visitor experience: Cape Hatteras National Seashore.
Jason A. Strother and Hans Vogelsong 229

Applying the visitor experience and resource protection (VERP) framework to cultural resources in national parks.
William Valliere and Robert Manning 234

Management/Roundtable Session 239

Camper attitudes and perceptions concerning the presence of pets in ten Pennsylvania state park campgrounds.
John Lisco and Ryan Savoe 240

Trends and Patterns in Recreation and Tourism 246

Converting abandoned railroads to recreation use in Isabella and Midland counties: A comparison of residents and businesses adjacent to a rail-trail.
Afke Moufakkir-Van Der Woud, Christine Vogt, Joel Lynch, and Charles Nelson 247

The potential influence of privatization on travel and tourism.
Rebecca Riedl and Hans Vogelsong 253

Wildlife Based Recreation 256

The Quabbin controlled deer hunt 1991-2001: Limitations of a controlled hunt.
Beth Cohen and David Loomis 257

The efficacy of a panel study for assessing the temporal stability of hunting participation and constraints.
Ellen Drogin Rodgers, Brett Wright, and Kenneth Backman 264

The influence of gender on fishing participation in New York's eastern Lake Ontario counties.
Diane Kuehn 271

Resource Quality Indicators and Standards 278

Indicators and standards of quality for the Schoodic Peninsula section of Acadia National Park, Maine.
Jim Bacon, Robert Manning, Steve Lawson, William Valliere, and Daniel Laven 279

Assessing river recreation use and perceptions of environmental quality trends on Michigan's upper Mainstee River.
Charles Nelson and Brian Valentine 286

An exploration of motivations among scuba divers in North Central Florida.
Louisa Meyer, Brijesh Thapa, and Lori Pennington-Gray 292

Index of Authors 296

Broad Based Recreation and Resource Management Policy Issues

FUTURE SCENARIOS OF KOREA NATIONAL PARKS: DELPHI SURVEY OF KOREAN PARKS OF EXPERTS

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Abstract: A three-wave Delphi survey of a panel of 40 key experts very knowledgeable of Korean national parks was conducted between February 2001 and March in 2002. In Wave 1, park professionals, environmental Non-governmental Organizations (NGOs) managers, and a retiree identified the issues the Korean park system is facing. Findings from Wave 1 of the survey were analyzed and provided the baseline for the subsequent Waves 2 and 3. In Wave 3, four major issues -- Park philosophy not clearly articulated; Inadequate emphasis of ecosystem protection; Widespread deficiency of management tools; and Visitor services needed -- were asked to get the panel's opinions regarding "importance" (1 = most important; 4 = least important) and "possibilities" of resolving (1= resolved in 5 years; 4 = not resolved in 5 years) of these four issues. In terms of "importance," it seems that Issue 1 ("Park philosophy not clearly articulated"), with its mean rank of 1.9, is considered more important than the other three issues (mean ranks are 2.5 or 2.6). Meanwhile, in terms of the "likelihood" of being resolved, Issue 1 (mean rank = 3.2) would be harder to be resolved than the other 3 issues (mean ranks are between 2.2 and 3.0). It implies that although the management objectives and legislative changes are needed to make the park idea articulated, due to a long-term need to get legislative support, the likelihood of resolving this issue is lower than the others. It implies, in Wave 3, that unclear park philosophy leads to the lack of recognition of national park roles toward ecosystem protection, which in turn results in a deficiency of management tools with little congressional support such as budget and staff. Finally, three options for the Korea park system are introduced to help the Korea National Parks Authority (KNPA) management to make a balance between preservation and recreational use in national park areas.

Introduction

Benefits for future generations and for current use are always challenging goals for park professionals, including those in Korea. Over the three decades of national park history, the state of the Korean national park system has not been studied in terms of whole perspectives -- threats and opportunities to the parks. Rather, more natural science-oriented disciplines in parks such as forestry and landscape architecture have dominated park research (Korea National Parks Authority, 1999).

Since established in 1987, the Korea National Parks Authority (KNPA) has operated the Korean national parks. However, since the first national park was designated in 1967, management control over the Korean parks has been fairly unstable, although it had suggested that future national parks should be administered by a state agency with authority and means to achieve its standards and goals (Ruhle, 1968). The authority for national parks changed from the Ministry of Construction (1967 - 1991) to the Ministries of Home Affairs (late Interior, 1991 - 1998), and finally to the Environment (1998 - present). In addition, the management for national parks changed from the local governments (1967 -1986) to the KNPA (1987 to present) (Oh, 1998). These changes may imply that the park system has been unstable and not fully effective in pursuing its objectives. Therefore, it is necessary to conduct a thorough investigation on the overall Korean national park system: what had been suggested in the past, what has been done so far, and what would be achieved in the future.

Economically and politically, earlier Korean national parks (during the 1970s) were established to promote tourism (Korea Ministry of Environment, 2000), while economic benefits of tourism related to recreational use on parks were emphasized to meet both preservation and recreation benefits (International Park Planning Institute et al., 1972). With the resumption of autonomy of local government in 1992, this economic penetration might have led park policy to be use-oriented for economic benefits, resulting in park management being fragmented, unclearly defined, ill-organized and malfunctioned. Threats of over-development by commercial developers, local governments, and even park management itself would be potential causes of national park degradation. Although overall responsibility of the degradation lies with the central government and its administering agency, the central government often gives away parklands to the developers of golf courses, condominiums, ski resorts, hydraulic power plants, and roads, to stimulate local economies. Such problems are even more threatening with a fragmented structure of park administration, shown in Taiwanese national parks (Sung, 1990), and national parks suffering from overuse, and underbudget. Still, visitors must be fairly satisfied with their recreation experiences in order for the overuse to continue -- this seems to be true with Korean national parklands (Kim, 1998b). The Korean National Parks Authority (KNPA), a non-governmental agency of the Ministry of Environment, may have a strong mandate but weak authority to both protect and provide for current use (Kim, 1998a). To protect parks' natural resources and increase the quality of visitor experiences, the first steps must be taken by park management. Although relevant laws are somewhat ambiguous and overlapped, the laws imply resource protection and benefits for the future generations in parks. But, the on-going problems of under-budgeting and understaffing are chronic (Korea National Parks Authority, 2001). These disparities have likely caused the KNPA to have a limited law

enforcement ability to protect natural resources and prevented the KNPA from better educating its visitors about norms of good park visitation.

The results of this research would be used for park managers, the legislative body, park-related academics including forestry and ecology, environmental horticulture, tourism industry, environmental NGOs, Korea Ministries of Environment, Agriculture, and Tourism, local governments, locals near the parks, resident in park boundaries, private owners having properties in the park areas, local tourism industry, Buddhist temples located within and beside the park lands, and teachers, students and their parents. It is also possible to attract North Korean national park management. Actually, a part of a North Korean park becomes a major tourism destination as both South and North Korean governments have had an open discussion of steady Korean reunification (Gumgangsan Tour Co. LTD website, http://www.tourgold.net/).

Method

This study has used the Delphi technique, a method used to systematically combine expert knowledge and opinion to reach an informed group consensus about the likely occurrence of future events (Moeller and Shafer, 1987). The assumption of this method is that although the future is uncertain, individuals able to make informed judgments about future contingencies can approximate its probabilities. The method is intended to provide a general perspective on the future rather than a sharp picture. That is, after each survey questionnaire was done, there would be a convergence or a divergence between panelists and, even in the latter, the polarized opinions can be crystallized. In this study, it is assumed that leading park professionals would suggest how to identify/resolve those threats to parks, what opportunities there are, and what should be done, because one way to get a holistic picture of future options, although it is not a sharp but a rough one, will be helpful to understand those problems. Hence, the unit of analysis is individual park professionals who are knowledgeable to Korean parks.

Delphi technique replaces direct open debate with an iterative series of questionnaires, with each subsequent series of questionnaires containing information gathered from those preceding it. Indeed, the Delphi technique has an advantage during administering the survey questionnaires: The panelists of this study can freely describe their opinions without any intervention by others such as their superiors who are also in the same panel (Gordon, 1994). Gordon also points out that due to the number of respondents is usually small, a Delphi study does not necessarily produce statistically significant results. Hence, the results provided by a panel on a Delphi study varies and the panel's synthesized opinions represent that particular group, neither a larger population nor even a different panel. Mainly, Delphis in the 1950s and the 1960s stressed making quantitative assessments such as forecasting dates of future events. However, from the 1970s qualitative-oriented Delphi became frequently used (Woudenberg, 1991).

Meanwhile, threats to validity as potential limitations to this study would be a rapid park policy change during the study (history) that affects the study results in ways that cannot be assessed. Examples of this "history" problem are "Natural Parks Law" amended in September 2001 (Korea Ministry of Environment, 2001) and some parklands were re-designated in January, 2002: i.e., some adjacent lands were added to the existing parklands and sizes of some park areas were reduced (Korea Ministry of Environment, 2002). More currently establishing a new marine-based national park in 2004 was proposed.

As a panel study with the same set of sample was studied in each wave, this study did not use a probability sample. Rather, as a nonprobability sampling method, a snowball sample in which panelists were asked to suggest supplementary list of park professionals for survey was chosen. In this case, some of the respondents in the first wave of the survey did not participate in later waves. To prevent it, the dropouts also received the subsequent wave after the wave they had missed. Unless they were not responding, they remained in the Delphi panel to give their opinions. This concerns the problem of "panel attrition." When some of the respondents studied in the first wave of the survey did not participate in later waves, it was needed to check that whether those who dropout of the study may not be typical in the panel.

Although reliability would be a clearer matter than validity, the aspect of this study requires a special caution about an extra duty the moderator was facing, i.e., translation. The moderator had to double-check between bilingual translation and transcripts.

Other limitations would be the problems associated with the formation of a panel. These "virtual" problems would occur when a Delphi design makes too restrictive a definition for Delphi and/or when an exposure of misrepresentation in a summary is more likely to happen. Although these problems themselves would neither affect the use of Delphi Technique nor be unique to this technique, they should be minimized to balance the communication goals in the context of the objective of the particular Delphi study and the nature of the panel (Linstone and Turoff, 1975).

Formation and Profiles of Panel

A panel of 40 Korean park experts were selected by three different procedures: first, 27 panel members were chosen through a literature review, a list consisting of 90 park professionals provided by the Korea National Parks Authority (KNPA), an expert's recommendation on the KNPA list and supplementary list, a Ministry of Environment's recommended list, and two NGO groups' supplementary lists. In addition, on Wave 1, these 27 panelists were asked to provide a supplement list of possible panelists. 13 more members were added to the panel after the first 27 members recommended them as panelists. Among these added members, 9 members received the Wave 1 questionnaire, while the other 4 did

not have a chance to receive it due to the cut-off date for Wave 1. On Waves 2 and 3, there are 2 non-deliverables. The remaining 38-member contacts consist of 2 environmental NGO managers, 7 park employees, 11 government employees and staff in research institutes, 17 academics, and 1 former park employee. However, their professional backgrounds are not limited to these 5 categories. For example, some panelists were former park employees or NGO managers and some academia are involved in top-level management in NGOs. Among remaining 38 panelists, 16 have responded to the final, Wave 3 questionnaire. However, 2 out of 16 are not valid. Thus, 14 panel members remain in the panel.

Findings

From Wave 1, the panel identified 47 major issues the KNPA faced. On Wave 2, they were organized into 3 clusters: park philosophy/policy, park organization/management, and park visitation/visitor needs. The resulting data of Wave 2 was extracted to the problem statements below, which are the basic framework for Wave 3 questionnaire (Table 1):

- It seems that there is no clear philosophy of what the Korean national park system should be, as evidenced by the panel's high priority concerns for (a) lack of a national park idea of the Korea National Parks Authority (KNPA) and central government, and (b) the general public's low awareness of Korean national parks and the park purpose as a pleasure ground.

- Because of the lack of a clear philosophy, there also appears to be a lack of recognition of national park role(s) in environmental protection. This is borne out by (a) a paradigm shift considering national parks as preservation/educational places (b) lack of standards in conservation and lack of public relations/education on ecosystem (c) reclassification of national parks on the basis of preservation/ecosystem values involved, and (d) conflict between preservation and use including landownership.

- As a consequence, the role of national parks in Korea does not seem to be getting a level of attention in the national agenda that it deserves. It is evidenced that: (a) lack of long-term views/goals in management (b) lack of expertise in KNPA and its budget/staff problems including lack of control of budget (c) need to have a state-run national park agency (d) central government's active role in natural resources and need to amend the organic act, "Natural Parks Law," for conservation of parks (e) avoiding inconsistently relevant laws, and (f) lack of character distinction between parks.

- Finally, because of the low priority national parks have in Korea, their management seems to reveal a number of serious deficiencies reflected in the following: (a) management inconsistency of KNPA due to rapid turnover of supervising officials in the Environment Ministry (b) KNPA and central government's lack of understanding national park management (c) organizational inflexibility of

Table 1: Summary of Responses from Waves 1 and 2

ISSUE--Park Philosophy Not Clearly Articulated
Korea National Parks Authority (KNPA) & the central government's lack of national park idea
KNPA and central government's lack of understanding national park management
General public's low awareness of national parks
Need to establish state-run "national park bureau"
Development pressure/ attempts in park area
Lack of central government active role on natural resources
Inconsistency/overlap of relevant laws
Attempt of building cable car system in park area
ISSUE--Inadequate Emphasis of Ecosystem Protection
Paradigm shift (need to consider National Parks as preservation/educational places)
Lack of public relations/education on ecosystem
Inconsistent management of ecosystem
Conflict between preservation and use
Lack of standards in conservation
Need to provide more environmental education programs
In order to emphasize conservation, need of amending "Natural Parks Law"
Insufficient protection for ecosystem
Increased degradation of resources in park area/visitor impacts on natural environment.
Need to reclassify national parks on the basis of preservation/ ecosystem involved
ISSUE--Widespread Deficiency of Management Tools
Lack of adequate KNPA expertise, budget, staffing, and control
Problem of political appointment of KNPA chairman
Problem of zoning
Organizational inflexibility of KNPA
Indiscriminative development and facility deterioration in "mass facility zone" of park
Lack of inventory (ecosystem, infrastructure, etc)
Inconsistent management system in KNPA (due to rapid turn-over of officials in Ministry of Environment)
Unlawful facilities in park area
Poaching and illegal picking of herbs (due to lack of law enforcement)
Financial difficulty of business in "mass facility zone"
Land ownership mixed
Infringement on private property rights in park area which cause civil appeal
Lack of policy regarding cultural resources (such as eco-villages & Buddhist temples)
Management control over parks (possibility of conflict between central & local governments)
Conflict with Buddhist temples, which are located in major park areas
On-going construction/renovation in Buddhist temples in park areas
ISSUE--Visitor Services Needed
Lack of visitor management for non-disturbing behavior

General public's awareness/views of park purpose (as pleasure ground)
Lack of character distinction between parks
Need to provide good quality of recreation experience
Insufficient service/educational facilities for visitors
Inappropriate/insufficient interpretation programs
Lack of providing tourism opportunity (on-hand educational experiences in nature/culture)
Entrance fee including separate admission fee for cultural assets (i.e., Buddhist temples)

KNPA and its chairman as a political appointee (d) lack of inventory, inconsistently managed ecosystem, and zoning problems, and (e) property rights, local governments' interests, and entrance fee issues. Also, deficiencies regarding visitor management include: (f) lack of visitor management including disturbing behavior of visitors (g) need to provide both good quality of recreation experiences and service/education facilities, and (h) insufficient environmental education and interpretation programs.

In Wave 3, four major issues -- Park philosophy not clearly articulated; Inadequate emphasis of ecosystem protection; Widespread deficiency of management tools; and Visitor service needed -- were asked to get the panel's opinions regarding "importance" (1 = most important; 4 = least important) and "possibilities" of resolving (1= resolved in 5 years; 4 = not resolved in 5 years) of these issues. In terms of "importance," it seems like that Issue 1 ("Park philosophy not clearly articulated"), with its mean rank of 1.9, is considered more important than other three issues (mean ranks are 2.5 or 2.6). Meanwhile, in terms of the "likelihood" of being resolved of Issue 1 (mean rank = 3.2), it would be harder than the other 3 issues (mean ranks are between 2.2 and 3.0). It implies that although the management objectives and legislative changes are needed to make the park idea articulated, due to a long-term needed to get legislative support, the likelihood of resolving this issue is lower than others. (Table 2)

Table 2: Mean Ranks of Importance vs. Likelihood of Four Major Issues

Issue	Importance	Likelihood
I: Park philosophy not clearly articulated	1.9	3.2
II: Inadequate emphasis of Ecosystem protection	2.5	2.7
III: Widespread deficiency of management tools	2.5	3.0
IV: Visitor services needed	2.6	2.2

N=14

From the Waves 1 and 2, it is assumed that the issues identified flow from park philosophy/idea to more detailed management tools and visitor needs. Following this flow, it implies, in Wave 3, that a clear park philosophy is needed to resolve other issues, due to the hierarchical levels among issues. In other words, an unclear park philosophy leads to the lack of recognition of national park roles toward ecosystem protection, which in turn results in a deficiency of management tools with little congressional support such as budget and staff.

On the other hand, the "likelihood" of Issue 4 ("Visitor service needed") is more feasible than others: Actually, since 2001, some parks have launched ranger-or volunteer-led interpretation/guide programs, providing more services to visitors, as most panelists pointed out.

As a panel, their opinions would represent peoples' opinions, and the panel's idea would help management and the future directions of parks. Examples are: what the park missions are and how to achieve it, how to discharge mandate of park system, how to deal with severe constraint of staff and budget in park management, how to deal with relationships between use and resource protection, how to compete/ cooperate with other natural resource agencies, and how to deal with meeting visitor needs.

Side Flows

Delbecq et al (1975) point out that the lack of opportunities for social-emotional rewards in problem solving, and for verbal comments on the feedback reports are major characteristics to reduce the decision–making performance in a Delphi study. In our study, the panel has had opportunities to freely provide any concerns on every wave. Interestingly, some panelists added unofficial comments via personal email or letters.

Conclusions and Recommendations

Based on the panel's rough views that emphasize park philosophy/idea, but consider seeing the advent of improved/increased visitor service needed, besides status quo, there would be 3 options for the Korea national park system:

Option I: state-owned park agency

- ▶ would be a non-core sector agency in the Ministry of Environment.
- ▶ should have solid mandates/missions and its own budget control.
- ▶ should get support by the National Congress and the general public.
- ▶ should cooperate with / use of every possible resource.
- ▶ should be flexible with time (long-term management-oriented).

Option II: state-owned, fully-subsidized agency

- ▶ would be a non-core sector agency under the Offices of the President or the Prime Minister.
- ▶ would be solely mission-oriented.
- ▶ should provide the general public with no fee entry to the parks.
- ▶ should cooperate with / use of every possible resource.

► should be flexible with time (long-term management-oriented).

Option III: state-owned, partially-privatized agency

► would be a mixed legal entity of partial public, partial private under the Ministry of Culture and Tourism.

► would have *more tourism-oriented dimensions* in implementing its mission

► would prefer meeting visitor needs

► should cooperate with / use of every possible resource.

► would be non-flexible with time (short-/mid-term management-oriented)

The policy makers might prefer the status quo, whereas the panel of this study tends to prefer the Option I. In the current situation, Option III would be the most feasible to provide quality experience of visitor needs and protect the resources in park area. The Ministry of Culture & Tourism oversees the Cultural Properties Administration.

Although Option II would have less legislative support, this option would appeal, inviting the high awareness of the general public. It would cover the transition period from Option III to Option I. This option might be the most popular among the three options proposed here, if sufficient budget and staff are provided.

One of the advantages of a public organization is the flexibility of pursuing the general public's needs with accomplishing its mission. That is, a public organization is corporation-attributive to do business for central or local governments. In particular, a public organization would be derived from the condition that lacks private investments, meets national self-defense/strategies and monopoly/political reasons. For the sake of the general public, the public organization's budget proposal and appropriation are subject to Congress review and approval. However, due to its corporation-attributive, it needs its budget flexibly proposed and appropriated.

In particular, in *Motivation-hygiene Theory* (Herzberg et al, 1959), any maintenance factors such as salary, work condition, interpersonal relationships with other employees, and company policy/administration could not motivate an employee in a company. Rather, these factors ("dissatisfiers") would be prime negatives, if they were lacking.

Motivation factors ("satisfiers") are the things that could really bring about worker dedication to a job. These satisfiers -- achievement, recognition, advancement, the work itself, the possibility of growth, responsibility -- encourage a worker to do a job worth doing, which produces high-level morale and productivity. Therefore, the first option "state-owned park agency" is preferred. (Figure1) Further study such as NGOs-initiated study for the general public's and locals' opinions regarding parks would meet the needs of Korean parks, enhancing the quality of Koreans' park experiences.

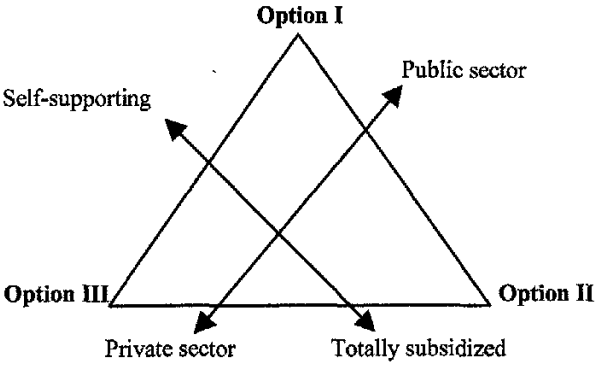


Figure 1: Three Options for Korea National Park System Associated with Organizational Type and Degree of Subsidy

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COMPETING DEFINITIONS: A PUBLIC POLICY ANALYSIS OF THE FEDERAL RECREATIONAL FEE DEMONSTRATION PROGRAM[1]

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Abstract: Problem definition theory specifies that however controls the definition of a problem is in a unique position to control debate over the issue, influence others, and determine the problem's place on the agenda. This paper uses a rhetorical analysis and a questionnaire survey of congressional aides to examine the federal Recreational Fee Demonstration Program. Results suggest that 3 groups--agencies, environmental organizations, and industry groups--are competing for control of this problem. The questionnaire results suggest that the congressional aides are not strongly committed to any particular ideological position, so that the problem definition remains unresolved.

Introduction

As a rider amendment to the Omnibus Consolidated Rescissions Act of 1996 (P.L. 104-134), section 315 authorized the four major federal land management agencies (Bureau of Land Management, National Park Service, Fish and Wildlife Service, and the U.S.D.A. Forest Service) to begin testing a pilot program designed to charge entrance fees for public recreation at designated sites. Its official title was the Recreational Fee Demonstration Program, and since its inception it has inspired great controversy. Battle lines have been drawn, with groups both supporting and opposing the program. Although largely invisible to the general public, the debate has been furious, opposition has been growing, and the program has frequently inspired acts of civil disobedience.

Proponents of the fee program argue that fees are a management tool that can help recover costs, generate revenue, promote efficiency by controlling overuse at popular sites, maintain better safety standards, and reduce private-sector competition. Opponents argue primarily from a rights perspective and an equity position suggesting that everyone has a right to use and enjoy public lands, that fees restrict use by low-income citizens, constitute double taxation, are inconsistently administered (different sites have different costs), and are intrusive within the context of freedom and leisure.

Most previous research on the fee issue has concentrated on two primary groups: those who use public facilities and parks and/or park administrators/managers responsible for operation of the program at that site. To date, no study has applied a strict political science perspective to the issue, nor has any study examined the attitudes and opinions of legislative aides who advise elected officials about the program. In this paper, I present the results of a study that examined the attitudes of legislative aides within the context of problem definition theory (Rochefort and Cobb, 1994; Stone, 1997). Aides who advise members of Congress on issues play an important role in agenda setting and public policy analysis and can significantly influence program evaluation. Within this framework, problem definition theory suggests that whoever controls the definition of the problem is in a unique position to control the debate over the issue, influence others, and determine the problem's place on the agenda (Rochefort and Cobb, 1994). Different groups compete for the attention of aides and the congressional members they represent. Problem definition, as seen from a political science perspective, concerns the strategic representation of situations. It assumes that individuals, groups, and agencies deliberately and consciously fashion portrayals of problems to promote their preferred course of action. Their representations are designed to persuade people to their side, and gaining leverage over opponents (Stone 1997).

Methods

The present study was divided into two parts: a rhetorical analysis designed to understand how the different groups--agencies, conservation/environmental organizations, and industry groups--defined the issue, and a questionnaire study of congressional aides. The rhetorical analysis was a subjective analysis of agency reports and issue position statements (see below) guided by the tenets of problem definition theory. Rochfort and Cobb (1994) specify six elements of problem definition: causality (the problem's origin), severity, incidence (how widespread it is), novelty, proximity (effects on local populations), and crisis. For example, federal agencies have identified the fee demonstration program as a necessary solution to a management crisis stemming from the deterioration of infrastructure, while opponents point to the negative effects it has on participation by low-income local populations--a proximity effect. Often, those contesting the definition of a problem will weave these various factors into a narrative story that employs symbols, numbers, and language manipulation to dramatize a problem--success stories are an example. These themes are readily evident in the groups' publications.

In Congress, the Recreational Fee Demonstration Program is overseen by the House and Senate Natural Resources Committees. These committees are largely comprised of members from western or southern states, with committee leadership generally from Rocky Mountain states including Colorado, Utah, and New Mexico. A total of 75 aides work on the committees; 52 aides in the House and 23 in the Senate. These aides are responsible for gathering information, developing issue positions, and both defining and representing the issue to the member for whom they work. They also are responsible for the development of

[1] I thank Drs. Mark Weaver and Arnold Lewis for their assistance throughout the project and Thomas Berry for his help in questionnaire design. E-mail: phoxscot@yahoo.com

public policy and legislative measures. They come into the policy-making process from a range of backgrounds: government, economic, law, etc., and have different views based on their field of expertise.

In order to examine the attitudes and opinions of congressional aides, a 22-question survey was administered through personal interviews in Washington, DC and telephone conversations. Telephone calls were placed to all 75 aides. Since aides are not generally available directly, telephone messages described the study and its purpose. After multiple telephone calls requesting an interview, 35 aides responded (21 House aides and 4 Senate aides) and 25 of them agreed to participate in the study. The remaining 10 aides declined to participate citing office regulations or their lack of knowledge about the fee program. The majority of interviews were conducted on January 10th and 11th, 2002, while additional interviews took place on January 24th and 25th, 2002. Two interviews were conducted by telephone. The typical interview took 7 minutes after which aides frequently discussed the program informally for a few minutes. Survey questions were designed to elicit information in four areas: knowledge of the program, the information sources relied upon by the aides, attitudes about the program, and independent variables including party affiliation, ideology, and experience. Because of the limited response from Senate aides, and because their responses followed the same patterns as those of House aides, the data from the House and Senate were pooled. The data were tabulated with SPSS and Excel software. Because of the small sample size (n = 25), Fisher's Exact Test (Steele and Torrie 1980) was used to compare attitudes and knowledge level by party affiliation and ideology (liberal, moderate, conservative.).

Results

Rhetorical Analysis

The struggle for problem ownership of the fee demonstration program is a fierce battle between three highly motivated sets of groups--agencies, conservation/environmental organizations, and industry groups--each with their own definition of the problem and their own recommended solutions. As the debate over the Recreational Fee Demonstration Program continues, both proponents and opponents assert their own positions on the issue, publishing various materials, reports, or using other methods of communication to strategically define their own interpretation of the issue.

To understand the rhetoric surrounding the issue, I examined three different publications by groups seeking to control the issue. Agency reports were contained in the Recreational Fee Demonstration Program: Progress Report to Congress Fiscal Year 2000, which outlines the U.S.D.A. Forest Service, the National Park Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service program results. The U.S.D.A. Forest Service issue position statement also is reviewed as a specific example of how an agency defines the program. The environmentalist position was represented by the Sierra club's "Selling Our Birthright." The free market approach favored by industry is outlined by the American Recreation Coalition's issue position statement.

With any federally managed program, agencies must conduct annual program evaluations and file a report to Congress. Usually these reports highlight positive characteristics about the program, possible suggestions for future improvements, and the role Congress can play in developing new policies related to the program. The fee demonstration program progress report, submitted to Congress jointly by both the Department of the Interior and the U.S. Department of Agriculture (Forest Service) in 2000, demonstrates the positions of the four federal land management agencies with relation to the fee program. The progress report is a technical summary of the inner workings of the program, providing statistical information as well as a brief synopsis of the positive outcomes from the fee program. It is designed to be highly persuasive, with supporting diagrams and charts presenting statistical information on the issue. In a letter contained in this report addressed to the Honorable Joe Skeen, Chairman of the House Subcommittee on Interior Appropriations from the Secretaries of the Interior and Agriculture Departments, Secretaries Norton and Veneman clearly identify this program as a management issue, stating, "This report summarizes the most up-to-date information on visitation, revenues, accomplishments, and management issues associated with the fee demonstration projects that were in place at the end of fiscal year 2000."[2] Clearly, the four land management agencies define this issue as a management concern, pointing to the substantial maintenance backlog they currently face (General Accounting Office, 1998). In their reports to Congress, the agencies have identified a "crisis" within the system, and fees collected from visitors to help pay for the maintenance backlog represents their profound solution. They point proudly to new restrooms, visitor centers, boat launches, and trail maintenance as only a few of the positive impacts of fees.

In addition to the 2000 Report to Congress, the U.S.D.A. Forest Service has issued its own position statement designed to educate the public about their definition of the fee program. "The fee demo program is a vital tool for land management agencies to use if the federal government is to continue to offer quality recreation, heritage, and wilderness programs open to the public . . .It allows the Forest Service to keep trails, campgrounds, lake and river access healthy and safe." (U.S.D.A. Forest Service). The statement further highlights how fees have reduced the maintenance backlog and provided new facilities and security measures within public forests. The Forest Service also addresses the issue of land privatization and keeping public lands open. "With reductions in workforce as forest budgets shrink, an important strategy to keep facilities open has been to permit concessionaires to run campgrounds and

[2] Letter from Secretary of the Interior, Gale Norton and Secretary of Agriculture, Ann Veneman, dated February 26, 2001.

other facilities with their workforce. . . The Recreation Fee Demonstration Program helps the Forest Service have a workforce that can clear trails and clean campgrounds, or to contract with the private sector for those services." (U.S.D.A. Forest Service).

The National Park Service and the Bureau of Land Management (BLM) point to similar managerial concerns such as the maintenance backlog and increased public demand. In their Strategic Plan, the Bureau of Land Management states that they will "use funds originating from fees, including fee demonstration areas, to correct deficiencies resulting from deferred maintenance." (Bureau of Land Management). The National Park Services uses park passes to administer the fee program, and has recorded the largest revenues of any agency from the program since its inception, with the 2000 fiscal year netting over $143.7 million dollars from recreation fees. In addition to the technical information contained in the 2000 Report to Congress, a recent letter to the General Accounting Office (GAO) argued that the program was a necessary management issue and should be made permanent. "The Department of the Interior supports the Recreational Fee Demonstration Program and believes that Recreational Fee authority allows local managers to respond to visitor needs more effectively and to protect resources under their management.[3] As one can see, the National Park Service, like the U.S.D.A. Forest Service, defines the issue as a management concern, giving managers at local sites the opportunity to generate revenue no longer appropriated from Congress to help improve facilities at those sites.

Selling our Birthright: Recreation User Fees on Public Lands (Sierra Club)

The Sierra Club uses a different approach to define and shape the debate over fees. They strongly oppose the notion of user-based recreation fees, and have become an active participant in the debate and in efforts to stop further legislation on the issue. Their publication, "Selling our Birthright," like the agency literature discussed above, presents a highly persuasive argument targeted towards individuals who have little knowledge of the program. The Sierra Club hopes to defeat current and future legislation by garnering grass-roots support and coordinating a mass movement against the fee program. Clearly, the Sierra Club defines the issue in terms of individual rights and sees itself as an advocate for citizen's rights. In many respects, the Sierra Club views the fee program as the land management agencies taking away the rights of individual citizens to use public facilities. For example, the Sierra Club states at the beginning of "Selling our Birthright," "Federal land management agencies are infringing upon the public's right to quiet recreation in these special places by imposing fees to use land we already own and pay taxes on." (Sierra Club). Thus, the Sierra Club quickly targets two key issues identified as appealing to both conservatives and liberals: rights infringement and double taxation.

"Selling our Birthright" discusses another contentious issue: originally, the fee program was passed as a rider amendment to the 1996 Omnibus Interior Appropriations Bill without public debate. "This nationwide experimental user fee program was instituted without public input or comment, via a 'rider' to an appropriations bill funding the Department of the Interior. Riders are substantive policy measures buried in large, complex government funding bills (Sierra Club)." By strategically defining a "rider" amendment, the Sierra Club attempts to demonstrate how the various government actors are more concerned with the "bottom line" than with the general public. They also state, "Corporate lobbying and stealthy congressional actions could be forcing a major policy shift without public oversight and involvement. Aided by the advent of recreational fees, our precious public lands could be headed towards a motorized, product-oriented, market-driven future." (Sierra Club).

As a highly organized and politically mobilized group, the Sierra Club also outlines their solutions to the issues facing national parks and forests, suggesting that the problems can be solved without the fee program. The Sierra Club emphasizes that they support the legislative efforts of congressional leaders to end the fee program, that funding public lands is the responsibility of the federal government, and that charging additional fees for use is unfair. "Full, responsible funding for management of America's public lands is the job of the federal government." (Sierra Club).

American Recreation Coalition

On the opposite side of the issue is the American Recreation Coalition (ARC), an industry lobbying group that strongly supports user-fee-based recreation management programs. Their issue position statement is targeted toward those involved in the legislative development process, both at the state and federal level. ARC defines the problem as one of cutting "red tape," of privatization of public lands, and limiting regulation. By minimizing government interference and opening markets to various groups, the ARC focuses on decision-making and has designed their issue position statement to reflect a more policy-oriented position (as opposed to the Sierra Club's grass-roots campaign to support the issue).

In their issue position statement, ARC identifies the importance of utilizing and promoting fees. "The criteria and specific provisions for fees deserve careful review and a new clear and comprehensive strategy." (ARC). They quickly emphasize the earning potential of public lands through the application of fees, stating: "The 1987 Report of the President's Commission on Americans Outdoors noted that recreation expenditures by Americans exceed $300 million annually and represent a steadily increasing share of consumer discretionary spending." (ARC). In line with their argument for limited government and opening markets, they state: "We believe that certain agency resources, including visitor services and maintenance, should be tied to marketplace changes." (ARC).

[3] Assistant Secretary for Policy, Management and Budget, P. Lynn Scarlett, found in GAO-02-10.

The ARC also supports legislation to expand the program and the enactment of new fees related to specific use. They believe individuals should bear the full responsibility of paying for the activities they engage in on public lands, and that recreation fees help to stimulate local economies and communities. "Recreation is also a positive force in bolstering the economies of communities which have undergone reductions in commodity industry activities, including timber, oil, gas, minerals, and grazing." (ARC).

Moreover, the ARC is attempting to gain access to the policy-making process through their own legislative efforts. For example, the ARC issue position statement outlines possible legislation they seek to have introduced entitled Recreation Fees and Public Lands Enhancement Act. "ARC would prefer to see recreation fees considered in a government-wide context, perhaps through a new Recreation Fees and Public Lands Enhancement Act which would replace the fee authorities now found chiefly under the Land and Water Conservation Act." (ARC).

In summary, the rhetorical analysis shows how the different agencies and organizations are attempting to define the problem strategically. The agencies see the program as a management concern and a method to generate revenue to replace falling congressional appropriations. The Sierra Club and the American Recreation Coalition take more ideological stances, with the Sierra Club arguing from a rights-based perspective and the American Recreation Coalition arguing that a free market approach is the most appropriate solution. Congressional aides are faced with three competing definitions to choose from, and must determine which definition assists them in the development of public policy.

Attitudes of Congressional Aides

One of the 75 potential participants from both houses of Congress, 25 completed interviews (33%) were obtained. Eleven aides identified themselves as Republican, 11 as Democrats, and 3 as Independents. Of all respondents, 40% indicated that their ideology was moderate, while 36% described themselves as conservative and 24% identified themselves as liberal.

When asked if they believed the congressperson for whom they worked shared their views on the issue, 68% felt they did. But 24% were uncertain about their employer's feelings, and 4% felt that they did not share the same views. Fifty-two percent of the aides discussed the issue with their congressperson regularly, but 48% did not. However, while these aides did not actively discuss the issue with their congressperson, they indicated that they would do so if debate in committee was held or a vote on the issue arose. Another question asked directly if aides believed this was a partisan issue; 76% did not believe it was a partisan matter, while 24% believed that it was. A Fisher's Exact Test revealed that Democrats were somewhat more likely than Republicans to view the matter as partisan, although the difference was only marginally significant ($p<0.09$). During informal conversation following the interview, those aides who did not believe the issue was a partisan matter did mention that they believed it would become one in the future.

To determine their knowledge of the fee program, aides were asked a set of questions about their familiarity with it. First, they were asked to describe their familiarity with the program on a 5-point scale ranging from unfamiliar to extremely familiar. Five respondents (20%) described themselves as either unfamiliar or somewhat familiar with the program, 28% said they were familiar, while 52% said they were either very familiar or extremely familiar with it. Despite these claims, 40% did not know when the current program would expire and, when asked if there was legislation before Congress to make the program permanent, 80% said either yes or that they were uncertain. At the time of the interviews, legislation had been drafted to make the program permanent, but had not been introduced to Congress. Answers to these factual questions cast some doubt on the aides' self-assessment, suggesting they were not quite so knowledgeable as they supposed. In addition, some aides who declined to participate cited lack of familiarity with the program as noted above.

Congressional aides rely on a variety of sources of information when evaluating programs including constituents, non-governmental organizations (NGOs), federal agencies, and research reports. The aides were asked to evaluate the importance of these on a 5-point scale ranging from unimportant to extremely important. This was subsequently collapsed into a 3-point scale ranging from very important to unimportant; the results are presented in Table 1. Clearly, the aides are most attuned to constituents, while they are least reliant on research reports. Of the four major federal land management agencies involved, 36% of aides identified the U.S.D.A. Forest Service as the most contacted agency, while 24% had the most contact with the National Park Service. The Fish and Wildlife Service (8%) and the Bureau of Land Management (4%) had the lowest levels of contact. Twenty-eight percent of those responding felt that they had equal contact with more than one agency.

Table 1 Level of Contact Between Congressional Aides and Groups Regarding the Recreational Fee Demonstration Program

Groups	Very Important	Important	Unimportant
Constituents	60%	12%	28%
NGOs	56%	16%	28%
Federal Agencies	52%	24%	24%
Research Reports	32%	28%	40%

Finally, aides were asked a series of questions about the program. When asked if they believed tax dollars, fees, or a combination of the two should be used to pay for public recreation sites and federal lands, 80% of respondents felt that a combination of fees and tax dollars was appropriate, while 16% believed taxes only should be used, and 4% felt fees should fully pay for recreation on public lands. When

asked directly if social equity concerns were relevant to the debate, 92% believed that social equity was important and relevant to the debate.

Aides were then asked about recent media reports that suggest that public use of national parks and forests has been declining due in part to fee increases. When asked if the aides believed this was an important problem, 48% believed it was, while 36% said it was not, and 16% indicated that they were uncertain. And finally, aides were asked about whether recent federal research, which suggests that low-income citizens may have reduced access to public recreation because of the fee program, was important to them when evaluating the program. Ninety-six percent of respondents believed that reduced access to public recreation for low-income people was an important factor in program evaluation, with only 4% indicating that it was not a concern.

As noted, a series of Fisher's Exact Tests compared attitudinal and knowledge questions by Republican and Democrats, and by political ideology (liberal, moderate, conservative). Only two of these tests approached statistical significance. There was some tendency for Democrats to view the issue as more partisan than Republicans ($p<0.09$). There also was a difference in preferred methods of funding (fees, taxes, combination) with political ideology ($p<0.06$), but no regular pattern could be discerned. The absence of statistical significance suggests that both support for and opposition to the fee program are broadly based, crossing both party and ideological lines. It also suggests that the opinions and commitments of the aides may not be strongly held.

Discussion and Conclusion

As the rhetorical analysis showed, the three competing definitions of the program provide congressional aides with different perspectives to choose from. The agencies define the issue as a management crisis, using symbols like deteriorating facilities to illustrate their definition and recommend the fee program as the necessary solution to the problem. The Sierra Club, and other groups opposed to the fee program, isolate the issue as a rights-based matter, and use stories to illustrate how people are precluded from using the lands freely. The American Recreation coalition defines the issue as a means of cutting government "red-tape", and applies the proximity argument to show who the fee program will benefit local economies.

The survey of congressional aides revealed three major points. First, there is some question about just how knowledgeable the aides are about the program. Most aides believed themselves to be very familiar with the program. But only half actively discussed the issue with their employer. Forty percent did not know if there was legislation before Congress to make the program permanent, and 40% did not know when the current demonstration program would end. Second, aides rely primarily on constituents (60%) and NGOs (56%) for information about the program. Agencies also were very important (52%), but research reports were relatively unimportant as a direct source of information. Specific research findings are probably most important in shaping the symbols, stories, etc. used by the competing groups. Some aides also mentioned casual discussion with other aides and Congressional Research Service information as important to their understanding.

Third, it is quite clear that aides believe social equity concerns are very important to the debate: 92% indicated that social equity was a very important concern, and 96% believed that the concerns of low-income people must be addressed when evaluating the program. At present, the fee demonstration program uses small fees to supplement agency budget. The aides seemed comfortable with this; most (80%) said they felt a mix of fees and tax dollars was the most appropriate, while relatively few opted for using either all taxes (16%) or all fees (4%) to support recreation on public lands. Although virtually all aides felt that equity and low-income access were important, identifying low-income people on-site is problematic. In Britain, welfare recipients receive identity cards that give them free access to community recreation facilities (Collins and Kennett, 1998). However, in this country, agencies have been reluctant to ask people directly if they are low-income, and many people feel this is demeaning. Consequently, agencies have resorted to the provision of free days to attempt to deal with the low-income problem. Unfortunately, free days are unlikely to provide much relief since low-income people have less vacation time, less sick leave, and less flexible schedules than upper-income people (Heymann, 2000).

How can the success of the fee program be measured? This study suggests that the definition of the problem is not clearly "owned" by any side. Since the four major federal land management agencies define this program as the solution to a management crisis, agencies see the success as money collected which translates into maintenance and other improvements at sites. Although agencies were not the group that aides relied upon most, more than half (52%) of the aides viewed agencies as a credible source of information, suggesting that the aides gave some credence to the idea of a management crisis. The American Recreation Coalition sees success as the movement toward privatization and economically efficient service delivery. Opponents, by contrast, are not interested in program success; they see the program as an infringement on the rights of the individual, with low-income people being excluded from public recreation opportunities. Many aides preferred to stay neutral when asked how our public lands should be financed, saying a combination of fees and tax dollars was appropriate--in effect, the status quo. This is hardly surprising since the aides often seek compromise between competing groups. At some level, this represents a sort of victory for the agencies and the American Recreation Coalition; once the public adjusts to these fees, undoubtedly prices can be raised further.

Yet, while the Sierra Club and other environmental organizations face an uphill fight, the aides lack of firm commitment coupled with their concern about social equity and low-income groups, suggests support for some of the

Sierra Club's powerful argument. Bengston and Fan (2001) suggest that arguments from rights and equity have a greater emotional impact for people, and while utilitarian arguments may be sound, the rights arguments in opposition are stronger and will have a greater lasting impact. "Claims based on rights, fairness, and spiritual values tend to be held with greater intensity and depth of emotion than claims based on utilitarian and pragmatic arguments." (Bengston and Fan, 2001).

Looking at the strategic definitions employed by these groups, one clearly sees how these definitions are geared toward attaining control of the problem and offering a solution to public lands policy. The differing sides recognize that there is a management crisis that must be addressed. The land management agencies see success in relation to money collected from the fees. Since they are interested in the money, they will be most apt to choose a solution that gives them the greatest revenue. They would like to see the program made permanent and expanded to other areas not currently charging entrance fees. However, while the agencies favor the fee program currently, commitment is likely to be marginal in the sense that their position is self-interested rather than ideological (i.e., if the political environment changes, the agencies, too, will change).

While this study provided some insight into the attitudes and opinions of aides on the subject of the fee program, more research is necessary to determine the best policy solution to financing and managing our public lands while ensuring equal opportunity and access to all. As different actors or groups attempt to influence the policy process and future legislation on the fee program, the way the program is defined will become increasingly important. More research on this subject will allow those groups or actors competing for the definition of the problem to understand specifically what those in the policy-making circle are thinking, how these aides shape and define the fee program, and how these competing interests can tailor their definitions to gain control of the debate.

Just as administrators will continue to embrace the notion of charging fees for public lands, the growing opposition to the fee program will continue to be defiant and sponsor acts of civil disobedience. But ultimately congressional aides and policy-makers will be responsible for whether the program is repealed or made permanent. This will depend on how they define the problem and how they see the debate over the issue unfold. Thus, the definition of the problem is vital to not only understanding the issue, but also to the making of effective public policy.

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Demography, Ethnicity, & Culture

ARE NEW HAMPSHIRE "NATIVES" DIFFERENT? A STUDY OF NEW HAMPSHIRE NATIVES AND THREE COHORTS OF IN-MIGRANTS TO NEW HAMPSHIRE

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Abstract: Social science research is often used by resource management agencies to "obtain a balanced view of the preferences and needs of individuals, communities, and special interest publics potentially affected by agency activities." This study explores the extent that those people who are born in New Hampshire (i.e., natives) are different from persons who moved to NH prior to 1970 (long time residents), during the 1970s and those who moved to the state during the 1980s and 1990s across twenty-one dependent variables of interest to outdoor recreation resource managers and planners. Five of the dependent variables were related to importance of and motivation for outdoor recreation, nine were related to participation in specific outdoor recreation activity packages, and seven measured attitudes towards specific outdoor recreation resource management programs and policies. This topic is investigated using survey data drawn from a random sample of persons licensed to drive in New Hampshire (n=928). This study concurrently considers the effect of the native/in-migrant cohort, and whether the residents currently live in a metro or non-metro county through the use of two-way analysis of variance including age of the respondent as a covariate. The results show that "natives" differ significantly from the in-migration cohorts across eight of the dependent variables. Residents of metro counties differed significantly from the residents on non-metro counties across seven of the variables. There were significant interactions between the native-cohort and metro/non-metro measure for four of the dependent variables. These results are interpreted within the context of both earlier/more recent research observations and outdoor recreation resource management.

Introduction

State and federal agencies responsible for the management of public lands are required to estimate and than consider the social effects of proposed resource planning and management actions. Outdoor recreation managers and planners in New Hampshire face some unique challenges in meeting this requirement. Some of these challenges relate to the fact that a majority of New Hampshire's outdoor recreation resources are located in the central and northern portion of the state, while a vast majority of the states population lies in the southeastern portion of the state. This puts managers in a difficult spot of trying to manage for outdoor recreation resources for those citizens who are in close proximity to the recreation resources and for those citizens who are in close proximity to the recreation resources and for those who represent the greatest proportion of the states population. This challenge is further compounded by the fact that New Hampshire State Parks, the primary manager of New Hampshire's public lands, is self-funded (i.e., the Division of Parks and Recreation can only spend that money which they generate in fees). Therefore managers are dependent on recreational users to pay as they go. This represents more of a challenge for residents of the non-metro part of the state, than it does for the residents of metro counties. The other major manager of public lands in New Hampshire, the U.S. Forest Service, faces a similar challenge. For example, the White Mountain National Forest is currently revising their ten-year management plan and a struggling to meet the needs of the local, while addressing the concerns of those from further away. The plan revision process is a politically charged one. These challenges are compounded by the lack of data available on the needs and expectations of the public.

Outdoor recreation planners and managers want and need to understand what "the" public wants. Outdoor recreation managers, like other managers of natural resources, are used to dealing with "specific" publics. For example, they know how to deal with environmental groups, extractive industries, and organized recreation groups, but they have a more difficult time of considering the wants and expectations of the more general public. Outdoor recreation managers have more recently become more sensitive to "media" generated concerns that suggest that some segments of the "public" are different from others in ways that are important to the resource management process. The concept of "cultural clash" over the management of natural resources in general and outdoor recreation opportunities in specific has attracted resource managers attention. Over the course of a three week period, the author of this paper received phone calls from representatives of the White Mountain National Forest, the Appalachian Mountain Club, the NH Division of Parks and Recreation and the Concord Monitor, asking essentially the same question, "Does where a person lives and how long they have lived there affect what they do in the outdoors and how they think natural resources should be managed?"

About this same time the Smith and Krannich (2000) article entitled "Culture Clash" Revisited: Newcomer and Longer-Term Residents' Attitudes Towards Land Use Development, and Environmental Issues in Rural Communities in the Rocky Mountain West," was published in *Rural Sociology*. I briefly explained this objectives and findings from this study and each asked if there was any data available that would shed light on this question with in the context of outdoor recreation management in New Hampshire. It happens that I did complete a statewide assessment of outdoor recreation in New Hampshire in 1997 and this study offered the potential to take a preliminary look at this topic. The data available did not allow for a direct comparison with Smith and Krannich (2000) paper, but their research did help frame a research question that was of interest to outdoor recreation managers. They were particularly interested in the differences between New Hampshire "natives", "old-timers" and "newcomers" in terms of outdoor recreation involvements and attitudes. Their primary motivation for seeking this type of data was an interest in social conflict over competing and conflicting use of natural resources for recreation and an interest if the national media portrayal of New Hampshire "natives" as quirky, eccentric and very conservative

holds true. A growing number of cars have "New Hampshire Native" bumper stickers (this is an addition to the state motto of "live free or die" which is a mantra for many) also served to spur resource managers' interest in this topic. A debate is underway that centers on the differences between "natives" and in-migrants. Are natives different from in-migrants in terms of the types of their motivations for outdoor recreation? Do natives participate in the same types of recreation activities?

The American Heritage Dictionary defines "native" as "originally" living, growing, or being produced in a certain place; indigenous to an area or region. The association between Are New Hampshire natives different is also common question around town halls where they are debating issues associated with wetlands and a variety of growth related issues in New Hampshire. These questions arise in urban areas as well as rural areas. There has been considerable debate about the differences between those people who live in metro counties (the southeasters tier) and those people who live in the rest of the New Hampshire. This study build on the substantial body of research focused on social conflict in rural in-migration (see Sorfranko and Williams, 1989; Wellmen and Moras, 1983; Williams and Jobes, 1990; Smith and Krannich, 2000 for a review) and conflict/competition in recreation settings (see Jacob and Schreyer, 1980 and Manning 1986 for a review).

This study concurrently considers the effect of the native/in-migrant cohort, and whether the residents currently live in a metro or non-metro county through the use of two-way analysis of variance including age of the respondent as a covariate. It focuses on identifying differences between persons who were born in New Hampshire and those who moved during three semi-distinct periods of population growth while considering the potential effects if any of whether the respondents primary residence is in a metro or non-metro county. The review of related research has fueled speculation that these groups will exhibit differences in motivations, behaviors, attitudes, values and preferences relative to the management and provision of outdoor recreation opportunities. If present it is possible that eventually these differences would represent competing demands for the management and development of outdoor recreation resources.

Research and Design Approach

Data Collection

Data for this study were drawn from a listing of persons licensed to drive in the state of New Hampshire during the fall of 1998. The sample was designed to be representative of households in New Hampshire and a check was made to insure that a household address only appeared once in the sample. Sixty-six percent of the questionnaires (n=2,000) were distributed via metered First Class mail. The other thirty-four percent of the questionnaires (n=1,000) were mailed via bulk mail. Both samples included two mailings of the survey and two post card reminders. Both mailings included a postage paid, pre-addressed return envelope. The response rates were consistent for both the First Class (30.75%, n=615) and the Bulk Mailing (31.3%, n=313). Eighty-two (4%) of the surveys were returned as undeliverable from the First Class mailing. The Bulk Mailing did not include the return of the undeliverable, so it was not possible to have a precise count of the undeliverable. Applying the rate of undeliverable from the First Class mailing to the Bulk Rate Mailing suggested an overall response rate of 33 percent (n=928).

Measures

This study utilized two independent variables measuring a native/in-migration cohort and a measure of the urban/rural nature of the county of current residence.

Native/in-migration. The native/in-migration variables were measured by taking the date of the respondents' birth by the number of years they have lived in New Hampshire. Those that equaled zero were categorized as natives (n=263), while those with non-zero values were grouped into one of three semi-distinct periods of development. These periods of development were computed by subtracting the year that they arrived in New Hampshire by the year of the survey (1998). This variable was than recoded into one of the following three periods of in-migration "moved to New Hampshire prior to 1970 (n=191)", the "moved to New Hampshire during the 1970s (n=169)" and "moved to New Hampshire during the 1980s and 1990s (n=267)". The study did not collect the information necessary to make a comparison between those in-migrants from rural versus urban areas. It is fairly clear that the single largest source of in-migrants into New Hampshire were from the Greater Boston Metropolitan area across each of the three cohorts. The period stretching from the post World War Two, through the 1950s and 1960s represented a period of steady growth in New Hampshire. The 1970s represented the period of most rapid growth throughout the state fairly evenly balanced between the in-migration to metro and non-metro counties. Figure 1 presents the number of cases for each of the Native/in-migrant cohort variables and the percent of each sample following into metro/non-metro counties. This figure closely approximates the distribution of native/in-migration into metro/non-metro counties.

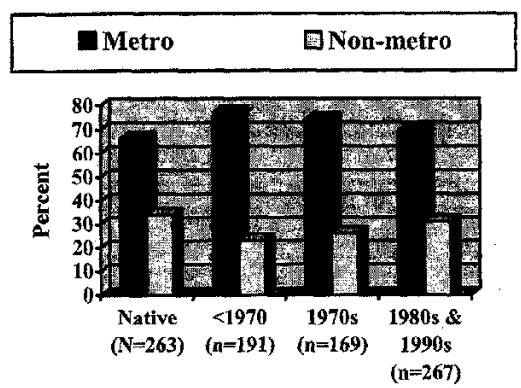


Figure 1. Distribution of Cases for Native/In-migrants and Metro/Non-metro County

Urban/Rural. Classifying New Hampshire's 10 counties as being either urban/metro or rural/non-metro in nature created the urban/rural variable. Hillsborough, Merrimack, Rockingham, Strafford located in the southeastern portion of the state includes 73 percent of the state population and occupy 32 percent of the

land. The average population per square mile of these four counties is 313.25. These respondents from these counties are considered urban/metro residents for the purposes of this study (n=653). Residents of the counties of Belknap, Carroll, Cheshire, Coos, Grafton, and Sullivan counties are considered rural/non-metro counties for the purposes of this study (n=253). The residents of this area occupy 68 percent of the land base of the state of New Hampshire while representing 27 percent of the population. The average population per square mile for this six county region is 69.16. This basic division of New Hampshire into two groups, urban/metro and rural/non-metro, is appropriate for this study since the primary goal of this research is to see if persons living in metro/non-metro counties have similar effects across the Native/In-migrant cohort variable.

Age of Respondent. A variable measuring the age of the respondent was included as a covariate. It was necessary to include age as a covariate since has been shown to influence participation in outdoor recreation and attitudes towards outdoor recreation management policies. Age is also significantly associated with the "prior to 1970" cohort since to move here during that time period required one to be at least 27 years old. Age was measured by asking "What is your age (in years)?". The respondents mean age was 47.77 years, the median was 47, and the mode was 50, with the standard deviation of 16.77.

Dependent Variables

The study considered five sets of dependent variables measuring different dimensions of the overall outdoor recreation experience. The first was a single measure that focuses on the "overall importance of outdoor recreation". The second set examined a commonly used set of measures of motivations for outdoor recreation. The third set considered a common set of management objectives for natural resources. The fourth considered two variables measuring spending priorities of interest to the managers and officials. The final set of dependent variables looked at a few specific policy issues identified as important by the managers.

Centrality of Outdoor Recreation. The first dependent variable measured in this study focused on the overall importance of outdoor recreation to the respondents. Respondents were provided with the following instructions "To what extent do you personally agree or disagree with following statements? Please check one box for each statement." Reponses ranged from "strongly agree", to "agree", to "neutral", to "disagree", to "strongly disagree". The statement was "Participation in outdoor recreation plays a central role in my life." The mean score on this statement was 3.668 wita standard deviation of 1.101.

Motivation for Outdoor Recreation. The first sets of independent variable are related to motivations to participate in outdoors recreation. The questionnaire provided the following instructions: "Listed below are a number of reasons why people participate in outdoor recreation activities. Please check the appropriate box for each response." Listings of fifteen potential motivations were provided to the respondents. Factor analysis of the responses yielded four interpretable and conceptually meaningful factors, which were tested for reliability. The four factors were labeled 1) social and adventure motivations (6-items, alpha=.8101); 2) escape and relaxation motivators (four items, alpha=.757); 3) outdoors with family and friends motivators (4-itmes, .665); and 4) exercise (1-item).

Participation in Outdoor Recreation Activities. The questionnaire provided the following instructions: "Listed below are a number of recreation activities that you or members of your household may participate in. Please indicate how many time (if any) that you or members of your household participated in these activities." Categories provided included "not at all", "1-3 times", "4-6 times", "7-10 times" and "over ten times". Adding the scores on the individual variables for variables that shared a common element (i.e., types of fishing, hunting, equipment, etc.) created the activity type participation variable. The following scoring criteria "not at all" was assigned a zero value, "1-3 times" was assigned a value of one; "4-6 times" was assigned a value of 2; "7-10 times" a value of three and "over ten times" a value of four. A total of eight scaled variables were created that captured different groupings of outdoor recreation activities. These were labeled 1) fishing; 2) hunting, 3) hunting and fishing; 4) motor sports; 5) active outdoors, 6) passive outdoors; 7) activities which require development; and total outdoor activities. A description of the groupings, the mean score and standard deviation on the grouping scale follows:

Fishing. There were five variables on the survey representing "fishing" activities, these were "freshwater fishing", "saltwater fishing", "ice fishing", "fly fishing" and "shellfish harvesting". The mean score on the fishing activity scale was 2.16 with a standard deviation of 3.98.

Hunting. There were five variables on the survey representing "hunting" activities; these were "bow hunting", "bird hunting", "small game hunting", and "large game hunting". The mean score of the hunting activity scale was 1.66 with a standard deviation of 3.56.

Hunting and Fishing. The hunting and fishing activity scales were added together to create a total hunting and fishing activity scale. The mean score on the hunting and fishing activity scale was 3.69 with a standard deviation of 5.53.

Motor Sports. There were five variables on the questionnaire that measure participation in some sort of motorized outdoor recreation activities; these were "off-road vehicle driving", "motor boating", "water skiing", "snowmobiling", and "atv/ohrv". The mean score on the power equipment" scale was 2.36 with a standard deviation of 3.30.

Active Outdoors. There were twenty variables on the questionnaire that measure participation in recreation activities that require active engagement in the outdoors, these were; "day hiking", "food gathering", "bicycling", "mountain biking", "canoeing, kayaking/rowing", "rock mountain climbing", "stream lake swimming", "ocean swimming", "sailing", "sea kayaking", "surfing", "diving snorkeling", "volunteer monitoring", "cross-country skiing", "horseback riding", "snow shoeing", backpacking", "gardening", "jogging/running/walking" "organized field trips" and "wind surfing" The mean score on the active in the outdoors scale was 9.73 with a standard deviation of 5.77.

Table 1. Factor Analysis of Management Objectives for Public Lands.

Factor Name, Item Content, and Proportion of Variation Explained	Loading
Factor 1: Resource Protection (alpha=.7538)	
To protect typical examples of NH's natural regions (e.g., lakes, northern forest, mountains).	.868
To protect plants and animals that are native to New Hampshire	.849
To protect areas of historical/archaeological interest.	.785
To provide opportunities for non-motorized outdoor recreation activities (e.g., hiking, backpacking, canoeing, etc.)	.537
To preserve & protect drinking water & groundwater recharge areas.	.502
Explained Variance: 28.414%	
Factor 2: Recreation and Tourism Development (alpha=.6678)	
To provide a source of revenue for the owners/managers of natural/cultural resources.	.757
To provide the opportunity of outdoor recreation activities which require a high level of development (e.g., downhill skiing, golf, tennis, hotel, condominiums).	.750
To attract tourists to New Hampshire	.747
To provide the opportunities for motorized outdoor recreation (e.g., motor boating, snowmobiling, jet skiing.)	.605
Total Explained Variance: 49.595%	

Passive Outdoors. There were seven variables on the questionnaire that measured involvements that outdoor recreation activities "wildlife observation", "driving for pleasure", "sightseeing", "picnicking", "drinking alcohol in an outdoor setting", "rafting/tubing", and "family gatherings". The mean score on the passive outdoors scale was 7.16 with a standard deviation of 4.71.

Requires Development. There were eight variables on the questionnaire that measured participation in recreation activities that requires some sort of bricks and mortar development; these include "snowboarding", "down hill skiing "camping in National Forest", "camping in State Parks" "camping at private camp grounds", "tennis/volleyball/golf", "outdoor education camps", and "outdoor spectator sports". The mean score on the "requires development" scale was 5.57 with a standard deviation of 4.00.

Total Activities. A total of sixty variables were included on the questionnaire that measured participation in outdoor recreation s. Fifty of these variable were incorporated into the seven previous recreation participation scales, those and an additional eleven variables were added together to create a total recreation activity scale. The ten activities not included in the previous scale were "nature study", "photography", "visit historic sites", "visiting museums", "attending special events", "farm visits", "outdoor pool swimming", "baseball/basketball/soccer","pick-your-own fruit/vegetables", and "playing on playgrounds". The mean score on the total activity scale was 48.15 with a standard deviation of 23.67.

Management Objectives. These sets of independent variables are related to respondents' preferences for specific, but potentially competing, objectives for the management of New Hampshire's natural resources. The respondent was provided with the following instructions: "How important is it to you, personally, that persons responsible for the management of New Hampshire's natural resources develop and maintain areas for the following purposes? Please check the appropriate box for each response." Responses ranged from "not important (0)" to "minor importance (1)" to "important (2)" to "very important (3)" to "most important (4)". A list of nine objectives for the management of New Hampshire's natural resources was provided. Factor analysis of the responses yielded two interpretable and conceptually meaningful factors, which were tested for reliability. Table 1 listed the items included in each factor along with its loading and corresponding alpha value. The two factors were labeled 1) resource protection; and 2) recreation and tourism development. The resource protection variable had a mean score of 3.99 with a standard deviation of 0.6927 and the recreation and tourism development variable had a mean score of 2.718 and a standard deviation of 0.8988

Topics of Interest

This section included a number of single variables that related to topics that are currently being debated relative to the independent variables. Two variables were drawn from a section of questionnaire focused on spending priorities and four variables were drawn a section entitled "Issues and Concerns".

Spending Priorities. This section focused on spending priorities. Respondents were provided with the following instructions "If you were to decide how future monies are spent within New Hampshire, would you identify each of the items listed below as a LOW, MODERATE, or HIGH priority? Remember that monies are limited, so if some projects are identified as a HIGH Priority, others must be identified as LOW or MODERATE priorities. (Please check the appropriate box)." Responses ranged from "Low (1)", to "Moderate (2)" to "High (3)". The first of the two topics examined from this section were "Wetland preservation/protection programs". This variable had a mean score of 2.20 and a standard deviation of 0.7125. The second variable was "Establishment/administration of carrying capacity for public lands and waters." This variable had a mean score of 1.733 and a standard deviation of 0.6582.

Issues and Concerns. This section focused on issues and concerns identified by resource managers and planners.

Table 2. Outdoor Recreation variable and univariate analysis of variance model controlling for age of the respondent.

Centrality and Motivations	Native/In-Mig. F-value	Metro/Non F-Value	Interaction F-Value	Age F-Value	Overall Model
Recreation--central to life	0.563 (.639)	1.064 (.303)	3.160 (.024)	14.33 (.000)	3.893 (.000)
Exercise	0.488 (.690)	1.373 (.242)	0.105 (.957)	0.129 (.719)	0.561 (.810)
Social	2.137 (.094)	1.930 (.165)	0.094 (.964)	1.573 (.213)	1.852 (.064)
Escape	0.117 (.950)	4.325 (.038)	0.748 (.524)	3.134 (.077)	1.098 (.362)
Family	1.000 (.392)	2.427 (.120)	1.211 (.305)	10.31 (.001)	2.124 (.031)
Recreation Activity Packages					
Hunting	5.230 (.001)	20.42 (.000)	0.336 (.799)	8.393 (.004)	6.711 (.000)
Fishing	4.025 (.007)	0.062 (.803)	0.234 (.873)	1.424 (.233)	2.121 (.032)
Hunt and fish	6.726 (.000)	9.116 (.003)	0.117 (.950)	6.863 (.009)	5.507 (.000)
Power equipment	5.718 (.001)	1.594 (.207)	0.651 (.583)	11.06 (.001)	5.283 (.000)
Non-power sports	1.159 (.325)	3.619 (.058)	0.576 (.631)	13.09 (.000)	2.416 (.014)
Active	2.732 (.043)	0.024 (.878)	0.356 (.785)	31.53 (.000)	5.834 (.000)
Passive	1.632 (.180)	0.872 (.351)	1.258 (.288)	0.113 (.737)	1.621 (.115)
Requires development	3.465 (.016)	2.664 (.103)	1.110 (.344)	81.29 (.000)	14.50 (.000)
Total activities	1.199 (.310)	1.680 (.196)	1.667 (.173)	31.22 (.000)	5.895 (.000)
Management Objective					
Environmental protection	2.095 (.099)	3.665 (.056)	4.520 (.004)	9.943 (.002)	3.299 (.001)
Recreation development	1.189 (.313)	0.453 (.501)	0.643 (.588)	1.009 (.316)	.8059 (.598)
Topics of Interest					
Wetland preservation/protection	7.000 (.000)	1.167 (.280)	2.820 (.038)	1.167 (.280)	3.190 (.001)
Carrying capacity	0.291 (.832)	9.853 (.002)	1.465 (.223)	0.017 (.896)	1.182 (.070)
Protection endangered species	2.014 (.110)	7.835 (.005)	3.358 (.018)	10.28 (.001)	3.812 (.000)
Non-residence fees	5.979 (.000)	.122 (.727)	1.950 (.122)	.565 (.453)	4.395 (.000)
Higher fees for recreation	3.793 (.010)	7.129 (.008)	0.134 (.883)	0.022 (.940)	2.56 (.008)

Respondents were provided with the following instructions "To what extent do you personally agree or disagree with following. statements? Please check one box for each statement.". Responses ranged from "strongly agree", to "agree" to"neutral", to "disagree" to "strongly disagree". The first issue and concern addressed was the represented by the following statement "More should be done to protect endangered plant/animal species/habitats." The mean score of this statement was 3.820 with a standard deviation of 0.9473. The second statement was "Non-residents should be assessed a larger fee than residents to participate in specific outdoor recreation activities." The mean score of this statement was 3.586 with a standard deviation of 1.5883. The forth and final statement was "I would be willing to pay higher user fees if the increase would be dedicated to maintenance, acquisition, and development of recreation programs and properties." The mean score of this variable was 3.223 with a standard deviation of 1.1323.

Sociodemographics. Five social demographic variables were included in the analysis. Age was measured by asking "What is your age (in years)?". The respondents mean age was, 47.77 years, the median was 47, and the mode was 50, with the standard deviation of 16.77. Income was measure by asking the respondent what is your total family income before taxes? (they were provided: $__ __ __,__ __ __.00). Respondents mean total family income $68,15, with a median of $70,000, and a mode of $80,000, with a standard deviation of $37,534. Education was measured by asking the respondents to "Please circle the highest level of education that you have completed." They were provided with "HS", "AD", "BA", "BS", "MA", "MS", "Ph.D.", "JD", and "MD". These items were collapsed into five distinct categories, representing "high school=1", Associates Degree=2", "Bachelors degree=3", "Masters degree=4", and "professional or Ph.D.=5". The mean score on the education variable was 2.305, with a mode of 1, and median of 2, with a standard deviation of 1.28. The number of years living in current residence was measured by asking the respondents "How many years have you lived at your current residence?". The mean score on the years in residence variable was 13.401, with a mode of 2 and a median of 10 with a standard deviation of 12.87. The number of acres of land currently owned was measured by asking the respondent "How many acres of land do you own? (if any)." The mean score of the acres of land owned variable was 14.638, the mode was 0, the median was 1 and the standard deviation was 26.71. Gender was measured by asking respondents "What is your gender?". Reponses were 55% male and 45% female

Statistical Procedures

This study uses univariate analysis of variance statistics to consider the unique (as measure by the F-value) effect of the native/in-migration cohort and metro/non-metro residence on a variety of issues of interest to outdoor recreation resource managers while controlling for the effects of age of the respondent.

Results

This section reports the results from a univariate (two way) analysis of the sociodemographic measures (age, income, education, years living in house acreage and gender) that were

Table 3. Outdoor recreation variables and the univariate analysis of variance model controlling for age of the respondent.

	NATIVE	Before 1970	1970s	1980s & 1990s	F-Value
Recreation Central to Life	3.74	3.47	3.71	3.66	0.563
Non-metro	3.61	3.50	3.75	3.89	1.064
Metro	3.81	3.46	3.69	3.55	IT 3.16*
Escape Pressures	2.70	2.66	2.68	2.69	0.117
Non-metro	2.71	2.70	2.83	2.76	4.325**
Metro	2.70	2.64	2.63	2.66	
Hunting	2.64	1.02	1.37	1.29	5.230**
Non-metro	3.58	1.88	2.54	1.90	20.424***
Metro	2.14	0.78	0.95	1.03	
Fishing	2.77	1.89	2.10	1.74	4.025*
Non-metro	2.96	1.90	1.86	1.84	0.062
Metro	2.67	1.88	2.18	1.70	
Hunting&Fishing	5.29	2.76	3.44	2.81	6.726**
Non-metro	6.37	3.84	4.34	3.42	9.116***
Metro	4.72	2.46	3.11	2.54	
Power Equipment	3.21	1.62	2.63	1.97	5.718***
Non-metro	3.32	1.35	3.13	2.28	1.594
Metro	3.15	1.68	2.46	1.85	
Requires Development	5.98	4.15	6.60	5.65	3.465**
Non-metro	5.25	2.59	6.51	4.50	
Metro	6.35	4.52	6.63	6.20	
Active	9.63	8.51	10.79	9.91	2.743*
Non-metro	9.16	7.90	10.82	9.72	0.024
Metro	9.87	8.64	10.79	9.98	
Environmental Protection	3.95	3.95	4.04	4.00	2.095
Non-metro	3.85	4.11	4.06	4.19	3.665**
Metro	4.01	3.91	4.03	3.92	IT 4.125**
Wetland Protection	2.09	2.20	2.24	2.33	7.000***
Non-metro	1.94	2.31	2.35	2.35	1.167
Metro	2.16	2.17	2.21	2.21	IT 2.820*
Carrying Capacity	1.66	1.75	1.67	1.82	2.899*
Non-metro	1.66	1.82	1.70	1.88	0.469
Metro	1.66	1.74	1.66	1.79	
Endangered Species	3.79	3.67	3.85	3.89	2.014
Non-metro	3.70	3.94	4.00	4.11	7.835**
Metro	3.84	3.60	3.80	3.80	IT 10.28***
Non-resident Fees	3.99	3.48	3.58	3.25	5.98***
Non-metro	3.80	3.63	3.28	3.45	0.122
Metro	4.09	3.45	3.68	3.17	IT 1.95
Table 3 Continued					
Higher Fees for Recreation	3.02	3.28	3.22	3.37	3.793**
Non-metro	2.84	3.10	3.00	3.26	7.129**
Metro	3.11	3.33	3.30	3.42	

identified in the literature review as important and potentially intercorrelated with this study's two independent variables (metro/non-metro and native/in-migrants) The results show that there swere significant association between age and native/in migrant cohort variable. Persons moving to NH prior to 1970 were significantly older and lived in their house for more years than the native and other two cohorts. The results also showed that residents of non-metro counties have significantly higher incomes than their non-metro counterparts. The data also suggest that the Native cohort has significantly lower education. Previous research suggested the importance of considering the amount of land owned by the respondents in examining the effects of in-migration. Our data show that respondents from non-metro counties owned more land than their metro counterparts. Table 2 shows the f-values for each of the dependent variables and each of the independent variables (and the interaction term between the independent variables), and the control variable age

Table 3 presents the results from the univariate analysis of variable for those models that the native/in-migrant cohort and or metro/non-metro or the interaction between native/in-migrant and metro/ non-metro variables was significant. The results suggest that the interaction between native/in-migrant and metro/non-metro was significant for the measure of the centrality of outdoor recreation to the respondent's life was significant. A comparison of means shows that outdoor recreation is less central for natives from rural areas and more central to the 1980s and 1990s cohort.

Relative to the motivation measures there were not significant differences for the Native/In-migrant cohort. The only significant difference was that respondents moving to rural areas from the 1970s on were more motivated to "escape" than natives. Table 3 suggests that there were significant differences across the Native/In-migrant cohort for a number of the participation in outdoor recreation variables. For example, hunting, fishing, hunting and fishing, and power equipment all require that development and active measures were all significant. Suggesting that New Hampshire "natives" may be distinct in their selection of recreation participation packages. Each of the significant variables had unique resource or equipment requirements except for the more general measure of overall activity participation. The metro/non-metro variable best explained participation in hunting and the combined hunting and fishing variable. There were no significant interaction effects between the native/in-migrant cohort variable and the metro/non-metrovariable. The metro/non-metro variable had a unique significant effect for the measure of environmental protection. Respondents from non-metro areas were more supportive than those from metro areas. There was a significant interaction effect between the native/in-migrant cohort and metro/non-metro residence with the native residents in non-metro areas being less supportive than natives from metro areas.

The native/in-migrant cohort variable was significant for the dependent variable measuring support for wetland protection was significant. It showed that in-migrants considered wetland protection to be more of a funding priority. This chart shows that metro residents are fairly consistent across the native/in-migrant cohort measure but there is a considerable difference between the native non-metro and the in-migrant cohorts. Relative to the measure of support for carrying capacity programs the results show no significant difference for the native/in-migrant cohort, but there was a significant difference for the metro/non-metro residence variable was significant with metro residents being more supportive. Considering attitudes toward endangered species protection, native/in-migrants were not significant while the metro/non-metro variable was significant. Non-metro residents were more supportive than the metro, with the exception of non-metro natives (this interaction term was significant).

The last set of dependent variables focused on fees for outdoor recreation. With respect to higher fees for non-residents, the native/in-migrant cohort was significant. Natives were shown to be the most supportive of higher fees for non-residents. There was no significant difference across the metro/non-metro residents variable. The final variable focused on higher fees for outdoor recreation that would be earmarked for support for outdoor recreation programs and development. The native/in-migrant cohort was significant for this variable. Natives were the least supportive of higher fees. The metro/non-metro variable was significant for higher fees as well. Non-metro residents were shown to be the least supportive for higher fees. There was no significant interaction effect for this variable.

Conclusions

New Hampshire "natives" are different, particularly New Hampshire "natives" from non-metro counties in terms of their outdoor recreation behaviors and attitudes towards specific recreation management policies. The most dramatic differences were between non-metro natives and non-metro in-migrants from 1980s and 1990s. This data suggests the potential for recreation and social conflict around issues associated with specific outdoor recreation participation packages and over issues associated with wetlands and endangered species and fee increases. This data provides some support for "last settler" with respect to carrying capacity (more recent in-migrants were more supportive of setting limits). It also serves to illustrate the complex nature of the relationships between native/in-migrants and metro/non-metro residents that may be overlooked when using bivariate types of analysis, in that there are a number of significant interactions and the differences between study groups vary considerably across research questions.

Limitations and Recommendations

This research was not able to consider whether in-migrants moved from metro or non-metro locations. Future research should do more to address this issue in order to better understand the "whys?" as well as the "whats." Recreation planners and managers should be aware of differences across both native/in-migrants and metro/non-metro groups in the outdoor recreation planning process. Some outdoor recreation providers in the Northeast are considering this issue in marketing and fund raising initiatives. The data contained in this report could be used to design public information and education programs

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PUBLIC ACCESS TO NEW HAMPSHIRE STATE WATERS: A COMPARISON OF THREE COHORTS OF RESIDENTS ACROSS THREE DISTINCT GEOGRAPHIC

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Abstract: This study was intended to provide New Hampshire agencies with a better understanding of public access-related demand information. Through an analysis of three groups of New Hampshire residents based upon geographic location and length of residency, important issues and attitudes were identified from all over the State. The results of this study will assist in policy-making regarding water-based recreation in the State, allowing for more informed and appropriate decisions to be made.

Introduction

Understanding the recreational access needs of the general public is important to resource managers. In New Hampshire, there has been considerable debate over the criteria that should be considered when making public access development decisions. Lakes and rivers over ten acres within the State are held in public trust, therefore subject to public access. The New Hampshire Fish and Game (NHFG) Department leads the state's public access program and is charged with insuring that the demand for public access is linked with supply. Also, NHFG is responsible for providing public access with a clear understanding of the demands and needs of the public, as well as allocating limited funds for the development of public access in a way that proves most beneficial to the public.

Land use planners and resource managers want and need to understand the public, thus reinforcing the need for this study. While NFHG is used to dealing with traditional stakeholder groups (fishers, hunters, loggers, etc.), the agency is not sure what and who the public is, or how to consider the planning process associated with the development and management of public access sites. Policy makers and managers in New Hampshire have identified several factors guiding decision-making relating to recreational opportunities, including knowing if they should consider regional areas when making public access development decisions, and understanding and being responsive to constituencies in making these decisions. One group of constituencies that is of great importance in New Hampshire relates to the length of residency, commonly referred to as the distinction between "natives," "newcomers," and "old-timers."

Objectives

The objectives of this study are to investigate a variety of demand and supply issues associated with the development of public access opportunities in New Hampshire between three distinct geographical regions in the State; natives and two distinct in-migration cohorts; and interactions between the geographical regions and native/in-migrant cohorts. This research will look at whether region of residency affects water-based recreation choices, if length of residency affects choices, and if there are any interactions between these groups that influence recreational preferences.

Methods

The data was collected as part of the New Hampshire Public Access Planning Process during 1997-1998. First, a telephone questionnaire was administered to a stratified random sample of 1,566 households throughout New Hampshire, and then a detailed questionnaire was mailed to a self-selected subsample of 563 households. The results of the survey identified three sets of independent variables used in this study: three distinct geographic regions [Metro-Southern Tier (n=753/257), Lakes Region (n=374/150), and Rural North Country (n=376/143)]; native/in-migrants [natives (n=504/165); old-timers—moved to New Hampshire prior to 1980 (n=511/225), and newcomers—moved to New Hampshire in 1980s and 1990s (n=489/160)]; and age, income, and education were all included as a covariate.

Several dependent variables also were used in this study. These include sociodemographic variables (age, income, education); participation (water-based recreation, motorized and non-motorized boat ownership); access (private access, second home on a lake, primary home on a lake); the importance of site attributes was included as a scaled variable (naturalness, access attributes, familiarity, maps); access development (good/bad, preference, need, type of site); and general attitudes and evaluation of public access.

Results

Geographic Region and Native/In-Migrant Cohorts

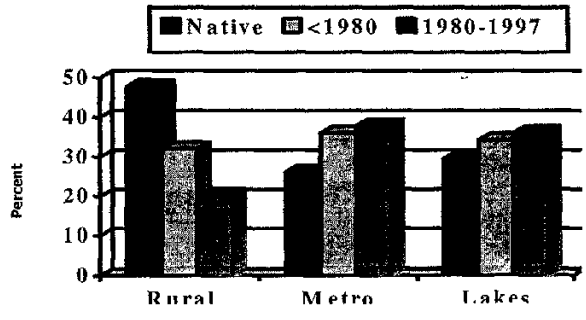


Figure 1. Migration levels between geographic regions (chi-square 67.03, sig. 0.000).

A chi-square analysis of this variable (67.03) showed that there was a significant relationship (0.000). This indicates that rural New Hampshire has the greatest proportion of persons who were born in New Hampshire and the smallest proportion of those who moved to New Hampshire in the 1980s and 1990s. Also, metro residents have the greatest proportion of residents who moved in the 1980s and 1990s, as indicated in Figure 1.

Sociodemographic Variables and Activities

A summary of the results of sociodemographic differences between geographic regions and native/in-migration cohorts revealed important information about these groups. First, there were three notable differences relating to annual household income: newcomers generally have higher incomes than natives and old-timers; natives generally have lower incomes than in-migrants; and rural residents have the lowest income, whereas metro newcomers and Lakes region migrants (prior to 1980) have the highest income. Also, levels of education varied across cohorts: in-migrants arriving between 1980-1997 are generally the most highly educated; natives are generally the lowest educated; and rural natives and Lakes natives have the lowest level of education. Finally, age varied among the groups: in-migrants moving to New Hampshire prior to the 1980s were the oldest; and rural residents are older than metro residents.

Participation in water-based recreation was another interesting finding of the study. An analysis of the question "Have you participated in water-based recreation in the last 12 months?" indicated a chi-square of 8.9 (0.01), with 62% of rural residents, 66% of metro residents, and 72% of Lakes residents indicating that they had answered "yes." The relationship for native/in-migrant cohorts was non-significant. Region/in-migration interaction shows that newcomers from the metro region are least likely to participate in water-based recreation, with a chi-square of 5.7 (0.05).

When asked "Does your household own a motorized boat?", only 22-25% of the respondents said "yes," and the differences were non-significant. Non-motorized boat ownership, however, had different results. An analysis of regional differences [chi-square: 5.7 (0.06)] shows that 36% of rural and metro respondents, and 44% of Lakes respondents, own non-motorized boats. The differences among native cohorts had a chi-square of 17.7 (0.000), and indicated that 34% of natives, 46% of old-timers, and 33% of newcomers own non-motorized boats. Finally, the interaction between region/in-migration reveals a chi-square of 7.8 for rural residents and 13.6 for Lakes residents. Here, 48% of rural old-timers, 34% of rural newcomers, and 29% of rural natives own non-motorized boats; 57% of Lakes old-timers, 33% of Lakes newcomers, and 41% of Lakes natives own non-motorized boats; and the relationship was non-significant for metro residents (33-40%).

Primary or secondary home ownership along a lake, pond or river in New Hampshire was another aspect that was considered in this study. When asked if their household has a primary home on a waterbody in New Hampshire, the response across regions [chi-square: 9.9 (0.007)] indicated that 14% of rural residents, 10% of metro residents, and 16% of Lakes residents responded "yes." Only 9% of natives, 14% of old-timers, and 14% of newcomers said that they own a primary home on a lake, pond, or river in New Hampshire [chi-square: 5.94 (0.05)]. The interaction between region/in-migration cohorts [chi-square: 8.3 (0.01)] revealed that only 8% of natives responded "yes," while 21% of old-timers and 18% of newcomers said "yes." Finally, when asked "Does your household have a second home or camp on a lake, pond or river in New Hampshire?", there was no significant difference or interaction between cohorts.

Also, private access to New Hampshire waterbodies was examined in this study. Respondents were asked if their household had private access to any rivers, lakes or ponds in New Hampshire. An analysis of the regions [chi-square: 35.5 (0.000)] showed that 26% of rural residents, 21% of metro residents, and 38% of Lakes residents indicated that they did have private access. Differences among natives/in-migrants was non-significant, as well as the region/in-migrant interaction between cohorts.

Preferences for Specific Access Site Attributes

Factor analysis revealed several preferred characteristics of public access sites, as identified by survey respondents, like physical attributes, naturalness, familiarity, and mapping. The physical attributes that were recognized included well-designed and adequate parking, good law enforcement, well-maintained access sites, overall signing of the access facility, a safe area for recreation, and the existence of restroom facilities. Natural attributes that were desired by respondents included undeveloped shorelines, the presence of birds and wildlife, lack of homes/development, the remoteness of the site, and the lack of other people. Also, familiarity of the site was considered important, like familiar surroundings, located within 30 minutes of home, the site's availability for year-round recreation, and how easy the site is to get to. Finally, the presence of accurate maps to and of the site are highly important to many New Hampshire residents.

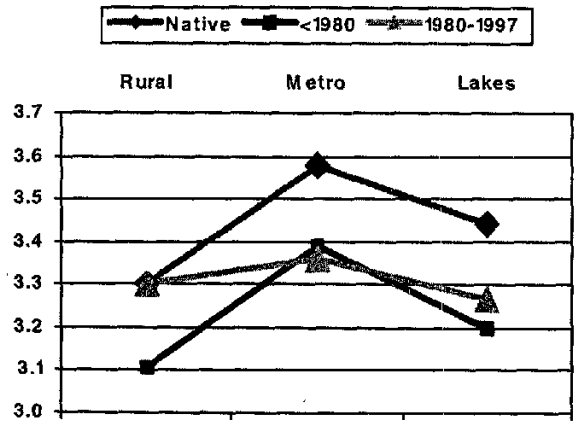


Figure 2 Preferences for physical attributes of access sites.

The physical attributes of the access site were significant for several variables: native/in-migrant

relationship (0.05), region (0.07), age (0.007), and education (0.05). Here, rural respondents identified physical characteristics as not being as important to them when compared to metro residents, and natives responded significantly higher than old-timers (see Figure 2).

The importance of natural characteristics of access sites to the study's respondents is interesting, as indicated by Figure 3. The model is not significant when including age, level of education, and income (0.08). The model is significant if the only variable used is age (0.04). Respondents' level of education is significant in both models, but the interaction effect is significant for the age-only model (0.03), and not with education/income (0.09). Here, rural newcomers and Lakes old-timers indicated that natural attributes are of great importance to them, while natives in all regions indicated that natural attributes are not as important to them.

Respondents' familiarity with an access site was also significant in this study (0.02). The native/in-migrant relationship (0.03) shows that natives indicated a greater importance of familiarity than old-timers. Also, newcomers ranked familiarity significantly higher than old-timers, as shown in Figure 4. Further, education is considered to be a significant (0.05) variable.

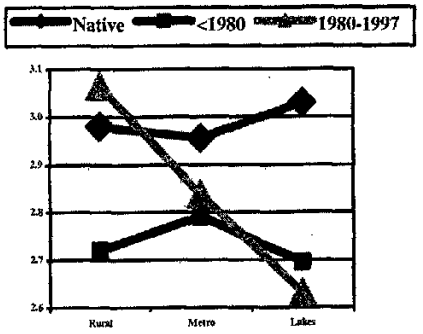


Figure 3. Preferences for natural attributes of access sites.

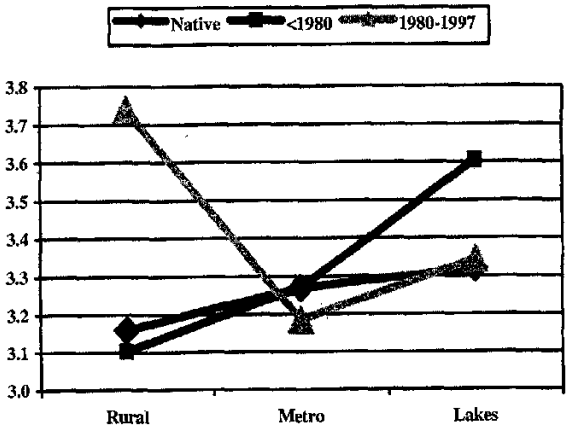


Figure 4. Preferences for familiarity attributes of access sites.

Finally, maps of water access sites are quite significant to New Hampshire residents (0.005). An analysis of regions indicates a significance of 0.205, and that rural residents rank maps of lower importance than metro residents (0.076). Also, the native/in-migrant (0.09) relationship shows that natives rank the importance of maps significantly lower than newcomers (0.03), as shown in Figure 5. Additionally, the F-score for the region/in-migrant interaction effect is 2.58 (0.03). The presence of maps is important to all groups of residents, but for different reasons. As indicated by Figure 5, Lakes region natives are outliers, as they want to protect their access sites and prevent other groups from using them by not having maps, while newcomers to the Lakes region indicate a need for maps, as they want to find the access areas.

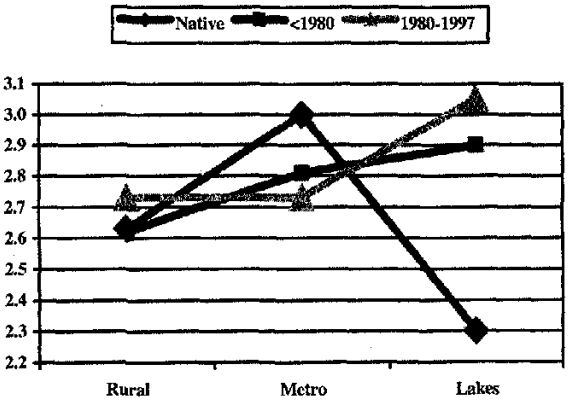


Figure 5. Preferences for maps of access sites

Access Development Policy

Another important issue examined in this study is whether maintaining the existing character of state waters a "good or bad idea." The model developed through data analysis is significant (0.01), and identifies income (0.02) and level of education (0.03) as significant covariates. There is a significant interaction between region and native/in-migrants (0.01). The data indicates that a majority of the respondents think that maintaining the existing character of state waters is a very good idea. Also, these respondents scored higher than a four on a five-point scale. It is important to point out that this question identifies very complex interactions between all of the variables, seen most clearly in Figure 6. Education and income both have significant interactions, especially for Lakes region respondents.

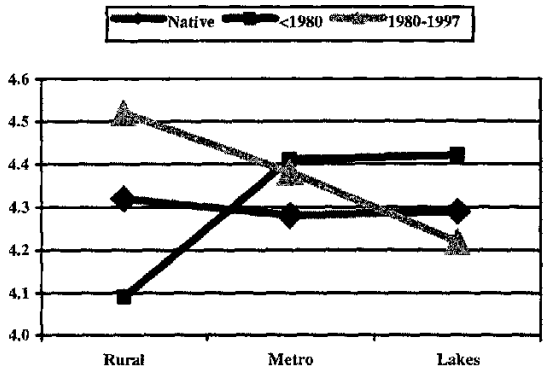


Figure 6. Is maintaining the existing character of State waters a good or bad idea?

A related issue is the assurance of public access to state waters in New Hampshire. Survey participants were asked whether this is a good or bad idea, and the resulting model proved significant (0.007). It was also significant to natives/in-migrants (0.001), but it is important to point out that natives are significantly more likely to want insured access than both old-timers and newcomers to New Hampshire, as apparent in Figure 7.

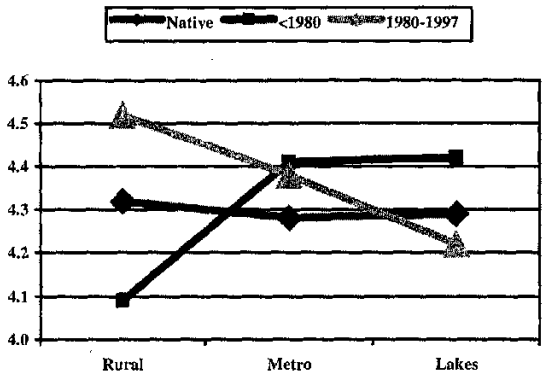


Figure 7. Is insuring public access to State waters a "good or bad idea"?

Another important question that was asked in the study was dealing with management approaches to access sites. The question that is important here is "Given the option between supporting one of these two management approaches, would you support (1) insuring that the existing character of each lake or river is maintained, or (2) insuring that state residents have access to publicly owned lakes and rivers." When analyzed at a regional scale, chi-square revealed 10.17 (0.006), where 60% of the rural respondents, 70% of the metro respondents, and 68% of the Lakes respondents supported maintaining the existing character of access sites. For natives/in-migrants, chi-square was 18.29 (0.000), and 60% of the natives 69% of old-timers, and 73% of newcomers supported maintaining the existing character of access sites. The interaction between these two cohorts showed that for Lakes region residents (0.01), 56% of natives, 74% of old-timers, and 72% of newcomers feel that it is important to maintain the existing character of access sites, while 63% of natives, 71% of old-timers, and 74% of newcomers in metro region residents (0.04) share this belief.

The need for an increase in the number of access sites varied across the cohorts in New Hampshire. Analyses revealed that regional differences were not significant, with 48% of rural residents, 58% of metro residents, and 50% of Lakes residents expressing that there is a need for more access sites in the State. Also, 57% of natives, 51% of old-timers, and 51% of newcomers replied similarly [chi-square: 10.87 (0.004)], whereas there was no significant relationship between the region/in-migrant interaction. Also, when questioned concerning the types of access that should be considered, walk-in received the highest percent by all groups, boat launch received the second highest percent of all groups, and car top received the lowest percentage of all groups. Here, regional comparisons were not significant, but length of residency was. Also, the interaction between Lakes and Metro cohorts was significant.

This study also considered the statement: "The fact that a waterbody is owned by the public does not mean that it must have public access" (strongly disagree to strongly agree). Analyses of the responses to this statement indicated a significant model (0.02), where educational levels were significant (0.000), as well as the interaction between regions and length of residency. Here, rural natives were most likely to disagree with this statement, while Lakes newcomers and Lakes natives were most likely to agree, as indicated in Figure 8.

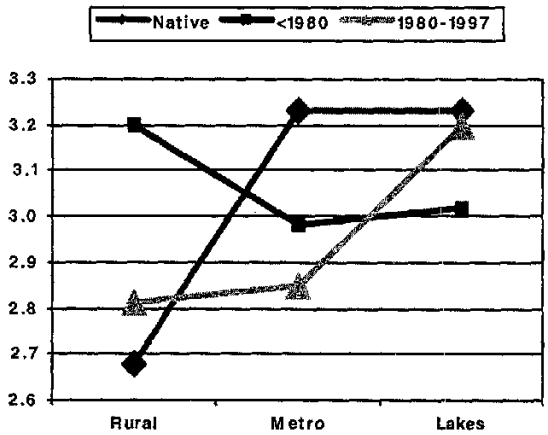


Figure 8. The fact that a waterbody is owned by the public does not mean that it must have public access (strongly disagree to strongly agree).

One of the main problems with public access sites is the lack of public boat launches. The study looked at the question "I have to drive too far to use a lake or river with a public boat launch area" (strongly disagree to strongly agree). The model is significant (0.000), and well as level of education and income (0.02). Native/in-migrant responses are considered non-significant, but a regional comparison is significant (0.04), where rural residents are significantly less likely to agree with the statement, as seen in Figure 9. Finally, the interaction between regions and

natives is significant (0.006). Here, it can be assumed that newcomers to the Lakes & rural regions do not consider driving distances a problem, as they are more accustomed to travelling longer distances than metro residents.

A point of contention between managers and the public has been the implementation of user fees at access sites, which prevents many residents from using certain facilities. The study looked at this, by asking respondents to rank their attitude of this statement: "I have not used some lakes, rivers or ponds in New Hampshire because of fees charged for access to lakes, rivers and ponds" (strongly disagree to strongly agree). The model is considered significant (0.001), as well as income (0.001). Both length of residency and region of residency are considered to be non-significant variables, but the interaction between the two is statistically significant (0.06), as seen in Figure 10.

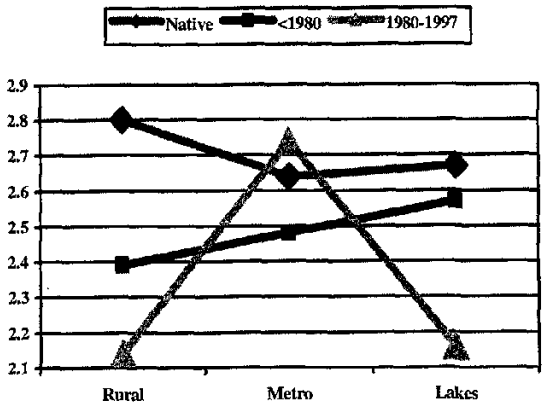


Figure 9. I have to drive too far to use a lake or river with a public boat launch area (strongly disagree to strongly agree).

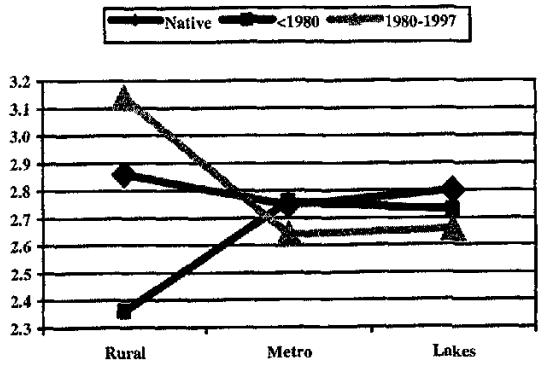


Figure 10. I have not used some lakes, rivers or ponds in New Hampshire because of fees charged for access to lakes, rivers and ponds (strongly disagree to strongly agree).

The final statement that was examined for this study was that "New Hampshire will lose the natural quality of some of its lakes, ponds and rivers if more water access is developed" (strongly disagree to strongly agree). This model is considered statistically significant (0.06). Also, income is a significant variable (0.01). Length of residency is considered non-significant, while the region of residence is significant (0.01), where persons from the Lakes region are more likely to agree with the statement, while rural residents are most likely to disagree.

Summary and Conclusions

When looking at the sociodemographic variables considered in this study, it is important to think about several factors. First, when considering "in-migration," all regions are not created equal. The "rural" region of New Hampshire has the greatest over-proportion of "natives," while the metro south and Lakes region have the greatest proportion of more recent in-migrants. Also, income and education interact in different ways for different regions and for different cohorts, depending on the topic. Participation in water-based recreation is also an important variable in this study. In New Hampshire, the Lakes region has the highest participation rates, and the newcomers to the metro area have the lowest participation rate. Further, there are no differences across regions in motorized boat ownership, but "old-timers" are most likely to own a non-motorized boat. Another important issue that this study recognizes is the existence of public access areas within the State, and revealed that residents in the Lakes region are more likely to own a primary home on the water, and that natives are least likely to own a home on the water, both of which could partially explain some of the difficulties public agencies face in making public access decisions.

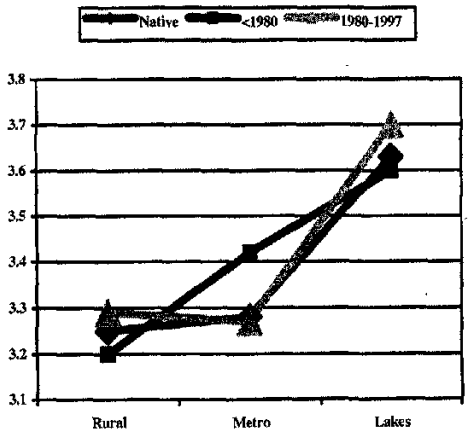


Figure 11. New Hampshire will lose the natural quality of some of its lakes, ponds and rivers if more water access is developed strongly disagree to strongly agree).

Also, this study recognizes the importance of access site attributes. Factor analysis yielded four conceptually meaningful factors: physical attributes, naturalness, familiarity and maps. It can be assumed that newcomers are looking for naturalness, whereas natives are seeking quality facilities. Also, the Lakes region has an issue with maps, as many landowners fight the listing and publication of access maps, as to protect their private property and preserve the naturalness of their own lakes. This research

amply demonstrates the need that newcomers have for accurate maps of water-based recreation access sites.

This study helps to identify objectives of access development policies. First, all groups support maintaining the existing character of access sites. Next, newcomers to rural regions support these policies more than Lakes region residents. Finally, natives want to insure access more than other groups, as they do not have the resources that "old-timers" and "newcomers" have. Also, this study helps to recognize general attitudes towards specific issues associated with public access to lakes, rivers and great ponds. These include: natives in rural areas are most likely to believe that public waters should have public access, newcomers to the rural and Lakes regions do not have a problem with driving to access sites, newcomers to rural areas avoid some sites due to lack of public access and fees, and that residents of the Lakes region believe that providing more access will impact lake quality.

Recommendations

The results of this study have identified two primary recommendations for the New Hampshire Fish and Game Department. First, NHFG should consider both "region" and "length of residence" in public access development decisions, as it is important to establish a regional advisory committee with a mix of natives, old-timers, and newcomers. Second, there is the need to investigate the relationship between region and supply issues.

AFRICAN AMERICAN AND HISPANIC AMERICAN SPORTSMEN IN THE NORTH CENTRAL REGION

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Abstract: Public forest managers need an awareness and understanding of their clients in order to better address their needs for recreational uses of forest lands. This study examines and characterizes African American and Hispanic American sportsmen (hunters and anglers) in the North Central Region of the United States (IA, IL, IN, MI, MN, MO, WI) and compares them to African American and Hispanic American nonparticipants in the region, as well as African American and Hispanic American sportsmen outside the region. The analysis follows the suggestion of Woodard (1993) that minority groups should not be compared with other groups (as is so often the case); but rather the variation within each group should be examined. This avoids the implication that minority groups should be evaluated in terms of and strive to behave like the majority population. In addition, factors associated with African and Hispanic American participation in hunting and fishing are investigated. The analysis is based on the 1995-1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, and presents implications for management and research.

Introduction

The North Central Region (IA, IL, IN, MI, MN, MO, WI) is diverse in demographic characteristics and wildlife-associated recreation participation patterns. This presents challenges for managers who must allocate funds and manage the natural resources of these states to meet the needs of residents. Managers are interested in identifying all of their clients so that their needs can be better addressed. Although some racial/ethnic groups have a relatively low level of participation in wildlife-associated recreation, the characteristics of the participants and the nature of their participation are important to managers and planners concerned with providing for these groups. However low participation rates tend to result in minority groups being overwhelmed by others in the data when general analyses of the population or participants in particular activities are carried out. A characterization of hunters, for example, provides considerable information about the activity of hunting and its potential effect on resources; but hunter demographics make it highly representative of non-Hispanic American white male hunters because they comprise the vast majority of hunters. The influence of African American and Hispanic American hunters is small in such an analysis. However, managers are interested in African American and Hispanic American hunters and how to better serve them. The purposes of this paper are to characterize African American and Hispanic American sportsmen (hunters and anglers) in the North Central Region, compare these sportsmen to African American and Hispanic American nonparticipants in the region as well as African American and Hispanic American sportsmen from outside the region, and investigate factors that are correlated with hunting and fishing participation by these important groups in the region.

Methods

The 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was used in this analysis because it provides an opportunity to work with a substantial sample of African American and Hispanic American sportsmen. The Census Bureau has conducted the survey 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 in all wildlife-associated 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 slightly from the total numbers of participants calculated using the detailed surveys.

African Americans and Hispanic Americans are identified based on two questions in the screening survey. One question asked if the individual was of Hispanic or Spanish origin. If the response was "yes", the individual was identified as Hispanic/Spanish and is referred to in this paper as Hispanic American. The second question concerned race. Respondents (including those identified as Hispanic) were asked to identify their race, choosing from the following five categories: White; Black; American Indian, Aleut, or Eskimo; Asian or Pacific Islander; or Other. Those who were identified as Hispanic were placed into a sixth race category. Then, those who selected Black

were identified as African American. All analyses are based on respondents 16 years of age and older because participation data are available for only this age range. Data are not presented by state due to the low number of observations.

Analyses are presented as follows: African American hunters in the region are compared to African American non-hunters in the region and then African American hunters in the region are compared to African American hunters outside the region. This approach is repeated for African American anglers and then for Hispanic American hunters and anglers.

Results

Hunters and anglers are placed into two classifications: 1) if they participated in their lifetimes, and 2) if they participated in 1995. This permits comparisons between current (1995) participants and lifetime participants that did not participate in the current (1995) year. However, very few African Americans and Hispanic Americans hunted in 1995. Therefore, comparisons within this activity category are kept to a minimum. For the purposes of this paper, hunters and anglers are considered to be those who have hunted and/or fished in their lifetime, which may or may not have included participation in 1995.

African American hunters

African American hunters in the North Central region tended to be older than African American non-hunters in the region and earned less (Table 1). They were less likely to be working and more likely to be retired. African American hunters were about three times as likely as non-hunters to fish and were also much more likely to observe wildlife around the home and take trips for the purpose of observing wildlife. Although African American hunters tend to live in urban areas, they tend to be slightly more rural than non-hunters.

Table 1. African American Hunters and Nonhunters in the North Central Region (age 16 and older)

Characteristic	Hunted in Lifetime	Hunted in 95*	Non-Hunters
Total Number	256,000	41,000	2,383,000
Age (year)	49	41	42
Education (year)	11.2	12.9	12.6
Income	28,200	36,800	33,000
Working	53	83	62
Reside Urban	90	89	97
Fished	93	100	34
Observed Wildlife Around Home	19	32	10
Wildlife Watching Trip	11	20	3

* based on a small number of observations

Those African Americans who have hunted in 1995 tended to be younger, earn more, and be less likely to be retired than those who hunted in their lifetime but not in 1995 (Table 1). Although the 1995 results are based on a limited number of observations, the consistency of these results suggest an aging and possibly a dwindling population of African American hunters in the region. Only about 16% of African Americans who have hunted in their lifetime hunted in 1995. In comparison, 42% of all of the hunters in the region who hunted in their lifetime also hunted in 1995 (Marsinko and Dwyer 2002).

African American hunters in the region are similar in many respects to those outside the region (Table 2). Those in the region earn slightly less, possibly because they are slightly less likely to be working. They are more likely to fish and much more likely to live in urban areas than African American hunters who live outside the region.

Table 2. African American Hunters By Location (age 16 and older)

Characteristic	North Central Region	Not North Central Region
Total Number	256,000	1,558,000
Age (year)	49	50
Education (year)	11.2	11.8
Income	$28,200	$30,900
Working	53	60
Reside Urban	90%	74%
Fished	93%	81%
Observed Wildlife Around Home	19%	22%
Wildlife Watching Trip	11%	9%

African American anglers

African American anglers in the region tended to be slightly older than non-anglers and earned slightly more (Table 3). Although they were more likely than hunters to reside in urban areas, they were less likely than non-anglers to reside in urban areas. The greatest differences between African American anglers and non-anglers are in participation in other wildlife-associated activities, with anglers much more likely to hunt and observe wildlife. Table 3 indicates that 23% of those who fished in their lifetime also hunted. More than 90% of all African American hunters also fished.

Unlike hunters, African Americans who have fished in their lifetime are similar to those who fished in 1995 in terms of age, income, and percent working (Table 3). Those who fished in 1995 appear to be slightly more active in terms of participation in hunting and wildlife watching. About 43% of those who fished in their lifetime also fished in 1995. This is close to the 50% retention figure for the North Central population reported by Marsinko and Dwyer (2002).

African American anglers in the region are almost identical to African American anglers who reside outside the region

(Table 4). They differ primarily in location of residence, with those in the region more likely to live in urban areas.

Table 3. African American Anglers and Nonanglers in the North Central Region (age 16 and older)

Characteristic	Fished in Lifetime	Fished in 95	Non-Anglers
Total Number	1,040,800	444,300	1,598,200
Age (year)	45	45	41
Education (year)	12.4	12.2	12.5
Income	$34,200	$35,500	$31,200
Working	61%	63%	61%
Reside Urban	94%	94%	99%
Hunted	23%	31%	1%
Observed Wildlife Around Home	15%	18%	8%
Wildlife Watching trip	6%	10%	2%

Table 4. African American Anglers By Location (age 16 and older)

Characteristic	North Central Region	Not North Central Region
Total Number	1,040,800	5,315,600
Age (year)	45	44
Education (year)	12.4	12.3
Income	$34,200	$34,200
Working	61%	64%
Reside Urban	94%	83%
Hunted	23%	24%
Observed Wildlife Around Home	15%	18%
Wildlife Watching Trip	6%	8%

Hispanic American hunters

There are few Hispanic American hunters in the region (Table 5). Although the number of observations is small and caution should be exercised in interpreting the data, it appears that hunters are more likely to be working, have higher levels of education, and tend to live in more rural locations than non-hunters among Hispanic Americans in the region. Hispanic American hunters also tend to be much more likely to fish and observe wildlife than non-hunters. Although the number of observations is small, these results are consistent with all of the other results in this paper. It is interesting to note that Hispanic American non-hunters appear to be less likely to fish but much more likely to take wildlife watching trips than African American non-hunters (Tables 1 and 5).

Unlike African American hunters, Hispanic American hunters who have hunted in their lifetime are similar to those who have hunted in 1995 (Table 5). About 45% of those who hunted in their lifetime also hunted in 1995, which is consistent with the North Central population retention rate of 42% reported earlier (Marsinko and Dwyer 2002).

Hispanic American hunters in the region tend to be younger and more likely to be working than those who reside outside the region, but those who reside in the region earn slightly less (Table 6). Unlike African American hunters, Hispanic American hunters in the region appear less likely to live in urban areas than Hispanic American hunters who reside outside the region. Also unlike African American hunters, Hispanic American hunters who reside in the region tend to be much more likely to observe wildlife than Hispanic American hunters who reside outside the region.

Table 5. Hispanic Hunters and Nonhunters in the North Central Region (age 16 and older)

Characteristic	Have Hunted in Lifetime	Hunted in 95*	Non-Hunters
Total Number	76,200	34,500	955,800
Age (year)	37	37	37
Education (year)	13.1	12.7	10.9
Income	$34,600	$33,500	$31,300
Working	90%	87%	66%
Reside Urban	76%	57%	96%
Fished	78%	75%	25%
Observed Wildlife Around Home	50%	58%	14%
Wildlife Watching Trip	61%	91%	16%

* based on a small number of observations

Table 6. Hispanic Hunters By Location (age 16 and older)

Characteristic	North Central Region	Not North Central Region
Total Number	76,200	1,268,400
Age (year)	37	43
Education (year)	13.1	12.6
Income	$34,600	$42,900
Working	90%	74%
Reside Urban	76%	80%
Fished	78%	81%
Observed Wildlife Around Home	50%	28%
Wildlife Watching Trip	61%	19%

Hispanic American anglers

Hispanic American anglers in the region tended to have higher levels of education than non-anglers, were more likely to be working and earned more, and were less likely than non-anglers to reside in urban areas (Table 7). The greatest differences between participants and non-participants in angling among Hispanic Americans in the North Central region are in participation in other wildlife-associated activities, with anglers much more likely to hunt and observe wildlife. Table 7 indicates that 20% of those who fished in their lifetime also hunted. About three fourths of all Hispanic American hunters also fished.

Table 7. Hispanic Anglers and Nonanglers in the North Central Region (age 16 and older)

Characteristic	Have Fished in Lifetime	Fished in 95	Non-Anglers
Total Number	298,700	154,700	733,200
Age (year)	36	32	37
Education (year)	11.7	12.1	10.8
Income	$36,000	$37,300	$29,900
Working	72%	75%	66%
Reside Urban	90%	87%	97%
Hunted	20%	23%	2%
Observed Wildlife Around Home	36%	35%	9%
Wildlife Watching Trip	23%	32%	4%

Hispanic American anglers who fished in 1995 are slightly younger but otherwise similar to those who fished in their lifetime (Table 7). Those who fished in 1995 were slightly more likely to hunt and take wildlife watching trips. About 52% of those who fished in their lifetime also fished in 1995. This is close to the 50% retention rate for anglers in the North Central region that was reported earlier (Marsinko and Dwyer 2002).

Hispanic American anglers in the region are similar to Hispanic American anglers who reside outside the region except that those in the region earn slightly less (Table 8). Hispanic American anglers in the region are equally likely to live in urban areas as those who reside outside the region. Those in the region are slightly less likely to be hunters but more likely to observe wildlife than those outside the region.

Summary and Conclusions

African American hunters in the North Central region tend to be older, more likely to be retired, earn less, and more likely to reside in rural areas than African American non-hunters in the region. African American hunters are more likely than African American non-hunters to fish and observe wildlife. In fact, more than 90% of the African American hunters are anglers. African American hunters in the region earn less and are more likely to reside in urban areas than hunters outside the region.

African American anglers in the North Central region tend to be older, earn slightly more, and are more likely to reside in rural areas than non-anglers. African American anglers are more likely than non-anglers to hunt and observe wildlife. African American anglers in the region are more likely to reside in urban areas than anglers outside the region; but are otherwise almost identical to African American anglers outside the region

Table 8. Hispanic Anglers By Location (age 16 and older)

Characteristic	North Central Region	Not North Central Region
Total Number	298,700	4,255,500
Age (year)	36	38
Education (year)	11.7	12.2
Income	$36,000	$39000
Working	72%	73%
Reside Urban	90%	89%
Hunted	20%	24%
Observed Wildlife Around Home	36%	21%
Wildlife Watching trip	23%	15%

Hispanic American hunters in the North Central region earn slightly more than non-hunters, and are more likely to reside in rural areas. Hispanic American hunters are more likely to fish and observe wildlife than Hispanic American non-hunters in the region. Hispanic American hunters in the region are younger and earn less than Hispanic American hunters outside the region. They are more likely than Hispanic American hunters outside the region to observe wildlife.

Hispanic American anglers in the North Central region are more likely to be working, earn slightly more, and are more likely to reside in rural areas than non-anglers. Hispanic American anglers are more likely than non-anglers to hunt and observe wildlife. Hispanic American anglers in the region are less likely to hunt and more likely to observe wildlife than Hispanic American anglers outside the region.

Both African American and Hispanic American hunters tend to be anglers and wildlife watchers, considerably more so than non-hunters. African American and Hispanic American anglers tend to be more likely to hunt and observe wildlife than non-anglers.

African Americans and Hispanic Americans in the North Central region are more likely to live in urban environments than the remainder of the population of the North Central region. Furthermore, African Americans and Hispanic Americans in the North Central region are more likely to live in urban environments than African

Americans and Hispanic Americans who live outside the region. The substantial portion of African Americans and Hispanic Americans in the North Central region living in urban areas appears to have an important influence on participation patterns. Location of residence is important when identifying these populations as well as when predicting probability of participation. For example, location of residence is the strongest predictor of hunting among African American males in the region. African Americans and Hispanic Americans have lower incomes than the population in general. However, African American hunters in the region have lower incomes than African American non-hunters while Hispanic American hunters have higher incomes than Hispanic American non-hunters, and this is true both within and outside the North Central region. Both African American and Hispanic American anglers have higher incomes than non-anglers (within and outside the region).

The age structure of the African American and Hispanic Americans in the North Central region appears to have an important influence on participation patterns. The difference in age and work status between current and lifetime African American hunters coupled with the relatively low number of African American lifetime hunters who participated in 1995 may indicate a higher than average tendency of African American hunters to drop out of hunting. This matter warrants further study to determine if higher than average attrition is occurring and whether it is a problem from the viewpoint of the African American population. If a higher than average attrition rate is found, the study would allow managers and marketers to know whether they should promote African American participation or simply plan for reduced participation by the African American population.

The profiles presented here as well as the cross-activity relationships are important to managers and others who are interested in identifying participants, particularly among minority groups. The profiles help identify the client groups. They help answer questions such as "Who is the African American hunter in the North Central region and how does this individual differ from the African American non-hunter"? They also help identify how participants in the region differ from those outside the region, which reflects, in part, the characteristics of the region.

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POTENTIAL AND PITFALLS OF RESEARCHING ETHNIC COMMUNITIES IN RECREATION: A PUERTO RICAN CASE STUDY

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Abstract: Although the empirical literature on ethnic/racial groups and recreation has been growing, there have been request by researchers for approaches on procuring information from hard-to-reach populations. The purpose of this report is to provide prospective researchers with "lessons learned" in the field when researching ethnic group members. This study observes Puerto Ricans in central Massachusetts. A process for gaining access to, and garnering support from, the Puerto Rican community is discussed. The key elements of the process are bilingualism, key informants, and community involvement. Limitations of the methodological approach and resource lists are discussed.

Introduction

The value of understanding the recreation behavior of ethnic/racial groups has generated considerable interest in the empirical literature (Floyd, 1998; Gramman, 1996; Henderson, 1998; Kivel, 2000; Stodolska, 2000). One reason for this interest in the United States (U.S.) is changing population demographics. According to the U.S. Census (2001), the three largest ethnic/racial groups are Blacks (12.3%), Hispanics/Latinos (12.5%) and Asians/Pacific Islanders (3.7%). By 2050, the U.S. population will be more culturally diverse with less than 53% of the population categorized as non-Hispanic Whites; 15% Black; over 24% Latino; nearly 9% Asian; and about 1% Native American (U.S. Bureau of the Census, 1998). As a result of demographic changes, recreation providers in the U.S. will have tremendous challenges ahead in terms of service delivery, policy-making, and identifying participation patterns of "non-traditional" users.

With a population of 35.3 million people, Latinos comprise the largest ethnic group in the U.S. People of Mexican descent constitute 58.5% of all Latinos in the U.S. People of Puerto Rican origin embody nearly a tenth of all Latinos[1] (9.6%), while people of Cuban descent (3.5%) and Other Latinos (28.4%) account for the remainder of the Latino population in the U.S. (U.S. Census Bureau, 22 October 2001).

As population demographics shift, a better understanding of the use of public recreation space by ethnic (non-Caucasian) group members is needed. An ethnic group[2] is defined as a social group set apart on the basis of cultural or nationality characteristics (Floyd, 1999). Earlier work (1970s and 1980s) on ethnicity and recreation utilized the marginality and ethnicity paradigm to explain differences in recreation patterns, with the majority of the focus on Black/White comparisons (Hutchison, 1987; Klobus-Edwards, 1981; Washburne, 1978; Woodard, 1988). Later work (1980s and1990s) offered general critiques and identification of other factors which may impact ethnic recreation behavior (Allison, 1988; Dwyer & Gobster, 1992; Gramman, 1996; Hutchison, 1988; Johnson, Bowker, English & Worthen, 1997). Recent work on ethnicity and recreation posits acculturation as a notable factor in explaining perceived recreation benefits and outdoor recreation patterns in Asian and Latino groups (Floyd & Gramman, 1993; Heywood & Engelke, 1995; Shaull & Gramman, 1998; Stodolska, 1998; Tierney, Dahl, Chavez, Apt, & Mok, 2000; Yu & Berryman, 1996).

The focus of this study is on Latinos, more specifically, Puerto Ricans. Most studies involving Latinos have concentrated in the U.S. Southwest, or have utilized people of Mexican descent, with some exceptions (Chavez, 1993; Juniu, 2000). Relatively little is known about the Latinos in the Northeastern portion of the U.S., and less is known about Puerto Rican recreation behavior. Latinos, in general, tend to concentrate in urban centers. Puerto Ricans are more likely to live in a central city (61.2%) (Therrien & Ramirez, 2001).

A difficulty often encountered in researching ethnic groups is accessibility to the population one wants to study. In an article on researching diverse populations, Henderson (1998) noted that "[methods] are important, but the strategies used to get information are essential. Researchers may need to stray from research protocol to obtain data and create an environment of social support" (p. 164). Scant studies examine, in ample detail, how the ethnic group under study was approached, and how rapport was established. The objective of this study is to illustrate the sample collection procedure and document how rapport was established. Based on this objective and the studies mentioned earlier, the research question developed for this study is the following: How does one gain access to a hard-to-reach ethnic population?

Sample Characteristics

Subjects and Sampling Frame

The ethnic group members selected for this study are Puerto Ricans. Although researchers have examined Latinos in previous studies, little is known about Puerto Ricans as a distinctive subgroup of Latinos. Because of the

[1] This percentage reflects people of Puerto Rican descent in the U.S. mainland. People from Puerto Rico are not included in this percentage. With the inclusion of Puerto Rico's population, people of Puerto Rican descent would constitute 19.9% of the Latino population (Source: U.S. Census Bureau, Census 2000, Summary File 1).

[2] The term "ethnic group(s)" or "ethnic group member(s)" is used instead of "minority(ies)" because of the pejorative connotation affiliated with the term minority. It is similar to Henderson's (1998) use of "diverse populations."

relationship between the United States and Puerto Rico (P.R.), Puerto Ricans provide researchers with an opportunity to look at the acculturation process, and to identify their recreation behavior. Rodríguez accentuates this particular point with the Puerto Ricans in New York City.

> The experience of Puerto Ricans in New York City points up more clearly than any researched materials the chasm that exists between whites and blacks in the United States and the racism that afflicts both groups. For within the U.S. perspective, Puerto Ricans, racially speaking belong to both groups; however, ethnically, they belong to neither (1996, p. 25).

Puerto Ricans are the second largest ethnic subgroup within the heterogeneous Latino population in the U.S. It was important to consider this Latino group from the U.S. Northeast for three reasons. First, from a demographic standpoint, Puerto Ricans are most likely to live in the U.S. Northeast (63.9%) than any other Latino subgroup (Therrien & Ramirez, 2001). In New England, Puerto Ricans are nearly 50% of the Latino population (U.S. Bureau of the Census, 2000). Second, earlier U.S. based research regarding ethnicity/race and recreation has focused primarily on African Americans and Mexicans in either the U.S. South or West. Third, the investigator needed to have access to the ethnic group members. Because the investigator is Puerto Rican, and a native of the study area, the investigator had access to the population, and an understanding of the population and its cultural nuances to facilitate participation in the study.[3]

Geographic profile

This study was conducted in Southbridge, Massachusetts (MA). Puerto Ricans in MA constitute 46.5% of the Latino Population (U.S. Bureau of the Census, 2000). Southbridge is located in Worcester County, MA, and borders northern Connecticut. Southbridge is approximately 60 miles west of Boston, MA. There are five parks in Southbridge, and all the parks are located approximately one mile (1.6 km) from the downtown area.

Demographic and historic profile

According to the 2000 U.S. Census, Southbridge's population was 17,214. According to the 1990 U.S. Census,[4] the median household income for Southbridge residents was $27, 834, as compared to $20,918 for Latino households. Southbridge Puerto Ricans constitute the largest ethnic group in Southbridge. Puerto Ricans represent 20.2% (3,472) of the city's population, and 87% of the city's Latino population (U.S. Bureau of the Census, 2000). Over half of the Puerto Rican population (56%) was born in P.R.. Spanish is spoken by nearly 10% of the entire Southbridge population, and by about 75% of all Latinos in Southbridge (U.S. Bureau of the Census, 1990).

The first Puerto Rican family arrived in Southbridge in 1957 (Brown, 1982). Puerto Rico, at the time, was making the transition from an agricultural to an industrial economy. As a result, Puerto Rico's agrarian labor force turned to the U.S. for economic relief. Specifically, Southbridge's Prest-Wheel Company hired many Puerto Ricans in the late 1950s and early 1960s (Brown, 1982; Datz, 1998).

By the late 1960s, Puerto Ricans were attracted to Southbridge because of its need for an unskilled labor force to work in industry. Those Puerto Ricans who arrived in the 1960s paved the way for the next wave in the 1970s. This point is promulgated in the 2000 U.S. Census. The demographics of the Latino population in Southbridge exhibit population growth in the 1960s and mid-1970s. In the mid-1980s and 1990s, Southbridge Latinos experienced another population boom. As of the year 2000, Latinos ages 14 and under constitute 36% of Southbridge's Latinos. The majority of those arriving in Southbridge spoke only Spanish, and knew each other from their barrios (neighborhoods), neighboring towns, or family friends. As a result, an enclave of Puerto Ricans was established in Southbridge that reinforced ethnic cohesion. Strong family ties to P.R. were maintained because families often left siblings and parents behind. Southbridge Puerto Ricans travel to P.R. quite often and send capital and clothing to their extended families in P.R. (Southbridge Puerto Ricans, personal communications, December 1998 - January 1999). Southbridge Puerto Ricans are particularly suited for this study because of the strong ties to their homeland. The respondents would be emigrant, first, or second generation Puerto Ricans in Southbridge.

Sample population

Subjects were selected from the Puerto Rican population of Southbridge, MA. Subjects were 14 years of age or older. Because high school students are active users of Southbridge parks, it was important to include them in this study. High school students offer a broader age variance which may illustrate generational influences on participation at public recreation sites.

Garnering Support for the Survey

Procedures for high school sample selection

For the selection of Puerto Rican high school students, the investigator met with the superintendent of schools and the

[3] I was raised in Southbridge, MA and have inside knowledge of Southbridge's Puerto Rican population, their history, traditions, community leaders, and familial ties to Puerto Rico. Travel to and from the U.S. mainland and the island of Puerto Rico was, and continues to be, a regular occurrence.

[4] For this study, U.S. Census 2000 data were used for population figures, and U.S. Census 1990 data were used for all other reporting (e.g., income, occupation, education). U.S. Census 2000 Economic data for municipalities were not available at the time of submission.

high school principal to obtain permission and support for the administration of the questionnaire during home room period. A copy of the questionnaire, the human subjects approval form from Michigan State University, and a letter of introduction were provided prior to administration approval. It was mentioned that participation was strictly voluntary and that collected data would remain anonymous and confidential. Verbal endorsement was granted from both the superintendent and the principal.

The high school liaison was the head of the Social Studies curriculum in the school system. Explanations and instructions were given to him on how to conduct the study. A count of the number of Puerto Ricans in the High School was obtained and questionnaires were provided in both English and Spanish. According to a breakdown by home rooms, there were a total of 135 Latino high school students (W. Gosk & J. P. Bailey, personal communication, January, 1999). All Puerto Rican high school students who were present on the day of the questionnaire delivery were given questionnaires.

Procedures for adult population sample selection

In order to sample the Puerto Rican adult population, key persons in the Puerto Rican community had to be contacted to amass support for the study. These community leaders have access to lists of names, or have contact with Puerto Ricans at Puerto Rican-owned establishments. This process involved tapping into the Puerto Rican community's social capital by utilizing formal and informal networks in order to obtain verbal consent and addresses of prospective respondents.

In addition to the above list, the researcher solicited family, friends, and associates to help "spread the word." A letter explaining the purpose of the study was given to each of the community leaders listed in the above areas, and they were given instructions to ask their clients/parishioners/co-workers to participate by furnishing their address on an address "sign-up" sheet. The investigator was granted the opportunity to address the Puerto Rican public at one of the most heavily attended masses of the year: Christmas Eve Mass. The priest allowed the investigator to address the congregation in Spanish, and situated a desk at the rear of the church so that parishioners could enlist in the study after mass ended.

Selection of subjects: Problems and solutions to creating a list

While the method for the creation of a list is somewhat unorthodox, it is a function of the population under study based on the researcher's knowledge of the population. Therefore, alternative methods for a list were needed. Researchers call for creative solutions to this problem. For example, Salant and Dillman (1994) suggest creating a list from multiple sources or using a purposive sample design.

Many Puerto Ricans in Southbridge do not have listed phone numbers; therefore, the telephone directory was not a valid tool. Additionally, the Puerto Rican population is very mobile. Often times they will move one or two times a year, move in with extended family, or relocate to P.R. These situations create problems with using the telephone directory as a list source.

Another traditional list source is the city's annual census[5]. The town clerk mentioned that the census is not as accurate as they would like due to a lack of cooperation on the part of Puerto Ricans, general undercounting difficulties, and a lack of Puerto Rican census takers (Helen I. Lenti, personal communication, December 22, 1998). Therefore, traditional sampling techniques were augmented with purposive sampling techniques to increase the possibility of an individual's participation in the study.

It was crucial that social support was created first, in order for the study to be successful in the adult Puerto Rican population. Knowledge of the population is critical to getting enough responses to perform useful analyses. The study population required informal and formal lines of communication. For example, the researcher "informally" solicited names via personal contacts throughout the community in order to make Puerto Ricans aware of the study. It is culturally more acceptable to first "ask" if the subject's name and address can be used for a mailing, and then perform the actual mailing. Watson (1992) noted that conventional sampling methods have been ineffective in reaching ethnic/racial populations. He identified three sampling techniques and the problems associated with ethnic minorities. They are as follows:

> 1. *Random sampling* - inadequate as many in the ethnic community have not been on the electoral registers.
> 2. *Quota sampling* - insufficient data have existed from the census on which to sample targets and selected sample points may not reflect where ethnic groups actually are.
> 3. *Random digit dialing* - how do you establish ethnic origin with any degree of certainty by telephone? (Watson, 1992, p. 339)

Although his comments referred to ethnic minorities in the United Kingdom, researchers have encountered similar problems in the United States. Cox (1990), for example, argues for non-traditional designs and unconventional methods for researching minorities in the U.S.

> Sutton and Schurman ... note that conventional methodology calls for all respondents and for investigators to refrain from disclosing the details of the research objective to the respondent ... They acknowledge that they made a conscious decision to violate these rules despite the potential effects of

[5] Under Massachusetts (MA) election law, MA cities are required to conduct an annual census. The census provides names, dates of birth, precinct and occupations. The annual census is used mostly for grants and public funding.

> bias on the results. They concluded that considerations such as an ability to obtain data and to create an environment of social support in which interviewees will provide responses must sometimes take precedence over traditional notion of scientific "objectivity." I believe that their findings are applicable to other emotionally sensitive topics such as racioethnicity, and that they illustrate the need for new paradigms of research methodology (Cox, 1990, p. 11).

The above quote illustrates several issues related to researching ethnic minorities. First, it is difficult to obtain truly representative samples of ethnic/racial populations. Second, because of the difficulty in obtaining a list, other nontraditional methods are required to augment or create a list. Third, an environment of social support (over objectivity) is needed for participation.

Through contact with community leaders in public programs, agencies, private establishments, and the local church where most Puerto Ricans worshiped, the researcher "spread the word" and Southbridge Puerto Ricans were more responsive. The social support was created along informal lines. Asking Puerto Ricans to fill out the questionnaire when one first visits would be considered improper. An initial house call or visit should be informal. One can talk about business, but not actually conduct business. This is a similar concept to what Winter and Chavez (1998) referred to as taking time to "visit" for successful data gathering.

Conducting personal interviews at the place of residence would require at least two visits. The first visit would be to establish social support. This will typically involve sitting down for a cup of coffee, catch up on social, political, or family events in the community or P.R., and then a discussion on the survey. To talk "just business" or visit quickly would be considered "rude" and would most likely assure a lack of participation. A second visit would be required to conduct the actual interview where it would be considered an "official" visit. As one can surmise, the cost and time for this method of ensuring an adequate sample size and response rate would be quite large.

Methodology

Questionnaire distribution

The first step, discussed in previous sections, was to collect names via purposive and snowball sampling techniques to create a list. The investigator began to "spread the word" about the study approximately three weeks before the letters were sent to community leaders. The letters and sign-up sheets were sent to community leaders about a month prior to addressing the congregation on Christmas Eve. The second step was to cross-reference the names with the various lists (lists from community leaders, town clerk, phone book, and high school) to make sure that the names did not appear twice.

The final list for the Puerto Rican adult population yielded 690 mailing addresses (539 signed up and 151 addresses were from the phone book and the town census), and 35 additional surveys to be delivered to the Head Start Program. There were 135 potential respondents who were Puerto Rican high school students. The number of questionnaires distributed was 860 (39% of the 2225 resident Latinos over age 14). The aggregate time it took to collect the names and addresses was approximately two and a half months.

The investigator opened "formal" lines of communication. Instead of making a "formal" second visit to individual homes (see earlier comment), adult subjects were contacted by mail. The surveys were mailed to those whose names were solicited. The cover letter was printed on academic department letterhead to convey a sense of importance to the respondents. This was an approach recommended by several community leaders to increase response.

Data Collection

In order to enhance an adequate response rate, the collection process included techniques suggested by Dillman (1978). Dillman's total design method (TDM) was not followed in entirety due to monetary and time constraints. The basic concepts, however, were applied. The mailing procedure for the collection of the data involved the following steps: (1) mailing the introductory letter and autobiography; (2) mailing the cover letter and questionnaire; and (3) mailing the follow-up letter and replacement questionnaire.

The initial mailing involved the use of a letter and autobiography. The letter acted as an announcement and solicitation for completion of the questionnaire. In addition, a short autobiography of the investigator was included so that the Puerto Ricans had an update on the investigator since the time he left the community. The autobiography acted as a proxy for the investigator's personal visit, and gave the respondent a glimpse of the investigator's academic and personal background. This is an extension of the social support concept. The initial mailing was sent by first class mail.

One week after the initial mailing, the cover letter and questionnaire were mailed out. The cover letter provided information on the purpose of the study, what the information will be used for, and how their names were chosen. In order to save on costs, the first wave of surveys was mailed by third class bulk mail. Accounting for a mailing time of 7-10 days, the return window given was approximately two weeks.

There were some problems with the third class bulk mailing. After speaking with the post office in Southbridge, the investigator found that third class mail gets distributed very poorly and is not always sorted the same day it arrives because it is not considered priority mail. The first surveys arrived haphazardly. As a result, the investigator waited an additional two weeks for responses to arrive before mailing the follow-up survey. In

the cover letter, the investigator tried to convey an understanding of the problem with the mail, while at the same time expressing a necessity for having full participation.

Survey Response

A total of 690 questionnaires were mailed to Puerto Ricans in Southbridge. Of the 690 surveys initially mailed, 77 (11%) were returned due to incorrect addresses, thereby reducing the number of mailed questionnaires to 613. The majority (45) of the addresses for the returned letters were addresses from the phonebook. Thirty percent of the phonebook addresses were incorrect, while only five percent of the sign-up list yielded incorrect addresses. This reinforces the notion that purposive sampling was indeed a better way to identify the desired respondents than using the telephone directory, especially given the mobile nature of the population under study.

A total of 304 Puerto Ricans responded by mail. This produced a response rate of approximately 50%. The level of response was probably affected by the third class postage for the first mailing of the questionnaires. Factors which may have influenced the overall response included the following: (1) lack of priority given to third class mail; (2) lack of current addresses in phone book; and (3) no forwarding address.

Because of problems related to mailing and delivery, the response rate of 50% is a conservative estimate. The amount of actual delivered questionnaires is unknown. In addition to the 304 returned by mail, 29 were received from the community leader at the Head Start Program, and 57 came from Southbridge High School students of Puerto Rican descent. The total amount of usable surveys (N) totaled 384. Of the 384 surveys, 209 (54%) were in Spanish.

Sample and Population Demographics

Puerto Ricans constitute 87% of the Latino population in Southbridge. The researcher used Latinos as the reference population when comparing the sample to the population. The 2000 Census does not have a breakdown by Puerto Ricans. According to the 2000 Census, persons over the age of 14, of Latino origin, number 2,225. The median age of respondents in the study is 32, with the youngest respondent being 14 years of age, and the oldest being 80 years of age.

Because there is no precise information on non-response, the sample was compared to population figures from the 2000 U.S. Census to assess representativeness. To assess representativeness, age and gender were compared. Table 1 illustrates the frequencies between age and gender in the sample, and expected frequencies based on census percentages. In both cases, the observed frequencies do not equal the expected frequencies. The chi square for age is 9.45 ($\Pi^2_{critical\ (\forall = .05,\ df = 9)} = 16.92$). Chi square for gender is 10.75 ($\Pi^2_{critical\ (\forall = .05,\ df = 1)} = 3.84$). The chi square test for homogeneity indicates that the sample is representative with respect to age, but not with respect to gender. The most under-represented age group is the 20-24 age category (10% in sample vs.13% in population), and the most over-represented age groups are the 25-29 age category (14% in sample vs.12% in population) and the 45-49 age category (9% in sample vs.7% in population).

Table 1 Age and Gender Breakdown by Sample and Census

Age Category [a] (N=369)	Sample [b] (%)	Census [c] (%)
15-19	15	15
20-24	10	13
25-29	14	12
30-34	15	14
35-39	10	12
40-44	10	9
45-49	9	7
50-54	5	6
55-59	4	4
60+	5	6
Gender Category [a] (N=382)	**Sample [b] (%)**	**Census [c] (%)**
Male	40	48
Female	60	52

[a] - age 14 excluded from analysis due to incomparability with 2000 U.S. Census cohorts
[b] - Survey respondents [c] - 2000 U.S. Census

Data Analysis

Ancestry

In this sample, 73% of Southbridge Puerto Ricans were born in P.R. In addition, 99% of all Puerto Ricans had parents which were born in P.R. There are almost no respondents of mixed ancestry. This finding suggests a homogenous ethnic group. In addition, the majority of respondents are of emigrant or first generation status.

The data also suggest that cultural ties are not only reinforced by familial ties, but by ties to P.R. Nearly 80% of the respondents have lived in P.R. When comparing the average years living in P.R. (M = 18.5, SD = 11.14, Min./Max. = 1yr. / 59 yrs., N = 295) and in the United States (M = 19.5, SD = 10.91, Min./Max. = 0 yr. / 50 yrs, N = 375) the means are very similar. This supports the view that there are strong ties to the island and that Puerto Ricans in Southbridge can be generalized to other Puerto Ricans. In addition, one could speculate that there is continuous migration back and forth between P.R. and Southbridge.

Discussion

Gaining access and establishing rapport

I found that the sample collection technique used in this study, while somewhat unorthodox, is quite effective in reaching ethnic group members. I recommend that the sample collection technique be used to enhance research participation by other ethnic/racial groups.

> Successfully accessing Hispanic research participants demands an understanding of demographic information about Hispanics in general and, in particular, about the communities in which they live that at times is not easily available ... Legitimacy can be enhanced if initial contacts are carried out by bilingual Hispanic researchers or interviewers who are more likely to be seen as part of the community and not personally threatening (Marín and Marín, 1991, pp. 45-46).

Because I am bilingual and a member of Southbridge's Puerto Rican community, cultural immersion within the community was possible. This facilitated contact with several key community leaders for the solicitation of research participants. Chavez (2000) challenged recreation professionals to make strategic plans that "invite, include, and involve" (the "I" triad, p. 185) ethnic/racial groups in leisure. I advocate for a similar approach when researching ethnic group members.

Community involvement is recommended. I incorporated this into the study design by using key informants as consultants and establishing a public forum for participation, i.e., speaking with the congregation on Christmas Eve mass. This was possible because I am a member of the congregation, and I was able to speak with the priest in person and in writing. This pattern of informality followed by formality worked well for garnering support.

There are some limitations to this approach. Bias may be introduced depending on how and who is asked to help garner support. Key informants need to be selected from within the ethnic community space (organizations, businesses, churches), and external to the ethnic community space (workplace, schools, city government). Researcher bias was controlled through the research methodology, and is the reason for its inclusion in this study. To reduce researcher bias further, all respondent names were compiled by key informants.

In summary, I presented a methodological approach to researching ethnic groups that provided an acceptable response rate, and involves the ethnic community in the research process. Critical to the approach are key informants and immersion of the investigator in the ethnic community.

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Customer Service and Satisfaction in Recreation and Leisure

A METHODOLOGICAL COMPARISON OF CUSTOMER SERVICE ANALYSIS TECHNIQUES

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Abstract: Techniques used to analyze customer service data need to be studied. Two primary analysis protocols, importance–performance analysis (IP) and gap score analysis (GA), are compared in a side–by–side comparison using data from two major customer service research projects. A central concern is what, if any, conclusion might be different due solely to the analysis technique employed. Although the results of the methodological comparisons rely on generally similar patterns in the data, strong differences in managerial decision recommendations are shown. This directs researchers' and managers' attention to the form of analysis as much as the data gathering instruments themselves. Such a methodological comparison also allows for a deeper understanding of the strengths and weaknesses of the two techniques, and leads to a discussion of the methodological issues underlying customer service analysis.

Introduction

Many recreational visitor studies, particularly those that are customer service focused, have given rise to the use of analysis techniques known as importance–performance analysis (IP) and gap analysis (GA). Methodological work to date has focused on the development of the measurement instruments and not the analysis form and presentation itself. This paper compares these two techniques directly using the same data. This will illustrate how different these two techniques can be for making management decisions and begin a dialogue about the strengths and weaknesses of either method.

The IP concept was brought into recreation management from the broader marketing literature by Guadagnolo (1985) and others (e.g., Hollenhorst, Olson & Fortney 1992). It is closely based on the work of Martilla and James (1977), wherein items are chosen for their relevance to the individual's experience or as part of a known list of attributes or benefits likely to be part of the recreation visit. Also labeled as "action grid" analysis, the procedure requires two measures of each construct deemed significant. The first measures the importance to the respondent and the second its performance. Importance would ideally be measured pre–visit and the second must be measured post–visit, but in practice it is usually done as a post–experience questionnaire with a cross sectional design. However obtained, results are calculated as mean scores for each item with the IP pair used as a graphical (x,y) pair in a grid with importance and performance axes. The grid is then subdivided based on the scale mid–points (high/low) which then results in grouping the pairs into four action quadrants (1 – 4) with an associated management action (Figure 1). This is the classic IP, or IPc for short

A variant of IP that has come into common practice is to divide the scale on the grand mean of all items for each axis rather than the numerical mid-point. Although the quadrants are variable in size in the IP grid the analysis and action recommendations follow the original pattern. This is referred to as alternative IP, or IPa for short

Another variant of IP analysis in practice has been to reverse the axes so that the quadrants 1 and 4 are reversed in sequence to a counter clockwise flow (2 and 4 are reversed in position). This has no bearing on anything substantive and represents only a difference in data presentation. Finally, there have been numerous ways introduced to measure the axes. For instance importance has been variously scaled as expectation, desirability or relevance, and performance has been scaled as satisfaction or outcome. These are significant and substantive variations as they have substantial implications for theory and make different assumptions about the phenomenon of interest and the behaviors in question. They are not the focus of this paper. Even though the data used below only represents one way to measure IP, all of these variant forms are likely to face similar methodological issues and may be considered as co-equal representations of IP analysis.

A second, significant variation of customer service analysis is called Gap Analysis. GA has been also brought into recreation management from the services marketing literature, albeit somewhat more recently, by Crompton, MacKay and Fesenmaier (1991), Wright, Duray and Goodale (1992) and Howat, Absher, Crilley and Milne (1996). It is based on the conceptual work of Parasuraman, Zeithaml and Berry (1985, 1988) which showed that consumers assess service quality through a series of comparisons, notably performance against an expectation or desired standard. GA sacrifices the graphical ease of IP and focuses on the difference in scores between the individual measures of salience (importance, etc.) and performance. These differences are then analyzed, usually in aggregate with a simple arithmetic ranking by size of the "gap," to obtain results for management recommendations. In practice the largest negative scores are considered the biggest "problems" as these are the ones for which performance is far less than importance. Again, the variations in measurement scales are not the focus herein, only the arithmetic difference (gap) itself as a measure.

In summary, there are two main measurement techniques in use: IP and GA. And IP has two variations of interest as well: means (IPa) versus scale midpoints (IPc) as the graphing "cross hairs."

Below we compare these two main analysis strategies (IP and GA) by presenting customer satisfaction measures from two rather large scale surveys in order to:

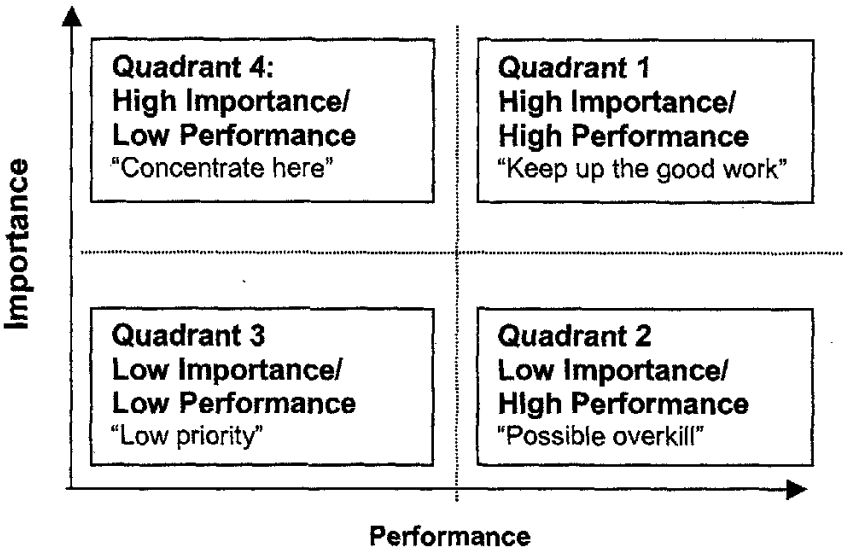


Figure 1. Importance – Performance Action Grid

(1) Compare and contrast IP and GA analyses, and
(2) Explore some of the assumptions and implications of the two analysis strategies relative to marketing and decision making tasks.

Methods

Data come from two surveys. One is a nationwide sample and contains 2,933 face–to–face interviews conducted at 10 Corps of Engineers Lakes (ACOE) during the summer of 1997 (Graefe, Burns, Titre & Absher 1999). Study sites were located in ten different states dispersed across the US, and were intended to be representative of the diverse population of Corps recreation users. Campers, day users and boaters were all sampled in a stratified, random selection design. Respondents were given an on–site survey and asked to rate both importance and satisfaction with 19 experience attributes (service quality items) on a 5–point scale, where 1= not at all important (or satisfied) and 5= extremely important (or satisfied). Due to missing data and pairwise deletion of incomplete responses the items presented below have 1,675 to 2,878 cases.

The other dataset represents summer use at the Mono Basin Scenic Area (MBSA), which is located in the Inyo National Forest just east of Yosemite National Park. On–site contact with a mailback survey was used. Respondents were contacted at various sites around the lake in a probability proportional to estimated size sampling scheme. Two hundred and sixty–eight respondents from summer 2000 rated 12 experiential attributes on both importance and performance, also using 5–point response scales of importance and satisfaction as above (Absher, Graefe & Kyle 2001).

The data contain similar attribute sets, and in fact the later one (MBSA) was based on the earlier work for the ACOE. Data were analyzed in the same manner for each survey using SPSS10.1 software.

Results

The basic data from both importance and performance items for each survey are presented in Table 1. The ACOE survey had 19 attributes representing four main service domains (facilities, service, information and recreation experience) and the MBSA survey included 12 items representing a similar range of experiential attributes. In general the ratings are moderate to high (mid–3s to mid–4s) suggesting that the items are generally very important and that performance levels are high as well. For simplicity the gap scores are also included. These will be addressed after the IP analysis results.

IP results

A classic IP analysis would place these attributes on a grid with quadrant boundaries defined by the scale mid–point of 3.0. Figure 2 shows this basic analysis (IPc) for each survey separately. Clearly the items tend to cluster in the upper right quadrant (Q1), due to the generally high importance and performance ratings. In aggregate, only one of the 31 items falls outside Q1. They are not labeled but it is, in fact, due to MBSA's accessibility importance rating. Yet even this item is only marginally low on importance. As a result this form of IP analysis would lead overwhelmingly to the management recommendation to "keep up the good work." Both ACOE and MBSA managers might be led into a false sense of security over how well things were going. In fact, this form of IP analysis supports no recommendation for management change or service quality improvement.

Table 1. Customer service attributes Importance, performance and gap score emasures for ACOE and MBSA

ATTRIBUTES	Mean Impor-tance	Mean Perform-ance	Gap Score
ACOE SURVEY (n=1,675 to 2,878)			
Accessibility for Persons With Disabilities	3.80	3.87	.07
Availability of Recreation Areas	4.25	4.04	-.21
Appearance of Recreation Areas	4.47	4.26	-.21
Value for Fee Paid	4.10	4.19	.09
Availability of Staff to Answer Questions	3.67	3.97	.30
Staff Visibility	3.73	4.02	.29
Safety/Security	4.50	4.28	-.22
Friendly and Courteous Staff	4.25	4.34	.08
Opportunity to offer Suggestions to Staff	3.63	3.97	.33
Adequate Ranger Patrols	4.15	4.20	.06
General Information about Area	3.58	3.89	.31
Nature/historical Information	3.32	3.73	.40
Safety Information	3.99	3.93	-.06
Ease of Obtaining Information	3.87	4.03	.16
Current and Accurate Information	3.93	4.04	.11
Opportunity to Recreate without Crowding	4.22	4.09	-.13
Opportunity to Recreate without Interference	4.16	4.11	-.04
Compatibility of Recreation Activities	3.88	4.11	.23
Places to Recreate without Conflict	4.35	4.26	-.10
MBSA SURVEY (n=268)			
Accessibility for disabilities	2.86	3.64	.78
Information about the natural and cultural history	4.00	4.18	.18
Appearance and maintenance of the area	3.89	4.38	.49
Value for fee paid	3.56	3.99	.43
Staff knowledge and ability to answer questions	4.06	4.25	.19
Safety and security at the area	3.65	4.37	.72
Information about permits, services and recreation	3.55	4.27	.72
Staff friendliness and courtesy	4.07	4.49	.42
Roadside signs and directions	3.84	4.05	.21
Ease or convenience of paying the fee	3.25	4.16	.91
Bathroom cleanliness	3.70	4.25	.55
Information about the fees charged at the area	3.25	3.22	-.03

IP scores are on a five point scale where 1= "Not at all important" to 5= "Extremely important," For performance "satisfied" is used instead of "important."

The alternative form of IP analysis (IPa) would lead to a very different outcome. By shifting the quadrant boundaries to the grand mean of each variable (3.99 and 4.07 for ACOE; 3.68 and 4.10 for MBSA) a few items fall outside Q1, notably in Q3, where the low–low combination also suggests that no real change for management is needed. However, it is the off–diagonal items, especially in Q4, where high importance is not being matched with correspondingly high performance ratings, that suggest some managerial action might be in order. For the ACOE setting the two in Q4 are "availability of recreation areas" and "safety information." For MBSA they are "information about permits, services and recreation" and "ease or convenience of paying the fee." In general there are reasons to suggest that this provides better feedback in a relative sense. That is, assuming you want a comparative analysis where the "best/worst" or "top few" are highlighted, IPa gives such a result.

GA results

When using GA (see Table 1 again) there will be a somewhat different set of management recommendations than obtained by either IPc or IPa. In general, positive gap scores suggest that the visitor's expectations have been exceeded and other than a possible overkill (as in IP quadrant 2) they are a positive outcome and will not be analyzed here. The negative gap scores are the main concern: they represent conditions that did not meet expectations or led to low achievement ratings relative to their importance. For the ACOE survey seven of the 19 attributes had negative gap scores. Of these, three are significantly large to warrant management attention based

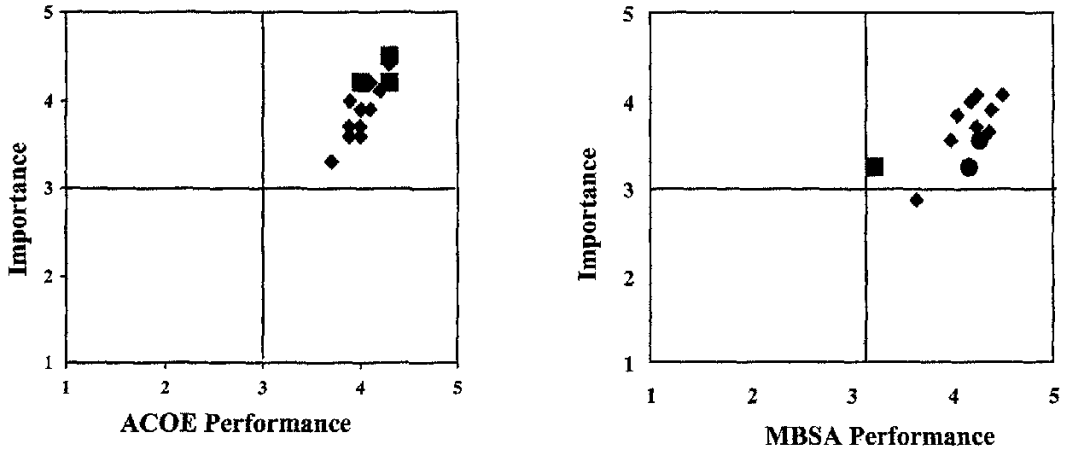


Figure 2. ACOE and MBSA Importance–Performance Grids, IPc Version.

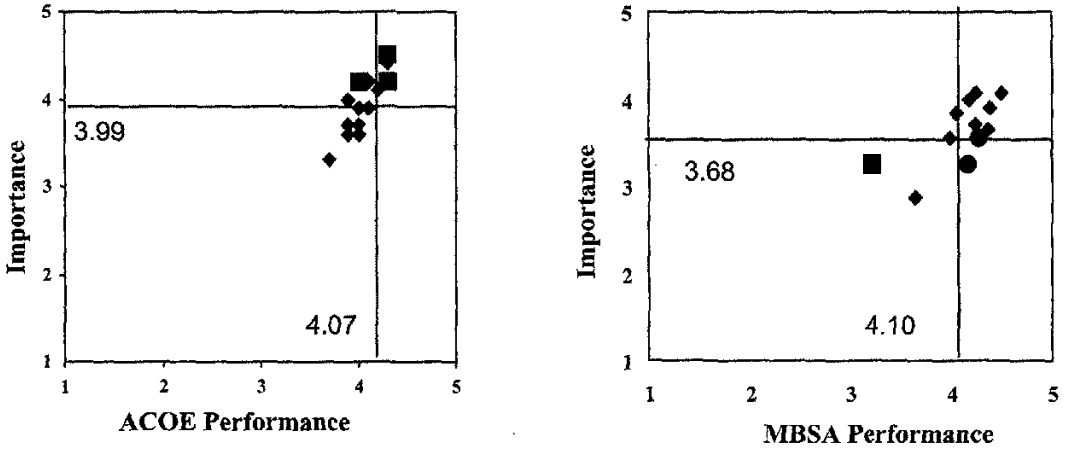


Figure 3. ACOE and MBSA Importance–Performance Grids, IPa Version.

on a statistical test of the scores (details in Graefe, et al. 1999) and are shown in the IP grids" as squares. The attributes represented are "availability of recreation areas" (-.21), "appearance of recreation areas (.21), and "safety/security" (-.22). As can be seen in Figure 2 and Figure 3 these would be in the "keep up the good work" quadrant under IP analysis, except for one which would be in Q4 under IPa analysis. Thus, at best, only one of the three gap score identified recommendations would be congruent with an IP analysis. Similarly, in the MBSA data presentation only one attribute would yield a negative gap score ("information about the fees charged at the area," -.03) and it is not statistically significant and thus is indistinguishable from zero or even a small positive gap score. It too is shown as a square on the IP grids in Figures 2 and 3. It would be no problem under IPc (Q1) and in Q3 ("low priority") under IPa action grid. Again, the management recommendations are rather different depending on the form of the analysis.

Conclusions

The three forms of customer service analysis, all from the exact same data, are presented. They yield different, and at times conflicting, outcomes. As a result the form of the analysis alone may be shown to lead to very different management actions. Moreover, there is no consistency in the differences based on the two data sets analyzed. IP and GA are simplified forms of analysis designed to make data reduction easy and lead to results that are useful to managers. Researchers and managers should question both the assumptions about the items being measured and the limitations of the type of analysis used before coming to firm recommendations.

For instance, if the lists of attributes that are selected for inclusion on the questionnaire are known to be of high importance to the surveyed group it is expected that IPc will yield almost all items in Q1 or Q4. In our examples, Q4 was vacant. Perhaps here IPa is a better form of

analysis because it forces some items to be relatively "less important."

However, if the items are variable across subpopulations some differences will be obscured by IPa's use of grand means as an evaluative standard. GA seems better in this case. It will allow for calculations at the individual level if desired, making it easier with GA to check for the homogeneity of subgroups with respect to each experiential or service attribute. As such GA may be better when skewed or other non–normal (e.g., bimodal) distributions are expected.

On the other hand GA relies on a mathematical difference. Because there may be no linear relationship between importance and performance, and without prior testing and benchmarking, GA may lead to a false sense of security when outcome scores are high due to factors not measured by the attributes, or even lead to an emphasis on weakly preferred (less important) items. Management recommendations based on such an analysis may be tragic if truly important attributes are ignored.

Neither method deals well with individual behaviors such as response to setting conditions at a particular place and time. Where such conditions are variable, e.g. weekend crowds, low water, or differential pricing, then repeated IP grid or GA analyses with market segment breakouts will yield better results.

Finally it is often the case that attributes are close to the quadrant boundaries, especially in IPa, due to the use of central tendency as an evaluative standard. More needs to be done to tease out the significant differences beforehand and to look at the effects of variation (e.g., ANOVA, z-score tests) to assess the "true" strength and thus importance of a given IP placement or GA score. In so doing, the use of IP and GA would be more robust and establish better linkages to other concerns such as land management planning, market positioning, product development or communication plans.

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CUSTOMER SERVICE AND OVERALL SATISFACTION WITH ANGLING EXPERIENCES

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This study explores the relationship between individual customer service items and satisfaction with facilities, services, information, recreation experience and overall quality of fishing for a diverse group of anglers at lakes in the New England region. Recent attention to customers and their experiences and attitudes has increased the interest of both managers and researchers in issues like customer satisfaction. In an attempt to make satisfaction models more useful, Burns et al. (1999) created a customer satisfaction model with four domains (facilities, services, information, and recreation experience). This model was designed to be more easily understood by recreation researchers and managers because the items within the domains were more relevant and tangible. The domains used were also believed to be flexible in nature and adaptable to the needs of the specific recreation area under study. This study builds on previous research by continuing exploration of the factors influencing satisfaction with the recreation experience. The relationships between twelve customer service items and satisfaction with the four domains of facilities, services, information and the recreation experience were tested. The individual items were most strongly related to satisfaction within the facilities domain. Results also revealed direct relationships between these variables and overall satisfaction with the fishing experience. Satisfaction with the number of fish a person can catch and the services domain showed the most influence on overall satisfaction with the fishing experience.

Introduction

Since the 1960s, researchers have been trying to determine what represents quality in outdoor recreation and how satisfied recreation customers are with their experiences. In the recreation field, Wagar (1966) was the first to ask, "What is quality in outdoor recreation?" Service quality is an issue of perception, and because individuals have varying past experiences, satisfaction will generally deviate across different customers in different situations. Because there is a varying level of perceived quality among visitors to recreation areas, it is desirable for management to offer a wide variety of activities and to manage for as many different experiences as possible (Wagar, 1966). By managing for a variety of experiences, we are more likely to provide the experiences that people are looking for in their recreation activities.

Consumer behaviorists have conducted similar research related to service quality and customer satisfaction. Parasuraman, Zeithaml, and Berry (1985,1988) have played the leading role in this area of research. Probably one of the most influential pieces of service quality research came when Parasuraman et al. (1988) developed a 22-item instrument named SERVQUAL. The SERVQUAL scale was designed to measure perceived quality, which is the consumer's view of excellence or superiority of the organization in question.

In the recreation and leisure field, SERVQUAL was adapted by Mackay and Crompton (1988, 1990) to help researchers and managers better understand how people engaging in recreation activities evaluate quality of service from recreation providers. Mackay and Crompton referred to their satisfaction construct as REQUAL and used similar customer service domains in their investigation of recreation satisfaction. These customer service domains included tangibles, reliability, responsiveness, assurance and empathy.

In an attempt to make satisfaction models more tangible for researchers and managers, Burns, Graefe, Absher and Titre (1999a, 1999b) created a customer satisfaction model with four domains (facilities, services, information, and recreation experience). This customer satisfaction model was designed to be more easily understood by recreation researchers and managers because the items within the domains were more relevant and tangible. The domains used were also believed to be flexible in nature and may be adapted to meet the needs of the specific recreation area under study.

The purpose of this study is to explore the nature of the relationship of individual customer service items with overall satisfaction with facilities, services, information, recreation experience and overall quality of experience for anglers in the New England region. The customer satisfaction measures examined build on Burns et al.'s (1999) work by focusing on key managerial domains rather than general evaluative questions offering little insight into the visitor's experience and satisfaction. The study examines the internal dimensions of each of these domains, ascertains their relationship with satisfaction within the domains, and identifies the significant predictors of overall satisfaction for anglers. The results of this study will hopefully prove useful for managers in their future planning efforts.

Methodology

A multiple-method approach was used for data collection to obtain a diverse sample of anglers from the New England

region. Several U.S Army Corps of Engineers project offices provided names of individuals, groups, and club representatives for the researchers to contact by phone. A total of eight groups out of fifteen contacted agreed to provide the names and addresses of their members for a mail-out survey. As a means of increasing the sample size for the study, a stratified random sample of users was contacted on-site at four lakes (Hopkinton-Everett Lake, East Brimfield Lake, Buffumville Lake, and West Thompson Lake). Upon the completion of a brief on-site interview, each respondent was asked if he/she was willing to provide his/her name and address for a follow-up mail-back survey.

In total, 433 addresses were collected for this survey. A modified implementation of Dillman's (1978) multiple mailing process was used (four instead of five mailings). A total of 123 usable surveys were returned from the address database for a response rate of about 33%. Surveys were also sent to two large state bass fishing organizations. By combining the surveys returned from the mail-out portion of the study and the surveys distributed to the state bass organizations, the total sample size for this study increased to 176.

A telephone survey of non-respondents was conducted as a precautionary measure in order to determine if there was a significant difference between non-respondents and respondents in the study. Thirty interviews were completed and the sample means of 13 items were compared with the results in the original mail survey. This comparison between respondents and non-respondents showed little significant difference between the two groups.

Measurement

Customer service was measured using a list of 12 items patterned after scales developed by Parasuraman et al. (1985), Mackay and Crompton (1990) and Burns et al. (1999a). The domains used in this study include facilities, services, information, and recreation experience. Respondents rated each statement using a five-point Likert-type scale ranging from "not at all important" to "extremely important" and "not at all satisfied" to "extremely satisfied."

Respondents were also asked to rate their satisfaction with each of the customer satisfaction domains (facilities, services, information, and recreation experience) and their overall satisfaction with their fishing experience at the lake they fish most frequently. Similar to the customer service items described previously, respondents rated their satisfaction with each domain using a five-point scale ranging from "not at all satisfied" to "extremely satisfied." The respondents were allowed to respond "not applicable" if the item or domain did not apply at the lake that they fished most frequently. For overall satisfaction with their fishing experience, anglers were asked to rate their experience on a scale of 1-10, with one being the least and ten being most satisfied.

Table 1. Results of Multiple Regression of Customer Service Items and Satisfaction with Facilities, Services, Information, and Recreation Experience Domains.

Independent Variable	Satisfaction w/ Facilities		Satisfaction w/ Services		Satisfaction w/ Information		Satisfaction w/ Recreation Experienc	
	r	Beta	r	Beta	r	Beta	r	Beta
Item 1: Toilet Facilities	.546**	.339***	568**	..233*	.457**	.180	.209*	.153
Item 2: Staff Knowledge	.346**	.009	.501**	.081	.389**	.090	.244*	.134
Item 3: Type of Fish	.124	.082	.138	.086	.065	.029	.385**	.116
Item 4: Appearance of Area	.483**	.555***	.431**	.163	.325**	.139	.265**	.158
Item 5: Water Safety	.357**	-.380**	.485**	-.005	.577**	.188	.167*	-.257
Item 6: Staff Friendliness	.457**	-.058	.513**	.069	.429**	-.069	.241*	-.101
Item 7: Parking Availability	.277**	-.184*	.299**	-.020	.334**	.031	.061	.017
Item 8: Number of Fish	.093	-.090	.132	-.024	.248**	-.008	.350**	.215
Item 9: Ranger Patrols	.408**	.298**	.535**	.260*	.562**	.256*	.443**	.350**
Item 10: Recreation Opportunities	.383**	.023	.514**	.167	.498**	.099	.192**	-.054
Item 11: Water Quality	.419**	.093	.393**	.022	.363**	-.020	.405**	.251*
Item 12: Roadside Signs	.455**	.217	.432**	.023	.422**	.119	.197*	-.133
R^2 Satisfaction w/ four customer service domains	.518***		.443***		.434***		.293***	

***= Significant at .001 ** =Significant at .01 * =Significant at .05

Analysis

A factor analysis was used to examine the dimensions of customer satisfaction. One of the most important characteristics of factor analysis is its data reduction capability. Results of the factor analysis revealed inconsistent factor loadings for individual items representing customer service domains. Therefore, no composite indices were created for the independent variables. Multiple regression was used to examine the relationships between individual items (independent variables) and customer service domains (dependent variables) and overall satisfaction with the fishing experience (dependent variable). The study also used multiple regression to determine the relationship between satisfaction with the four domains (independent variables) and overall satisfaction with the fishing experience.

Results

The first step in the analysis was to examine the relationships between the twelve customer service items and the satisfaction measures related to the facilities, service, information, and recreation experience domains (Table 1). A total of five independent variables were found to significantly predict satisfaction with facilities in the first regression equation. The five-predictor variables were satisfaction with cleanliness of toilet facilities, appearance and maintenance of the area, water safety information, parking availability and ranger patrols. The customer service items explained 52% of the variance in overall satisfaction with facilities.

Overall satisfaction with services was the next dependent variable to be examined with the twelve customer service items. A total of 44% of the variance in the dependent variable was explained, with two significant predictor variables (satisfaction with toilet facilities and satisfaction with ranger patrols). While only two of the independent variables were significant predictors in the regression equation, nine out of twelve independent variables were positively and significantly correlated with the dependent variable (satisfaction with services).

The third regression equation explored the relationship between overall satisfaction with information and the twelve customer service items. While satisfaction with ranger patrols was the only significant predictor variable, eleven out of the twelve items were significantly and positively correlated with overall satisfaction with information. A total of 43% of the variance in the dependent variable was explained in this model.

The next step was to run a regression equation for satisfaction with the recreation experience domain and the twelve customer service items. A total of 29% of the variance in the dependent variable was explained, with two significant predictor variables. Satisfaction with ranger patrols was the strongest predictor, followed by water quality. Similar to the previous analysis, all but one of the twelve independent variables were significantly correlated with overall satisfaction with the recreation experience.

For the last phase of this analysis, multiple tests were conducted to examine the relationships between various independent variables and overall satisfaction with the fishing experience. These tests examined the indirect and direct relationships among the independent variables. The first regression equation examined the relationship between the four customer service domains and overall satisfaction with a person's fishing experience. Results revealed three significant predictors of overall fishing satisfaction (Table 2). The strongest predictor was satisfaction with services, followed by satisfaction with information and the recreation experience. These significant independent variables accounted for 19% of the variance in overall satisfaction with the fishing experience.

Table 2. Results of Multiple Regression of Satisfaction with Facilities, Services, Information, and Recreation Experience Domains on Overall Satisfaction with Fishing Experience.

Independent Variable	Overall Satisfaction	
	r	Beta
Satisfaction with Facilities	.308**	.024
Satisfaction with Services	.387**	.567**
Satisfaction with Information	.188*	-.359**
Satisfaction with Recreation Experience	.356**	.194*
R^2 Overall Satisfaction w/ Fishing Experience	.189***	

*** Significant at .001
** Significant at .01
* Significant at .05

The next regression analysis examined the direct relationship between the twelve customer service items and overall satisfaction with the fishing experience. Satisfaction with the number of fish a person can catch and roadside signs and directions were found to be the two significant predictor variables (Table 3). A total of 33% of the variance was explained by the independent variables.

In an effort to determine the direct and indirect relationships between the variables, a final regression analysis was run with the twelve individual items and four domain satisfaction scores (all independent variables) and overall satisfaction with the fishing experience (dependent variable). The same two customer service items (satisfaction with the number of fish a person can catch and roadside signs and directions) remained significant when the domain satisfaction scores for facilities, services, information, and recreation experience were added to the regression equation (Table 4). Satisfaction with services also contributed significantly to this model. The variance explained by the independent variables was 34%. This finding establishes direct relationships between the two customer service items and overall satisfaction with the fishing experience, as well as a direct effect from the services domain.

Table 3. Results of Multiple Regression of Customer Service Items on Overall Satisfaction with the Fishing Experience.

Independent Variable	Overall Satisfaction	
	r	Beta
Item 1: Toilet Facilities	.219*	.032
Item 2: Staff Knowledge	.101	-.034
Item 3: Type of Fish	.348**	.192
Item 4: Appearance of Area	.269**	.241
Item 5: Water Safety	.118	-.071
Item 6: Staff Friendliness	.147	.125
Item 7: Parking Availability	.021	-.104
Item 8: Number of Fish	.356**	.397***
Item 9: Ranger Patrols	.198*	.023
Item 10: Recreation Opportunities	.138	.193
Item 11: Water Quality	.223**	.017
Item 12:Roadside Signs	-.016	-.338*
R^2 Overall Satisfaction w/ Fishing Experience	.334***	

*** Significant at .001
** Significant at .01
* Significant at .05

Table 4. Results of Multiple Regression of Individual Customer Service Items and Satisfaction with Facilities, Services, Information, and Recreation Experience Domains on Overall Satisfaction with the Fishing Experience.

Independent Variable	Overall Satisfaction	
	r	beta
Individual Customer Service Items		
Item 1: Toilet Facilities	.219*	-.057
Item 2: Staff Knowledge	.101	-.054
Item 3: Type of Fish	.348**	.157
Item 4: Appearance of Area	.269**	.157
Item 5: Water Safety	.118	-.015
Item 6: Staff Friendliness	.147	.097
Item 7: Parking Availability	.021	-.080
Item 8: Number of Fish	.356**	.408***
Item 9: Ranger Patrols	.198*	-.066
Item 10: Recreation Opportunities	.138	.143
Item 11: Water Quality	.223**	-.004
Item 12:Roadside Signs	-.016	-.345*
Domain Satisfaction Scores		
Satisfaction with Facilities	.308**	.070
Satisfaction with Services	.387**	.363*
Satisfaction with Information	.188*	-.124
Satisfaction with Recreation Experience	.356**	.015
R^2 Overall Satisfaction w/ Fishing Experience	.337***	

*** Significant at .001
** Significant at .01
* Significant at .05

Conclusions

As mentioned before, the individual items representing four customer service domains did not factor load in a logical manner. While somewhat discouraging, this should not be surprising based on the wording of the individual statements. While the items within the various domains were intended to measure a single construct, closer examination of these items suggests they may be tapping different ideas. Thus, it is not surprising that factor analysis did not produce a clean factor structure for inclusion in this study.

The regression models predicting satisfaction within the four customer service domains accounted for 29% to 52% of the variance in domain-level satisfaction. The strongest model was found for the facilities domain, and the weakest for the recreation experience domain. These results seem logical in that the facilities domain is probably the most tangible domain studied and the recreation experience is likely the most nebulous in the minds of the respondents.

Satisfaction with the services, information and the recreation experience domains were all significant predictors of overall satisfaction with the fishing experience. An unusual result of this analysis is the negative Beta value for overall satisfaction with information. It would be expected that as a person's satisfaction with information increased, so too would their overall satisfaction with the fishing experience. This was shown in the bivariate analysis (r=.188), which makes the negative Beta value difficult to interpret. Such a result is most likely an anomaly related to the shared variance among the variables included in the model. Both overall satisfaction with services and the recreation experience behaved as expected (positively influence overall satisfaction with the fishing experience) and the direct relationship between the variables was supported.

The examination of individual customer service items revealed direct relationships between these variables and the dependent variable, overall satisfaction with the fishing experience. When the 12 items were examined simultaneously with satisfaction within the four domains of customer service, satisfaction with the number of fish a

person can catch and roadside signs and directions were found to have a direct relationship with overall satisfaction with the fishing experience. As noted above, a negative Beta value implies that as satisfaction with roadside signs and directions increased, anglers' overall satisfaction with their fishing experience decreased. This result does not seem logical and is probably another anomaly resulting from the combination of variables included in the analysis.

Among the domain satisfaction scores, only satisfaction with services showed a direct relationship with overall satisfaction when the individual items were included in the analysis. Table 5 summarizes the direct and indirect relationships found in the study. Taken together, the results suggest that the customer service items exert the most influence on satisfaction within the customer service domains. Disregarding the anomalous path for roadside signs and directions, overall fishing satisfaction was most strongly influenced by satisfaction with the number of fish available and satisfaction with the services domain.

Implications for Further Research

For the satisfaction items and domains, it may be useful to examine other areas such as a natural resources domain or a more developed recreation experience domain. This study could be replicated in a recreation setting where the specific items and domains were tailored to closely match the facilities, services, information, recreation experiences and natural resources of the area. Certainly this approach could prove valuable for further testing and comparing the results to those of this study.

Researchers should continue to refine the measures that were used in this study and explore their relationships. Using a conceptual model of customer service as suggested by Burns et al. (1999b) may be helpful for managers in providing better visitor experiences in the recreation areas they manage.

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Table 5 Summary of Direct and Indirect Predictors of Overall Satisfaction with Fishing Experience

Customer Service Items	Satisfaction With[1]				
	Facilities	Service[2]	Information	Recreation Domains	Overall Satisfaction
Type of fish					
Toilet facilities	X	X			
Water safety					
Parking availability	X				
Number of fish					X
Appearance of area	X				
Staff friendliness					
Ranger patrols	X	X	X	X	
Water quality	X			X	
Staff knowledge					
Signs and directions					X
Recreation information					

[1] X indicates a direct relationship between customer service item and satisfaction

[2] Satisfaction with services showed a direct relationship with overall satisfaction when the individual items were included in the analysis

ASSESSING INDICATORS RELATING TO OVERALL TOURIST SATISFACTION OF ECOTOURISM DEVELOPMENTS IN EASTERN NORTH CAROLINA

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Abstract: The Partnership for the Sounds is a non-profit organization based in eastern North Carolina and is in charge of operating a collection of museums and cultural sites including the North Carolina Estuarium in Washington, The Mattamuskeet Lodge in Swan Quarter, and the Columbia Theater Cultural Resource Center in Columbia. A recent survey was conducted at these areas by the Department of Recreation & Leisure Studies at East Carolina University. This survey addressed issues such as personal expenditures, perceptions and satisfaction rankings of various aspects of the facility, demographic information, and finally, a numeric overall rating of the site by the individual. An attempt is made to identify satisfaction indicators in relation to reported satisfaction levels of eco-tourism site visitors. More specifically, there is a need to deconstruct the visitor's overall experience and focus on individual factors that might influence satisfaction, or adversely, have little bearing on overall satisfaction. Three primary relationships will be examined. The first of these will be overall satisfaction in relation to personal expenditures. These expenditures include admission fees, food and lodging, transportation, and other activities and entertainment engaged in while in the immediate area. The second area focuses on specific activity at the site such as how much time was spent at the location, quality of the facility, opportunities to learn new information, and perceptions of safety issues and facility staff. Finally, personal demographic information will be observed to indicate whether overall visitor satisfaction at these areas directly correlates to age, education, race or annual household income.

Introduction

This paper is part of a larger study funded by the Economic Development Administration under the United States Department of Commerce. The initial purpose of this study was to assess the economic impact of ecotourism developments on the Albemarle/Pamlico region of North Carolina. Additional information concerning visitor demographics and satisfaction levels was recorded during the data collection phase of this project. The primary purpose of this study was to explore satisfaction indicators relating to ecotourism sites in eastern North Carolina.

Tourism in the United States is continually rising. The World Resources Institute reports that the tourism industry as a whole is roughly increasing at four percent per year (Amaro, 1999). The fastest growing segment of tourism, at ten percent, is nature travel. Nature travel could also be referred to as ecotourism. Several attempts have been made to create a clear and accurate definition of ecotourism. One such definition states that ecotourism is "travel to fragile, pristine, and usually protected areas that strives to be low impact and usually small scale" (Honey, 1999, p. 25). The definition continues by including aspects of travel education, economic development of local communities, and increasing respect for cultural diversity. A simplified definition is offered by the Ecotourism Society as "responsible travel to natural areas which conserves the environment and sustains the well-being of local people" (Amaro, 1999, p. 16).

With tourism come certain negative attributes of a host community such as increased litter and pollution, increased seasonal employment, inflated local economy, and exploitation of natural resources. Positive outcomes could also result from these recreational outlets with proper guidance and direction (Henderson, 1991). The benefits of ecotourism have the potential to reduce these negative consequences through an environmentally educated and enlightened public with the ability to make informed decisions concerning local natural resources, as well as contributing to local economies through lodging, food, or shopping (Anonymous, 2001; Heung & Cheng, 2000).

A primary recreational interest within the baby-boomer population is ecotourism (Lindberg, Wood, & Engeldrum, 1998). With the baby-boomer population nearing retirement, a major influx in the ecotourism segment over the next twenty years could be expected if current trends continue. A present challenge for leisure researchers is how to accurately measure the social experience within ecotourists (Lindberg, Wood, & Engeldrum, 1998). Though the primary goals of ecotourism focus on environmental protection, awareness, and local economic development, the creation of positive social experiences within visitors is also imperative to the longevity of the ecotourism industry. Related to any tourism experience is the level of visitor (customer) satisfaction.

Review of Literature

A study conducted by Kerkvliet and Nowell (1999) focuses on visitor experience in relation to distance traveled and effort required to access a specific location. Time, effort and money required to access a particular location are identified as particularly important by the authors. The allocation time and monetary costs are measured by the travel cost model. Complications have been found with this model relating to the researcher being unable to accurately measure and weigh the costs that are most important to the customer. By identifying indicators relating to overall satisfaction, a specific population segment, such as ecotourists, can be better understood from a social perspective.

Related to travel cost is the variable of site preference. Specific attributes relating to setting have the ability to constrain individuals and thereby influence their destination preferences (Siderelis & Moore, 1998). While recreational sites are selected according to related costs to accessibility, it is questionable as to what level that satisfaction is based on expenditures incurred during participation. Ultimately, Siderelis and Moore conclude that recreational trip planning is a two-part process involving the number of recreational trips to be taken per season, followed by identification of potential substitute sites if unfavorable conditions such as crowding become present. Visitor satisfaction levels could possibly be contingent upon these pre-trip decisions relating to destination.

Another important area to tourism service providers is customer loyalty and repeat visitation. Repeat visitation displays a certain level of individual satisfaction and attachment to particular location and/or activity. Tourist attractions have been found to rely heavily on loyal, repeat visitors (Gitelson & Crompton, 1984). A study by Laverie and Arnett (2000) examines recreational attachment and satisfaction in the context of devoted sports fan behavior. Similarities in the population segments of sports fans and ecotourists can be observed through the understanding and utilization of the social identity theory. This theory, similar to the symbolic interaction theory, states that certain groups within society are important to the individual because one's social networks are formed based on their social identity (Laverie & Arnett, 2000). According to Stryker (1980), the primary purpose of the social identity theory is to determine why an individual selects certain activities over others when given a diversity of available options. This theory could in part explain why some individuals express higher levels of satisfaction than others in an ecotourism setting. While those who seek out ecotourism activities may be highly satisfied, those who are simply accompanying their friends / family in such an activity may display lower satisfaction levels due to a lack of social identity with the present scenario.

Another study concerning tourism destination loyalty was conducted by Opperman (2000) on the lifelong travel patterns of New Zealand residents. Three primary areas were observed by means of a mail-back questionnaire: visitation frequency between 1985 and 1995, past visitation behavior, and predicted visitation rates. By associating sociodemographic, lifestyle, and tourist loyalty variables, specific population segments were identified as having specific desired loyalty types. Ultimately, the study findings suggest that past travel experiences significantly influence future destination selection.

Certain sociodemographic characteristics of recreational and tourism participants have been suggested to have an effect on leisure expenditures. A study by Dardis, Soberon-Ferrer, and Patro (1994) analyzed such leisure expenditures of a sample population by means of data acquired through the U.S. 1988-89 Consumer Expenditure Surveys. A sample of 2,088 households was subjected to a series of interviews regarding a range of personal demographic and expenditure variables. The findings of their study suggest in terms of expenditures, the salary of the head of household and those households who received non-salaried (waged) income had the greatest negative impact on leisure spending (Dardis, Soberon-Ferrer, & Patro, 1994). Demographic variables found to have a significant impact on such expenditures were age, race, and education of the head of household. In terms of age, the older the household, the less money spent on leisure pursuits. Referring to the category of race, an African-American head of household spent significantly less than other races and nationalities. Finally, education was found to be positively influenced with increased leisure spending with higher education levels. While less affluent households were found to participate in leisure spending as well, these households were much more likely to spend money on passive types of leisure activities or social entertainment instead of physically active leisure pursuits. These findings support the previous study of Dardis, Derrick, Lehfeld, and Wolfe (1981) in that expenditures increased with increasing levels of income and education and decreased with older aged households.

Tourist satisfaction is significantly related to customer loyalty, repeat visitation, and positive social communications (Beeho & Prentice, 1997). A difficult question to answer is what exactly constitutes a satisfactory leisure or ecotourism-based experience. Dorfman (1979) attempts to solidify the meaning of satisfaction in the context of recreational camping. He states that satisfaction levels are "maximized when aspiration (desirability) equals perception but only when the desirability is high for that condition" (Dorfman, 1979, p. 486). Desirability for conditions could directly relate back to the social identity theory and the need for personal distinctiveness.

When a tourist is satisfied, the agency is then credited with providing an effective service opportunity (Noe 1999). Customer satisfaction is often contingent upon levels of individual effort and expectations. Customer effort is any physical, mental, or monetary resource expended by the consumer in the acquisition of a service or product (Cardozo, 1965). Customer effort plays a secondary role to customer expectations. Tourists have certain preconceived notions and mental images of a location before they ever visit. Expectations are one of the driving forces for the initial desire to visit a particular location. If customer effort is high and high expectations are met, high customer satisfaction is likely. Adversely, an individual with high expectations who receives a low-value experience will likely report low customer satisfaction, regardless of level of customer effort. This high-value expectation, low-value product is known as the dissonance theory (Cardozo, 1965). To reduce dissonance levels in tourists, it is important as a service provider to offer accurate, realistic information to the public, as to not create heightened expectations that are not likely to be met. It is important to remember that quality tourist experiences result from businesses that know their product, their customers, and their employees (Hayes, 1997).

Study Methods

Study Area

The Partnership for the Sounds (PFS) founded in 1993, is a nonprofit organization that promotes nature-based, ecotourism activities in the Albemarle-Pamlico region of eastern North Carolina. Sites owned and operated by PFS possess a range of natural, cultural, and state historical values. The mission of PFS is to "stimulate sustainable community-driven economic well-being within the Albemarle-Pamlico region through the promotion of responsible eco/heritage tourism, environmental stewardship, and education." Three PFS establishments were the focus of this study, encompassing five coastal counties: Beaufort, Washington, Bertie, Tyrrell, and Hyde. In creating an overall experience within visitors, two primary themes guide their efforts. The first of these is to create environmental awareness. All PFS establishments have education centers that offer displays, hands-on exhibits, and various individual and group activities relating to the value of local wildlife and resource conservation. Their second primary theme is the promotion of ecotourism activities. These site-specific activities include canoeing, birdwatching, fishing, regional arts and craft tours, and nature hikes.

The first site of observation is the North Carolina Estuarium, located in Washington, NC. This establishment is a nature center/aquarium on the Tar-Pamlico Estuary, which gives it its name. Second, is the Columbia Theater Cultural Resources Center, located in Columbia, NC. This historical structure, originally built in 1938, was converted by the PFS into a cultural history museum in 1995. The establishment directs their displays, exhibits, and excursions toward farming, fishing, and forestry subject matter, which have historically remained the primary industries of the region. The final area of interest is the Mattamuskeet lodge which is located on Lake Mattamuskeet, North Carolina's largest natural lake. The lodge possesses great historical value to the state, originally constructed in the early 1900's as a pump house in attempts to drain the lake to use the land for agricultural purposes.

The PFS establishments have greatly contributed to the local economies of many less affluent communities in eastern North Carolina. The five counties under observation all place in the bottom third of North Carolina counties for mean household income, and two of the three poorest counties in the state are within the study region (Vogelsong & Ellis, 2001). Additionally, four of the five counties have household incomes 20 percent below the state median of $42,400.

Visitor Survey

Data was collected by means of a combination of brief, on-site interviews followed by mail-back questionnaires, which were given to the participant following the on-site portion. The on-site portion focused on certain demographic information (gender, state and county of residence) and a limited number of core, central question relating to the overall study objective such as primary purpose of visit, distance traveled, and if it was the respondent's first visit to the area. The mail-back questionnaire addressed more in-depth information on visitor experience and satisfaction. Expenditure and satisfaction variables were measured through fill-in-the-blank questions, as well as five-point Likert scale responses.

Research assistants and PFS personnel approached potential respondents, and briefly introduced themselves and gave a brief synopsis of the project. Permission was then requested to administer a brief 1-2 minute survey to them. At the closing of the on-site portion of the questionnaire, the respondents were asked to participate in a second, mail-back portion of the questionnaire. If the individual complied, they were given the survey in a pre-addressed, stamped envelope. Finally, the respondent's name and address was recorded, with their permission, for follow-up purposes in the event that their questionnaire was not returned. If their questionnaire had not been returned within 7-10 days, a reminder postcard was sent to all participants who agreed to take part in the mail-back questionnaire. If there was still no response, an additional survey was mailed after a two-week period, followed by a final survey mailing after an additional two weeks. This follow-up methodology is based on the Dillman (1978) Total Design Method. The survey yielded an overall response rate of 74 percent.

Data collection for this project was conducted from June through August, 2000 over a period of ten weeks. The data collection process resulted in a total of 338 completed on-site surveys and 251 completed mail-back questionnaires. Sampling by each research assistant was conducted at two sites each weekend and one site during each week. Varying times and days of the week were also incorporated in attempts to gain a more representative population and minimize sample bias.

Study Findings

A profile of the sample population, including age, gender, group size, distance traveled, and first-time visitor status is shown in Table 1. Though gender was evenly proportional, there was marked variance in nearly all demographic categories observed. The overall mean age of sampled visitors was found to be 48.6 years; however, there was less that ten percent of visitors under the age of thirty. Group size ranged from single individuals to elementary school groups with as many as 88 people and had a mean of just fewer than four people (3.98).

Table 1. Visitor Sample Profile

Age	People Surveyed	%
18-22	9	4
23-30	17	4
31-40	38	18
41-50	54	23
51-60	69	29
>50	46	19
Mean age = 48.60		

Gender	People Surveyed	%
Male	157	50
Female	158	50

Group Size	People Surveyed	%
By Self	23	7
2 people	120	37
3-4 people	126	39
5-6 people	34	10
>6 people	22	7
Mean Group Size = 3.98		

Travel Distance in Miles	People Surveyed	%
>20	99	31
20-60	134	42
61-120	39	12
121-180	16	5
181-240	9	3
241-300	13	4
301-360	4	1
>360	11	3
Mean Travel Distance = 76		
Median Travel Distance = 30		

First Time Visitor	People Surveyed	%
Yes	244	78
No	81	22

The primary concern of this paper is to determine overall satisfaction levels in PFS visitors and determine specific attributes that contribute to their level of satisfaction. The survey asked the question: on a scale of 1 – 10, how would you rate your overall trip to the site (ten being the best possible trip imaginable and one being the worst possible experience you can imagine)? The mean response was found to be very high at 8.39. Differences in satisfaction between categories of different visitor groups were explored using t-tests and analysis of variance. The results of these tests are summarized in Table 2. The only significant differences found between these groups were for repeat visitation (t = -2.89). As expected, repeat visitors were significantly more satisfied than first-time visitors. No significant differences were found between genders, education levels, or income categories.

Relationships between satisfaction and interval-scaled visitor characteristics were measured through Pearson correlation. Table 3 summarizes the relationship of satisfaction to these characteristics. Not surprisingly, age was positively correlated with satisfaction (r = .193). As visitor age increases, so do levels of reported satisfaction. The intervallic variables of expenditures, distance traveled, duration of visit, and group size displayed no significant relationships.

Table 2. Differences in Satisfaction Between Groups

Variable	Satisfaction Scores			
	Mean	sd	t or F	Sig.
Gender				
Male	8.29	1.615	-1.053	.294
Female	8.50	1.483		
Education Level				
11th grade or less	3	.577		
High School grad.	29	1.412	1.675	.156
Some college	68	1.511		
College grad.	65	1.368		
Post graduate	77	1.749		
Repeat Visitor				
Yes	8.79	1.130	-2.886	.005
No	8.23	1.653		
Household Income				
< $10,000	9.00	1.069		
$10,000-$19,999	8.33	1.118		
$20,000-$29,999	7.81	1.223	1.347	.238
$30,000-$39,999	8.77	.884		
$40,000-$49,999	7.95	2.126		
$50,000-$75,000	8.14	1.658		
> $75,000	8.40	1.604		

Table 3. Relationship Between Satisfaction and Interval-Scaled Visitor Characteristics

	Mean	sd	r	Sig.
Expenditures	$171.2	455.46	-.114	.075
Age	48.6	13.261	.193	.003
Distance Traveled	76 miles	129.447	-.045	.497
Duration of Visit	1:36	0:55	.113	.078
Group Size	3.98	6.063	.001	.983

The relationship between satisfaction and site-specific characteristics were explored by Pearson correlations. A summary of responses relating to these specific-site attributes can be found in Table 4. All twelve of the identified attributes were significantly related to satisfaction levels. Quality of exhibits (r = .545), opportunity to learn something new (r = .447), and facility condition (r = .474) displayed especially high levels of importance. These relationships seem to suggest the value that visitors place on overall product/service quality. These customer values are consistent across nearly all demographic groups under observation.

Conclusions

Overall, PFS visitors exhibited relatively high satisfaction levels with a mean score of 8.39 out of 10. This may suggest that the PFS is effectively serving their diverse population of visitors. With the exception of age, observed levels of satisfaction remained consistent across different demographic groups. Not surprising, repeat visitors (t = -2.89) were found to display significantly higher satisfaction

levels than first-time visitors. Both group size and distance traveled, displayed no significance in relation to overall satisfaction. Site-specific variables (cleanliness, safety, etc.) displayed a much higher role in overall satisfaction than other variables. PFS visitors seemed especially responsive to these basic service attributes above all other variables in the study.

Table 4. Relationship Between Satisfaction and Site-Specific Characteristics

	Mean	r	Sig.
Quality of Exhibits	4.47	.545	.000
Opp. to Learn Something New	4.56	.447	.000
Opp. To Relax	4.52	.407	.000
Facility Cleanliness	4.76	.379	.000
Facility Condition	4.66	.474	.000
Availability of Space	4.68	.362	.000
Personnel Helpfulness	4.76	.416	.000
Safety	4.67	.344	.000
Other Visitors Behavior	4.61	.285	.000
Visitor Information Quality	4.56	.371	.000
Other Local Opps.	3.80	.315	.000
Shopping and Dining Opps.	3.59	.320	.000

Implications for Application

Although demographic variables were not found to be related to overall satisfaction in this study, they should not be discounted due to the multi-faceted nature of tourist behavior. The overall response rate of the mail-back portion of the project was somewhat low, though initial sample numbers were met and adequate for statistical analysis. It is important for tourism service providers to understand the diversity of their potential customers and attempt to cater to the needs of all population segments. Site-specific variables such as everyday maintenance, cleanliness, safety, and employee friendliness and professionalism are of tremendous value in creating visitor satisfaction. Quality services and employees leave a positive impression on visitors regardless of their overall experience. Quality service delivery also possesses the ability to increase monetary profits. The premise of service quality meanders within all aspects of the tourism experience from promotional materials, on-site personnel, cleanliness of facilities, accessibility, and employee knowledge and courtesy. This should be consistently emphasized to staff and personnel in order to maintain high standards. It is fortunate that these sites have satisfied repeat visitors. However, a creative approach should be taken in the frequent changing of exhibits, programs, and outdoor excursions to offer more reasons for repeat visitation.

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Urban and Municipal Recreation Issues

RURAL LIFE IN THE CITY: THE CHALET GARDEN IN DENMARK

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Abstract: Allotment gardens with small cottages make a rural lifestyle partially available in urban areas. Temporary living quarters, combined with the tending of annual and perennial plants, let urbanites coexist with nature for a few months out of the year. This paper investigates the history and social life these gardens play in Denmark. A particular garden, Sano near Copenhagen, is considered in some detail.

Introduction

Being in nature and interacting with it has a great appeal for people, including urbanites. Some people choose to be closer to nature by gardening in their backyard (if they have one) or by cultivating fruits, vegetables and flowers in a community garden plot. For many people, an escape to natural surroundings requires long travel, be it to a vacation cottage in the mountains or a house by the shore for a summer of relaxation. For American urbanites who would like to have a summer home, but cannot afford one, there is no middle ground. However, this sort of opportunity is readily available in the allotment gardens of Denmark where nature and leisure come together within the city's boundary.

It is just this combination in Danish allotment gardens, where simple living and nature coexist for a few months out of the year, that creates a rural lifestyle in an urban area. Allotment gardens exist in Denmark because of their cultural acceptance and protection, ability to increase the diversity in urban areas, and the gardeners' desire to have their own piece of nature. These gardens are green spaces of beauty and character. With all of this information it was not very difficult to answer the question -- What are the most significant elements that make up an allotment garden to give it meaning to the member gardeners?

History of Danish Allotments

Early allotments. The Kolonihaveforbundet for Danmark (Danish Allotment Garden Federation) keeps a record of the history of Danish allotment gardens. In the late Middle Ages (1350-1450) gardens were outside of town walls to supply vegetables to burghers (a citizen of a borough, usually owning a house within the city limits, and prosperous enough to hire others to work for them). The town of Fredericia in Jutland has a town plan dating to 1665 requiring gardens outside the town wall, designating one garden for growing vegetables per household. Gardens were leased by authorities to individuals and were to eventually be privately owned. The Royal ordinance states: "This field which is now used by the municipal authorities and which consists of 48 parcels of land, is to be added to the town so that each plot follows its site. The local authorities have entire disposal of the 11 similar garden parcels. Deeds shall be delivered, and decrees shall be issued so as to ensure that the extent of each parcel is not reduced or enlarged, and that nothing but chalets are built on the land. Furthermore, upon the delivery of the deed, the gardens shall be given to the owners for life."

These small gardens then developed into pauper gardens in the 18th century with the sole purpose to avoid greed and lessen poverty. From 1821-1823 public authorities laid out about nineteen gardens in Haderslev, Tønder, and Åbenrå. Åbenrå Allotment was founded in 1823 and is now preserved as one of the oldest allotment gardens in Denmark.

In 1828 King Frederik VI of Denmark ordered all Boards of Guardians to give land to burghers. "The purpose is not to give full relief to the poor burghers, but merely to help needy craftsmen or other impecunious heads of families become more or less self-sufficient in fruits and vegetables, through spending their spare time growing the garden-helped by their wife and children and to keep household heads from idleness." Over time gardens were also laid out in Århus, Fredericia, Nyborg and Odense. King Frederik VI's gardening interest encouraged the establishment of these gardens. However, they also resulted in response to the poor economy after the Napoleonic wars (1792-1815), resulting in day laborers becoming members of the working class. Many pauper gardens failed because the Board of Guardians was not prepared for the garden expenses. In addition the gardens were located in poor soil conditions and crop yield was poor. They remained until the beginning of the 20th century, at the same time as the collective chalet gardens.

In the 1880s and 1890s there was increased interest in small gardens and private landowners began to rent plots to workers on individual contracts. The Industrial Revolution, country to city migration, poor housing, and an increase in population all contributed to this increased interest in allotment gardens. Laborers working and living under the same stressful social and economic conditions came together to form the Danish Social Democratic Party in the 1870s. Part of their plan for action was to organize cottage garden sites. Garden colonies, or allotment gardens, were 18th century communal sites. In Ålborg in 1884, Jørgen Berthelsen a member of the Danish Parliament, began the first allotment site. The idea was to parcel government-owned land into garden plots for workers. No one wanted to help, so Jorgensen leased the municipality land himself and parceled 85 plots to sublease to 'Arbejderforening af 1865' members. The cost was 14 kr. (Danish kr.onor) per plot (same as workers' weekly wage). The government's opinion changed after seeing the success of the plots and that thhe produce helped workers regain their strength and energy at work. A members' board was responsible for overseeing the daily operations of the garden, establishing order, keeping the accounts and holding meetings.

Garden Associations. In 1892 Det Københavnske Haveselskab formed. Its was as a non-political horticultural society dedicated to arouse interest for using and growing garden products amongst people of humble means. The first association was on Christianshavns Vold on Amager (later known as Vennelyst). Distributors or brokers made money from the individual contracts of increasing the already high rent and Det Københavnske Haveselskab refused to have a board to oversee daily operations. Today the distinct garden layout of very small gardens and tiny chalets can still be seen, and is by many tourists. Future allotment sites were modeled after Arbejdernes and Det. In 1907 there were 2000 chalet gardens in Denmark and the numbers continued to increase with workers finding more sites.

In 1908 Kolonihavelejerforeningen (originally the Chalet Garden Holders' Association and then called the Association of Chalet Gardens in Denmark) was founded with the sole purpose to create a stronger position for negotiating with the local and central governments. It was the first union of allotment gardens in Denmark. "The purpose of the association is first of all to achieve reasonable and, if possible, uniform contracts with the authorities for all garden holders who have rented their gardens with them, second to work for a promotion of the chalet garden matter and third try to prevent enterprising companies to act as intermediary between owner and leaseholder." In 1916 it transformed into a nation-wide association that looked out for the needs of all Danish allotment gardens and became the Kolonihaveforbundet for Danmark.

The Kolonihaveforbundet for Danmark (Allotment Garden Federation of Denmark) has twenty-seven board members today, led by chairman, Ivan Larsen, three vice-chairmen, and thirty-five advisors spread around Denmark. Each is carefully chosen and approved by the Danish Government and the advisor at the Ministry of Agriculture, Eyvind Thorsen. Allotment ownership is not required to be a part of this association. It publishes a garden magazine six times a year and distributes it to each individual member. At its peak in the 1950s it represented 62,000 member and 40,000 non-member gardeners. In 1990 it there were 45,000 members and 20,000 non-member gardeners.

Current Situation for Allotment Gardens

Laws and Regulations. Allotments are recognized in various local and national governmental laws. Some examples where allotments are mentioned concern the noise level of high-speed ferry routes and windmills, the use of contaminated soil, the control of rat outbreaks, waste management, and Denmark's strategy for sustainability.

A new Danish law was recently passed protecting "permanent" allotment gardens. Fredriksberg and Tårnby Municipalities initiated the new law because of public opposition to their building on allotment sites. The government and the gardeners realized it was time that to protect these historic green areas before they are all gone. November 1, 2001 was the deadline for garden owners to apply to the Ministry of the Environment for permanent status. A committee was set up to gather information and propose what gardens could be permanent or not. The general requirements to be a permanent garden are: (1) they must be within city limits, (2) each individual garden is limited to 400 square meters, (3) the gardens cannot be located in existing green space that is part of residential areas, (4) buildings are allowed for overnight use and storing tools, and (5) houses cannot be lived in year round. There was also an agreement signed in 1993 that gave 25 years protection to allotments owned by the municipality. It is still in effect for those that were determined to be temporary. After that time, the municipality will decide any further agreement or changes.

There are 92 organized allotment gardens in Copenhagen that accommodate approximately 5,400 overnight and 3,600 day garden plots. The municipality owns 68 of the sites and 24 are privately owned. There are also six year-round gardens where the plots are not considered allotments and therefore are not covered under the law. As of now it is illegal to live in those year-round; there are discussions underway to make them legal. There were three meetings with gardeners from the six allotments nearest the rapidly expanding Ørestad development. It was decided that only two would be temporary and the rest would be permanent.

Organizations Involved with protecting allotments. In 1911 the Danmarks Naturfredningsforening 7 (Danish Society for the Conservation of Nature) was created. It is the largest environmental association in Denmark with representatives in each municipality. They have significant political power because they are so large and influential. It is the only association in Denmark allowed to conserve areas. It only recently became involved with allotments because of interest from its membership. The first example was in 1999 when gardeners in H/F (Haveforening, meaning a Garden Association) Dalgas in Fredriksberg Municipality came to the Society asking for help to protect their gardens. It was made a permanent garden on November 1st and is the first garden to be conserved in Denmark. They just received a new proposal to help save a garden in Essence, Funen in mid-October 2001. Prior to the new law, municipalities were in charge of any protection or destruction of allotments.

As the allotments get older so do the structures that are on them. New, modern summerhouses are replacing old houses. Even today there are still old houses left, but most have been built on to and the old-fashioned one room house now has two or three rooms. Presently it is the trend for young families to stay in the city and have an allotment, instead of moving to the country to have a family. There is a new generation ready to carry on the tradition of allotment gardens.

Many allotments were placed on polluted land because it was cheap and available, which was the point when allotments started. The Grøn (Green) Information Office had a research paper on a study conducted by the Danish EPA (Miljøbutikken) on eating vegetables, fruits, and berries from contaminated soil. It showed that if

thoroughly washed and peeled eating these vegetables and fruits will not cause any problems. The following are the metals studied on nine allotment gardens: arsenic, cadmium, chromium, copper, nickel, lead, and zinc. The following are the PAH compounds looked for in Skagen (an area outside Copenhagen): acenapthylene, fluoranthene, benzofluoranthene, benzopyrene and indenopyrene. The fruits and vegetables tested were potato, carrot, lettuce, radish, bean squash, pear, plum, gooseberry, hip, blackberry, elderberry, currant, and hazelnut.

Obtaining an allotment garden. Typically the cost range is 10,000-100,000 kr. ($1200-$1,800) to buy, and 2,000-3,000 kr. ($236-$350) per year to rent. If an allotment is municipality-owned it will be rented, which is cheaper. It could also be a co-operative association where each gardener owns a share of the land, which is expensive.

Each allotment garden has a waiting list of people who want a garden. It helps to know someone in the gardens rather than just signing up to try to get one. It follows the saying that "it's not what you know, it's who you know." The waiting list for a Kolonihavehus (garden plot) in Vennelyst is about 25 years, and even in others that are not so well known the time frame is about the same. People keep their gardens for many, many years and in their family until they can no longer maintain it.

Study Methods

In order to sufficiently study Danish allotment gardens I divided my data gathering into social use patterns (plot use, activities, maintenance, type of users, distance traveled, and length/time of use) and historical use patterns (previous land use, reason for garden and its activities, and the lay out). Periodic observations involved visiting the sites on different days at varying times to observe activities in the plots and the gardens by the gardeners. I also took counts of people and noted what they were doing.

Interviewing was the most effective tool to understand how the gardens operate, to learn the importance of the gardens to the gardeners, and to see why outside forces (organizations, government) are involved. It was through this type of conversation that I learned about the regulations of and on the gardens, people's everyday patterns in the summer and the winter, and people's opinions toward allotment gardens. I talked with six gardeners from Sano, and five people from organizations involved with allotments.

Drawing, taking pictures and mapping out the context and layout of the gardens were also important tools in studying the allotment gardens. These helped me to analyze the gardens better and to understand why people did the activities they did. The context of both of these gardens is more than what exists at present; it is the adjacent future development that will have the most impact on them.

Haveforening Sano: A Cottage Allotment Garden

It is unsure as to what the name means. It might be Latin and mean purity, sanitary, and clean or it might be from Samosvej, a nearby street, or it might even be from an industrial chemical for orchards. A lost piece of history, very similar to the old houses that are taken down without thought as to their importance. The following is the information I learned about H/F Sano.

The context is made up of apartment complexes to the north, south, and west (where most of the gardeners live), a hotel to the north, and abandoned railroad tracks all along the eastern boundary. These railroad tracks serve an important social function; they are where people walk their dogs. They also provide a back entrance for three gardens in Sano.

Residents. Residents typically have had a garden in Sano for a long time; among those I interviewed, it had been between 6 and 33 years. Most have apartments nearby, ranging from across the street to a few of kilometers away. Some have cars, but most use bicycles for transportation. Clearly this is a way of life for them. Everyone mentioned that his or her most common activity way just relaxing. Along with relaxing goes hanging out with friends and family.

Overall garden plan. The garden plan has been the same, or at least very similar, since it was first built in 1929. Many of the original one-room houses still exist within the additions and changed exteriors. The pathways are all gravel, except for the asphalt Festplads, and are maintained by the adjacent garden owner. This includes being raked daily and free of weeds to keep a clean appearance. The geometric, uniform plots are similar to most allotment gardens. The one exception is the Round Gardens in Naerum, which were specially designed.

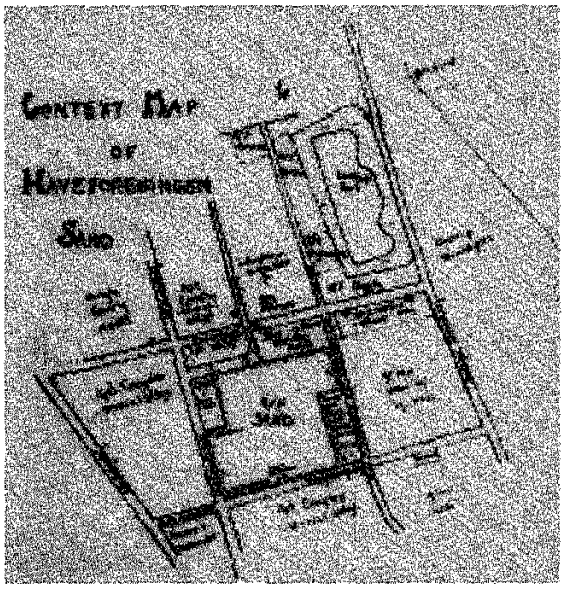


Figure 1. Context map of Sano.

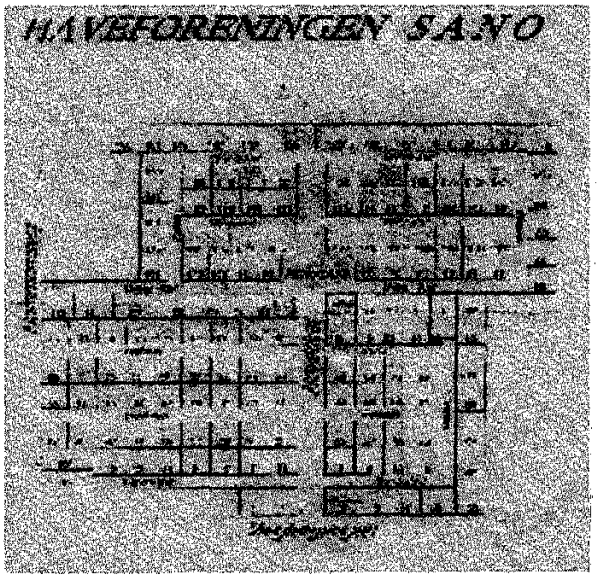


Figure 2. Plan of plots in Sano.

Gardening. Along with relaxing, gardening is the most common activity. The approaches to gardening seem to be very diverse, though generally laid-back rather than intense. Some residents focused on flowers; others mixed flowers and vegetables. Everyone had shrubs and trees as well as bedded plants. Most seem to add something new each year, or just move things around a little bit. Often one person has the primary responsibility for the garden. There is a big cleanup in the fall just before closing. Families typically visit their garden between once a week or month during the winter.

Cost and size. The basic current price for a garden is 100 kr. ($12) per square meter. However, the quality, age, and size of the house, as well as the garden plants and any remaining furniture also help to determine the price. It is the board that makes the final decision. The older the house is, the less expensive it is. A typical plot size is 301 square meters, but it varies between 200-400 square meters.

Having an allotment is considered a middle class luxury, not a rich one. The though is that they (the gardeners) can't afford to have a real house with a garden, so they settle with this small plot of land and a small house.

Three houses were torn down this year (2%), which is usual for the fall time. There was also one roof repair, one internal repair; and the oldest, untouched house (actually might be 10% of the plot) was sold and will be torn down.

The Board. Every April is a meeting to vote on either the foreman or the treasurer because they alternate in terms. Both positions are for a minimum of two years and are paid 1000 kr. ($120) per month. There are seven members: one foreman, one treasurer, one vice-foreman, two board members and two supplemental members. There are two to three board meetings in the winter for everyone. Each position is voluntary. If someone decides they want to be the foreman and there is no one else who wants it, they will most likely get the position, unless the voting gardeners disagree. It is the board's duty to watch over the gardens and carry out daily tasks to keep everything running smoothly and efficiently.

Rules and regulations. The house can only be one story and ten per cent of the plot. Fire safety requires three meters between houses and the property boundary, which hasn't been followed in the past. Today any new house must follow this regulation. Fences should only be 180 cm. high. The chairman issues warnings to gardeners that have overgrown gardens, giving them the chance to be maintained or to loose the garden. It used to be that every five years was an assessment of the gardens to renew a contract, but that is no longer necessary with the new law protecting gardens. As of November 1, 2001, Sano is a protected garden. In order to have a garden in Sano one doesn't have to live nearby, but they do have to be Danish. As for garden care, chemicals are strongly discouraged.

Safety. Theft and safety are not usually problems. There were three break-ins last winter, which is very uncommon. The people who come every day in the winter or stay illegally year round keep an eye out for intruders and problems. Also throughout the winter, the gates are closed at all times. In the summer they are open from 8am to 8pm. Along the entire boundary of Sano is either a tall fence topped with barbed wire or a tall hedge for privacy and protection.

Waste management. Most gardeners can have a camp toilet that they must empty at the Festhus. They can also use the plumbing facilities in the Festhus. There is a movement to add showers and laundry facilities at Festhus too. Only recently has it been allowed to have a small holding tank in the ground. The least favorite part of living at Sano is having to empty the toilet.

In the Festplads is a large, red, unsightly trash receptacle. The residents sealed all regular trash in bags for odor control and then deposited here. In the fall there are two of trash receptacles because of houses being torn down and people moving out. Otherwise it is the responsibility of the gardener to take all recyclable and construction items down the street to a recycling center.

Threats from outside. A proposal to use the railroad right-of-way for a new metro line from Center City to the airport will affect Sano. The initial design by the city was to make the metro above ground with tall barrier walls. These walls would block views and access to the Øresund by closing off several streets. The local residents want it to be underground, which would cost three times more than the planned budget. Because of the large public of dislike for the design, this section of the metro has been postponed at least five years. In February of 2002 a final decision will be made as to whether it will be underground or aboveground.

If the metro is above ground, it will remove some Sano gardens and create a large wall to look at. The land beyond the tracks is green space, but also potentially available for development. If the metro is built below ground the view and open space may still change. As one person I talked to said "that's one expensive dog walk."

Conclusions

My main goal was to go Copenhagen to learn about allotment gardens, understand why they work, and why we don't have them in the US, and that is what I did. I tried to find out as much about allotments as I could by talking to the gardeners, to people in the government and associations, and to people who didn't even own an allotment to get their view on them. I can now say I know quite a bit on allotments; I wouldn't say everything, of course, because that wouldn't even be close to being accurate. My question was: What are the most significant elements that make up an allotment garden to give it meaning to the member gardeners? I didn't have to search for answers to this question I just did what I had planned to do -- observe, talk with people, and collect documents. In doing these research methods I came across the elements that make the gardens meaningful. It is having your own piece of land that you can call you own and do what you'd like with it. How else would someone in a city be able to build their own wall, lay a patio, or be able to sit under a tree they planted ten years ago? It isn't the landscaping that is the focus of all the maintenance; it's the perfectly manicured lawn. It is the freedom to get out of the apartment for the summer and into the sunshine. People are able to socialize and relax in the atmosphere they have created. There is a Danish word that fits this lifestyle perfectly -- hygge. Although the Danes say it cannot be translated it roughly means to be cozy and relaxed in warm surroundings with friends and/or family.

Acknowledgements

Our gratitude is given to the Sano's residents who accepted me with open arms into their garden. Special thanks are also due to Jens Balsby Nielsen from The Royal Veterinary and Agricultural University in Copenhagen for his guidance.

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Resources

Danmarks Naturfredningsforening [Danish Society for the Conservation of Nature], Masnedøgade 20, DK-2100 København Ø. Internet: www.dn.dk

Grøn Information [Green Information], Nørregade 36 2nd sal, DK-1165 København K. Internet: www.greeninfo.dk

Hovedstadens Udviklingsråd (HUR) [Greater Copenhagen Authority] 25, Gammel Køge Landevej 3, DK-2500 Valby. Internet: www.hur.Dk

København Kommune [Copenhagen Municipality], Department of Roads and Parks, Njalsgade 13 4.sal, DK-2300 København S. Internet: www.kk.dk

___ , Recreation and Green Area Planning, Rådhuset, 3 rd floor, Room 11, DK-1599 København V

___ , Culture and Leisure Administration, Rådhuset, Ground Floor, 1599 København V

Kolonihaveforbundet for Danmark [Allotment Garden Federation of Denmark], Fredrikssundsvej 304A, DK-2700 Brønshoj

Miljøbutikken [Danish EPA], Information and Books, Læderstræde 1-3, DK-1212 København K. Internet: www.mem.dk or www.mst.dk

A PRACTICAL APPROACH TO CITY TOURISM SUSTAINABILITY

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Abstract: Generally, destinations with pristine natural attributes are the ones faced with issues related to tourism sustainability. However, this narrow focus often leads to the establishment of dogmatic 'dos' and 'don'ts' that are not always practical in all circumstances. Secondly, depending on the definition that is given to the concept of sustainability, no form of tourism can last very long unless deliberate efforts are made to ensure that it has a future. City tourism is one of the types of tourism that is not usually associated with the sustainability debate, and yet needs to be. Experience has shown that when a laissez-faire attitude is adopted toward city tourism development the strengths and weaknesses of a city are not studied in detail to determine which attributes may be exploited for touristic purposes. In addition, when the unique characteristics of local residents are not harnessed through community partnerships to ensure that tourism development is sensitive to existing cultural and environmental systems, the longevity of city tourism becomes suspect. This paper summarizes a study that uses the Importance Performance analysis to identify those tourism features in Indianapolis that international visitors perceived to be tourism magnets to the city, as well as the attributes that needed to be worked on. It is such grounded evaluations of city tourism perspectives that can make reliable contributions toward the building of a sustainable city tourism model.

Introduction

Sustainable tourist development is viewed as development that caters to the needs of current tourists and host regions while protecting and enhancing for future generations the very opportunities and attractions that make a destination desirable today (World Tourism Organization, 1995). Meadows (1992) contended that a sustainable society is one that can persist over generations, and that is far-seeing enough, flexible enough, and wise enough not to undermine either its physical or its social systems of support. Ekins and Jacobs (1995) defined sustainability as development based on a unique relationship between production and consumption that can be pursued into the distant future without corrupting the human or natural environment. Daly (1997) associated the term with economic growth of a different and more self-conscious variety, one whose purpose is the enhancement of human welfare and the release of human potential, both of which require care for the natural environment.

However, lots of questions remain regarding the basic meaning of the sustainability of anything. Is it a commitment toward balancing short-term gains against long-term viability? If so, then what time scale of viability can be deemed acceptable (Luke, 1995)? Are the 'gods' of sustainability satisfied if the prescribed technical fixes guarantee the sustainability of an urban museum for five hundred years, or does it have to be three millennia? Who are the stakeholders and the major players who can make the major contributions to tourism sustainability? Are there different instances where the actions of individuals acting alone or as local communities and cities can make the difference while in other circumstances, it has to be corporate giants, nations or even the whole planet that have to work together to produce any significant impact ((Wahab and Pigram, 1997)? Other questions also need to be asked about who the intended beneficiaries of a policy of sustainable tourism should be. Is it just humans, all living things or the whole planet? On the human level, who speaks for the interests of the generations yet unborn?

The different definitional possibilities and perspectives of the notion of sustainability that these questions present make it difficult to attempt to reduce the concept to its technical dimensions, with consistent technical fixes (Torgenson, 1995). A more practical approach toward long-term viability of tourism assets at destinations may thus involve destination-appropriate management practices which are based on empirical studies of the strengths and weaknesses of each destination. Attempts can then be made to promote only those types of tourism for which the specific destination has strong strategic advantages over the competition, and can thus withstand the 'wear and tear' of the use of its resources for such touristic purposes.

The sustainability of tourism at a destination then depends on the natural, socio-cultural, economic and aesthetic environment in which a particular type of tourism can thrive with minimal negative impacts on those environments (Sandercock, 1998). In certain instances, city tourism can be an engine that helps revitalize a city and its regional economy while at the same time dignifying and preserving its architectonic and cultural richness (Law, 1993). This provides alternatives to mass tourism and allows a community to diversify its tourism offerings. Jansen-Verbeke (1988) as well as Buckley and Witt (1985, 1989), cited by Law (1993) suggest that urban regeneration for tourism purposes is an appropriate approach not only for the great cities, but also for smaller urban centers that offer tourist attractions quite different from the traditional mass tourism destinations.

Literature Review

a) City tourism

The study of city tourism has also been ignored by the academic world (Ashworth, 1989, Fainstein et al., 1992). It was not until the middle 1980s that articles began to appear on city tourism (Jansen-Verbeke, 1986, 1988, 1989). Researchers began examining the potential of city tourism as an economic revitalization tool for smaller industrial areas as well as major cities (Buckley and Witt, 1989). However, the existing studies continued to ignore the potential of city tourism as a tool for sustainable city planning and development. Furthermore, the lack of a widely accepted definition of city tourism prevented researches from establishing a methodological research frame to estimate the financial and social dimensions of the city tourism activity.

Jansen-Verbeke (1988) defines the city tourism product as historic buildings, urban landscapes, museums and art galleries, theatres, sport, and events. The author classifies the elements of city tourism into primary, secondary, and additional elements. The primary elements are the core characteristics, attractions, activities, and facilities of the city that would exist whether or not tourists visited. These characteristics often turn out to be the main reason that tourists visit a destination. They include cultural facilities, physical characteristics, sports and amusement facilities, and socio-cultural features. The secondary elements comprise the tourism superstructures intended to accommodate and service the visitors. They include hotels, catering facilities, and markets. Lastly, the additional elements consist of support services and destination management issues that facilitate access by visitors to the local attractions and activities, as well as to the hotels, restaurants and airports. These elements include tourist information offices, parking facilities, signposts guides, maps, and other services that facilitate the accessibility of the tourist offerings of the destination.

b) Importance Performance Analysis

An importance-performance analysis (IP) is a research technique often used in strategic quality assessment of the salient features of services and products provided to customers (Martilla and James, 1977; Hawes and Rao, 1985; Dolinsky, 1991; Almanza et al., 1994; Go and Zhang, 1997; Joppe et. al. 2001). In tourism destination assessments, it involves a simultaneous examination of visitors' opinions about both the importance of the salient features of the services and products provided by a destination, and the extent to which the destination is seen by the visitors to have performed to their expectations on those salient features.

A two-dimensional grid is created on which the values of the perceived importance of service features and the level of performance of the destination are plotted. The horizontal axis of the grid indicates tourists' perceptions of the destination's *performance* on the salient features of the service. This axis measures performance that ranges from poor to excellent. There is a mid-point which is equivalent to the grand mean of the scores of all performance measures for the salient features under consideration.

The vertical axis measures the *importance* of the salient features of the services provided, and range from 'not at all important' to 'very important'. The mid-point is again signaled by the grand mean of the importance measures for the salient features under consideration. The grand means of the importance/performance measures create 'cross hairs' which divide the two-dimensional grid into four quadrants. The features, whose IP scores place them in the upper right quadrant, are considered important by tourists in attracting them to the destination, since they rate high on the importance axis. The destination is also seen to have performed well on those features, since it rates high on the performance scale.

The features located in the upper left quadrant are considered important destination attraction features, but the destination is performing below the average expectations of visitors, given that the features score below the grand mean for performance.

The performance of the destination is rated high for features in the lower right quadrant although visitors rate them below average in importance. Given the low level of importance attributed to these features, the scores suggest that too much effort is being given to features that do not really help attract visitors to the destination.

Finally, the features in the lower left quadrant are not perceived to be important by visitors. There may be a need to shift some resources and effort from these features to features in the upper left quadrant, to improve performance on features that are considered important destination magnets.

Methodology

The Importance Performance (IP) analysis was used in this study to help Indianapolis begin the process of identifying the features of the city that can contribute toward the building of a sustainable community that favorably positions itself to these diverse tourism market segments.

Data was obtained from 374 international participants at the 2001 World Police and Fire games, hosted by Indianapolis between June 8 and June 16, 2001. A structured questionnaire was designed, pilot tested, and used to collect data for this study. The questions were based on other instruments previously employed and empirically verified concerning both their validity and reliability.

Part of the survey contained two 4-point Likert-type scales of 14 items each. The first listed certain tourism services and products of a destination and asked respondents to state how important these items normally are in influencing their choice of a vacation destination. The measurement scale for these items went from 'very important' to 'not at all important'.

The second Likert-type scale listed the salient tourism services and products available in Indianapolis, which correspond to the list of items on the importance scale. Respondents were asked to state

how satisfied they were with the performance of Indianapolis in providing those items.

The mean of each item on both scales was calculated and the corresponding pairs of items on each scale were used to plot IP ratings on a two dimensional grid. These responses were then compared with responses to corresponding questions that rated the importance of these features in generally influencing vacation destination choice. This process enabled the researchers to determine the selection process of vacation destinations by the visitors.

The study divided participants into four regions: Europe, Canada, Asia, and Australia. One-way ANOVA was used to make comparisons among participants from these different geographic regions to identify potential differences in perceptions relating to the IP analysis.

This investigation resulted in the creation of a sustainable city tourism development model. Organizing and involving the community in city tourism initiatives, based on research findings such as the IP analysis, is the foundation for building successful community enterprises. It is vital that the entire community experiences some level of involvement and benefit associated with local city tourism businesses. The involvement of a community's stakeholders in city tourism projects is paramount. Examples of community stakeholders may include concerned individuals and groups, small business owners, entrepreneurs, local associations, and government officials.

Results

The developed IP grid provided baseline information on strengths and weaknesses of the different tourist features of Indianapolis. The Importance scale had an alpha reliability measure of 0.7593 and the Performance scale had an alpha reliability of 0.6981. Reliability scores for both measures suggest that the two IP scales were reliable.

a) Importance Performance (IP) rating

Figure 1 shows the two-dimensional grid, where the grand means of the items on the importance and performance scales create the 'cross hairs that divide the grid into four quadrants. The location of the combined IP pairs of items suggests possible management options by the city for each item. The grid indicates that Indianapolis fared well in the following items, located in the quadrant labeled "B":

- Local residents are perceived by visitors to be friendly.
- The city is viewed as having high standards of cleanliness and hygiene.
- Personal security for tourists is above average.
- The city creates opportunities for visitors to have new experiences.
- The variety of restaurants in the city is good.

These items scored well above the average thresholds established by the grand means of the items in both the importance and the performance scales. They are thus important destination magnets. When visitors come to Indianapolis, these elements are provided to their satisfaction.

Respondents rated items located in the quadrant labeled "A", as being above average in importance and in their ability to influence destination choice decisions. However, Indianapolis performed below visitor expectations on these items. These items include:

- The need for a destination to have many things for visitors to see and do.
- The need for good local transportation services.
- The need for a destination to be entertaining.
- The cost of accommodations.

The two items in the quadrant labeled "D" (the quality of accommodations and the ease of getting tourism information in the city) are rated below average in importance, and yet Indianapolis does a good job providing them to visitors.

The three last items, concerning the difficulty of getting to Indianapolis by air, nightlife and night entertainment in the city, and arts and cultural attractions in Indianapolis are elements that respondents considered less important in influencing their vacation destination choice decisions. Indianapolis performed poorly in those items as well.

b) Perceptions of Indianapolis Tourism Attractions by Origin of Visitors

Tables 1 and 2 compare, by region of origin of respondents, the importance ratings of selected items in influencing destination selection and the performance ratings of Indianapolis on those items.

In Table 1, the desirability of excellent nightlife as a destination asset that attracts visitors was significantly more important for European respondents than it was for Asians (p=0.014). On the other hand, Canadian and Australian respondents did not differ significantly from Europeans or Asians in their perceptions of this item.

While respondents from all regions felt that the variety of restaurant choices was an important visitor attraction for a destination, Australians were significantly more emphatic in this view than Europeans (p=0.044).

Similarly, respondents from all the regions perceived good local transportation services as an important asset for a destination. However, Canadian respondents were significantly less sold on this idea than their Australian and Asian counterparts (Australia: p=0.030, Asia: p=0.022)

Among respondents from different geographic regions, preference for air travel for holidays was the other statistically significant difference in the items on the importance scale. Canadian respondents differed significantly from European and Australian respondents by minimizing the importance of air travel for their holiday trips (Europe: p=0.002, Australia: p=0.015).

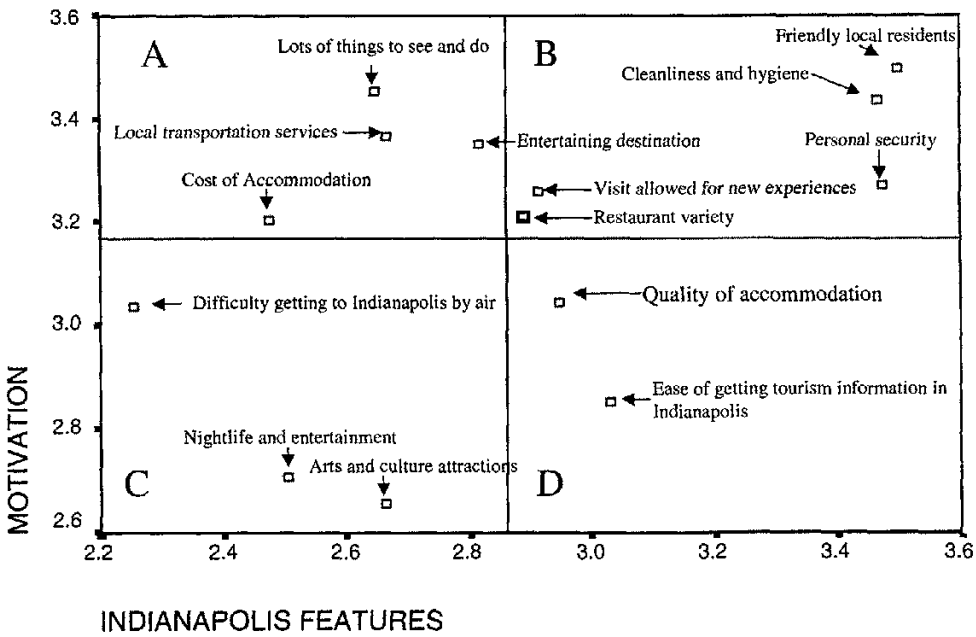


Figure 1: Foreign Visitors: Importance-Performance Analysis of the Tourism Attributes of Indianapolis

Table 2 presents the satisfaction ratings of respondents on the tourism offerings of Indianapolis, by geographic region of the respondents. Asian respondents were the least satisfied with the choices of restaurants in Indianapolis. They differed significantly in their perception of restaurant choices from Australian and Canadian respondents (Australia: p=0.031, Canada: p= 0.025).

Even though all groups generally rated safety in Indianapolis high, Asians were the least impressed with safety. Results differed significantly from respondents in all the other regions under consideration (Europe: p= 0.001, Canada: p= 0.022, Australia: p= 0.034). The Europeans appear to be the group least concerned about safety, followed by Canadians and Australians.

Respondents from all regions gave a failing grade to Indianapolis regarding the cost of accommodations. Accommodations were perceived as being too expensive. Canadians emphatically expressed this conviction, which differed significantly from Asian respondents (p=0.028).

Regarding the question of Indianapolis being an entertaining destination, Asians and Europeans rated the city below average, while Canadians and Australians gave it an above average rating. The Asians were the least convinced about the entertainment capabilities of the city, and they differ significantly from Canadians and Australians in this view (Canada: p=0.044, Australia: p=0.022).

Conclusions

Successful implementation of city tourism sustainable development model could provide an array of extra benefits to city destinations, such as:

- Greater understanding of the dynamics of a city tourism market and city tourists,
- The ability to test new ideas before the implementation phase,
- The ability to target niche city tourism markets,
- Cost effective alternative to mass tourism media advertising,
- Development of new distribution channels, and
- The ability to plan for year-round city tourism, thereby eliminating seasonality.

Table 1: Considerations that international visitors normally take into account when selecting a vacation destination.

	Canada		Europe		Australia		Asia	
	Mean	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**	**N**
Destinations that allow me to try new experiences	3.15	106	3.17	131	3.43	21	3.13	32
Destinations that provide excellent nightlife attractions	2.78	102	**2.88***	129	2.81	21	**2.29-**	34
Destinations with good variety of restaurant choices	3.31	104	**3.21-**	133	**3.68***	22	3.14	36
Travel that emphasizes learning about the arts, culture and history	2.56	102	2.61	136	2.95	22	3.00	33
Visits to destinations where the people are generally friendly	3.41	102	3.48	135	3.82	22	3.46	35
Destinations that have excellent accommodations	3.21	100	2.95	129	3.32	22	2.85	34
Destinations that do not create serious personal safety problems for tourists	3.40	102	3.13	128	3.32	22	3.38	32
Destinations with moderate accommodations costs	3.20	102	3.10	126	3.50	22	3.28	32
Destinations with high cleanliness and hygiene standards	3.43	106	3.33	132	3.59	22	3.42	33
Destinations with good transportation services	**3.17***	103	3.32	131	**3.64+**	22	**3.57+**	35
Destinations offering fun and entertainment	3.42	102	3.22	130	3.59	22	3.21	34
Destinations with lots of activities and things to see	3.50	104	3.38	130	3.57	21	3.29	34
I prefer to travel by air to my holiday destination	**2.83***	52	**3.37+**	49	**3.60+**	10	2.94	18
At my travel destination, I prefer to find things out on my own rather than having to pay for a guided tour	3.00	52	2.94	47	3.00	11	2.76	17

Indicates that the mean of the item for the country or region in question is significantly different from one or more of the means of the other regions/countries.
+Signals that that mean is greater at a statistically significant level than the one marked with an asterisk.
-Signals that that mean is smaller at a statistically significant level than the one marked with an asterisk.
NB: Since one mean can differ from several other means at different levels of statistical significance, the exact level of difference (significance) is only mentioned in the text above.

Table 2: The adequacy of the tourism-related features of Indianapolis from the perspective of international visitors.

	Canada		Europe		Australia		Asia	
	Mean	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**	**N**
The visit to Indianapolis allowed me to try new experiences	2.94	96	2.97	114	3.09	22	2.84	32
Nightlife and night entertainment in Indianapolis are generally very good	2.60	87	2.90	104	2.24	17	2.82	28
I liked the choices of restaurants in the area	**3.05+**	102	2.97	118	**3.18+**	22	**2.65***	31
Indianapolis has very good arts and culture attractions	3.00	85	3.00	106	3.29	21	3.03	29
I found people that I interacted with to be generally friendly in Indianapolis	3.50	103	3.46	103	3.73	22	3.35	34
Accommodations in Indianapolis are poor	3.14	100	3.04	114	3.00	20	3.06	32
I feel safe and secure in the Indianapolis area	**3.45+**	103	**3.55+**	122	**3.55+**	22	**3.12***	33
The cost of accommodation has been reasonable	**2.40***	103	2.59	116	2.41	22	**2.84+**	32
I think the city of Indianapolis maintains high standards of hygiene and cleanliness	3.44	102	3.53	123	3.55	22	3.28	32
Transportation services within Indianapolis are adequate	3.01	91	2.77	115	2.73	22	2.94	32
I consider Indianapolis an entertaining destination	**3.02+**	98	2.86	118	**3.19+**	21	**2.67***	30
There is a lack of things to do and see in Indianapolis	2.95	91	2.54	116	3.05	20	2.68	31
Getting to Indianapolis by air is difficult	2.71	56	2.57	111	3.00	22	2.58	31
I found the tourist information I needed for the city rather easily	3.11	96	3.10	115	3.05	22	2.94	32

Indicates that the mean of the item for the country or region in question is significantly different from one or more of the means of the other regions/countries.
+Signals that that mean is greater at a statistically significant level than the one marked with an asterisk.
-Signals that that mean is smaller at a statistically significant level than the one marked with an asterisk.
NB: Since one mean can differ from several other means at different levels of statistical significance, the exact level of difference (significance) is only mentioned in the text above.

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UNDERSTANDING LANDSCAPE CHANGE IN OPEN SPACE NEIGHBORHOODS: VIEWS FROM DEVELOPERS AND RESIDENTS

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Abstract: The landscape is changing across the country, particularly in outlying areas of US cities. These fringe areas, often called exurbia, continue to move further from the city core. Their growth is largely created by new residential, commercial ,and industrial development. Dramatic land use and land cover changes in these areas from agricultural or forested to buildings and paved surface areas will continue, unless some efforts are made to preserve unique natural resources and portions of the original landscape. The research reported here shares results of a study investigating: (1) residential developers' desired land characteristics for neighborhoods and their views and concerns about their developments which include open space and recreation features and (2) residents' interest in open space, natural features in their lot and neighborhood, and recreation facilities. The benefits residents receive from open space and natural features are also explored.

Introduction

Concern has been growing about metropolitan areas and development occurring far from the central city core. At the same time, rural or vacation areas, far from metropolitan areas, are also developing at a rapid pace. Gobster, Haight and Shriner (2000) point out that "contemporary patterns of land ownership and development are changing the landscape of urban, suburban and rural areas (p. 9)". This development surge has serious implications for social, environment, and economic well being. The Landscape Change Integrated Research and Development Program of the USDA Forest Service, North Central Research Stations, seeks to better understand actual and projected landscape change by examining causes, effects and strategies that can mitigate some of the negative impacts of rapid land use (Gobster et al., 2000). Specifically, development in urban-suburban sprawl zones and second home development are types of development featured in the landscape change agenda.

Nelson (1992) has defined exurbia as land use between the suburbs and rural areas where commuting into a city for employment is not feasible. It includes farms, forests, isolated suburban subdivisions, small towns, acreage tract subdivisions, and estates. According to Nelson, exurbia is increasing for a number of reasons.) These reasons are improved technology, deconcentration of employment and rise of suburban industrial parks, rural location preferences of US households, and policies that favor (or allow) low density over high density residential development. Studies that have examined large metropolitan areas such as Portland and the state of Oregon (Kline and Alig, 1999) show that land use planning programs are working in some instances (more development occurring in urban areas), however development in rural areas is not necessarily diminishing. Other studies (Varady, 1990) have examined how residential choices influence home location decisions for city or suburban environments. At a micro level, researchers are examining how certain residential settings are liked or disliked by residents. Kaplan (2001) studied apartment dwellers to understand preferences for built or natural elements in their viewshed, while Ryan (2002) examined built and natural elements of residential housing from the perspective of rural residents, including subdivision dwellers, and traditional rural dwellers.

Our study recognizes the dynamics of the changing landscape and the variety of factors contributing to the change. First is that residential development is changing the landscape beyond suburbia into exurbia and rural areas. Throughout the 1990s, residential developers and home builders "consumed" significant amounts of land. A second factor has been the growing interest in natural environments and other amenities associated with where people live. In addition to developers, this interest has been shown by new home buyers and local governments that set zoning laws, issue building permits, and build infrastructure. Another factor is the varying interest in and willingness to legislate smart growth initiatives by state and local governmental units. Finally, there is interest among some developers, home buyers, and local governments in supporting a "new" neighborhood concept called open space neighborhoods that seek to maintain and expand upon much of the original landscape.

Thus, the focus of this paper is on open space neighborhoods from the perspective of recent home buyers and residential developers. Although not discussed in this paper, two other stakeholder groups (township or local planning officials and locally involved environmentalists) were also queried.

Specifically, research questions examined for recent homebuyers were:
1. To what extent do home buyers' consider open space, natural features in their lot and neighborhood, and recreation facilities at the time of purchase?
2. What are residents' perceived benefits and costs of living in an area with some commonly owned open space?
3. Does living in an open space subdivision discourage second home ownership "in the north woods?"
Research questions for developers were:

4. What do developers' consider to be important land features for new residential neighborhoods?
5. What are developers' views and concerns about their development which includes open space and recreation features?

Methods

Two western fringe counties of the Detroit Metropolitan area were selected as the study area. Specifically, Livingston and Washtenaw Counties were studied because of their rapid population growth and extensive residential development, much of which has occurred in significant natural resource areas. The two counties both contain a major river corridor (the Huron River), several regional parks, several state recreation areas, and significant acres of forested private land. Importantly, these two counties are located along the urban/rural interface and are currently experiencing many of the signs of urban sprawl. One of these counties has the highest population growth rates reported in the state and the other county has also experienced significant growth. Over a 12-month period, data were gathered from four local developers who had recently completed several medium or large residential subdivisions in the study area and from eighty-five residents who lived in newer subdivisions which satisfied selection criteria. Residents were queried as part of focus groups which were held in homes in the subdivision, while developers were interviewed individually. Interview or focus group scripts were used and comments were transcribed and analyzed. Residents also completed a five-page self-administered questionnaire during the focus group which provided limited quantitative data.

Open space neighborhoods were operationalized as subdivisions that were created on land that had some level of wooded or unbuildable (e.g., wetlands, extreme slope) features, that preserved these areas for recreational use and/or enjoyment after the development was completed. Open space subdivisions tend to be found in townships that have created a special ordinance that allows more houses per buildable land as a trade for open space. Thus, these subdivisions have a higher density of buildable homes than subdivisions built under traditional zoning regulations.

Findings

The first research question examined whether or not recent home buyers thought about open space, natural features in their lot and neighborhood, and nearby recreation facilities at the time of purchase. Using comments from the focus group sessions, a typology of push and pull factors was created. While many open space residents didn't know the rationale of open space zoning for neighborhoods or the considerations of the developer, the features that open space communities provide were desirable to home buyers.

Lot and home purchasing often involved both push and pull factors. **Push factors** included typical urban flight reasons, such as the desire to leave conditions perceived as crowded or unsafe (Table 1). Suburban areas were sometimes mentioned as places that participants wanted o leave. Sometimes residents moved for job-related reasons. Some participants purchased a home because of job transfers from out-of-state. Other residents moved because they wanted a change in lifestyle after their children left home or after retirement. Additional push factors mentioned were escaping from commercial development, high prices of homes in built up areas (Ann Arbor), and searching for a safer place for children.

Insert table 1 about here

While push factors were evident in residential choices, pull factors were stronger influences on moves into or within Livingston and Washtenaw counties. **Pull factors** included the location, the developer and the specific development, the social setting, financial considerations, and the natural environment.

The location of the subdivision was an important factor to many participants in their decision to move. In Livingston and Washtenaw counties, location preferences were expressed in many ways including: wanting to be near the country or city, to be in a country-like setting, to be away from a highway, and to be in a growing community. *School districts* were often the first item mentioned, particularly by participants with school-aged children. Some parents judged schools by their "image" as a good school district, while others used test evaluation scores to judge excellence. Besides academics, some individuals also considered the proximity of the school to their home. For some individuals *access to transportation* was important. Even though Livingston and Washtenaw counties are at the edge of the metropolitan area, most participants viewed the counties as a "hub" and conveniently located to the cities of Detroit, Flint, Lansing, Jackson and Ann Arbor.

Many recent homebuyers mentioned that it was either the **developer** or some characteristic of the **development** that attracted them to move and buy into a specific neighborhood. The comments ranged from effective marketing techniques including the name of the subdivision, to the quality of the homes, the lot sizes, and the infrastructure including good roads. Many homeowners were attracted to the size of the lot and the design of the houses. Some sought a "large lot," while others were concerned that the combination of lot size and house size was a good value. Some residents also looked for variety in house designs. Sometimes this was accomplished by allowing several builders to build in the subdivision, and sometimes the developer/builder recognized the demand for custom homes. Residents also attached importance to roads and sidewalks. They liked curved streets, cul-de-sacs, and dead-ends, which made for slower traffic. Parents were particularly interested in safe environments where their children would not be subject to busy roads or visually noticeable passing traffic.

Many residents were concerned with the **social environment** in which they would like to live. Some participants were interested in returning either to an area similar to where they grew up or to the same place. They were interested in small communities and larger lots similar to what they had when they were children. For some couples, a fringe county represented a middle ground between the preferences of one spouse who grew up in a rural area and the other spouse who grew up in an urban setting.

Sense of community was also a factor in selecting open space communities. In one Livingston County township, open space neighborhoods have been the norm since an open space zoning ordinance was enacted in the early 1990s. In these subdivisions, the social opportunities were often a by-product of the open space areas because residents often met with in them while recreating or shared responsibility for maintaining them. Some focus group participants commented that they were seeking a place where they could enjoy "the camaraderie of the subdivision," and "the subdivision's friendly neighborhood feel." This was especially important for people with children.

Residents also expressed a desire to have *seclusion and privacy in selecting their place of residence.* Along with privacy and seclusion came quiet, calmness, and a sense of safety. For some, seclusion meant not living on busy streets while for others, it was living in a subdivision far from busy streets.

The dwelling is a major purchase for most households, and participants mentioned an assortment of **financial considerations** in their decision to move. House value was important when making the purchase decision. They sought homes they could afford, land that would appreciate, and premium lots with choice views or adjacent natural resources. Perceptions of what constituted value varied: some compared prices to similar homes in other areas where they had lived while others talked about other homes and subdivisions they had considered before making the final decision about where to buy.

Table 1 Key Factors in Household Decision to Purchase Homes and Lots

Push factors	Pull factors
Avoid urban areas	Location
Job change/ transfer	School districts
Lifestyle change	Access to transportation
Affordable housing	Developer and development factors
Safer for children	*Social environment*
	Return to childhood environments
	Sense of community and neighborhood
	Seclusion and privacy
	Financial factors
	Natural environment
	Recreation opportunities
	Desire to live in a rural area

The natural environment in residential areas was frequently mentioned when residents were asked why they purchased a home in a particular neighborhood. Both physical and psychological aspects of nature were attractions. Physical aspects of nature included topography and rolling terrain, trees, forested areas, open space, trails, wetlands, lakes, wildflowers, parks, golf courses, gardens, scenic drives, wild animals, horses, nature sounds, and open areas to allow sunlight. Some participants mentioned proximity to natural resources made living further away from urban areas more worthwhile. Also related to nature was the desire to provide a safe and natural setting for their children to play. *Recreation opportunities* within and near the subdivision were also considered when purchasing a home.

The second research question examined the perceived benefits and costs of living in a residential setting with commonly owned open space. The perceived benefits for homeowners of having natural resources and open lands available to them in their neighborhoods, on their properties, and nearby were wide ranging. Building on the work of Driver et al. (1991), responses have been categorized into groups: social, economic, psychological, environmental, and health (Table 2). Another type of benefit was added to capture the positive physical results of having natural resources and open lands in residential areas.

Social Benefits. The focus group data suggest that the social benefits from the presence of natural resources and shared open spaces included a strong sense of community and feelings of belonging. In several neighborhoods, property owners were responsible for maintaining shared open spaces. Often, designated workdays brought neighbors together to share in the common task cleanup and maintenance tasks. Natural and recreation areas also provided common space for people to meet and interact with each other. Pride in ownership of the shared spaces and a sense of stewardship also led to stronger feelings of attachment to the neighborhood and its commonly shared resources.

Table 2 Benefits Derived from Natural Resources Incorporated into Residential Housing

Social Benefits	Economic Benefits
Sense of community and stewardship - residents get together to take care of, neighborhood events, interaction between residents, friendliness, ownership	Appreciation of home - resources are value, added amenities that yield higher home values
Convenience - recreation and exercise near home	
Psychological Benefits	**Environmental Benefits**
Tranquility of being surrounded by nature - relaxing, therapeutic, less stress, calming, isolation	Habitat watching - preserved flora and fauna
	Environmental education for children
Feeling of being on vacation - every day in a vacation-like environment	
	Nature appreciation - proximity allows for more solid appreciation
Health Benefits	**Physical Benefits**
Open space provides opportunity for exercise recreationally within neighborhoods	Act as a buffer between homes and other land uses
	Privacy as trees provide a sense of distance from other houses

Economic Benefits. Participants felt that living in a neighborhood with natural resources and shared open spaces added value to their property. Several indicated that living in an open space neighborhood led to greater and more rapid appreciation of the value of their property.

Psychological Benefits. In half of the neighborhoods, participants talked about the tranquility, relaxation, and therapeutic benefits associated with the natural environment around them. The environment was free from stress, and many felt like they were in a vacation setting. In neighborhoods with golf courses and other open spaces, residents talked about the "wonder of seeing the early morning and evening skies" and "the dark skies and stars." Others talked about how calming and peaceful it was to "sit on their deck and enjoy the shade."

Environmental Benefits. By living in a natural setting, people gain a greater awareness and appreciation of nature, which in turn fostered a greater sense of environmental stewardship. Many said they were bird watchers and nature enthusiasts and liked living in natural surroundings. Participants talked about the presence of deer and other small forest animals, although some complained about the deer browsing in their gardens. Other residents spoke directly about the educational value of being surrounded by nature. Parents commented about having a natural science laboratory in their yards and in the neighborhood. The natural environment and other open spaces served to teach their children and, at the same time, offering them recreational opportunities.

Health Benefits. During the focus group sessions, residents regularly reported using nearby woods, the mini-parks, trails, golf courses and other open spaces. Engaging in various recreational pursuits, either alone or with family and friends, clearly offers a variety of social and psychological benefits. Although our participants did not explicitly discuss the physical health benefits associated with their walking, playing, or exercising in their neighborhoods, we believe that these benefits exist among many of the residents in a our sampled neighborhoods. It remains to be empirically tested whether those living in neighborhoods where there are abundant opportunities for both active and passive recreational activities are physically healthier than those individuals living in places where those opportunities do not exist.

Physical benefits: These include tree buffers between homes and other nearby development and land uses. One subdivision had a border of commonly owned woods on two sides of the neighborhood that screened both sight and sounds created by surrounding land uses. Residents of that neighborhood commented that this open space provides a peaceful environment to relax in. Residents in another neighborhood said the tree buffers help maintain quiet in the area. Physical benefits may also come in the sense of privacy. That is, trees shield residents from seeing other houses and yards in a neighborhood.

Disbenefits. Besides enjoyment and other benefits of having open space in the neighborhood, home owners also discussed problems or undesirable consequences of living in or near natural areas. These disbenefits can be categorized into distaste for some of the qualities of the natural areas and opposition to the cost of preserving and maintaining the natural areas. A common problem was unwanted habitat and vegetation. Some focus group participants had negative images of natural areas, particularly wetlands. For example, one participant said she sees "the wetland as a swamp." In one Livingston County neighborhood the residents said that there are many rabbits, raccoons, skunks and deer that eat landscaping and sometimes inhabit unfinished homes. Canada geese (and their droppings) were also considered a neighborhood problem in both Livingston and Washtenaw County golf

course communities. Mosquitoes were also seen as a problem that resulted from wetlands and un-mowed grassy areas. Residents also had concerns with trees and plants. Poison ivy was mentioned as a concern. Residents mentioned that trees can be messy which means they have to clean up after them and do not like the extra work. Others mentioned that trees can be frightening in storms and sometimes mature trees block a view.

Research question 3 examined whether living in an open space subdivision discouraged second home ownership "in the north woods." Nine focus group participants (approximately ten percent) owned a second home. Three previously owned a second home and are thinking of buying another in the future. Of the 52 individuals who have never owned a second home, seven individuals expressed interest in buying one while they are in their current primary home. About two-thirds of the participants who answered the second home questions have never owned a second home nor had plans to buying one (3).

Table 3 Second Home History of Households Studied

	No plans to purchase a second home while owning current home	Plans to purchase a second home	Totals
Never owned a second home	45	7	52
Have owned a second home, but not currently	7	3	10
Currently own a second home	7	2	9
Totals	59	12	71

The comments people made during the focus groups may perhaps be more interesting than the second home statistics. Those who did not own a second home did not because of time, money, and lack of interest. One person commented that they gave up the second home idea when they decided to buy in their subdivision because it would have been too much money. Another commented that they had "looked at lots up north, but taxes were too high." Individuals who lived on water felt that they did not need a second home because of their existing lakefront homes. Other residents of lakefront lots were still looking for other lakefront property in Livingston County. Residents of open space neighborhoods said that they had most of the amenities of second homes right in their own neighborhood. One participant said: "living here is like having a place up north." One person commented that "having a cottage made more sense when we lived in more crowded settings. Now, where you go (for a second house) is very similar to where you came from (home in an open space community)." This feeling that current neighborhoods provided close to an up-north experience affected more than second home purchases. A golfer commented that he used to play golf up north, but now Livingston County offers golf courses of equal quality in beautiful surroundings, so he does not take those trips anymore.

Many individuals commented that having a second home was more trouble than it was worth. Some focus group participants mentioned that they were subjected to social pressures to purchase a second home. One person said he "felt influenced by numerous friends who have second homes to buy one." In addition, a neighborhood with many second home owners hurts community interaction. A resident offered, "owning a second home breaks up community interaction, as residents are never around to participate in community events." Another commented that "society has changed how it recreates so much that it is hard to take kids away for a long time. They have organized activities that they can't leave so easily. [He said] people are more likely to rent a place than they are to own one."

Several residents discussed their plans to buy a second home. One person said she "has been thinking about getting a cabin up north... to be closer to nature." A fellow open space resident responded "even more than you are now?" Another resident commented "the only reason they would buy a vacation home is if they were not satisfied with the local lakes if they turn too shallow or mucky." They are currently satisfied with the local natural resources, but would look elsewhere if they were not.

The fourth and fifth research questions pertain to resident developers. Developers were asked to outline desired land features and also comment about concerns about open space and recreation features they were designing for in their open space subdivisions. In general, developers seek land that satisfies their business plans. One of the dominant criteria is whether land costs can be balanced with the price and marketability of homes. For instance, a residential developer calculates the cost per home site (i.e., land), then adds three to four times house value, and then considers the ability to sell that house/lot package. This criterion often prevents affordable housing in an area with quickly rising land costs. Another land criterion is whether

the land or area enables developers to build a subdivision that is a product-market match. This means will the land and corresponding subdivision fit the buying considerations of the consumer market. Some elements of this product-market match include city sewer and water (versus self-contained lot septic and well systems), school system reputation, and highway access. A third criteria considered by developers is the beauty or natural features of the land. Some developers showed greater interest in wooded areas, rolling hills, wetlands, and other nature features because they wanted to create a neighborhood that had some level of environmental sustainability or preservation. A final criteria and probably most important is whether the developer can build the number of houses needed to earn a return on their investment. Housing density is often the incentive for developers to create open space communities. A local area may only allow a minimum of one or two acre lots, however an open space ordinance may allow three-quarter acre lots (or less) with an allowance of land held in common ownership by the subdivision residents.

Developers showed concern for land use particularly on a local level (over regional or state-wide). Land use was frequently referred to as "the rules" that township planning departments imposed on developers. One developer commented "the development rules established by government are really the rules of the game that developers must follow. It is a very controlled process and developers are judged to be bad. Developers just follow local rules which are not always well-thought out." Related to rules, developers were concerned about townships that continue to exercise minimum lot sizes that reflect a rural philosophy. Developers expected these townships to think about the future and make appropriate zoning changes. Developers suggested that these townships think about maximum lot sizes (rather than minimum). They commented that large lot houses consume land which is one reason sprawl exists. The developers we interviewed enjoyed working in progressive townships that promoted open space subdivisions. Some of the developers were creating open space neighborhoods in townships where open space ordinances didn't yet exist. As for recreation features, developers showed some concern over residents cooperating to maintain or enhance open space areas. Cooperation often started with home owner associations and developers had different levels of concern over working with residents after a development was finished.

Conclusions and Implications

Open space subdivisions appear to be an alternative that some consumers' demand and developers are willing to build if appropriate incentives (e.g., a higher permissible density) are in place. Preserved natural features are one of many features that home buyers consider when purchasing lots and/or newly built homes. Furthermore, the benefits of living in a place with open space with natural features such as trees, rolling hills, and wetlands appear to outweigh any negative impacts or costs associated with living in such developments.

In summary, the positive impacts of open space neighborhoods include:

- Preservation - open space neighborhoods preserve original natural resources that otherwise might not be preserved. The cost of preservation is borne by the home buyers, as developers transfer land costs associated with common land to the homebuyers.
- Recreation - open space neighborhoods provide "community" recreation opportunities to its residents.
- Land use - In open space development higher densities result, however, not necessarily less land is being used.
- Rural and natural character is maintained – Open space designs can "camouflage" development by screening them from major thoroughfares and from neighboring developments

Some negative impacts of open space neighborhoods or future concerns were also identified in our research. These include:

- Stewardship and management – private landowners are being asked to "care" for a resource that they might not understand or be prepared to deal with.
- Future ownership – if subdivision associations did not want to take care of the resource –then what?
- Scale of land and resource preservation – open space neighborhoods can create fragmented resources unless a larger master plan that connects open spaces is in place.

Finally, continued research on residential development and stakeholders' interests is needed in a variety of contexts. Our research focused on progressive local initiatives, rather than regional or state initiatives and incentive programs. Future research questions might include: (1) understanding residents' level of knowledge of zoning and open space policies in their local area, and (2) examining residents' perceptions of who controls the land, the natural resources (e.g., lakes, wetlands, prairies), and open space decisions in their area.

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SKRAMMELLEGEPLADSEN: DENMARK'S FIRST ADVENTURE PLAY AREA

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Abstract: This paper reviews the philosophy of the adventure playground movement and particularly the goals of the original adventure playground, Skrammellegepladsen in Copenhagen, Denmark. We then present a case study investigation of the ways that Skrammellegepladsen is used, the perceptions of the users, and the extent that the play area embodies its original philosophy. The findings provide insights into the degree to which they meet children's needs with respect to child development and play theories.

Introduction

The critical period when a child begins to learn and develop occurs at a very young age. Years ago, people recognized the importance of play in a child's development progress. Childhood is used to discover, imagine, and develop numerous sensibilities that will enable children to grow into healthy, well-adjusted members of society. Play areas are specialized environments where principles and morals are taught away from adults and peers in the classroom or home. It seems only right that with the increase in population and changes in living conditions, we must thoughtfully compensate for the lack of space by providing free and safe areas for play to support children's social, physical, emotional and intellectual development.

This study evaluates the ways that an adventure play area is used, the perceptions of the users, the extent that the play area embodies its respective philosophies and the degree to which they meet children's needs with respect to child development and play theories

Creating play environments for children. The evolution of playgrounds in the United States can be traced back to the middle of the nineteenth century when Henry Barnard's *School Architecture* conceived the notion of free play occurring in a play yard (Brett, et al. 1993:18). The materials incorporated into this playground included separate rotary swings for boys and girls, building blocks, and movable carts to tote the wooden blocks away.

In Boston, during the 1860s an outdoor children's playground was set up that integrated sand gardens. At about the same time, Jacob Riis, a playground designer, established a "school-park" where the park would serve the needs of the children attending school as well as the surrounding community (Brett, et al. 1993:20). Allowing the "school-park" to be built from a school budget solved a critical funding problem.

A national "play movement" developed with the increase in urban playground establishments. "The purpose of the movement was to structure the play experience of American youth on well-equipped municipal playgrounds" (Brett, et al. 1993: 22). In addition, the "National Recreation Association in the 1900s developed guidelines for certain equipment for playgrounds like providing a sand box, swings, a small slide and a climber." These types of playgrounds began to appear as common and expected elements in the urban landscape. This became known as the traditional playground (Arnold 1996:1).

In the 1920s, "the construction of apartment buildings outside of Copenhagen's historic gates accelerated after World War I. New quasi-public social housing associations formed to house the workers of trade unions and payees to pension funds, and these associations developed many city blocks of three to five-story, walk-up apartments" (Bosselmann 1998:63). A social consciousness developed where children that grew up in these city blocks needed to have areas for recreation that were specifically designed for them. Consequently, Carl Theodore Sørensen, a Danish landscape architect, designed heightened sensory environments, insisting that children be provided with three specific landscape features: beaches, meadows, and forests.

After the construction of city buildings unexpectedly attracted children to their sites, the adventure playground concept was conceived (Mitchell 1980:4). Sørensen, along with the Workers' Co-operative Association first observed children playing on bombed war sites learning how to use the construction tools and the surrounding materials to build their own playground (Eriksen 1985:20). As a result of this observation he commented: "Maybe we could try to design a kind of junk playground in suitable and fairly large areas, where the children would be allowed to use old cars, cardboard boxes, branches and such. It is possible that supervision would be necessary, both to prevent the worst cases of disputes among the children and to lessen the possibilities of children getting hurt. Quite possibly such supervision would not be needed" (Bosselmann 1998:62).

Just as World War II started, Sørensen designed the first adventure playground. It provided the needed exploration, discovery, and challenge for children to manipulate their surrounding environment (Eriksen 1985:20). In particular, children constructed their own play spaces. The main concept associated with adventure playgrounds brings the elements of rural play to urbanized children (Rudolph 1974:50). Children needed to come in direct contact with and manipulate the elements of fire, earth, wind, and water, in order to learn about then. John Bertelsen, who was the first director of the playground in Copenhagen, believed that it was essential to provide a child with an opportunity that would link a physical and psychological environment for growth (Brett, et al. 1993:27). In addition, this movement towards adventure playgrounds provided not only physical but social constructions (Brett, et al. 1993:26).



Figure 1. The first adventure playground.

Perhaps the most important aspect of the adventure playground is the play leader. This individual listens to the children, replies to their needs, and lends a helpful hand (Rudolph 1974:43). They also "coordinate the materials and maintenance of the playground" (Eriksen 1985:26). For the most part, children will want to be left alone to accomplish their own goals and tasks, so the play leader does not interfere with the children's play but offers guidance and assurance. They also provide a shield from interference by other adults, as well as lending an aura of assurance.

Traditional playground designs in the United States have been dominant over time, though attempts have been made to bring the spirit of adventure playgrounds to urban children. "It is important to point out that the adventure playground concept that took shape [in Denmark] is still arguably the most significant playground innovation" (Brett 1993:23). However, Americans think otherwise when presented with certain aspects of this specialized play area. We tend to think that play is frivolous (Brett 1993:3). Besides, there are three other reasons as to why there is no strong support for adventure playgrounds. First, some say that the funds and training are not available to provide a play leader for the playground (Rudolph 1974:43). Second, Americans also do not believe that children would be safe playing with tools and construction materials. This is particularly odd in a country that prides itself on its independent and do-it-yourself sprit. Finally, one has to admit that the adventure playground is very unsightly (Eriksen 1985:26).

Methods

To cover all of the information needed for completing the case study, a number of different methods were employed. The methods used for collection of the data included observation, interviews with the pædagogs and children, and research on the history of Skrammellegepladsen. Prior to the beginning of the study, permission was granted to take photographs of the play area and children during their normal everyday activity.

Findings

The findings are loosely organized to describe (1) first impressions, (2) history and evolution of Skrammellegepladsen, (3) the users and their daily schedule, (4) the patterns of programmed and unprogrammed activity, and (5) user perceptions.

First impressions. Skrammellegepladsen is the original adventure play area in Denmark and has been in existence since 1943. It is located in the district of Emdrup, north of Copenhagen. Surrounded by apartment complexes on both sides as well as a school nearby. Riding past it at first because of the visual protection given by the vegetated berms, I knew that this was a protected environment for the children that played here. After introducing myself and receiving a tour of the facilities, notes were taken of the numerous opportunities that were being offered to the children. There is a construction area with a tool shed, a fire pit for cooking, small built houses for pretend play, gardens for harvesting food and flowers, a court for kickball or soccer, a basketball hoop, a hill for rolling down and sledding in the winter, a slide, a large grass area, paved areas for skateboarding and roller blading, and a main building that can accommodate all of the children at once in case of inclement weather. The opportunities to study this play area are endless. As well as being the most famous adventure play area in Denmark; it has everything that my study needs to be completed. The pædagogs are helpful and easily approachable, and Skrammellegepladsen has welcomed me with open arms.

History and evolution of Skrammellegepladsen. Sørensen's original concept for Skrammellegepladsen allowed for 65 meters from west to east and 82 meters in length from north to south. Dirt from the building excavation was piled up on all four sides to make 2-meter high dikes, or protective berms with a wire fence on top. On the outside of the fence, wild roses and hawthorns were planted to keep the children protected from the outside. There was only one entrance, as there is still today, in the northwest corner by the main building. Sørensen wanted the children to shape and create. "They can dream and imagine and make dreams and imagination reality, any rate

a reality, which the child's mind is completely satisfied with... It is so obvious that the children thrive here and feel well, they unfold and they live. Of all the things, I have contributed to realize, the junk playgrounds the ugliest, for me, however, it is the most beautiful and best of my works" (Sørensen 2).

Digging out holes underground and building houses on stilts were originally the main activityies. Over time, the play area began to change with the demands from the children. Alice, a pædagog at Skrammel, used to play here when she was a child in the late 1950s. Interviewing her felt like going back in time to a place when it seemed like children were allowed to do anything that they pleased. Their motto is: anything can be used for something and that nothing must go to waste. That motto rings true when looking at what the children used to play in and on. Old vehicles, trolley cars, boats and cement pipes were donated by surrounding residents and businesses.

On the play area, back in the 1960s, there were 35 individual 20 square meter building plots. Alongside each path was a ditch for the plant rubbish to be thrown, and every year the building would start on April 15th. When you were younger, you were only allowed to build a house down under the earth. You shoveled dirt and made a cubbyhole in the ground and covered it up with stones, dirt, and anything decorative that you wanted. As you got older, you were allowed to build a one-story house, and then you were able to build a two-story house. One year, Alice and a couple of her friends made a house on stilts! The children asked their parents for paint and furnishings, and when you did not want anything in your house anymore, you placed it outside to become someone's newfound treasure. Everyone used their imagination to design and personalize their home.

It seems unfortunate now that over time, that large construction area has dwindled down to a small area underneath some chestnut trees towards the south end of the playground. There is no longer a large sample of the boys that would like to build; the girls do not build any houses at all.

Back then, even as now, the children do not want to clean up their gardens and built houses. They are sort of sad to see it go, but they gain useful experiences that help their houses improve year after year.

Children are now offered programmed activities, such as participating in the production of a play. Alice's motivation for teaching theater to the children started when she was a child coming here. Agnete Vessereg, or Nitte, was a play leader who has become a legend at Skrammellegepladsen. Nitte could see that Alice was interested in gardening and theater so she helped to encourage her in those activities. Today, Alice is doing that same task for the children of Skrammel. You can say that she followed in Nitte's footsteps.

Users and their daily schedule. The daily use of Skrammel is very unlike an American playground. A Danish school day typically starts at 8 a.m. and ends between noon and one o'clock, depending on the class level. The younger children, ages 6 to 9, are walked from the school to Skrammel the first couple of weeks of school and from then on they are allowed to go independently. The older children, ages 10 to 14, can come and go as they please. Most of the children arrive at the play area close to one o'clock. They take off their coats or any outer clothing and hang them up in their own cubbyhole. Then they are free to do what they please, and there are so many activities to choose. When it gets close to closing time, the younger child's parent has to pick him up from inside the building and they are checked off as gone for the day. The older children have their own sheet to check in and to sign out when they leave. Skrammel's hours are from 7 a.m. when the parents can drop their children off for the pædagog to walk them to school, to 5 p.m. when every child must be picked up, Monday through Friday.

The length of stay was regularly the same from day to day. Between the hours of 8 a.m. and noon the pædagogs clean up the yard, have meetings, do individual errands, and take a chance to relax before the children arrive. It was usually very quiet until around one o'clock and then the play area would be full of running, screaming children everywhere. Towards four o'clock the noise would start to die down and you would have a couple of stragglers dragging their feet around the playground wasting time until their parent came to pick them up.

There are around 120 children total enrolled at Skrammellegepladsen, but not all of the children show up at one time. The children pay a modest monthly fee for being enrolled at the play area. On average, the number of users everyday at Skrammel comes close to 80 children who are distributed fairly evenly among age and gender groups. No children over the age of 14 are allowed to use the facilities. Once a teenager's birthday comes around, they know they must find another place to recreate, usually the local youth club. Some parents spend a little amount of time playing with their child on the playground, but this is discouraged since this is a child's environment to learn independence and self-confidence.

Pædagog's role. The role of the play leader, or pædagog, is very important to the children. They are there to supervise, encourage the act of play, and to provide motivation where it is needed. Out of the eleven play leaders, seven are educated as pædagogs. The schooling for becoming a pædagog includes three and a half to four years of specialized training. The first two years are devoted to studies in school and a period of 15 months is spent in apprenticeship at a playground. The other play leaders are assistants, or medhjælpers. There are also five students that are in the process or will be attending Pægogical School.

Pædagogs also facilitate meetings between the Parental Board as well as their own meetings to discuss any problems that are occurring or any improvements that can be made. Each pædagog is in charge of a certain area of the playground. These areas range from the Clubhouse

where the older children play pool and listen to music, the construction area outside where the younger boys build their castles, to inside the main building where young girls do arts and crafts. There is a comfortable relationship between the children and the play leaders. It is almost as if they are part of an extended family or a close adult friends.

Characteristics of users. The most important difference distinguishing users is their age. The younger children have their activities to tend to while the older children have different priorities and separate themselves from the younger ones. In fact, the younger children are not allowed in the Clubhouse unless they are invited. If they cause trouble, they are asked to leave.

The majority of the children come from similar family backgrounds and live in apartment complexes surrounding the play area. These children either walk or use bicycles, scooters, skateboards and roller blades as their means of transportation to the play area. The children that live farther away usually have a parent drive them.

Unprogrammed activities. The pattern of use was dependent upon the weather. In times of good weather the majority of the children were outside. The younger boys were constructing their castles or working in the shop. The older boys sometimes helped the younger ones building, or they played basketball, soccer, or PlayStation in the Clubhouse. The younger girls played in the built houses while the older girls tended to their gardens or just lay in the sun and hung out with their friends. Overall, it depended on the age group as to where the most intensity existed on a certain part of the playground. Towards the end of the study when it was getting to be colder, the majority of the activities moved inside. On October 3rd, the built houses were boarded up, the gardens were cleaned, and the castles made out of wood were torn down. The children will have the opportunity to start anew when the spring comes again, but the colder weather chases them inside where they sit in front of computer games, watch movies, or work on coloring books.

Over near the construction area, the younger boys hammer boards upright to make a wall, or add more layers of wood to a roof that was not quite sturdy enough. Rules are associated with building the castles. No child is allowed to use power tools. If the job called for that kind of power, then a pædagog will be called over to help. The four support posts must be in the ground at least half a meter. The roofs must be two boards thick, and if a play leader climbs up on top and it feels too unstable, the children are to keep building until it is safe enough. A group of boys usually get together and decide to build a house. However, if one house is stagnant for too long and takes up valuable wood planks that can be used on someone else's house, then that house is torn down. All of the built houses are taken apart for the winter, where they will be able to start all over in the spring. Tomas, one of the more talented builders, commented that he was not sad about tearing his house down, because in the spring he gets to build something completely different. The average time spent here was when the hobby shop opened around two in the afternoon until it closed around four in the afternoon.

The garden was where you would find children watering, weeding, eating their vegetables, and hiding out in the overgrown vegetation. Each individual gardener had the freedom to plant whatever their heart desired. Some grew vegetables such as corn, lettuce, radishes, tomatoes, beans, carrots, etc. Other gardens only grew edible flowers. The average time spent here was only the short amount of time that it took to do the gardening tasks. The rows of the garden are divided up into individual boxes so that each child has the same amount of harvesting space. The rows are even named after herbs: Rosemarinvej, Timianstien, Oreganoalle, Salvistræde, and Løvstikkevej.

The majority of the young girls used the built houses for fantasy play. The average time spent inside of a house was an hour or two. They would tend to the small gardens in from of their house, talk to their neighbors, and visit other girls down the "street". The soccer court and the basketball hoop near the entrance were very popular among the older boys where they spent an average of a couple of hours dribbling or trying to score a winning goal.

The hilltop is not really connected to the rest of the areas that I have mentioned above. Mainly, it was a place to hide from others, but also to spy and see what was happening down below. The vegetated burms were very useful for this advantage. There also existed a running trail through the overgrown vegetation along the top of the berm where children could exercise and run through the weeds.

Preogrammed events. There exists a question whether or not Skrammellegepladsen is programmed or unprogrammed space. Through my observations, Skrammellegepladsen has many regularly scheduled programmed activities. Some occurred weekly while others only once a year. However, the ordinary daily activities that occupy the children appeared to be unprogrammed.

The Skrammel Olympics took place during the second week of September where interested children previously registered for events like the long jump, basketball throw, and relay. The Olympic celebration was held from Monday through Friday, one in the afternoon until three, and medals were awarded on Friday to everyone that participated. Special medals were handed out to the record holders.



Figure 2. A built house and garden with their "caretaker".



Figure 3. Baking day, then and now.

Cake and Bread Baking Day were held on Fridays. It was a special treat that the children looked forward to every week. The play leaders made cake and would provide it for the children. Fresh dough was wrapped around long wooden poles to hold over the hot coals waiting in the fire pit. When the dough was baked, the children had a play leader pull off the bread so they could squirt jam or chocolate down inside for a treat. On Friday's you could find as many as thirty children sitting around the fire pit, staying warm from the cold, socializing with each other, singing, or just baking bread for their friends.

Numerous activities are sponsored for the older children, such as dances and socialization events. They are provided with snacks and they usually play games such as pool or PlayStation, and dance to their music. Towards Christmas time, they begin to make gifts for family members out of recycled materials.

Sommerfest is by far the biggest event of the year. In early August, hundreds of family members and relatives are invited to celebrate the warm weather by coming together to socialize, spend time with their children in the play area, and partake in the activities such as selling candy, which raises money for Skrammel.

When it's too cold and rainy to play outside, Alice, a pædagog starts to organize the theater. Every year, scripts are handed out, costumes and scenery are handmade, and families join together once again to watch their children perform an original theatrical production.

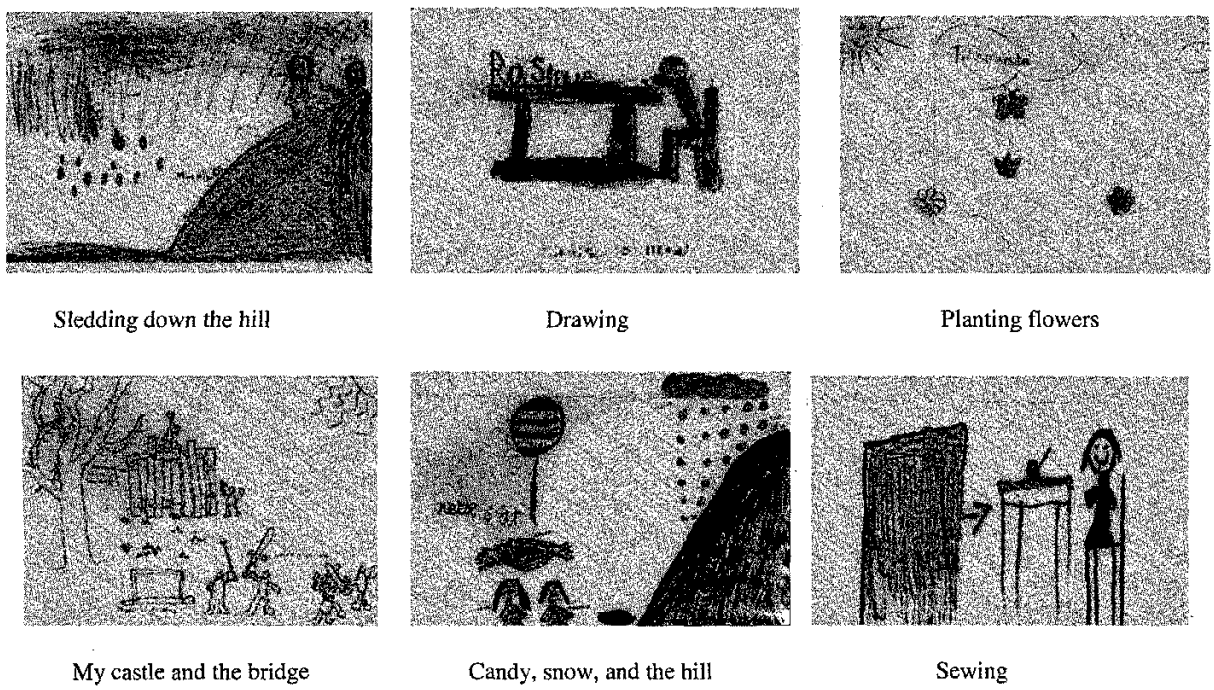
Types of play. Skrammel provides opportunities for very diverse types of play (Rubin 1982). When the young girls play "house," it is socio-dramatic play. Building the castles and later tearing them down is an example of constructive play. Running through the grass and on the trail, sliding, rolling down the hill, and climbing in the trees are examples of functional play. Numerous games with rules were observed such as soccer, kickball, basketball, badminton, sword fighting and tag. Witnessing all of the different types of play in a single designed children's environment proved successful to me that children were being stimulated to heighten their development.

Perceptions of users. When the children were asked what their favorite activity was at Skrammel, I received a variety of answers associated with different age groups and genders. The younger boys, ages 6 to 9 enjoy sword fighting, building the wooden castles, and playing

computer games. When asked what their least favorite thing was about the playground, they had no answer. When asked if they would change anything, I received a no. The older boys, aged 10 to 14 enjoy playing in the Clubhouse, using the PlayStation, and hanging out with friends. Sports like soccer, basketball, and skateboarding also topped their list. They would not want to change anything at Skrammel. The younger girls, ages 6 to 9, enjoy being loud, sewing, playing in their houses, cooking and coloring. The younger girls had opinions about what they did not like and what they would change. Some girls did not like cleaning up the gardens once the colder weather set in. Another did not like the feeling of being trapped in Skrammel. Since she's younger, she has to stay until her parents pick her up. The older girls, aged 10 to 14, mostly like to hang out with friends, talk, and chase the boys around. What would they change? One girl, Christel said the play area was very disorganized, "You just can't find things when you need them."

The children said that Skrammel was fun because their friends were here. After asking each child some preliminary questions, safety concerns were introduced into the conversation. Every child responded that they felt safe in the playground because the pædagogs are comforting towards the children and they were their friends as well. The children feel comfortable in this environment or else they would not keep coming here to play.

Several children drew me pictures of their favorite activities at Skrammellegepladsen and some of them are reproduced in figure 4.



Sledding down the hill | Drawing | Planting flowers

My castle and the bridge | Candy, snow, and the hill | Sewing

Figure 4. Illustrations of six children's favorite activities at Skrammellegepladsen.

Conclusions

Summary of findings. The main objective of this case study was to understand the concept and philosophy of an adventure play area. By understanding who the users are, their activity patterns and perceptions, the success of the design and whether Skrammellegepladsen is still representative of this theory that originated more than sixty years ago can be assessed. The users are 120 children divided almost equally by gender and age that come together every day to socialize in a free play, safe environment and successfully develop into respectable citizens of society. Their patterns of activity range from their personal preferences to the programmed activities sponsored by Skrammel. The users' awareness is that of pride and happiness over spending their time at their play area. It is a small community that has turned into a family. In evaluating the success of the design in terms of meeting the children's needs, Skrammel accurately understands what children need to develop and grow. For over sixty years, the original concept and philosophical application of bringing rural play to urbanized children has brought joy to hundreds of children that are now grown up that bring their own children to play here as they did years ago.

Future Research. Some possible suggestions for future research related to this topic include why the adventure playground concept has still not taken hold in America's schoolyards and after school programs. Are we not a nation that preaches independence and self-sufficient behavior? Why then do we protect our children with rubberized and coated playground equipment that limits every ability that they possess?

Another topic whether the adventure playground concept could be adapted successfully to our standards of appropriate play areas. Is it even possible to make adventure play areas a mainstream option for American children?

Acknowledgements
Our gratitude is given to the pædagogs and children of Skrammellegepladsen who accepted me with open arms into their playground. Special thanks are also due to Jens Balsby Nielsen from The Royal Veterinary and Agricultural University in Copenhagen for his guidance.

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Featured Posters

EXPLORING QUALITY STANDARDS FOR NEW RIVER GORGE CLIMBING SITES: ESTABLISHING A BASELINE FOR THE FUTURE

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Abstract: The New River Gorge National River has become a major destination for sport climbers in the eastern U.S. A new climbing management plan is being developed for the site. This study examined the satisfaction levels of climbers with some of the easily managed facilities at climbing sites and looked at attributes of the social setting preferred by climbers. Climbers at the NRG were found to place a low level of importance on most recreation site facilities and believed that the National Park Service performed well in providing these facilities. The climbers in the sample were also very tolerant of social behavior and crowds at the climbing sites unless those crowds increased the wait for access to a climbing route.

Introduction

The New River Gorge National River (NRG) has become recognized as one of the premier rock climbing sites in the eastern United States. Use of the NRG's climbing areas has grown significantly over the past ten years. The actual amount of increased use is impossible to measure, as the National Park Service has not and does not register climbers or require any type of permit for climbing. Anecdotal accounts by experienced local climbers have estimated as much as a tenfold increase in climbing use in the past ten years. In response to rapidly increasing use by climbers, the NPS is in the process of establishing a Climbing Management Plan for the NRG. Climbing management plans typically address a variety of site management issues, including such factors as biological impacts on cliff ecosystems, impact on cultural or heritage resources, economic and commercial impact and visitor satisfaction. This study focuses on visitor satisfaction and represents an initial effort to obtain a representative sample of climber information in the NRG. The measures of climber satisfaction from this study may be in the future used to examine the efficacy of the new climbing management plan.

Sampling Methods

Data collection began on July 1st, 2001. On-site sampling took place between July 1st and November 1st at randomly selected climbing sites within the NRG. Researchers made contact with 204 climbers or climbing parties yielding 163 surveys (a 79% response rate). An additional 100 surveys were distributed as mail-back surveys through local climbing shops and climbing organizations. A total of 44 mail-back surveys were returned (44% response rate).

Problems and Limitations

This study began on July 1st, 2001. During the month of July, the New River Gorge area was hit by a series of torrential downpours (as much as 11 inches of rain in 4 hours in one case) that caused extensive flooding throughout the region. Many of the roads and all of the trails within the New River Gorge National River were closed. Some of these roads and trails were not repaired and reopened for a matter of months. This natural catastrophe impacted our survey process, limiting access to climbing sites for both climbers and researchers. We believe that the flooding and trail closures had an impact on the characteristics of the sample.

Sample Characteristics

A total of 207 valid responses were collected (N = 207). The sample consisted of 136 males, 59 females and 12 respondents who failed to answer this item. The mean age of the climbers was 30.08 years (SD = 8.6) with a range of 16 to 53 years.

The respondents were primarily participating with small groups; 77.4% of the respondents were with parties of less than four people while only 3.7% of the respondents were with groups of seven people or more. The sample was very evenly divided between local climbers and visitors; 52.2% of the respondents had traveled two hours or less to climb at the NRG while 47.8% had traveled more than two hours to the site. Respondent's stay at the NRG ranged from Day Trips (34.5%), 2-3 Days (36.6%) 4-5 Days (5.7%) to More Than 5 Days (23.2%). The trip on which they were surveyed was the first trip to the NRG for 32.7% of the respondents, while 67.3% of the sample had climbed at the area previously. The respondents mean expenditure for a trip to the NRG was $79.03 (Range = 0 to $1000.00, SD = $119.26) Only 6.8% of the respondents were with a formally organized group. Climber characteristics were comparable with earlier research at this site by Attarian (1999).

Climbing Characteristics

A majority of respondents (40.7%) considered themselves to be Advanced climbers, 25.5% considered themselves to be Intermediate climbers and 33.8% rated themselves as Beginners. The sample mean for years of climbing experience was 7.68 years, with a range from 0 years of experience to 30 years of experience. Top Rope protection systems were used by 32% of respondents, Permanent Bolts/Anchors were used by 7.9%, 23.2% Placed Protection while Climbing, 22.2% Used More than One of the above systems and 14.3% Did Not Know what kind of system they were using. A majority of the sample (80.6%) were climbing independently, while 19.4% of the respondents were climbing with a local guide or outfitter on the day they were surveyed. In addition, 19% of the respondents reported that they considered themselves to be a leader of their group, while 79.9% did not consider themselves to be leaders.

Results – Importance Performance Analysis

A set of importance-performance questions were included in the survey to reflect features common to many types of outdoor recreation sites. These features included such

items as parking, availability of restrooms, litter control, trail quality and visitor center. In addition the respondents were asked to rate importance and performance of the fixed bolts and anchors at the NRG climbing sites.

Additional analysis was conducted on the Permanent Bolts and Anchors item. Climbers who identified themselves as advanced climbers placed a lower level of importance on the item and rated the performance of the NPS in managing the item higher than did climbers who described themselves as beginners. Climbers who rated themselves as intermediates were very similar in their answers on this item to those who described themselves as advanced (See Table One).

Table 1. Ratings of Permanent Bolts/Anchors Importance and Performance by Skill Level

	Beg.	Inter	Adv
Importance of Permanent Bolts/Anchors	4.753	3.807	3.638
NPS Performance with Permanent Bolts/Anchors	3.865	4.846	4.756

Results – Social Factors

Respondents were asked to rate a series of social factors on the potential of these factors to impact their climbing experience. Because these items contained some factors that were transient in nature and less susceptible to management efforts, a separate analysis was performed on these factors.

A majority of respondents (60.6%) reported that these social interference factors had no effect on their climbing experience on their current trip. Among the 39.4% who did report one or more of the social factors affecting their experience, "waiting to climb" or "waiting for large groups" were the most frequently cited factors. Asked to rate their perception of Crowding at NRG climbing sites on a seven-point scale (1- Not Crowded; 7- Most Crowded), the sample's mean score was 3.95 (SD = 1.77).

Table 2. Social Interference Factors at Climbing Sites

Item	Mean Score	SD
Litter	4.729	2.16
Noise	3.792	2.20
Rowdy Behavior by Other Climbers	4.264	1.99
Observable Use of Alcohol	4.087	2.11
Waiting to Climb	5.048	1.84
Waiting for Big Groups	5.169	2.07

(Mean Scores based on a seven point Likert Scale with "1" representing the least perceived interference and "7" representing the most perceived interference.)

Conclusions

The New River Gorge climbers who responded to our survey placed a low level of importance on most of the amenities of the climbing sites. The performance of the National Park Service in providing basic facilities and site management met or exceeded the expectations of respondents.

The climbers in this survey also demonstrated a low level of concern with most social interference factors; noise, rowdy behavior and alcohol use were not issues of major concern to most of the respondents. This finding is similar to previous findings regarding the preferences of climbers (Hollenhorst, 1987; Merrill and Graefe 1997). Respondents were more concerned with large groups and waiting to climb popular routes. These factors seem to have a more direct impact on the preferred experience of the climbers. Although waiting and large groups were the most commonly experienced interference factors, the climbers that we surveyed indicated that they had met approximately the number of other users they had expected and that crowding at the climbing sites was not perceived as a major problem. We assume that this apparent contradiction is caused by the popularity or accessibility of specific routes.

Public input processes based on public meetings have traditionally drawn participants who are highly involved in the issue under study. The findings of this survey provide feedback from a wider cross-section of NRG climbers than those who have participated in public forums related to the new climbing management plan. This study indicates that the majority of climbing site users are quite satisfied with the management of these factors.

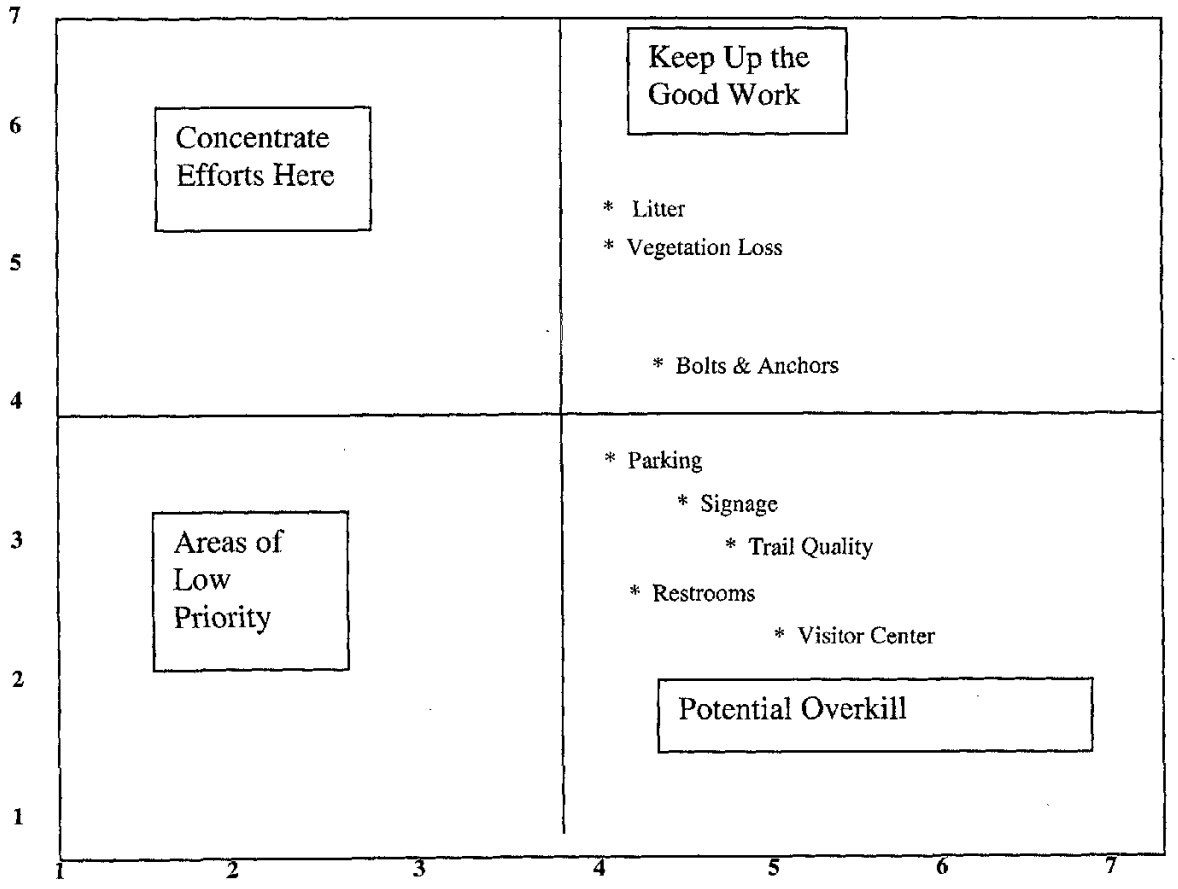
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Figure 1. Importance Performance Analysis



UNDERSTANDING THE LEISURE CONSTRAINTS OF HISPANIC-AMERICANS IN NORTHERN VIRGINIA: AN EXPLORATORY ANALYSIS OF CONSTRAINTS, SOCIOECONOMIC STATUS AND ACCULTURATION

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Abstract: The purpose of this study is to investigate the constraints to use of outdoor recreation resources and participation in leisure activities among Hispanic restaurant workers in Northern Virginia; specifically, the relationship of socioeconomic status and acculturation to leisure constraints. The dramatic rate of increase of Hispanic-Americans, the group's low socioeconomic status, and reports on low recreation participation and resource use illustrate the need for a better understanding of this population segment and their patterns of recreation participation. This paper includes a brief review of pertinent theory, and the results of analyses together with their implications for recreation service providers.

Introduction

The purpose of this study is to investigate the constraints to use of outdoor recreation resources and participation in leisure activities among Hispanic restaurant workers in Northern Virginia; specifically, the relationship of leisure constraints to socioeconomic status and acculturation. The study is based, in part, on the theories of Acculturation and Ethnic Assimilation, and the Marginality hypothesis. The United States was built upon the diversity of its population. During the industrial revolution, immigrants flooded into the country in pursuit of religious freedom, land ownership, and a better way of life. They labored in poor work environments for little pay, long hours, and rarely did they consider recreation among their necessities. This pattern of immigration has carried well into the 21st century. At the top of the poverty class is the growing Latin American[1] population. In 2000, 28.4 million foreign born people resided in the United States, representing 10.4 percent of the total U.S. population. Among the foreign born, 51 percent were born in Latin America (Lollock, 2001). In 1999, 22.8 percent of Hispanics in the U.S. were living in poverty, compared with 7.7 percent of non-Hispanic Whites. Hispanics represented 12 percent of the total population but constituted 23.1 percent of the population living in poverty (Therrien & Ramirez, 2000). The definition of leisure experience and delivery of recreation and leisure services has been profoundly altered by the burgeoning lower class Hispanic population in America. Classically, Hispanics view themselves as an integral part of the natural world/landscape. Floyd and Gramann (1993) note that this view has influenced their selection of leisure activities such as picnicking, soccer, volleyball, softball, and family outings. However, while struggling through what Gordon (1964) calls "cultural assimilation,"[2] newly immigrated Hispanics attempt to first gain political, civil, economic, and social integration. Through this process, the cultural importance of leisure and recreation is severely diminished or often lost, as financial well-being and the elimination of communication barriers precede them on the hierarchy of needs.

Much of the leisure research focusing on the issue of ethnicity can be traced to the works of Washburne (1978) and Gordon (1964). Gordon's ethnic assimilation theory has served as the predominant conceptual model regarding leisure and ethnicity. Keefe and Padilla (1987:18) defined the concept of assimilation as the "social, economic, and political integration of an ethnic minority group into mainstream society." Gordon divided the process of ethnic assimilation into seven subprocesses: acculturation, or behavioral assimilation; structural assimilation, or access to societal institutions; amalgamation, or marital assimilation; identificational assimilation; attitude receptional assimilation, or the absence of discrimination; and civic assimilation, or the absence of value and power conflicts. Shaull and Gramann (1998) referenced Gordon's theory to examine patterns of Anglo-conformity in perceived recreation benefits, and to look for deviations in these patterns that perhaps suggest selective acculturation. In other words, the ethnic minority group does not alter all of its cultural patterns to conform to those of mainstream North American society. In McLemore's (1991) "melting-pot metaphor", an outgrowth of Gordon's work, both the host and the immigrant culture change, whereas in "cultural pluralism", ethnic differences are maintained and encouraged within a single political framework. According to Washburne (1978) there are two explanations as to why minority groups and whites are divergent in their leisure pursuits. The marginality hypothesis, the first of these theories, states that minority status is a causal factor in explaining under-participation among minority groups. This under-participatory characteristic of minority populations results primarily from limited economic resources, which in turn are a function of historical patterns of discrimination. Minorities may have limited access to

[1] In this paper, Latin Americans are defined as residents of the U.S. with ancestral ties to Spain. These include Mexican Americans, Central Americans, Puerto Ricans, and other sub-groups of South American decent. This word is used interchangeably with Hispanics, Latinos, and Hispanic Americans.

[2] Cultural Assimilation is defined as "the social, economic, and political integration of an ethnic minority group into mainstream society" (Keefe & Padilla, 1987).

resources, thus affecting lifestyle, life-chances, and participation in many forms of recreation. The ethnicity hypothesis states that cultural processes including value systems, norms, and socialization patterns, are more important in studying the under-participation among minority groups.

Applying the work of Washburne, Stamps and Stamps (1985) hypothesized that middle class persons irrespective of race should have similar participation patterns, and Floyd, McGuire, Noe, and Shinew (1994) found that blacks and whites that define themselves similarly in terms of social class would exhibit similar leisure activity preferences. The multiple hierarchy stratification perspective developed by Markides, Liang, and Jackson (1990), specified that philosophy, race, gender and social class be viewed as potential sources of inequality. The author's defined the low end of the stratification continuum as consisting of minorities, individuals of low social class, females and older adults; upper or middle class members, middle-aged (or younger), white males were at the higher end of the continuum. The multiple hierarchy stratification perspective served as the theoretical framework for a study by Arnold and Shinew (1998), where administrators examined constraints to urban park use as effected by gender, race, and level of income. In large part, constraints to leisure, and behavior among ethnic/racial minority groups have been regarded as two distinct domains. Stodolska (1998) identified the fallacies in studying the leisure of minorities with any degree of effectiveness without understanding the constraints that these groups face. Carr and Williams (1993) examined the influences of ancestral, generational, and acculturational differences on meanings and preferences related to outdoor recreation experiences and forest use. Floyd and Gramann (1993) studied the effects of acculturation levels on participation in outdoor settings. They studied first and second generational Mexican-Americans. Based on the ethnic assimilation theory, they found that the greater the level of acculturation or primary structural assimilation, the more similar Mexican-Americans were to Anglo-Americans. According to Gordon (1964), cultural behavior, access to resources, and marriage are important factors in determining the level of acculturation, which in turn affect the level of participation. Washburne (1978) issued a reminder that certain segments of the population, including immigrants have been distanced from access to resources.

Methods

Participants in this study were selected from the population of self-defined Hispanic-Americans employed at restaurants in Northern Virginia. This particular area was selected because of its proximity to and ease of access by the researcher, and its representative concentration of Hispanics (Table 1) (Therrien & Ramirez, 2000). Among restaurant employees in Northern Virginia, there is an unusually high percent of newly immigrated Hispanics, and the salary paid is generally well below the County median income. It is for these reasons that this specific sub-population was selected.

Table 1. Comparison of Total and Percent Hispanic Population by Geographic Region, 2000

	Total Population	Total Population of Hispanics	Hispanics as Percent of Total Population
United States	281,421,906	35,177,738	12.5%
Virginia (VA)	7,078,515	332,690	4.7%
Northern VA	1,609,614	179,155	11.1%
Arlington County	189,453	35,238	18.6%
Fairfax County	969,749	106,672	11.0%
Loudoun County	169,599	10,006	5.9%
Prince William County	280,813	27,239	9.7%

It is necessary to note one key potential source of bias in this study – the restaurants (and employees) selected for assessment may not be representative in characteristic of the industry as a whole nationally or regionally. The restaurants selected were all in a relatively developed area – the majority of surrounding housing and businesses are new, a sophisticated system of transportation is not yet available nor is low-income housing. In addition, the unemployment rate in this area is 2.3%, well below the national average, so that the types of jobs (e.g., number, variety, level) that are available to the Hispanic population may be greater than in other areas. This results in low income workers often moving quickly to higher paying jobs, which indirectly inflates entry-level salaries in order to lure employees. However, workers living in local housing tend to work more than one job, have multiple earners within the family, and work a greater number of hours to pay for the higher cost of living.

The survey was administered between 2:00 – 6:00 p.m., typically the least busy hours in most restaurants. This was to ensure that everyone, both day and evening workers, would complete the survey. The questionnaire was distributed on a Friday, in that workers who only work during the day are present until 3:00 p.m.; workers who only work on the weeknights or weekends arrive at 4:00 p.m.. Those who were on vacation, had taken sick leave or had been suspended from employment were hand delivered

the questionnaires when they returned to work. Although the survey instrument and cover letter had been translated into Spanish, several individuals chose to meet with the researcher to clarify questions.

The survey instrument comprised four sections, with a total of 27 questions. The choice and formatting of each question reflected the need to address the issues surrounding leisure constraints with this particular subset of the population. The first section solicited demographic information on study participants (i.e., gender, education level, marital status, number of children, annual household income, race and ethnicity, and country of origin). Gender, level of education, and number of children have previously been found to contribute to cultural assimilation levels which in turn affect recreational use and benefits (Arnold & Shinew, 1998; Shaull & Gramann, 1998). The second section of the survey instrument was designed to gain an understanding of the work patterns of respondents (i.e., current employment outside of the home, number of jobs held), in an attempt to relate these patterns to structural or perceived leisure constraints. Questions in the third section of the survey sought information regarding respondent perceptions about the time and distance to outdoor recreation opportunities, and use of various transportation modes. Specifically, respondents were asked a series of questions regarding the distance to local parks, availability of transportation services, and their willingness to utilize them if they exist. The fourth and final section of the survey instrument was designed to assess cultural assimilation. Participants were asked the degree to which they preferred and used English over Spanish. English and Spanish comprehension was measured by asking respondents to report their ability to comprehend, speak and read in that language. Additionally, participants were asked their abilities with regard to command of the English language and actual use of English and Spanish in the home (including while reading, watching television, and talking with friends and family).

Results and Implications

The results of this study indicate that there are specific barriers to recreation experienced by recent Hispanic immigrants that are indicative of their level of acculturation, and not necessarily their race affiliation. Differences in the ability of this group to communicate, travel, and integrate into an established society are compounded by minority status. The majority of non-skilled Hispanic workers surveyed defined their personal leisure constraints as communication barriers, monetary limitations, time limitations due to work commitments (specifically holding multiple jobs), and transportation limitations. Language barriers among recent immigrants tended to be the greatest constraint to recreational participation among those surveyed. In order to obtain greater access to resources, Hispanic–Americans must first obtain a measure of control over the English language, or have pertinent materials translated. Language education in the US for working age immigrants is very expensive. Respondents reported that on average, they paid $180 per month for English as a Second Language courses. The added expense of linguistic training leaves this population group financially burdened. The potential for community outreach and language training programs is great. Many of the survey participants reported that they currently work multiple jobs. In fact, some participants work at least three jobs – in total, over sixty hours per week. Multiple employments are in large part the result of minimal pay scales for this population segment (Therrien & Ramirez, 2000). With the high cost of living in the Northern Virginia area, immigrant populations are forced to work multiple jobs in order to afford basic life necessities. Many also reported having several young children living in their households. The combination of these factors appears to contribute to a lack of discretionary time for leisure pursuits. A willingness on the part of service providers to remain flexible in service offerings – making accommodations for such needs as childcare and evening programming – is essential. Participants also noted that they carpool, walk, or use bicycles. This result reflects the high cost of automobile ownership, and the relative low-income status of these respondents. Without transportation services, access to recreation and leisure offerings is limited to those places within walking distance. These results indicate that mass transportation may be an effective tool for extending services to this population segment. The cumulative effect of these constraints appears to contribute to limited leisure experiences for newly immigrated Hispanic-Americans. Those surveyed noted an inability to acquire the income necessary to initiate and sustain recreational participation. For leisure service providers, this may justify the necessity for a sliding scale fee structure and "down time" offerings.

In an effort to gain a greater understanding of future users of recreational facilities and services, further research must be conducted to examine the dynamic growth of such population groups: their characteristics, culture and customs, and potential barriers to participation. It is incumbent on recreation providers to develop appropriate and desirable services to meet the needs of a rapidly changing and diverse population.

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ATTRIBUTES AFFECTING CAMPSITE SELECTION AT TWO TYPES OF CAMPGROUNDS IN THE ADIRONDACK PARK [1]

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Abstract: This study compared the important attributes affecting campers' decisions in selecting their preferred campsites at two different types of New York State Department of Environmental Conservation (NYSDEC) campgrounds in the Adirondack Park. Mail surveys were sent to campers using six NYSDEC campgrounds (three less-developed campgrounds and three more-developed campgrounds) in 2000. Of the 240 surveys mailed, 13 were undeliverable and 116 were returned (51.1% response rate). A weighted attribute approach (WAA) was conducted to better understand the relative importance of campsite attributes for Adirondack campers when selecting their preferred campsites. Among the 17 campsite attributes, four attributes had statistically significant differences in terms of importance between the respondents from less and more-developed campgrounds. The weighted importance of these attributes was evaluated using the importance-performance analysis (IPA) technique.

Introduction

Management of the recreation and tourism resources in New York State includes a complementary relationship between the public and private sectors. One of the major providers of public recreation opportunities in the state is the New York State Department of Environmental Conservation (NYSDEC). Approximately 47 NYSDEC campgrounds of various sizes and locations, including four campgrounds on islands with boat access only, are currently distributed in the Adirondack Forest Preserve. Some of the campsites at these 47 campgrounds are preferred by campers and have high annual visitation rates, while other campsites are not preferred by campers. There are specific characteristics of campsites that satisfy various types of campers.

From review of literature published during the past several decades, important attributes affecting campers' decisions to select their preferred campsites were identified: distance between campsites for privacy; amount of vegetation for shade and screening; vegetative barriers; visibility of ponds, lakes and rivers from the site; accessibility to water from the site; campsite level ground; use levels and crowding; level of campground and campsite development; and other factors (Clark et al. 1971, Heberlein and Dunwiddie 1979, Foster and Jackson 1979, Bumgardner et al.1988, Brunson and Shelby 1990, 1991). Site selection behavior can affect camper use pattern and campsite popularity. Heberlein and Dunwiddie (1979) found that site preference was based on the structural needs of camping parties, such as size, activities and cooking methods. They also found that some campers were likely to camp in sight of each other while experienced campers tended to select sites further from the nearest visible site and further from all occupied sites than inexperienced campers.

In addition to the behavioral and psychological factors influencing campers' satisfaction, campsite design-related aspects, such as campers' perceptions of distance and vegetative screening between campsites were observed by researchers as important. Foster and Jackson (1979) identified variations in satisfaction and quality of experience as a necessary step in planning for the allocation and design of campground facilities. They found the effect of campground design on satisfaction was influenced significantly by campers' perceptions of distance and screening between their campsites. Development levels of campgrounds can influence the perception of important campsite attributes by campers (Clark et al. 1971). Bumgardner et al. (1988) affirmed that lake visibility emerged as the most important factor in campsite selection at undeveloped campgrounds while facilities and utilities were important in campsite selection at developed campgrounds.

The purpose of this exploratory study was two fold. One objective was to investigate the important attributes affecting campsite selection and satisfaction among Adirondack campers at NYSDEC campgrounds, and the other objective was to compare the campsite attributes at two different types of campgrounds. The results of this study were used to develop a subsequent survey using a conjoint analysis that measured the most important campsite attributes and their preferred levels to develop an Adirondack camper campsite-selection decision-making model.

Methods

Six campgrounds located in the southeastern area of the Adirondack Park were chosen to represent the range of development in NYSDEC campgrounds. Three were less-developed campgrounds (Crown Point, Paradox Lake, and Putnam Pond) while the other three were more-developed campgrounds (Rogers Rock, Hearthstone Point, and Luzerne). The campgrounds were classified based on camping fee, number of campsites, facilities and activities available, and geographic locations (table 1) (NYSDEC 2001a, NYSDEC 2001b, Hartman 1996). Registered

[1] *In* Schuster, Rudolph (editor), Proceedings of the 2002 Northeastern Recreation Research Symposium. Gen. Tech. Report NE (in press). Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station.

Table 1. Classification of six NYSDEC campgrounds selected as the locations to study campsite selection attributes used by campers in 2000.

Level of development	Campground	Basic fee	Number of campsite	Facilities & activities available [a]	Geographic location
Less-development campgrounds	Putnam Pond	$10	72	Hiking/nature trail Boat/canoe rentals available	Putnam Pond
	Paradox Lake	$12	58	Hiking/nature trail Boat/canoe rentals available	Paradox Lake
	Crown Point	$12	66		Lake Champlain
	Rogers Rock	$16	332	Boat mooring buoy reservation available	Lake George
	Hearthstone Point	$16	251		Lake George
More-developed campgrounds	Luzerne	$16	174	Hiking/nature trail Recreational program Environmental interpretation Boat/canoe rentals available Horse trailers allowed	Fourth Lake

[a] Swimming, trailer dumping and showers are available at all campgrounds; playgrounds are available at all campgrounds except Crown Point; and boat launch is available at all campgrounds except Hearthstone Point.

campers were sent a mail survey and asked to identify important campsite attributes affecting their decision-making when selecting preferred campsites, and to rate the importance and their satisfaction with campsite attributes in 2000.

A simple random sampling technique was used to select a survey mailing list from 2000 camper registration cards with the help of NYSDEC staff. A total of 240 Adirondack campers were sent mail surveys in the year 2000 with 40 campers from each of six campgrounds. A modified Dillman mail survey technique (Salant and Dillman 1994) was used with up to two reminders being sent to non-respondents of the first mailing to ensure a high return rate.

Data was entered and all statistical tests were conducted using the Statistical Package for the Social Sciences (SPSS version 10.0 for windows). Survey questionnaires were analyzed using a weighted attribute approach (Carroll and Johnson 1990, Dawson and Buerger 1993) and an importance-performance analysis (Martilla and James 1997). A weighted attribute approach (WAA) for both the less and more-developed campgrounds was conducted to better understand the important attributes of the Adirondack campers' decision-making when selecting their preferred campsites. An importance-performance analysis (IPA) was conducted to develop an understanding of the inter relationship between important attributes and satisfaction (i.e., performance) among the Adirondack campers. T-test statistics were used to compare the means of the attributes of the two types of different campgrounds in order to check if there is any significant difference between the respondents from the two types of campgrounds.

Adirondack campers were asked to compare the relative importance of 17 attributes in their campsite-selection decision-making process. First, the 17 attributes were classified into seven categories based on their conceptual similarities. Then, the campers were instructed to distribute a total of 70 points across the seven categories depending on how important the features or attributes were to the campers when selecting their ideal campsites:

STEP 1

*Please assign a total of **70 POINTS** in the following 7 categories.*

_____ pts. **CROWDING is relatively low around the campsite**
...there are few other campers near my campsite...the distance between
campsites is adequate for privacy...other campers do not make noise near
my campsite
_____ pts. (continue through all seventh categories)

Second, the campers were instructed to distribute a sub-total of certain points across the attributes within each of seven categories (e.g., if a category has four attributes, a sub-total of points is 40) depending on how important the attributes are to the campers when selecting their ideal campsites. For example, the category above (a crowding-related concept category) can be assigned 30 sub-total points as follows:

STEP 2

*Please assign a total of **30 POINTS** to the following three campsite attributes.*

Category: CROWDING is relatively low around the campsite
_____ pts. There are few other campers near my campsite
_____ pts. The distance between campsites is adequate for privacy
_____ pts. Other campers do not make noise near my campsite

The points for each attribute were calculated as follows:

$P_{attribute} = P_{category} * (P_{attribute\text{-}in\text{-}category} / P_{sub\text{-}total\text{-}of\text{-}category})$

$P_{attribute}$: Points for each attribute.

$P_{category}$: Points for each category out of the total 70 points (from Step 1).

$P_{attribute\text{-}in\text{-}category}$: Points for each attribute out of the sub-total points for that category (from Step 2).

$P_{sub\text{-}total\text{-}of\text{-}category}$: Sub-total points available for that category.

For example, the points for the attribute "there are few other campers near my campsite", were calculated for one respondent by the points they assigned to the "crowding-related concept category" (e.g., 25) multiplied by the points of that attribute (e.g., 8) out of the sub-total points of that category (e.g., 30). The resulting calculation is: 6.65=25*(8/30)

Study Results

Of the 240 campers that were sent surveys, 13 were undeliverable and 116 were returned (51.1% response rate).

The average importance rankings of the 17 attributes for the less and more-developed campgrounds are shown in Table 2 with differences in importance between the two types of campgrounds (i.e., average scores of the less-developed campgrounds minus those of the more-developed campgrounds). In addition, the total rankings for both types of campgrounds are combined in order of importance. According to the results of the WAA, "amount of vegetation around campsite for shade and screening" is the most important attribute, "reasonable camping fee" is the next most important, followed by "access to the lake, pond, or river from the campsite " (table 2). The top five important attributes of the less-developed campgrounds are the same group as those of the more-developed campgrounds. The next five important attributes of the less developed campgrounds are grouped the same as those of the more developed campgrounds; similarly, the remaining seven important attributes are ranked in the same grouping.

The important campsite attributes of both types of campgrounds were reported similarly by respondents. However, four of the 17 attributes had statistically significant differences in terms of mean importance between the two types of campgrounds (i.e., t-test of means using separate variance estimate and a 2-tailed probability with $p<0.05$): "amount of vegetation around campsite for shade and screening", "distance between campsites for privacy", "availability of other facilities", and "availability of boat-launching near the campsite" (table 2).

Table 2. The average weighted importance reported by respondents for 17 campsite attributes for less-developed and more-developed campgrounds and attribute rank order.

Attributes	Less developed campgrounds[a]	More developed campgrounds[a]	Average difference (L-M)	Total rank order
Amount of vegetation around campsite for shade and screening	10.0	8.1	1.9[b]	1
Reasonable camping fee	8.2	9.0	-0.8	2
Accessibility to the lake, pond, or river from the campsite	5.6	6.6	-1.0	3
Visibility of the lake, pond, or river from the campsite	5.9	4.6	1.2	4
Distance between campsites for privacy	5.1	6.3	-1.2[b]	5
Level ground in the campsites	4.1	4.2	-0.1	6
Other campers' noise near my campsites	4.7	3.8	0.9	7
Few other campers near my campsite	4.1	4.0	0.1	8
Availability of other facilities (hot shower, flush toilet, trailer dump, etc)	3.1	4.1	-1.0[b]	9
Toilet located in nearby campsites	3.1	3.6	-0.5	10
Convenient location and good condition of fire-place	2.8	2.9	-0.1	11
Campsite size for accommodating larger camping equipment	2.5	3.1	-0.6	12
Availability of other recreational activities nearby (swimming, hiking, volleyball, etc)	2.5	3.1	-0.6	13
Availability of boat-launching near the campsite	2.8	1.4	1.4[b]	14
Campground roads to easily access the campsite	2.3	2.7	-0.4	15
Availability of hookup for water or electricity on campsite	1.4	1.9	-0.5	16
Availability of boat-rental near the campsite	1.1	0.9	0.2	17

[a] Numbers are the mean values of importance points for the attributes from a total of 70 points.

[b] T-test of means with a significant difference at $p<0.05$.

Table 3. The average weighted satisfaction reported by respondents for 15 campsite attributes for less-developed and more-developed campgrounds.

Attributes	Less developed campgrounds[a]	More developed campgrounds[a]	Average difference (L-M)
Reasonable camping fee	1.4	1.3	0.1
Toilet located near campsite	1.3	1.1	0.2
Level ground in the campsite	1.3	1.0	0.3
Lake accessibility from the campsite	1.2	1.1	0.1
Distance between campsites for privacy	1.3	0.9	0.4[b]
Availability of other facilities (hot shower, flush toilet, trailer dump, etc)	1.3	0.9	0.4[b]
Amount of vegetation around campsite for shade and screening	1.1	1.1	0.0
Campground roads to easily access the campsite	1.1	1.1	0.0
Availability of other recreational activities nearby (hiking, etc)	1.2	1.0	0.1
Campsite size for accommodating larger camping equipment	1.1	1.0	0.1
No crowding around campsite	1.1	0.9	0.2
Location near family or friends	0.9	0.9	0.0
Availability of boat-launching & rental	1.0	0.7	0.3
Visibility of the lake from the campsite	0.7	0.6	0.1
Availability of hookup on campsite	0.3	0.3	0.0

[a] The numbers shown in the table are the mean values of performance score ratings for the attributes from -2 = very dissatisfied to 0 = neutral to 2 = very satisfied.

[b] T-test of means with a significant difference at $p<0.05$.

The Adirondack campers were also asked to rate their satisfaction with 15 attributes from their trip in the year 2000 using a five-point Likert scale: (-2) very dissatisfied; (-1) dissatisfied; (0) neutral; (1) satisfied; and (2) very satisfied. For the list of satisfaction attributes, two items were combined (availability of boat launching and boat rental near the campsite) from the importance list of attributes and two attributes were dropped (other campers' noise near my campsite and convenient location and good condition of the fireplace or fire ring). Additionally, one new attribute was added (location of this campsite near family and friends).

The average satisfaction ratings by respondents for the 15 attributes are shown in Table 3. Two of the 15 attributes had statistically significant differences between mean satisfaction ratings from respondents using the less and more-developed campgrounds (i.e., t-test of means using separate variance estimates and a 2-tailed probability with $p<0.05$): "distance between campsites for privacy", and "availability of other facilities".

In order to visually analyze the importance of campsite selection attributes and their satisfaction ratings, an importance- satisfaction graph was plotted since overall satisfaction in outdoor recreation is a function of visitor importance and satisfaction levels with specific aspects of the recreational experience. The importance and satisfaction means for each attribute are plotted on a four-quadrant grid. The y-axis of the grid represents the importance scale and the x-axis represents the satisfaction scale. Each quadrant of the grid represents a particular management action. The four quadrants are classified as "Concentrate Here" (high importance, low satisfaction), "Keep up the Good Work" (high importance, high satisfaction), "Low Priority" (low importance, low satisfaction), and "Possible Overkill" (low importance, high satisfaction). The location of the attribute on the grid provides managers with a basis for future management decisions. The axes for this study were placed at the grand mean of all importance and satisfaction means as a central reference point (i.e., actual management objectives with target results are more helpful in actual management situations). A drawback of using the grand mean of means in the analysis is that attributes often fall on or very near the axes, and determining which quadrant they should be considered part of must be made on a situational basis. Based on the location of the campsite selection attributes in the IPA chart and the importance-satisfaction quadrants, results can be used to suggest management actions.

The importance ratings of the 14 important attributes (table 2) are graphed in Figures 1 and 2 with the campers' ratings of their satisfaction (table 3). The importance attributes used in Figure 1 and 2 were based on the results of WAA that distributed a total of 70 points among the 17 attributes (table 2). Only 14 attributes appear in the IPA analysis because several attributes did not have either an importance or a satisfaction measure (see previous discussion) and were dropped from further analysis. The IPA results of the two types of campgrounds were a little different from each other. The IPA graph of the less developed campgrounds

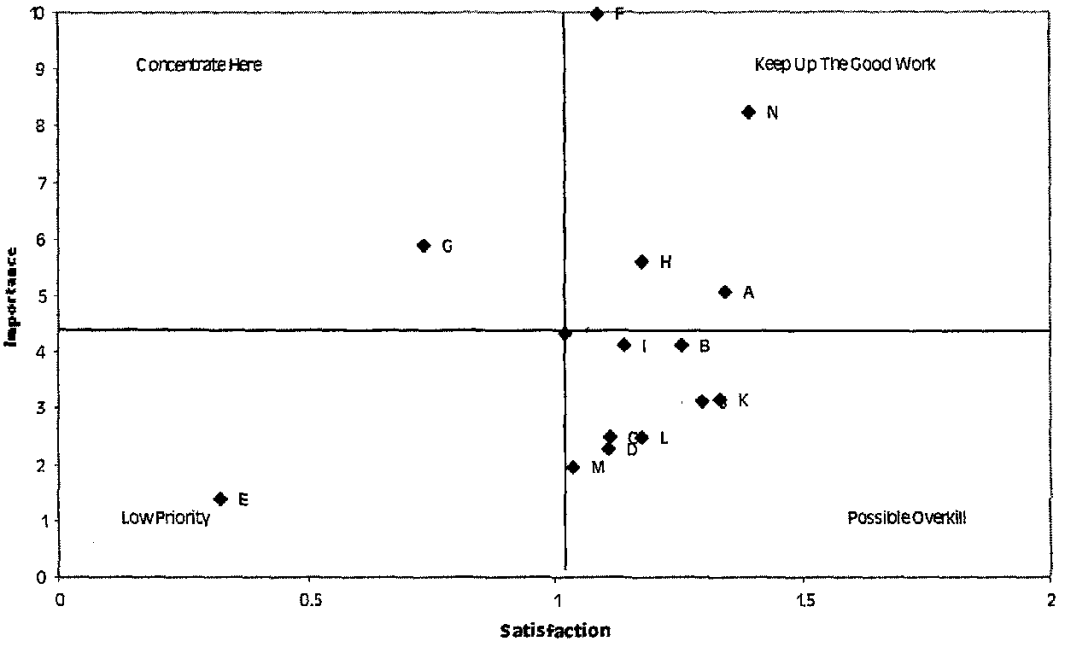


Figure 1 Importance-Satisfaction graph of 14 campsite selection attributes for the less-developed campgrounds in 2000

Legend for Figure 1

A	Distance between campsites for privacy	**H**	Access to the lake, pond, or river from the campsite
B	Level ground in the campsite	**I**	No crowding in nearby campsite
C	Campsite size for accommodating larger camping equipment	**J**	Toilet located near campsite
D	Campground roads to easily access the campsite	**K**	Availability of other facilities (hot shower, flush toilet, trailer dump, etc)
E	Availability of hookup on campsite	**L**	Availability of other recreational activities nearby (hiking, etc)
F	Amount of vegetation around campsite for shade and screening	**M**	Availability of boat launching & rental
G	Visibility of the lake, pond, or river from the campsite	**N**	Reasonable camping fee

shows one attribute (*visibility of the lake, pond or river* from the campsite) falling into the "Concentrate Here" quadrant indicating that the less-developed campground users consider this attribute very important for camping campgrounds, two attributes (distance between campsites for privacy; and *visibility* of the lake, pond or river from the campsite) fall into the "Concentrate Here" quadrant (figure 2).

In the IPA graph of the less-developed campgrounds, four attributes (distance between campsites for privacy; amount of vegetation around campsite for shade and screening; access to the lake, pond, or river from the campsite; and reasonable camping fee) fall into the "Keep Up The Good Work" quadrant indicating that the less-developed campground users consider these attributes very important and highly satisfying (figure 1). In the case of the more-developed campgrounds, three attributes (*amount of vegetation around campsite* for shade and screening; access to the lake, pond, or river from the campsite; and reasonable camping fee) fall into this quadrant (figure 2).

In the IPA graph of the less-developed campgrounds, one attribute (availability of hookup on campsite) falls into the "Low Priority" quadrant indicating that the less-developed campground users do not consider this attribute very important nor highly satisfying for their camping experience and, thus, should not receive high priority for management (figure 1). In contrast, the IPA graph of the more-developed campground shows seven attributes (level ground in the campsite; campsite size for accommodating larger camping equipment; availability of hookup on campsite; no crowding in nearby campsite; availability of other facilities; availability of other recreational activity nearby; and availability of boat-launching and rental) falling into this quadrant (figure 2).

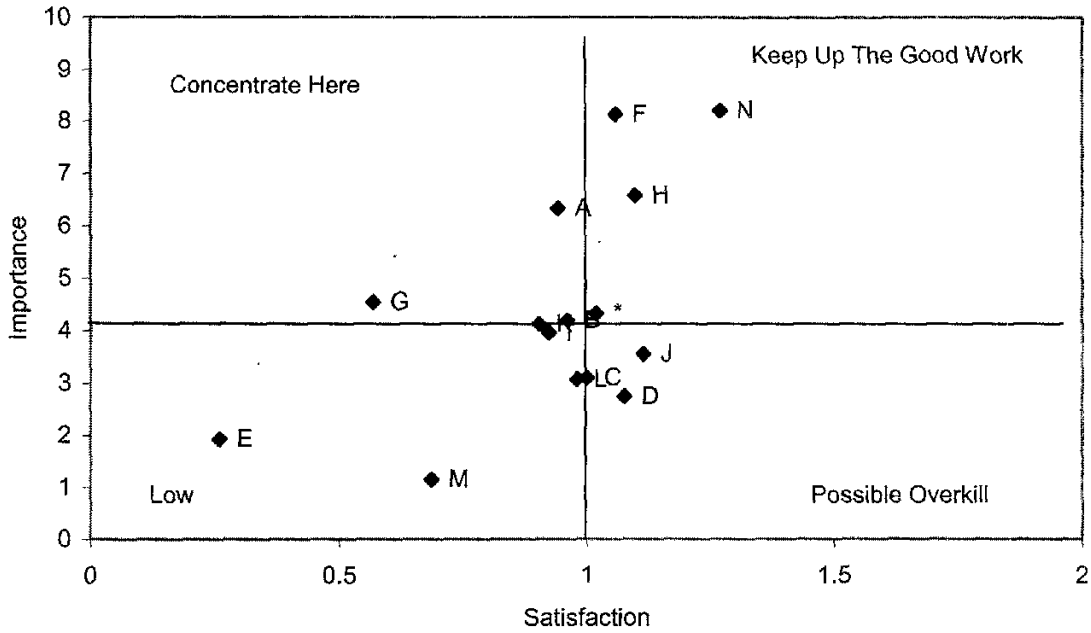


Figure 2. Importance- Satisfaction graph of 14 campsite selection attributes for the more-developed campgrounds

Legend for Figure 2

A Distance between campsites for privacy

B Level ground in the campsite

C Campsite size for accommodating larger camping equipment

D Campground roads to easily access the campsite

E Availability of hookup on campsite

F Amount of vegetation around campsite for shade and screening

G Visibility of the lake, pond, or river from the campsite

H Access to the lake, pond, or river from the campsite

I No crowding in nearby campsite

J Toilet located near campsite

K Availability of other facilities (hot shower, flush toilet, trailer dump, etc)

L Availability of other recreational activities nearby (hiking, etc)

M Availability of boat launching & rental

N Reasonable camping fee

In the IPA graph of the less-developed campgrounds, eight attributes (level ground; campsite size; campground roads; no crowding in nearby campsite; toilet location; availability of other facilities; availability of other recreational activities nearby; and availability of boat-launching and rental) fall into the "Possible Overkill" quadrant indicating the less-developed campground users do not consider these attributes to be as important while the campers are very satisfied with them (figure 1). The IPA graph of the more-developed campgrounds, in contrast, shows two attributes (campground roads; and toilet location) in this quadrant (figure 2)

Discussion

Among the four attributes that had statistically significant difference in importance between the respondents from the less and more-developed campgrounds, two attributes were ranked highly compared to the others: (1) respondents from less developed campgrounds placed more importance on the amount of vegetation around campsite for shade and screening than did others (ranked 1 overall); and (2) respondents from more developed campgrounds placed more importance on the distance between campsites for privacy than did others (ranked 5 overall) (table 2).

The respondents from less-developed campgrounds regard amount of vegetation around campsite for shade and screening more important than the more-developed campground users and this attribute is located near the "Concentrate here" quadrant indicating that respondents consider this attribute very important, but not highly satisfying (Figure 1). This suggests that managers of the less-developed campgrounds may need to re-evaluate the amount of vegetation maintained around the campsites.

The respondents from more-developed campgrounds consider the distance between campsites for privacy more important than the less-developed campground users and highly satisfying)(figure 2). This response may be due to the situation that more-developed campgrounds have relatively more campsites and that may, in turn, cause campers to perceive more crowding and less physical or psychological space from their campsite neighbors than the less-developed campgrounds. Respondents using the more-developed campgrounds reported another crowding-related attribute "no crowding in nearby campsite" to be located near the "Concentrate here" quadrant (figure 2) while respondents from the less-developed campgrounds reported it near the "Keep Up The Good Work" quadrant (figure 1). Managers of the more developed campgrounds may need to consider more physical space between adjacent campsites (Hultsman et al. 1998, Cooper 1992).

One attribute (visibility of the lake, pond, or river from the campsite) was reported by respondents from both the less and more-developed campgrounds as within the "Concentrate here" quadrant (figure 1 and 2). Managers need to consider this result in campground design and management as the visibility of ponds, lakes and rivers to campers is an important attribute to their satisfaction. Overall, the results of this study show that four campsite attributes (visibility of the lake, pond, or river from the campsite; distance between campsites for privacy; amount of vegetation around campsite for shade and screening; no crowding in nearby campsite) are of concern to campers and should be further study to investigate how important and satisfied campground customers are with their experiences. This study formed the basis for a more in-depth investigation in 2001 to identify and measure the types of trade-off decisions made by campers at NYSDEC campgrounds in the Adirondack Park. The 2001 study will use a conjoint analysis technique in a mail survey with verbal and visual approaches to describing the campsite attributes (Green and Srinivasan 1978).

Most of the campsite attributes surveyed in this study in 2000 were reported to be very important and highly satisfying by the respondents. In addition, overall respondents in this study within the Adirondack Park were satisfied or very satisfied with the facilities and conditions they experienced in the year 2000. Overall, our study results indicate that the NYSDEC staff, as well as the volunteers, served the campers well at the six campgrounds studied in the summer of 2000.

Acknowledgement

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BRIDGING RACE AND GENDER DIVIDES IN FOREST RECREATION

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Abstract: Today, state and federal resource management agencies struggle with the need to build constituent bases among the growing minority populations. In light of that fact, the Becoming an Outdoors-Woman (BOW)® program did a two-year study to look at ways to involve more minority women in its workshops. A national conference was held to examine barriers to participation by minority women in outdoor recreation and develop strategies for overcoming those barriers. The lessons from that conference led to the testing of two pilot concepts.

Introduction

Men and women represent roughly the same proportion of the total population. Yet, it has long been recognized that the number of women involved in outdoor recreation activities is disproportionately lower than the number of men. For example, a 1996 U.S. Fish and Wildlife Service survey concluded that only 13 percent of males and just one percent of females over age 16 in the U.S. population had hunted that year. Of the 35.2 million anglers identified by the study, 73 percent were males and 27 percent were females (U.S.D.I. Fish and Wildlife Service, 1996). Family commitments, lack of partners, lack of transportation, and not knowing where to go to participate all have been identified as factors limiting the participation of women in outdoor recreation experiences (Henderson, et al., 1988).

Research shows that, unless an individual is introduced to hunting and fishing as a child, he or she is unlikely to participate in those activities as an adult (O'Leary et al., 1987). Women are less likely to have received such training as children than their male counterparts (Rusch, 1986). Participants at a 1990 conference entitled "Breaking Down Barriers to Participation of Women in Angling and Hunting" (called Barriers 1) identified 21 barriers to the participation of women in such activities. Fourteen of those barriers were related to the lack of educational opportunities for women. As a result of Barriers 1, Dr. Christine Thomas of the University of Wisconsin – Stevens Point, in conjunction with several others, began a program of outdoor skills workshops for women called Becoming an Outdoors-Woman (BOW)®. Weekend-long BOW workshops are designed to be offered in cooperation with fish and wildlife agencies and organizations. Participants in these workshops can receive training in a variety of different areas including shooting sports, hunting, fishing and non-harvest outdoor skills. From its inception, the BOW program has met with tremendous success. In the year 2000, more than 100 BOW, and spin-off "Beyond BOW", programs were offered in 46 states and seven Canadian provinces, serving almost 10,000 women. The BOW program has a wide array of corporate, organization, and agency sponsors and is endorsed by the International Association of Fish and Wildlife Agencies. Yet, despite its success in reaching out to women in general, it was recognized that ethnic minorities were underrepresented in the constituency of the BOW program. Only 6-7% of BOW participants were from ethnic groups.

Involving Minorities

In an attempt to involve larger numbers of minority participants in Becoming an Outdoors-Woman, program coordinators identified minority recruitment as a top priority of the BOW program. Grants were developed to initiate research at the College of Natural Resources, University of Wisconsin Stevens – Point, to identify barriers to minority participation, develop strategies to overcome those barriers, and test those strategies.

To assess barriers and identify strategies, a conference was held in Green Bay, Wisconsin, in October 1999. Patterned after the conference that had launched the BOW program a decade before (Barriers 1), "Introducing Women of Color and Low-Income to Natural Resource-Based Recreation: Barriers and Strategies" (Barriers 2) brought together 33 people from 11 different states. One-third of the participants were from ethnic groups.
Numerous barriers to minority participation were identified, most of which carried two central themes. First, "I didn't think you meant me." In other words, because of where and how BOW programs were promoted, and because of the appearance of promotional materials, people in the ethnic populations did not believe they were "invited". Second, "There is nobody here who looks like me." In other words, when minority participants do attend programs, they would feel more welcome if other participants or instructors were from their cultural groups.

Four strategies were developed to address the thematic barriers that had been identified: Diversify Publicity and Promotional Materials; Issue Specific Invitations; Create Role Models; and Target a State or Federal Agency. The first two strategies were designed to address the "they don't mean me" question. Promotional materials, web pages, and news releases were modified to be more culturally inclusive. In cooperation with BOW partners at Texas Parks and Wildlife (TPW), an attempt was made to provide a one-day

BOW program in the largely Hispanic community of San Antonio, Texas. TPW staff designed brochures that featured women of color, spoke to local groups, and advertised in venues in the Hispanic community. These efforts were not successful in attracting a sufficient number of participants to offer a program. However, they provided new insights that might be used to modify the approach in a subsequent program offering.

To address the strategy of creating role models, in cooperation with the Missouri Department of Conservation, BOW hosted an instructor training session aimed at recruiting minority instructors for Becoming an Outdoors-Woman programs. Three African-American women and four African-American men participated in this program. They will be active role models in future BOW programs in Missouri and surrounding states. The messages: "They do mean me," and "Others do look like me," even the instructors.

The fourth strategy of targeting a state or federal resource management agency for BOW programming was based on two premises. First, these agencies tend to have significant minority workforces, due to their adherence to affirmative action policies, thus providing the target audience. Second, since these agencies often serve constituencies interested in natural resource-related recreation, their employees would benefit from experiencing such activities to broaden their understanding of the people they serve. BOW representatives took the idea to the USDA Forest Service Regional Office in Milwaukee, Wisconsin. They presented the concept to the Regional Forester and his administrative staff. With their administrative support, a presentation was made to Regional Office personnel, inviting them to participate in a one-day BOW workshop, sponsored by their employer, that would be offered during the work-week as a professional development session. As would be anticipated, this was the most successful program, ever, in attracting minority participants to a Becoming an Outdoors-Woman event. Most importantly, in a post-participation survey, a significant majority of the participants rated the program as a very positive experience, expressing a high degree of interest in participating in future programs.

Conclusions

The lessons learned from these activities can be applied to a variety of future efforts to make recreational programming more culturally inclusive. Of greatest importance are promotional materials and efforts that are obviously inclusive, "inviting" participation of minorities and "meaning" it, and including culturally diverse role models and fellow participants. We must understand that the first steps in reaching these new constituents will require intensive effort and successes will be "measured". But, modest early successes have the potential to grow exponentially as a critical mass is developed. For many public agencies and private enterprises involved in outdoor recreation, whose "traditional" constituencies are declining, these new constituents may prove to be a very important group.

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AN EXAMINATION OF VARIABLES DISTINGUISHING ACCREDITED FROM NONACCREDITED RECREATION, PARK RESOURCES AND LEISURE SERVICES PROGRAMS

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Abstract
Accreditation by the NRPA/AALR Council on Accreditation assures that recreation, park resources and leisure services programs meet the minimum standards for training professional leisure services providers in the U. S. The purpose of this research is to identify variables that distinguish NRPA/AALR accredited from nonaccredited recreation, park resources and leisure services programs to shed additional light on accreditation. The study identified size of full-time faculty and the number of full-time students as the two variables that distinguish accredited from nonaccredited recreation, park resources and leisure services programs. Suggestions are provided that may assist smaller programs to attain accredited status.

Introduction

Reactions about the effects of accreditation in higher education are mixed. On one hand, accreditation has been criticized for being meaningless and lacking vigor or being too rigorous and promoting conformity at the expense of innovation (Levine, 1978) and, on the other hand, praised as a means for improving the quality of higher education, the quality of specific academic programs, or both (Berdahl, 1989). Regardless of whether an individual is a proponent or opponent of accreditation, generalizing the accreditation process is difficult because there is not a simple link between what different accrediting bodies require (Ewell, 1993).

The accreditation of baccalaureate recreation, park resources, and leisure services programs was formalized in 1977 when the National Recreation and Park Association/American Association of Leisure and Recreation (NRPA/AALR) sponsored Council on Accreditation (COA) granted the first accredited program status to North Carolina State University (Neipoth, 1998). Since 1977 the number of accredited baccalaureate recreation, park resources, and leisure services programs has steadily increased. Currently, the NRPA/AALR COA accredits over 100 programs in the United States and Canada (NRPA, 2002).

According to the COA accreditation serves the public by promoting and maintaining professional preparation standards while simultaneously serving a baccalaureate program with (a) assistance in the development of appropriate goals for ensuring quality professional preparation, (b) ensuring continual program self-study for development and improvement, and (c) encouraging innovation and experimentation (NRPA, 2000).

The process for receiving accreditation for a recreation, park resources, and leisure services program is described in the NRPA *Handbook for the Accreditation Process: A Comprehensive Guide to Implementing Procedural Guidelines.* The process for baccalaureate program accreditation consists of five stages: (1) a program wishing to apply for accreditation must make application of its interest to the NRPA/AALR COA; (2) the program must conduct a self-study based on the standards and evaluative criteria developed by the COA; (3) the program, in conjunction with the COA, selects a visitation team of two educators and one practitioner from a list of qualified candidates who subsequently review the program's self-study report and conduct an on-site visitation; (4) the COA reviews the self-study report and conducts a hearing attended by the applying program, on-site visitation team members, and all active COA members. Based on the review of the self-study and all other accreditation information the COA then grants accreditation with or without conditions, or defers or denies accreditation; and (5) programs granted accreditation accept the status and provide annual reports and maintenance fees to the COA and undergo a formal review. If denied, a program may appeal the COA decision (NRPA, 1999).

For a program to become NRPA/AALR accredited it must meet eight separate categories of series standards and evaluative criteria related to the program's (1) unit characteristics; (2) philosophy and goals; (3) administration; (4) faculty resources; (5) student resources; (6) instructional resources; (7) foundational education curriculum requirements; and (8) recreation, park resources, and leisure services curriculum requirements. Programs may also make application to accredit program options in (a) leisure services management, (b) natural resources recreation management, (c) leisure recreation program delivery, and (d) therapeutic recreation (NRPA, 2000).

Review of the standards and evaluative criteria a baccalaureate recreation, park resources, and leisure services program must meet in order to become NRPA/AALR accredited without question highlights the comprehensiveness of the field's accreditation process in regard to both curricular and non-curricular issues. According to the NRPA (2002) there are over 350 recreation, park resources, and leisure services

programs in the United States, yet only one-third of those programs are currently accredited. A study by Longsdorf (2001) of issues related to accreditation, indicated that multiple respondents are interested in applying for accreditation but currently were unable because their programs cannot meet the evaluative criteria related to faculty requirements. Indications from the demographical information analyzed in the study indicated that program size might be an impeding factor in the ability of many programs to become NRPA/AALR accredited.

Purpose of the Study

The purpose of this study is to examine variables that distinguish NRPA/AALR accredited recreation, park resources, and leisure services programs from recreation, park resources, and leisure services programs without NRPA/AALR accreditation to provide the field with a better understanding of factors that that might impede a program's ability to become accredited. At present research assessing the effectiveness of NRPA/AALR accreditation is lacking (Caneday, 2000). With less than thirty percent (100) of the over 350 recreation, park resources and leisure services programs identified by the NRPA as being accredited, research examining the differences between accredited and non-accredited programs needs to become an area of focus within the field's scholarly endeavors. Such research is needed to address issues concerning accreditation and the design of recreation, park resources and leisure services program's ability to train professionals to meet the changing demands of the profession.

Study Population

This study is a secondary analysis of data used in Longsdorf's (2001) study of faculty perceptions of academic preparation of recreation, park resources, and leisure services students. The population of colleges and universities in the Longdorf study consisted of 182 colleges and universities offering degrees in recreation, park resources, and/or leisure services throughout the U. S. The population consisted of 100 colleges and universities with NRPA/AALR accredited recreation, park resources and leisure services programs and 82 colleges and universities without NRPA/AALR accredited programs. The 182 colleges and universities used in the Longsdorf study were identified from higher education listings and databases provided in (a) the *2000-2001 Curriculum Catalog* published by the Society of Park and Recreation Educators (SPRE); (b) higher education databases provided through www.activeparks.org, www.collegesource.org, www.collegeview.com; and (c) from individual college and university institutional and departmental internet web pages (390 colleges and universities were evaluated for the Longsdorf research. Evaluative criteria for inclusion into the Longsdorf study were: 1) the college or university had to be located in the U. S.; 2) the program had to offer no less than a baccalaureate degree; and 3) the program must offer a degree in recreation, park resources and leisure services. These criteria were selected based on the eligibility requirements established for NRPA/AALR accreditation. This eliminated 208 colleges or universities from the population).

Program Faculty Respondents

Faculty members surveyed were identified from college and department faculty and staff listings. Only full-time faculty instructing courses in recreation, park resources and leisure services were included as potential study respondents. Verification of potential study respondents in the Longsdorf (2001) study was done by comparing college or university and department faculty listings with institutional faculty listings, and through telephone and e-mail inquiries. Six hundred ninety-four faculty members were identified, 182 were selected to respond to the study.

Sampling Procedures

One full-time faculty member at each of the 182 colleges and universities was selected to receive the survey instrument. The decision to survey only one faculty member was made to maintain the population of colleges and universities identified for the study. Seventeen percent (32) of the 182 colleges and universities has only one full-time faculty member instructing recreation, park resources and leisure services courses. All programs with only one full-time faculty member were programs without NRPA/AALR accreditation. At colleges and universities where more than one full-time faculty member instructed program courses, the single full-time faculty member identified to receive the survey questionnaire was randomly selected.

Data Collection Instrument

A four-page 52-item survey questionnaire used by Longsdorf (2001) was the data collection instrument. This research is an analysis of the last 11 questions of the 52-item instrument. These 11 questions were institutional and departmental characteristics concerning location of the college or university, the institutions full-time enrollment, enrollment in the recreation, park resources, and leisure services program, the number and status of faculty instructing in the program, the number, status, and rank of students enrolled in the program, degrees offered and degree options, areas of degree emphasis, rank of each faculty member, the estimated number of graduates who have taken the Certified Park and Recreation Professional Examination, and the program's current accreditation status.

Sample Population

Each faculty member selected to participate in the Longsdorf (2001) study received a personalized University of Toledo outgoing envelope with a self-addressed and pre-stamped return envelope. Respondents also received a personalized cover letter on University of Toledo letterhead explaining the purpose of the study and a promise of confidentiality. Individuals identified as non-respondents were mailed a second cover letter indicating their non-response and a new copy of the survey questionnaire. A total of 115 out of 182 surveys were returned for a response rate of 63 percent. One hundred-six survey questionnaires were used for analysis.

Research Question

Are there institutional and departmental variables that distinguish NRPA/AALR accredited recreation, park resources and leisure service programs from non-accredited recreation, park resources, and leisure services programs?

Data Analysis

The statistical method used to analyze the data was Multiple Discriminant Analysis. Multiple Discriminant Analysis is used when the a priori defined dependent variable is categorical and the desire is to predict classification of a unit or subject into groups. In this case the dependent variable is nominal, accredited or non-accredited recreation, park resources, and leisure services program. A linear combination of independent variables is used to predict group membership in one of the two programs, accredited or non-accredited, by assessing the discriminant function scores. The independent variables are metric, in this case interval in scale.

Research Findings

Five variables were entered into a stepwise discriminant function analysis to determine if a recreation, park resources and leisure service department/program could be classified into NRPA/AALR accredited or non-accredited status. The variables included in the analysis were:

- The institution's full-time enrollment during the 2000-2001 academic year.
- The total number of students in the recreation, park resources, and leisure service program during the 2000-2001 academic year full and part-time.
- The number of full-time faculty instructing recreation, park resources, and leisure service courses in the college/division.
- The total number of full-time undergraduate recreation students in the program.
- The number of graduate students in the program.
- The number of full-time students in the program.

Table 1 presents the frequency data for accreditation status for the sample population. The data indicate an almost equal distribution of accredited and non-accredited recreation, park resources, and leisure service programs in the national sample. Table 2 presents the variables entered into the stepwise discriminant procedure. Only two variables, the number of full-time faculty in recreation and the number of full-time students in the recreation, park resources and leisure service program were entered into the model.

Table 3 displays the Eigenvalue for the first canonical discriminant function used in the analysis. The dependent variable accounted for only 27.5 percent of the variance in the first function (a canonical correlation of .525 squared). The Wilks' Lambda table (Table 3) indicates that the first function was significant, Wilks' Lambda of .724, Chi-square of 13.89, significant at $p<.05$. The standardized canonical discriminant function coefficients are presented in Table 3. The number of full-time faculty in recreation had the strongest relationship with the function followed by the number of full-time students in the recreation, park resources and leisure services program. . Group means for the function indicate that accredited programs had a function mean of .277 and non-accredited programs had a group mean of –1.316.

The original grouped cases were classified with 75.5 percent accuracy. The cross-validated results supported original accuracy levels with 67.0 percent correctly classified overall (Table 4).. The results suggest that accredited recreation, park resources and leisure service programs have generally higher size of both faculty and students than non-accredited recreation, parks and leisure service's programs.

Table 1. Frequency Data for Accredited and Nonaccredited Recreation, Park Resources and Leisure Services Programs

	Frequency	Percent
Accredited	55	51.9
Nonaccredited	51	48.1
Total	106	100.0

Table 2. Variables Entered into Stepwise Discriminant Analysis

Step	Variable	Statistic	df1	df2	Sign.
1	No. full-time faculty	11.55	1	44.0	.001
2	No. full-time students in rec	8.20	2	43.0	.001

Table 3. Summary of Canonical Discriminant Functions

Eigenvalues				
Function	Eigenvalue	% of Variance	Canonical Correlation	
1	.381	100.0	.525	
Wilks' Lambda				
Test of Function	Wilks' Lambda	Chi-square	df	Sign.
1	.724	13.89	2	.001
Discriminant Function Coefficients		**Function 1**		
No. of full-time faculty		.632		
No. of full-time students in recreation		.592		
Functions at Group Centroids		**Function 1**		
Accredited		.277		
Nonaccredited		-1.316		

Table 4 Classification Results

Predicted Group Membership				
		Accredited	Nonaccredited	Total
Original	Accredited	35 (63.6)	20 (36.4)	55 (100.0)
	Nonaccredited	6 (11.8)	45 (88.2)	51 (100.0)
Cross-Validated	Accredited	35 (63.6)	20 (36.4)	55 (100.0)
	Nonaccredited	15 (29.4)	36 (70.6)	51 (100.0)

75.5% of original grouped cases were correctly classified.
67.0% of cross-validated grouped cases were correctly classified.

Conclusions and Implications

This research has shown that the distinguishing variables among accredited and non-accredited recreation, park resources and leisure services programs are the program's size in terms of full-time faculty and the number of full-time students in the recreation program. Moreover, accredited programs favor a community emphasis (Chi-square=7.06, df=2, $p<.05$).

Size is somewhat problematic in that smaller programs that desire accreditation seek it to achieve the visibility needed to command the attention and resources needed to provide the continued breadth and depth of coverage demanded to train persons for professional entry into the leisure services field. The data in this study indicate that 55 percent of the programs in the sample population are either not accredited or are thinking about applying for accreditation. The data further indicate that 33 percent of the programs nationwide have only one or two faculty to satisfy all of the core competencies and additional requirements required to meet minimum standards for accreditation. To strengthen smaller recreation, park resources and leisure services programs ability to achieve accreditation status, NRPA/AALR needs to facilitate or provide the additional and needed resources to achieve accredited status. Perhaps one way to add to the diversity and resources of smaller programs is through model distant learning courses based on videotapes with an e-mail component to fulfill the competencies needed. Students enrolled in the smaller programs enroll in required distance learning courses under the guidance of the student's resident advisor. Notwithstanding the institutional and political ramifications (course fees and credit hour production), distance-learning courses could provide both the tool and the freedom necessary for faculty to pursue goals for continuing and maintaining accredited status, improve courses, expand marketing efforts, procure resources, teaching, and research. To be sufficiently attractive for recreation, park resources and leisure service programs to adopt the distance learning courses the courses need to be models of excellence that may even be adopted by accredited programs to free faculty for needed research efforts.

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THE NATURE OF THE INTEREST CONSTRUCT AND ITS UTILITY IN THE STUDY OF LEISURE BEHAVIOR

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Abstract: The intent of this paper is to initiate discussion regarding the nature of the interest construct. Interest influences "what people attend to, think about, discuss and learn more about" (Frick, 1992) and has been used pervasively in many disciplines as a means of explaining concepts as varied as career choice, motivation, enjoyment, learning and academic achievement, participation, attention, flow and importance. The interest construct, however, has not been clearly defined in the literature nor has a theoretical model yet been proposed. This synthesis of the disparate and multidisciplinary efforts involving interest moves us towards conceptualization and proposition of a theoretical framework that positions an expanded view of interest in the study of leisure behavior.

Introduction

Interest influences "what people attend to, think about, discuss and learn more about" (Frick, 1992). Pervasively used in many disciplines as a means of explaining concepts as varied as career choice, motivation, enjoyment, learning and academic achievement, participation, attention, flow and importance, Kilby (1994) notes that in its obviousness, the concept of "interest" has been taken for granted. In the literature, the interest construct has been approached from two perspectives: *individual* and *situational* (Hidi & Baird, 1986; Kim, 1999; Renninger, Hidi & Krapp, 1992; Shirey & Reynolds, 1988). *Individual interests*, which are specific to the individual predisposition, are relatively stable, but develop slowly. These interests stem from conceptualization of knowledge, beliefs and values (Chen, 2001). Frick (1992) equated individual interests with "interestedness", a feeling of interest that occurs prior to learning the outcome of an event and usually associated with an individual's disposition. For example, if a recreationist is motivated to participate in adventure/high-risk activities (e.g., rock climbing, scuba diving) for the inherent potential for arousal and novelty, they will likely be "interested" in an activity such as hang gliding. In contrast, *situational interest* elicited by stimulus characteristics or the environment are generated immediately and shared among individuals. Situational interest has been theoretically articulated as a multidimensional construct that derives from person-activity interaction (Chen, Darst & Pangarzi, 1999). It occurs when an activity provides a sense of novelty and challenge, demands exploratory actions, high level of attention and generates feelings of instant enjoyment (Deci, 1992). Frick (1992) equated situational interest with "interestingness", a feeling of interest that occurs after the outcome of an event and is generated by certain stimuli. For example, having experienced the freedom and arousal from participating in hang gliding, the recreationist is now likely to find that activity "interesting" and will look for similar pursuits in the future.

Both individual and situational interests comprise appetitive, affective and cognitive components. The *appetitive* component of interest initiates, sustains and directs psychological or physical activities as well as internal impulses, drives or desires (Wolman, 1973). Appetitive interest is on either the conscious or subconscious level arousing attention, attracting curiosity, inviting exploration, investigating and manipulating stimuli (Reeve, 1989). The *affective* or feeling component of interest selects and influences perceptions about what we are exposed to (Izard, 1977). Feelings are a way to become acquainted with things, the starting point of cognition (James, 1890). *Cognitive* interest occurs as one evaluates the personal gains or benefits from the activity, wonders about being accepted or needed, thinks about what or who is enjoyable, and desires to learn more (Izzard, 1977).

Multidisciplinary Perspectives on Interest

In order to fully investigate the potential for or role of interest in the study of leisure behavior, it is first necessary to examine references to the interest construct in various disciplines. In the field of *education*, interest expedites person-environment interactions by uniting subject, object and behavior into a vital relationship that satisfies needs, fulfills values, fosters self-development, enhances adaptations and substantiates identity (Savickas & Spokane, 1999). High interest has been associated with academic achievement. In the study of children, recall increases with effort and interest, and that interest influences effort (O'Sullivan, 1997). Feelings regarding previous behaviors and perceptions about skills interact to decrease or enhance interest, therefore influencing participation (Sansone, 1989). The experience of interest while participating in an activity can subsequently be an important proximal motivator even for activities that are mundane and performed for extrinsic reasons (Sansone, Wiebe & Morgan, 1999).

In the *social psychology* literature, interest is viewed as a precursor to motives and actions, and is determined by unexpectedness and personal relatedness (Schank, 1979). It is a monotonic function of collative variables such as novelty, complexity, surprise and ambiguity (Berlyne, 1974). Interest contributes to intrinsic motivation by arousing the initiation and direction of attention and exploratory behavior (Reeve, 1989). In tandem with ability level and personality dispositions, it determines the probability of success in a particular task domain. In the flow state, the person is completely motivated by his or her personal interest and becomes inseparable from the activity (Csikszentmihalyi, 1990). If a situation is highly familiar

or highly unfamiliar or if a situation is easily expected or not expected at all, the interestingness decreases (Sadoski, Goetz & Fritz, 1993). Just as social factors can influence ones' interest in performing an activity both immediately and in the future, an apparent lack of interest in a leisure pursuit, may not be a lack of interest, but a resignation to interpersonal constraints, both intrinsic and extrinsic (Searle & Jackson, 1985).

Interest Assessments: Tools and Inventories

Assessment of interest developed as an outgrowth of education and industry efforts to attain ability information for decision-making. Early interest assessment involved asking individuals to indicate their feelings toward an activity. This hypothetical estimation was not always effective, so individuals were also encouraged to participate in a designated activity in order to determine their interest. To save time and cost, rating scales were developed to more systematically assess interest.

Use of these scales was based on the assumption that people with similar interests can be clustered together and at the same time be differentiated from groups with dissimilar interests. Table 1 lists a sample of the varied educational/vocational tools and leisure interest inventories that have been used.

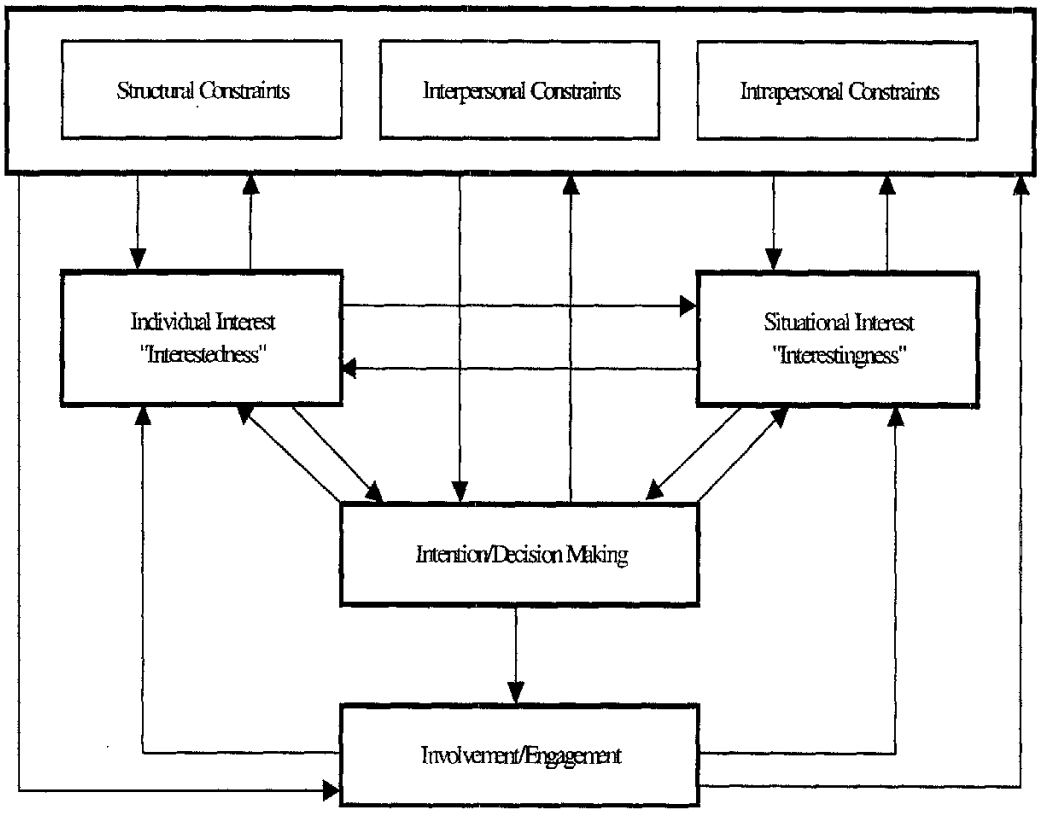
Future Research

Although early research was *a theoretical,* literally forming a scale for every occupation, there have been numerous efforts in education and psychology to derive a general model of interest dimensions. Holland (1966), based on preliminary work in vocational studies, proposed a structure of interest dimensions for better understanding how people approach and operate within learning and work environments. During the past several decades, leisure researchers have explored the phenomenon of engagement or participation in activities. Regardless of the variables proposed to explain or predict participation, "interest" of the respondent is often the primary rationale given for significance or lack of significance in findings. Other than operationalization as a list of activities in which an individual would like to participate or a single-item question inquiring as to the respondents "interest" in an activity, the concept has not been clearly defined in the literature, nor has a model of interest been proposed. Based on an extensive review of research focusing on the interest construct and its interrelationship with concepts key to defining leisure behavior, the following model was developed (Figure 1). Future efforts should focus on testing this theoretical framework that positions an expanded view of interest in the study of leisure behavior.

Table 1 Varied educational/vocational tools and leisure interest inventories

Educational/Vocational Tools	
Kuder Personal Preference Record	(Kuder, 1939)
Holland's Vocational Preference Inventory	(Holland, 1958)
Kuder Occupational Interest Survey	(Kuder, 1966)
Strong-Campbell Interest Inventory	(Campbell & Hansen, 1981)
Leisure Interest Inventories	
Leisure/Work Interest Inventory	(Frisbie, 1984)
Fain's Pictorial Leisure Interest Inventory	(Kanters & Anderson, 1988)
Leisure Interest Scale	(Ragheb & Beard, 1992)
Leisure Activities Inventory for Adolescents	(Hong, Milgram, & Whiston, 1993)
Multidimensional Interest Scale	(Wiggins, 1994)
Recreation and Leisure Inventory	(Glausier, Whorton, & Morgan, 1996)
Game Interest Inventory for Older Adults	(Hoppes, Hally, & Sewell, 2000)

Figure 1. Theoretical Model of the Interest Construct within the Context of Leisure Behavior



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MICHIGAN'S AGRICULTURAL HERITAGE: USING HISTORICAL DATA TO DEVELOP AUTHENTIC HERITAGE ATTRACTIONS

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Abstract: The *Michigan Agricultural Heritage Project*, a multi-disciplinary research effort at Michigan State University sponsored by the Michigan Department of Transportation, is currently completing a rural agricultural context document. While the main purpose of this project is to provide information, tools and resources for historic preservation consultants during the Section 106 review process (National Historic Preservation Act), its data can also be used for heritage tourism development. The data is particularly useful for identifying potential themes and historic resources for agricultural heritage attraction development. Using the data from the project, sample results are provided for potato farming in the Petoskey region and a specific historic dairy farm in Genessee County. These preliminary examples show exciting potential for future application of this historical data in agricultural heritage attraction development in Michigan.

Introduction: Why bother with agriculture?

Heritage tourism has emerged as an important segment of the U.S. travel market during the past decade. Heritage travelers in the U.S. have been shown to stay longer at their destinations and spend more money than other travelers (Travel Industry Association of America, 1998), with "visiting museums and/or historic sites" cited as the third most popular activity for U.S. domestic travelers (Travel Industry Association of America, 2002). At the same time, travelers visiting small towns and rural areas have shown a strong interest in experiencing history as part of their trip. In the U.S., 48% of these travelers reported visiting a historic site on their last trip (Gallop-Goodman, 2001), with that number jumping to 80% in Michigan (Herbowicz, 2001). Therefore, along with being one of the most diverse agricultural states in America, there is an established market in Michigan for heritage travel in rural or small town settings.

The *Michigan Agricultural Heritage Project (MAHP)*, currently being completed at Michigan State University, can provide historical information that helps target these heritage travelers. Sponsored by the Michigan Department of Transportation in conjunction with the State Historic Preservation Office, the main goals of the project are to characterize the broad patterns of agriculture in Michigan from 1840-1960 and to help identify historic resources that represent these patterns on the local landscape, such as buildings and field patterns associated with production of particular agricultural products. As mandated by Section 106 of the National Historic Preservation Act, this information will be used during new construction projects to evaluate any impacts to historic resources and to explore alternative strategies to minimize these impacts. Although the project is not complete and its main purpose is to aid historic preservation consultants in Section 106 site assessment, the information, tools and resources being gathered could also be useful in the context of heritage tourism development.

The purpose of this paper is to demonstrate how historical information from the *MAHP* can aid tourism professionals, cultural resource managers and individual farm owners in developing historically authentic agricultural heritage attractions. The *MAHP* is particularly useful for identifying potential community and regional agricultural themes, along with identifying resources that represent these themes. This information can be used to identify and enhance existing thematic stories authentic to various regions in Michigan, however it is especially useful for discovering potential new attractions and developing local or regional themes for linking these attractions and stories.

What is an authentic heritage attraction?

Previous research dealing with historical authenticity has shown an important link between the use of historical information in the planning process, the heritage product that is developed and the visitor experience (Barthel-Bouchier, 2001; Tilley, 1997; Waitt, 2000). Authenticity has been recognized as an important component to consider during tourism development, adding uniqueness and drawing power to heritage attractions (Boniface, 1995; Green, 1993; Tourism Center, University of Minnesota, 1991; Vander Stoep, 1998). The use of historical data and information allows cultural resource managers, farm owners and tourism professionals to integrate authenticity into the heritage attraction development process. For purposes of this paper, an authentic heritage attraction refers to an attraction that is supported by the historical data provided by the *MAHP*.

Attractions have long been considered a cornerstone of tourism, representing the collection of resources that attract visitors to an area or region and a fundamental component of tourism development (Gartner, 1996; Gunn, 1994). Attractions can be divided into primary, secondary and tertiary categories of importance (McKercher and du Cros, 2002). Primary attractions are those that attract visitors as stand-alone destinations, either as individual sites or as a cluster of associated sites linked together by a common theme. Secondary and tertiary attractions tend to represent

collections of smaller attractions that complement a primary attraction. Currently, agricultural heritage attractions in Michigan do not typically serve mass audiences as primary attractions, but rather provide secondary attractions to service niche markets like rural or small town travelers who are visiting another primary attraction. The information from the *MAHP* is useful for developing and enhancing individual secondary attractions, as well as potential clusters of attractions linked together by a common thematic story that could become a primary attraction for visitors (such as the *Wisconsin Ethnic Settlement Trail*). Potential types of agricultural heritage attractions include the following:

- farmer's markets, u-pick farms and farm tours;
- bed & breakfasts and working farm experiences;
- scenic routes and heritage trails; and
- museums and historic districts.

Heritage attraction development often starts with identification or inventory of existing resources, particularly those that have drawing power because they are listed, or are eligible for listing, on the *National Register of Historic Places* (Boniface, 1995, Green, 1993). Historic resources (districts, sites, buildings and objects) are considered eligible for the *National Register* if they are over 50 years old and meet the following criteria: are associated with significant events in our history, are associated with the lives of significant people, represent significant qualities of architectural design or engineering, or if they are important to our understanding of pre-history (National Park Service, 2002). Significance can be defined at the national, state or local level, and while association with nationally significant trends can be determined from the *MAHP* data, it is especially useful for developing agricultural heritage resources and thematic stories at the state and local level of significance. Furthermore, combined with diaries, oral history and other personal accounts, the data can provide stories and information about the more typical experiences of everyday life, regardless of their significance or eligibility for the *National Register*. These more typical experiences are easier for visitors to relate to, and ultimately, tell the unique stories of a community that become the basis for its authentic agricultural heritage appeal.

Methods: Understanding broad patterns and identifying local resources

A variety of sources are being used to identify broad characteristics of agricultural production in Michigan and how these characteristics are represented on the local landscape by buildings and field patterns. Township level agricultural census data for the years 1854, 1894 and 1935 has been entered into a database, and is currently being used to create GIS maps of the entire state of Michigan. The maps represent the geographic distribution of over thirty variables, such as the number of various types of livestock, the number of farms producing particular products, acreage devoted to these products, as well as levels of production for these products. Figure 1 and Figure 2 demonstrates how this visual representation allows for efficient identification of local and regional characteristics that could be used to develop themes for attraction development. While the data is incomplete, clear patterns are already evident in the production of sugar beets and potatoes in mid-Michigan.

Figure 1. Sugar Beet Production in Mid-Michigan.

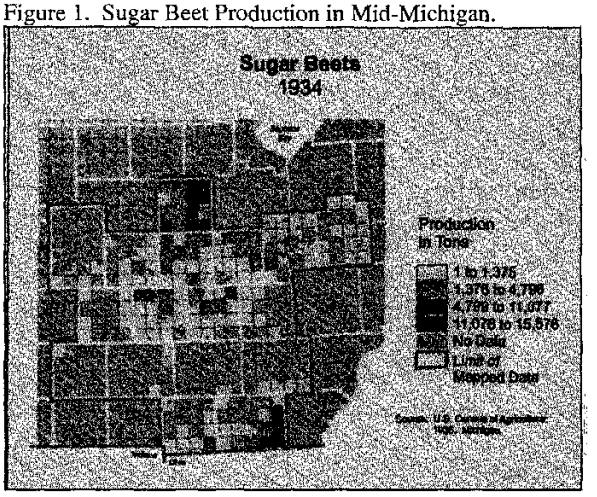
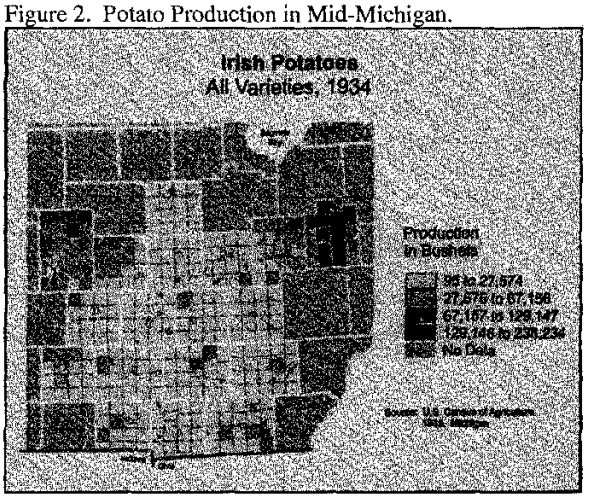
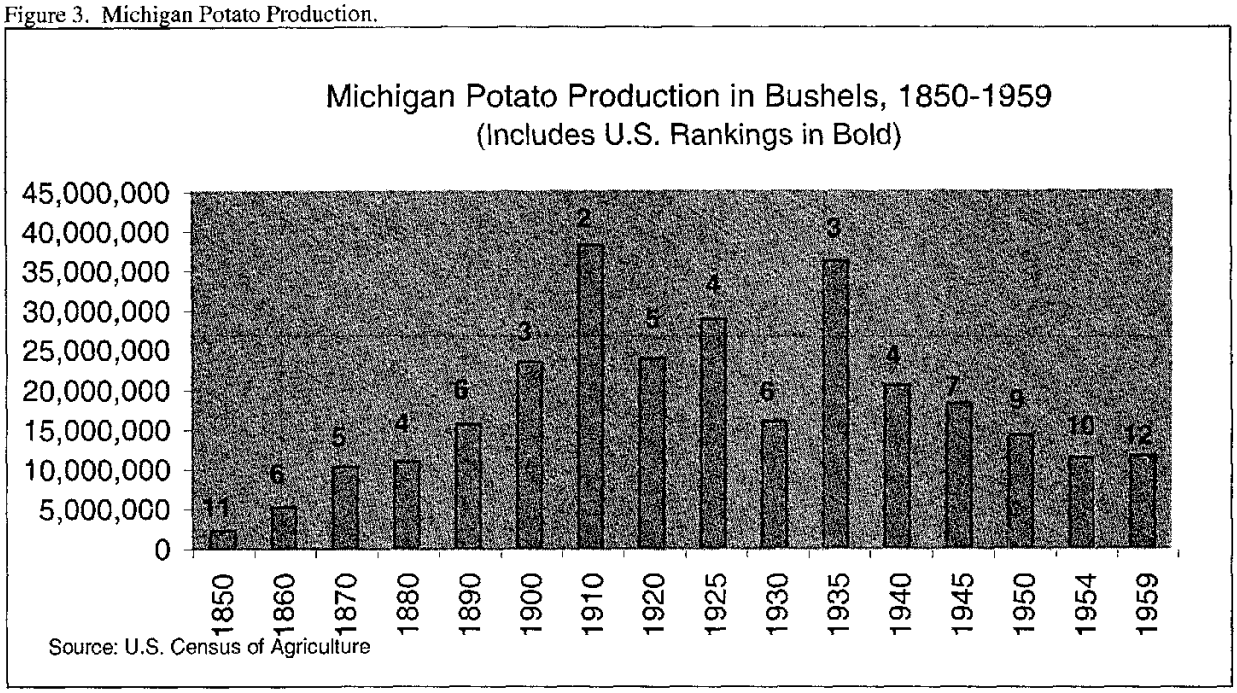


Figure 2. Potato Production in Mid-Michigan.



In addition to plotting township level census data using GIS, agricultural census data was also compiled for statewide production of agricultural commodities from 1850-1959 in order to determine Michigan's rank relative to other states. This information shows Michigan's production of agricultural products, while at the same time, determining the national significance of this production. In Figure 3, we see that Michigan has been a national leader in the production of potatoes, ranking consistently in the top five nationally and as high as second in 1910. Used together with the GIS maps of census variables, these sources can help to identify potential agricultural products or characteristics that could be used for thematic development.

Figure 3. Michigan Potato Production.



In addition to the census data, which provides a broad understanding of statewide and regional patterns of production, the following sources are being used to identify local historic resources on individual farms, such as the type and layout of specific buildings and field patterns associated with production of certain agricultural products:

- township plat maps (ca. 1870-present);
- lithographs of farmsteads (ca. 1880);
- Rural Property Inventories (ca. 1935);
- aerial photographs (1935-present);
- aerial oblique photographs (ca. 1950-present); and
- interviews with current farm owners.

This farm-specific information can be used to determine how farms representing the broad patterns and thematic stories would have looked at different points in time. This information could be used by cultural resource managers to restore or recreate these farmsteads, as well as to create historical narratives for use in interpretation of the sites.

Sample Results: Petoskey – sun, surf and potatoes?

Since the late 19th century, when railroads and steamboats offered service to the coastal community of Petoskey and its lakeside resorts, the community has been an important northern Michigan tourist destination. Located between Traverse City and Mackinac, Petoskey is traditionally known for its natural resources and Lake Michigan shoreline, but it also has agricultural resources eligible for the *National Register of Historic Places*. As seen above, the agricultural census data for potato production in Figure 3 shows that Michigan was a leading potato producer in the U.S. from 1900-1959. Potatoes, therefore, are a historically significant product in Michigan agriculture, and have long been associated with the Petoskey region, offering one potential agricultural product for thematic development. Records of MSU Extension's "300 Bushel Club," for example, indicate that farmers around Petoskey were significant producers of certified seed potatoes, supplying seed potatoes such as *Chief Petoskey Brand* to 19 other states.

A collection of farms in this region was nominated for the *National Register of Historic Places* as the Resort Township Potato Farming Rural Historic District. This collection of farmsteads could become the basis for an agricultural heritage attraction focusing on potatoes and certified seed potato production. In this example, the natural resources and associated coastal climate is the primary attraction, while the collection of farms could provide a supporting secondary attraction for visitors. Attractions could be developed using a scenic trail or heritage route, complemented by wayside exhibits, festivals and perhaps a small museum representing the local potato industry.

Sample Results: Mid-Michigan and dairying

The mid-Michigan area offers another example of how data from the *MAHP* can be used to develop thematic stories for attraction development. In part because of its central location among large urban areas and early transportation routes, mid-Michigan has been one of the most diverse agricultural regions in the state. Access to urban markets, and their demand for fresh milk and other dairy products, also led to the rise of dairying in this region during the twentieth century. Using GIS maps for dairy production, historically productive townships and regions in Michigan can quickly be identified. From these areas, existing

resources can be inventoried to develop a collection of associated "dairying" attractions. Using pre-1900 farm-level agricultural census information, the Rural Property Inventory (ca.1936), and interviews with local farm owners, a historical narrative could be developed about these farmsteads.

A specific Michigan Centennial Farm in mid-Michigan provides an example of an existing agricultural resource that could be developed around a theme highlighting the importance of dairy farms to mid-Michigan's urban population centers. Completed by the WPA during the Great Depression for tax purposes, the Rural Property Inventory is a particularly useful source for discovering what was on a farm's landscape in the 1930s, including field patterns, and the age, size and type of existing buildings and other farm implements. According to the Rural Property Inventory, this farm had two barns, one with an attached milk-house dating to 1900 and a concrete silo that are still visible in a contemporary aerial oblique photograph of the farm. In fact, many of the structures listed on the Rural Property Inventory still exist on the landscape today. Complementing this information, interviews conducted with the farm owners also helped to determine that the farm was involved in the dairy industry from about 1900 to 1980, when it converted to beef cattle and cash crops. The interview also brought out the story of a catastrophic fire that destroyed one of the barns and several other structures, which were subsequently rebuilt in 1925. Using this combination of local sources, the story of the farm can be pieced together spanning well over a century. This story helps reinforce the dairying focus of the region, while at the same time, offering a glimpse into the historical development, evolution and change of this individual farm. Stories such as these could potentially be used for on-site interpretation, or for use in brochures and audio tours as part of a heritage route with other farms in the area.

Conclusion

The *Michigan Agricultural Heritage Project* has exciting potential for providing tools and resources for authentic agricultural heritage attraction development in Michigan. By providing both broad patterns of agricultural production through the use of census data, as well as tools and information for discovering local resources, the authentic themes and individual stories of Michigan's agricultural heritage can be developed for tourism.

While the above examples demonstrate how historical information can be used to aid tourism development, this information must become part of the tourism development process to prove useful. Future research and effort needs to focus on the relationships between tourism development professionals, cultural resource managers, historians, community members, farm owners and other stakeholders. There is a need to better understand how to create links between these groups during the heritage tourism development process, and ultimately to find an appropriate place in the process to present, explore and utilize this historical information.

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Social Psychological Aspects of Outdoor Recreation I

EMOTIONAL COPING RESPONSE TO HASSLES AND STRESS EXPERIENCED IN WILDERNESS SETTINGS

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Abstract: Stress/coping theory was used to understand recreationists' appraisal of stressful situations, coping processes, and the outcomes of the process. Specifically, stress was conceptualized as hassles in recreation settings. Specifically, the objective of this paper was to discuss the emotion focused coping response of visitors to stress encountered while on a Wilderness recreation experience. A mail back survey of visitors was used to collect data. Results were analyzed using confirmatory factor analysis and structural equation modeling. Eighty-seven percent of respondents indicated that some sort of hassle was experienced at the study site. The most frequently reported hassle sources were associated with interactions with other people or the result of human use of the resource. Emotion focused coping did not have a strong influence on the outcomes of the stress process. Specifically, emotion focused coping did less to reduce detraction from the recreation experience that occurred as a result of stress and more to reduce the antecedent processes that gave rise to conditions resulting in detraction.

Conceptual Background: Stress and Coping

Stress/coping theory (Kaplan, 1996; Lazarus & Folkman, 1984) was used to understand recreationists' appraisal of stressful situations, coping processes, response to stress, and the outcomes of the process. Specifically, stress was conceptualized as hassles in recreation settings; hassles are a form of stress. Seminal work in developing the daily hassles construct was conducted by DeLongis (1985), DeLongis, Folkman, and Lazarus (1988), Kanner, Coyne, Schaefer, and Lazarus (1981), and Lazarus, DeLongis, Folkman, and Gruen (1985). Hassle variables measure the immediate (and multiple) pressures that occur during the recreation experience, the appraisals, and disruption associated with them. The hassles concept posits that the every day demands on a person have a greater effect than larger life events (e.g. death of a loved one or divorce). Life events are believed to affect the individual by establishing the conditions for additional daily hassles to occur. Hassles measures can provide a more direct and broad estimate of stress than major event measures by measuring a larger spectrum of possible sources of stress (Kanner et al., 1981).

A modified hassle definition was based on Kanner et al. (1981); hassles were defined as the irritating, frustrating, demands or situations that occur during recreation experiences; they can range from minor annoyances to fairly major pressures, problems, or difficulties. Daily hassles in everyday life are regular events such as feeding the dog, computer crashes, or going to the grocery store. A second type of hassle is considered to be micro-events; these include bad weather, losing things, traffic, disappointments, and arguments (Kanner et al., 1981; Kaplan, 1996).

The stress process conceptualized by Lazarus and Folkman's (1984) model is founded on three assertions. First, stress can result from conditions within the individual and from external situations. Second, there is a mediating appraisal process that includes a primary appraisal and a secondary appraisal. Third, the appraisal process has an effect on the way the individual decides to cope in response to the stress.

The primary appraisal determines if, why and to what extent a particular transaction is stressful. If a situation is stressful, a second appraisal occurs to determine the availability and efficacy of coping options. These two appraisals together determine the type of response necessary. As a result of the secondary appraisal the individual determines what might or can be done. The appraisal process is a complex evaluative process that takes into account which coping options are available, the likelihood that a given coping option will accomplish what it is supposed to, and that the individual can apply the strategy effectively (Lazarus & Folkman, 1984).

As coping strategies are initiated, and the person-environment relationship changes, the individual reappraises the situation. The coping process is continuously altered by the reappraisals. This process continues until the condition is deemed not stressful or at least tolerable. In addition, the process varies from one individual to another as the personal and environmental factors vary. The coping resources that are available to the individual also contribute to the variation in strategies employed. A coping resource is something one uses to mediate the problem. These resources may be available physical resources (money or tools) or the competency to find helpful resources. In many stressful situations "human beings are somehow already situated in such a way that what they need in order to cope with things is distributed around them where they need it" (Kaplan & Kaplan, 1982).

Coping research has identified two basic coping strategies, emotion and problem focused coping (Lazarus & Folkman, 1984; Taylor & Schneider,

1989). This paper is concerned with emotion focused coping. Emotion-focused coping occurs when there has been an appraisal that nothing can be done to modify harmful, threatening, or challenging environment-person transactions. This strategy is directed toward lessening emotional distress through avoidance, distancing, selective attention, positive comparisons and finding positive value in negative events. The individual ameliorates distress and emotional conflict by changing the meaning of the situation. Kaplan and Kaplan (1982) described this coping process as an interpretation strategy. Interpretation strategies include changes in one's conception of things rather than changes in the things themselves.

Schneider (1995) and Schneider and Hammitt (1995) used the Lazarus and Folkman (1984) model in outdoor recreation (an investigation of coping response of visitors at Cumberland Island National Seashore, Georgia and H. Moses Cone Memorial Park, North Carolina). They defined outdoor recreation conflict as "a disruptive stressful occurrence in the visitor's recreation experience involving a person-environment relationship that taxes a person's psychological resources" (Schneider & Hammitt, 1995). Their model presumes that outdoor recreation conflict incidents are stressful or produce stress-related situations. Thus, response to conflict likely mirrors the response to stress. Miller (1997) used stress theory to study visitors' response to stress related conflict at Glacier National Park, Montana. Previous studies used the stress/coping model to investigate recreation conflict; according to stress theory, recreation conflict was methodically treated a stressful major life event. The work reported here expands upon these previous studies by conceptualizing stress as hassles.

Methods

A mail-back survey of visitors to the Shining Rock Wilderness Area, North Carolina, USA (SRWA) and surrounding buffer zone was conducted from July to November of 1999. The five-month sampling was designed to increase the diversity of users in the area (e.g. summer hikers, fall hikers, berry-pickers, and hunters). Sampling was conducted at four different trailheads. Commercial groups requiring special use permits or who had leaders/facilitators were not included in the sample. A modified Total Design Method (Dillman, 2000) was used to administer the mail survey, involving a total of four mailings. A total of 713 surveys were mailed, 486 surveys were completed and returned for an adjusted response rate of 68%. Of the 486 total respondents, 424 (87.2%) indicated that some sort of hassle was experienced at the study site. Results reported in this article are based on a screened sample (n=388), consisting only of respondents that perceived a hassle during the wilderness recreation experience. Results were analyzed using confirmatory factor analysis and structural equation modeling.

Study Area

The SWRA studied consists of 18,700 acres and is located in the Blue Ridge Mountains of western North Carolina. The SWRA is typical of many eastern wilderness areas in the U.S.; it is located within one to four hours driving distance from multiple urban centers, has private land near by, shows signs of previous human activity, and receives a high amount of use. The dominant uses within the Wilderness boundaries include day hiking, backpacking (short and extended trips), berry picking, and hunting. Mountain bike and horse use are permitted on the trails surrounding the Wilderness.

Recreationist Description

Females composed 28% of the sample and males composed 72%. The respondents' ages ranged from a minimum of 18 to a maximum of 80. The majority of respondents were still in college or had attended college (80.4%). Approximately one-sixth of respondents earned less than $19,999 and one-fourth had a $20,000 to $39,999 annual income. About two-fifths earned $40,000 or more.

The three most frequently engaged in activities at the SWRA were weekend back packing, day hiking, and backpacking trips longer than one night. Most of the respondents recreated with friends; recreating with a spouse or partner was also common. The categories representing activities and group type were not mutually exclusive.

Hassle Sources

To help respondents recall stress sources a checklist of 21 possible sources was included on the survey; the category 'other' with an option to handwrite a source was also included. The single greatest source of hassle was litter (Table 1). The most frequently reported hassle sources were associated with interactions with other people or the result of human use of the resource. These frequent sources of hassles are associated with the level of use at the SWRA. Route finding and navigation may have been a frequent source due to the fact that trail markings and signs are not provided within the Wilderness Area.

Level of intensity was measured on a five-point scale ranging from very low to very high. The average level of intensity was 3.1 with a standard deviation of 1.0. Slightly more than one-third (35.6%) thought the hassles were of high to very high intensity. Approximately four-tenths of respondents indicated that hassles were of moderate intensity (40.8%). Less than one-quarter appraised the hassles as low to very low intensity (23.6%).

Table 1 Most popular sources of hassles in wilderness, as indicated by respondents to hassle checklist

Source of Hassle	n[a]
Litter	181
Noise from other people	172
Damage to the resource (plants, trails…)	140
Too many people at campsites	139
Vehicles near the Wilderness Area	102
Too many people on the trail	100
Dogs or other pets	98
Route finding/navigation	94
Behavior of other people	89

[a]Categories were not mutually exclusive, respondents indicated that multiple sources of hassles were experienced.

Table 2 Goodness of fit criteria for the tested models from the on-site stress situations

Model	χ^2	DF	P	Robust CFI	SRMR
1	1488	781	<.5	0.89	0.075
2	1622	869	<.5	0.85	0.076
3	1122	735	<.5	0.92	0.061

Analysis & Results

A two-step approach to Structural Equation Modeling (confirmatory factor analysis than testing a structural equation model) was used (Hatcher, 1998; Schumacker & Lomax, 1996). Robust Maximum Likelihood estimation was used with a covariance matrix developed from raw data. The comparative fit index (CFI) and standardized root mean square residual (SRMR) were used to evaluate model fit. An acceptable fitting model was found as indicated in Table 2. A CFI value of 0.9 represents an acceptable fit and a value of 0.95 or higher is considered an excellent fit of the data. A small SRMR is desired an SRMR of 0.1 or higher represents a poor fit, 0.1 to 0.05 indicates an acceptable fit of the data, and 0.05 or less indicates an excellent fit of the data.

Bold-faced arrows in Figure 1 indicate relationships that will be discussed herein. Emotion focused coping was weakly and negatively influenced by level of intensity of the situation. As intensity increased the use of emotion focused coping decreased.

Table 3 lists the four questions used to measure secondary appraisal; questions were measured on a four-point scale (1=strongly disagree to 5=strongly agree). The standardized parameter coefficients, in figure 2, indicate that the variable "I had to hold myself back from acting was the primary contributing variable in the secondary appraisal factor. "I needed to know more about it before I could act" was a weak contributor and the final two variables did not contribute significantly. An increase in secondary appraisal reflected an increase in the need to hold back from acting. Holding back from acting could be a reflection of a lack of control of the situation or the feeling that it was inappropriate to directly address the situation or source of stress. Emotion focused coping was moderately and positively influenced by secondary appraisal (Figure 1). Thus, as the individual perceived increased uncontrollability or the perception that it was inappropriate to address the situation the use of emotion focused coping increased. Emotion focused coping was a second-order factor consisting of the two first-order factors of self control and psychological distancing (Figure 1). Standardized parameter estimates for this factor indicate that self control was the primary contributing first-order factor to emotion focused coping. The mean and standard deviation for the variables used to measure self control are listed in Table 4.

Figure 2 illustrates the general emotion focused coping scheme. The individual appraised the situation as one that was not appropriate to address or was out of their control. He/she employed emotion focused coping, which consisted primarily of keeping feelings to his or herself. The second and third contributors to the coping response were following trail etiquette and not allowing others to know how bad things were. Finally, not damaging future recreation opportunities with today's actions was the weakest contributor to the factor. These specific coping mechanisms are consistent with the secondary appraisal of needing to hold back from acting to address the situation. People

Table 3 Secondary appraisal questions

Question	Standard Coefficient	Mean	Sd
I had to hold myself back from doing something about it	3.17	1.98	1.3
I needed to know more about it before I could act	-.103	2.24	1.4
I had to accept it as it was		3.73	1.3
I could change it or do something about it		2.60	1.2

Table 4 Self-Control Coping Mechamism

Ways of Coping Items	Mean	SD
Followed established trail etiquette	2.65	1.21
*Thought about why the incident happened	1.32	1.18
Tried not to damage future opportunities to be in wilderness areas with my actions	1.26	1.31
Tried to keep my feelings to myself	1.09	1.05
Kept others from knowing how bad things were	0.55	0.83

[a] Based on four point scale, 0=did not use/not applicable, 1=used somewhat, 2=used quite a bit, 3=used a great deal

* removed from model due to high residual correlations.

used emotion focused coping instead of attending to the problem or to avoid the problem (avoidant coping). Emotion focused coping was used as an adaptive response to a situation that could not be altered.

However, Figure 2 indicates that the relationship between emotion focused coping and detraction is weak. Thus, the use of emotion focused coping did not function well to reduce the level of stress. This finding is not surprising, previous research has found avoidant forms of coping neither directly or indirectly related to psychological distress or outcomes of the stress process (DeJong, von Sonderen, & Emmelkamp, 1999). In addition, "avoidant coping is mostly considered an inadequate way of coping for it has been directly (positively) related to both physical and mental dysfunction" (DeJong et al., 1999, p.291). We can conclude that in the current model, emotion focused coping does not have a strong influence on the outcomes of the stress process. This conclusion is further illustrated when the parameter estimate for the relationship between problem focused coping and detraction is compared.

The preceding discussion has focused on the coping process in relation to the latter half of the stress model. Problem focused coping appears to have more and stronger relationships in the latter half of the model when compared to emotion focused coping. The final point to be made is based on an observation of the antecedent processes in the model. Specifically, antecedent processes include direct and indirect relationships among the two coping mechanisms and the influencing factors (experience use history, social support, education, income, age) and intensity. Problem focused coping has two direct relationships with these variables and factors (Figure 1). On the other hand, emotion focused coping has five direct relationships and two indirect relationships with the antecedent processes in the model. The distribution of relationships suggests that problem focused coping is more directed at the latter half of the stress process (the outcomes) and reducing the level of detraction. Emotion focused coping does not directly reduce outcomes of the process. Instead, it has an indirect influence on the process by minimizing the evaluation of stress. Pearlin, Lieberman, Menaghn, and Mullan (1981) identified similar indirect influences when assessing the influence of coping and social supports on depression. These authors found that coping did not reduce the amount of depression after it occurred. However, it did have an influence on the antecedent process by dampening the evaluation of the situation. A similar conclusion can be drawn for recreationists at the Shining Rock Wilderness Area; emotion focused coping does less to reduce the detraction that occurs as a result of stress and more to reduce the antecedent processes that give rise to conditions resulting in detraction.

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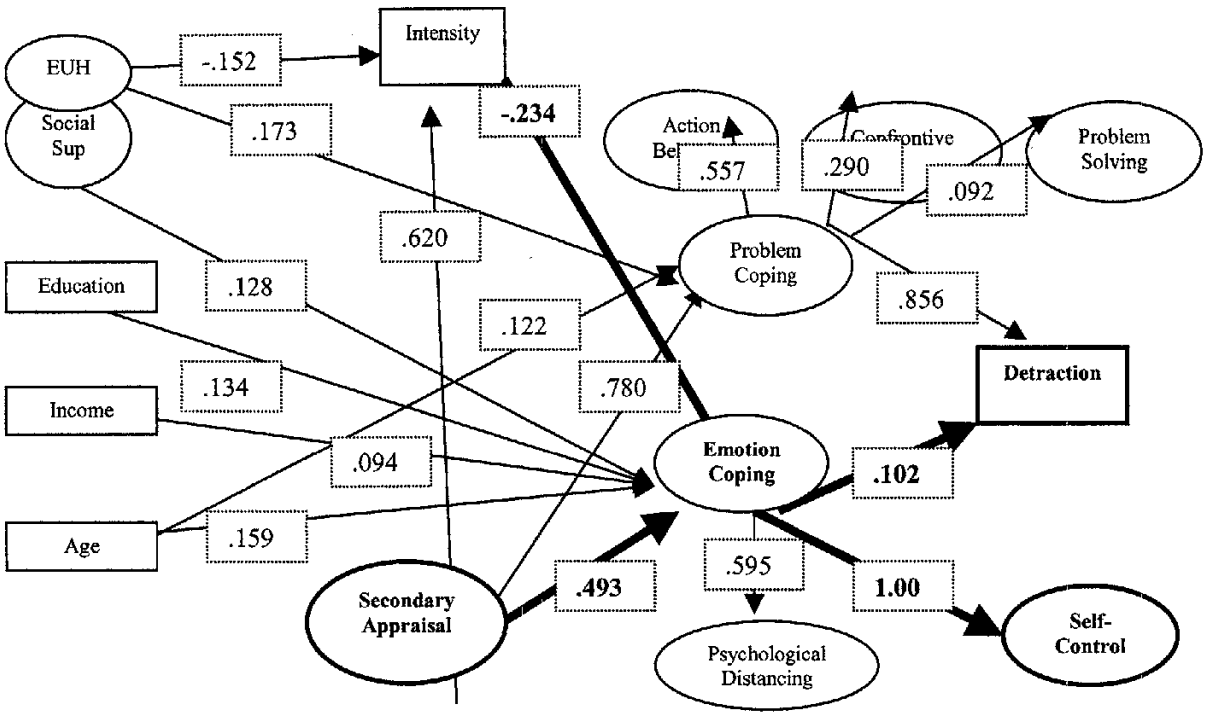


Figure 1 Final structural equation model of recreationists' stress/coping process. Only significant parameters shown, standardized parameter coefficients indicated in dashed boxes.

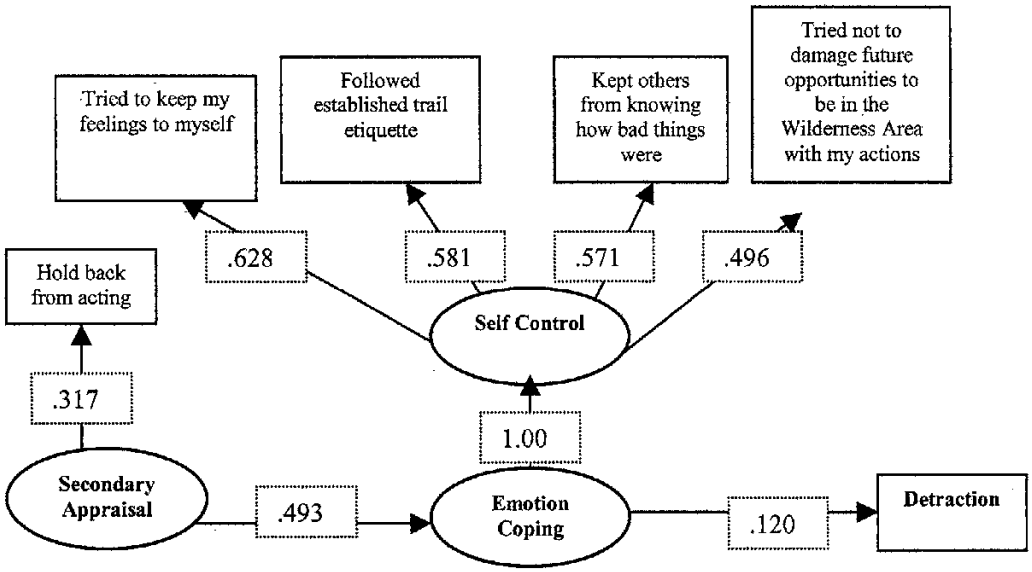


Figure 2. Significant parameter estimates for the specific variables and factors to be discussed. Standardized parameter coefficients are indicated in dashed boxes

DIFFERENCES IN MOTIVATIONS OVER TIME BY LEVEL OF DEVELOPMENT: AN EXAMINATION OF PRE/POST ADVENTURE RECREATION EXPERIENCES

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Abstract: The purpose of this study was to examine changes in motivations for outdoor adventure recreation pursuits over a short period of time (pre- to posttest) for participants with different levels of development. Subjects were 100 undergraduate recreation majors from separate similar summer session Outdoor Education Practicum courses, each of which included 7 days in a camp-like resident outdoor education setting plus a 6-day wilderness canoe trip in New York's Adirondack Park. Prior to the start of the course and again on the last full day of the course, respondents completed the Adventure Recreation Model Instrument (Ewert & Hollenhorst, 1989). Besides ranking 19 motives on a 9-point Likert importance scale, participants also provided self-reports on three variables related to level of development in adventure recreation (experience level, perceived skill, and frequency of participation). After these three items were combined to yield one scale, each respondent was then assigned to one of four categories (beginner, intermediate, advanced, or expert). When pretest scores were compared to posttest scores for all respondents using dependent t-tests, 7 motives increased significantly over time ($p < .05$). However, when mean motive scores were compared for each level of development, the pattern of change differed. Although beginners' scores increased for *achievement*, they decreased for *fun* and *competition*. Intermediates' scores increased for four different motives: *excitement, self-enhancement, risk-taking,* and *career.* A third set of motives became significantly more important for advanced participants: *challenge, skill development,* and *creativity.* Finally, experts' scores increased for *novelty, achievement* (like beginners), and *risk-taking* (like intermediates). Based on this study, adventure recreationists' motives change differently over a short period of time as follows: while beginners struggle to achieve, intermediates are drawn more by excitement and risk, advanced participants focus on self-actualization, and experts seek new challenges to stay involved.

Introduction

Expectancy-value theory (Fishbein & Ajzen, 1975) states that individuals may have a variety of motives for participating in an activity. Furthermore, persons within that activity may seek totally different outcomes (Ditton, Fedler, & Graefe, 1982). In order to understand motivational differences more clearly, some studies have focused on describing relationships between level of past experience and motives. For instance, Schreyer, Lime, and Williams (1984) discovered that novice river recreationists ranked motives such as "to develop my skills" and "to test my abilities" much lower than veterans. Going beyond experience use history, Kauffman (1984) noted that highly specialized canoeists were found to canoe for exercise, recognized the importance of their equipment to their experience, and received a sense of achievement from their experience.

Since motives have been shown to be influenced by level of past experience, it seems likely that motives would differ by participants' level of development. Growth and development in leisure activities are often characterized by Bryan's theory of specialization (1977, 1979) or Stebbins' theory of serious leisure and amateur/professional development (1979, 1992). Bryan (1979) created typologies of various outdoor activities (e.g., fly fishing, photography, hiking and backpacking, mountain climbing, skiing, canoeing, birdwatching, and hunting), where participants could be placed on continua ranging from novices to specialists based on time, money, equipment, skill, and psychic commitment associated with the activities. Stebbins' (1992) study of "serious leisure" and amateurism in art, entertainment, science, and sport characterized participants' progress from dabblers to novices, amateur participants/devotees, or even paid professionals. Five stages of a career history were highlighted (beginning, development, establishment, maintenance, and decline) based on descriptions of corresponding changes in knowledge, skill, ability, participation, experience, and dedication.

Combining both theories of specialization and serious leisure, Todd showed that a single measure – "level of development" – was significantly related to indices measuring equipment, knowledge, skill, participation, amateur/professional development, commitment, and experience for both quiltmakers (1997, 1999a, 1999b) and SCUBA divers (2000). With the exception of diving experience (which linearly increased from beginners to post-experts), all factors increased from beginner to expert and then decreased for post-experts.

Similar studies have focused on understanding developmental levels of outdoor adventure (or risk) recreation behavior, primarily using Ewert's (1989) Adventure Recreation Model (ARM) (Ewert &

Hollenhorst, 1989; Anderson, Anderson, & Young, 2000). As shown in Figure 1, the ARM is based on development-related personal attributes (shown in the dark shaded portions): level of engagement or experience, frequency of participation, and skill level. These attributes are thought to be related in predictable ways to variables such as locus of control, social orientation, preferred level of risk, environmental orientation, and motivation.

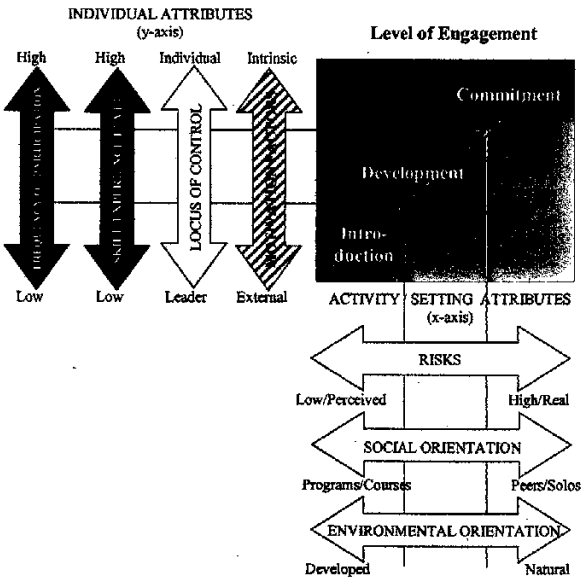


Figure 1. The Adventure Recreation Model (Ewert & Hollenhorst, 1989)

As shown graphically by the gray arrow in the ARM (Figure 1), all of the previously discussed developmental theories suggest that individuals at different stages of development tend to focus on different outcomes, with *intrinsic* rewards of involvement and competence becoming more important as participants become more experienced, specialized, or serious. Findings, however, have varied.

In the original conceptualization of the ARM, Ewert (1989) examined participant development based solely on one variable: level of experience or engagement. If participants marked responses of 1 to 3 on a 9-point Likert scale ranging from "little or no experience" (1) to "a great deal of experience" (9), they were labeled "introductory." Scores of 4 to 6 resulted in being assigned to the "development" category, and 7 to 9 became "committed" participants. Ewert & Hollenhorst (1989) found that just two of 19 motives (skill development and competition) were weakly but significantly correlated to level of engagement ($r = .19$ for both), and subsequently recommended eliminating motivation from the model.

However, further testing by Anderson et al. (2000) countered that finding. Their study of adventure recreationists showed stronger significant relationships between level of engagement and eight motives: risk-taking ($r = .50$), skill development ($r = .45$), experiencing nature ($r = .42$), excitement ($r = .39$), creativity ($r = .39$), fun ($r = .38$), challenge ($r = .31$), and competition ($r = .25$). Providing further support, Todd, Anderson, Young, and Anderson (in press) found that mean motive scores for adventure recreationists tended to linearly increase from beginners to experts for factors related to intrinsic motives (i.e., challenge, self-efficacy, learning, and fun); those related to extrinsic motives of image and social interaction tended to peak in the beginner or intermediate stages and decline through the advanced and expert stages. In this case, stage of development was operationalized more broadly by combining the level of engagement or experience with measures of skill level and frequency of participation.

Similarly, Todd, Graefe, and Mann (2002) found that SCUBA divers' intrinsic motives of adventure and learning followed a predicted curvilinear pattern of increasing importance from beginner to expert stages and decreasing for post-experts. Extrinsic social interaction displayed the predicted mirror image of that curve. However, the intrinsic motive personal challenge unexpectedly decreased, and extrinsic motives of stature and escape actually increased with development. One explanation offered by the authors was that diving may simply be a unique type of leisure activity in terms of motivation. Although beginners are initially drawn to the activity to challenge themselves, once the skills and abilities are developed, divers seem to be motivated by the stature of and visible outcomes associated with the activity itself. (The authors note, however, that when many of the study's subjects began their diving careers, the television show *Sea Hunt* was popularizing this activity. Additionally, there was a strong emphasis on "trophy hunting" or collection and display of artifacts at that time, which may have contributed to a strong foundation for the importance of the stature factor.)

Finally, in a rare example of a longitudinal study of motivation, Todd and Graefe (2001) discussed three important findings. First, some motives were found to differ by level of development. Specifically, four motives varied by level of development in both 1996 and 2000, two other motives differed only in 1996, and three additional motives varied only in 2000. The patterns, however, were all generally curvilinear in shape, with scores increasing from beginners to experts and decreasing for post-experts. Second, some motives actually changed over time, with all scores decreasing in importance. Third, some motives changed over time as level of development changed. That is, after four years, quiltmakers who had progressed to a higher level of development were able to keep their motives at a consistent level, relying significantly less on quiltmaking to help them work through grief or problems. Quiltmakers who stayed at the same level or even retrogressed, however, seemed to have significantly less "drive" and "control" in their lives.

The purpose of the current study was to examine changes in motivations for outdoor adventure recreation pursuits over

a short period of time (pre- to posttest) for subjects with different levels of development. Between the points of data collection, participants were exposed to a two-week outdoor education course.

Methods

Subjects for this study were 100 undergraduate recreation majors from several separate sections of a required summer session Outdoor Education Practicum course. The primary difference among sections involved the timing of the course, which varied from late May to late June of 1999, 2000, or 2001. Otherwise, each section enrolled eligible recreation majors from all concentrations (outdoor recreation and education management, therapeutic recreation, recreation and leisure program delivery, management of leisure services, or no concentration); was staffed at a 1:7 ratio from a pool of similarly seasoned and trained leaders; and shared a common syllabus, format, and schedule. The 13-day course included 7 days in a camp-like resident outdoor education setting with dining facilities, amenities, and a structured program, and 6 days on a wilderness canoe trip in New York State's Adirondack Park. Participants ranged in age from 19 to 50, averaging 23, with slightly more females (54%) than males (46%).

Respondents completed the ARM Instrument (Ewert & Hollenhorst, 1989) two times: once at the start of the course, and again on the last full day of the course. Although the instrument measured a variety of user and setting attributes, only items pertaining to motivation and level of development were pertinent to this study.

Nineteen motives for participating in adventure experiences were measured using a 9-point Likert scale anchored by "not at all important" (1) and "very important" (9). Three items were used to measure development-related variables. The first two, experience and perceived skill, were measured by separate 9-point Likert scales, with 1 representing "little or no experience" or "beginner with little or no skills" and 9 being "a great deal of experience" or "expert, highly skilled," respectively. The third item, frequency of participation, was measured with five categories ranging from no adventure experiences within the last two years to 1-2, 3-6, 7-10, or more than 10 experiences. Supporting a broader conceptualization of level of development, these three items were positively correlated with each other ($p < .01$): $r = .91$ for experience and perceived skill, .52 for frequency of participation and experience, and .50 for frequency of participation and perceived skill.

Since these three variables (experience, perceived skill and frequency of participation) used two different scales of measurement, the items were converted to z-scores before being combined into a "level of development" scale, which yielded an acceptably high Cronbach's alpha reliability coefficient of .84. In order to compare results to motivational studies that used a categorical measure of level of development (Todd & Graefe, 2001; Todd et al., 2002), each respondent was then assigned to one of four categories based on his/her average scale score, with cutoffs approximating the percentage breakdown of developmental levels established in the previous adventure recreation study of SCUBA divers (Todd, 2000): beginner (22%), intermediate (36%), advanced (31%), and expert (11%). Dependent t-tests were then used to compare pretest mean scores for each motive with corresponding posttest scores, both for the overall sample and for each category of level of development. A significance level of .05 was used in all cases.

Results

Overall, respondents rated "for fun and enjoyment" as their most important pretest motive for participating in adventure recreation experiences (mean = 8.27), followed by "to do something new/different" (7.47), "for excitement and stimulation" (7.44), and "for the personal challenge" (7.31). At the other end, respondents rated "for my image in society" (3.10), "for status among my peers" (3.38), and "because of requests by others" (3.84) as being least important (see Table 1). Posttest scores followed the same relative ranking of motives, shifting one or two places at most from the pretest order.

In almost all cases (15 out of 19), mean scores increased from pre- to posttest, differing significantly over time for 7 items. The following motives yielded significantly higher posttest scores: "to take risks," $t(99) = 3.15$, $p < .01$ (two-tailed); "for my career/job" ($t = 3.12$, $p < .01$); " for feelings of achievement" ($t = 2.90$, $p < .01$); "for the personal challenge" ($t = 2.78$, $p < .01$); "to develop skills" ($t = 2.51$, $p < .01$); "to experience nature" ($t = 2.41$, $p < .05$); and "for physical fitness" ($t = 1.98$, $p < .05$).

When broken down by level of development, however, patterns of change differed (Table 1). For beginners, three motives changed significantly over time. While scores for "for feelings of achievement" significantly *increased* from pre- to posttest (6.64 to 7.36, $t[21] = 2.59$, $p < .05$ [two-tailed]), means for two other motives significantly *decreased* in importance. "For fun and enjoyment" scores declined from 8.36 to 7.64 ($t = 2.05$, $p < .05$), and "for the competition (with others or environment)" fell from 5.09 to 3.86 ($t = 2.39$, $p < .05$). Although not statistically significant, beginners recorded declines for six other motives, more than any other group.

For intermediates, a different set of motives changed significantly over time. In all four cases, motives were more important at the posttest than during the pretest. (In fact, scores for all but one of the 19 motives showed positive gains from pre- to posttest.) Scores for "to enhance feelings of myself" significantly increased from 6.36 to 6.94 ($t[35] = 2.61$, $t = .01$ [two-tailed]); "for my career/job" went from 5.11 to 5.89 ($t = 2.50$, $p = .05$); "to take risks" increased from 5.97 to 6.53 ($t = 2.34$, $p = .05$); and "for excitement and stimulation" changed from 7.14 to 7.56 ($t = 2.08$, $p = .05$).

For those in the advanced category, a third set of motives changed significantly over time. Mean scores increased in importance for the following three motives: "for the

Table 1. Dependent t-test results: Pre/posttest motives by level of development.

	ALL (n = 100)			LEVEL OF DEVELOPMENT BEGINNER (n = 22)			INTERMEDIATE (n = 36)			ADVANCED (n = 31)			EXPERT (n = 11)		
Motive	**Pretest** $\bar{O}$ (sd)	**Posttest** $\bar{O}$ (sd)	**t-value**	**Pretest** $\bar{O}$ (sd)	**Posttest** $\bar{O}$ (sd)	**t-value**	**Pretest** $\bar{O}$ (sd)	**Posttest** $\bar{O}$ (sd)	**t-value**	**Pretest** $\bar{O}$ (sd)	**Posttest** $\bar{O}$ (sd)	**t-value**	**Pretest** $\bar{O}$ (sd)	**Posttest** $\bar{O}$ (sd)	**t-value**
For fun and enjoyment	8.27 (0.94)	8.08 (1.16)	1.42	8.36 (0.85)	7.64 (1.62)	2.05*	8.19 (0.92)	8.11 (1.06)	0.46	8.06 (1.09)	8.29 (0.74)	1.00	8.91 (0.30)	8.27 (1.27)	1.64
To do something new/different	7.47 (1.34)	7.64 (1.16)	1.26	7.36 (1.40)	7.32 (1.36)	0.13	7.75 (1.16)	7.78 (1.10)	0.15	7.29 (1.47)	7.58 (0.96)	1.12	7.27 (1.49)	8.00 (1.41)	2.19*
For excitement and stimulation	7.44 (1.27)	7.53 (1.22)	0.80	7.23 (1.60)	6.95 (1.59)	1.37	7.14 (1.15)	7.56 (1.13)	2.08*	7.61 (1.17)	7.61 (0.95)	0.00	8.36 (0.67)	8.36 (0.81)	0.00
For the personal challenge	7.31 (1.45)	7.73 (1.33)	2.78**	6.86 (1.55)	7.41 (1.68)	1.67	7.36 (1.38)	7.61 (1.25)	0.96	7.29 (1.55)	7.94 (1.12)	2.30*	8.09 (0.94)	8.18 (1.33)	0.25
For feelings of achievement	7.15 (1.40)	7.59 (1.27)	2.90**	6.64 (1.43)	7.36 (1.50)	2.59*	7.11 (1.39)	7.36 (1.29)	0.85	7.32 (1.40)	7.71 (1.16)	1.40	7.82 (1.08)	8.45 (0.52)	2.28*
To experience nature	7.10 (1.73)	7.40 (1.46)	2.41*	6.68 (1.89)	6.95 (1.86)	0.97	6.86 (1.74)	7.28 (1.30)	1.93	7.39 (1.67)	7.48 (1.21)	0.46	7.91 (1.22)	8.45 (1.04)	1.49
To develop skills	6.91 (1.72)	7.34 (1.55)	2.51**	6.23 (2.22)	6.91 (2.16)	1.91	6.92 (1.56)	7.31 (1.19)	1.45	7.13 (1.41)	7.58 (1.18)	2.04*	7.64 (1.69)	7.64 (2.06)	0.00
For physical fitness	6.64 (1.88)	6.97 (1.65)	1.98*	6.41 (2.11)	6.77 (1.82)	1.16	6.78 (1.82)	6.83 (1.63)	0.25	6.55 (1.73)	7.03 (1.66)	1.29	6.91 (2.17)	7.64 (1.36)	1.39
To enhance my feelings of myself	6.42 (1.76)	6.62 (2.00)	1.09	5.91 (2.09)	5.86 (2.49)	0.10	6.36 (1.74)	6.94 (1.80)	2.61**	6.71 (1.55)	6.48 (1.86)	.65	6.82 (1.60)	7.45 (1.57)	1.00
To make friends	6.36 (2.04)	6.71 (1.97)	1.85	6.50 (2.15)	6.82 (2.24)	0.98	6.14 (2.18)	6.53 (1.75)	1.13	6.58 (1.82)	7.00 (1.95)	1.37	6.18 (2.14)	6.27 (2.28)	0.12
To take risks	6.04 (1.61)	6.54 (1.71)	3.15**	4.91 (1.87)	5.36 (2.34)	1.10	5.97 (1.13)	6.53 (1.32)	2.34*	6.52 (1.59)	6.94 (1.29)	1.35	7.18 (1.17)	7.82 (1.08)	2.28*
To socialize	6.00 (2.03)	5.93 (2.05)	0.38	6.23 (2.18)	5.86 (2.34)	1.07	5.97 (2.04)	6.17 (1.73)	0.59	5.97 (2.04)	5.71 (2.07)	0.73	5.73 (1.90)	5.91 (2.51)	0.38
To express my creativity	5.93 (1.96)	6.31 (1.95)	1.75	5.32 (2.19)	5.36 (2.17)	0.08	5.89 (1.82)	6.33 (1.84)	1.49	6.25 (1.86)	6.87 (1.61)	2.02*	6.45 (2.16)	6.55 (2.25)	0.09
To experience a sense of control	5.79 (1.77)	5.92 (1.81)	0.67	5.14 (1.52)	5.55 (1.71)	1.04	5.61 (1.74)	5.61 (1.78)	0.00	6.00 (1.74)	6.17 (1.93)	0.56	7.09 (1.81)	7.00 (1.41)	0.12
For my career/job	5.50 (2.33)	6.09 (2.27)	3.12**	4.86 (2.47)	5.41 (2.30)	1.30	5.11 (2.09)	5.89 (2.29)	2.50*	6.13 (2.33)	6.52 (2.06)	1.17	6.27 (2.41)	6.91 (2.55)	0.98
For the competition (with others Or environment)	5.21 (2.36)	4.80 (2.43)	1.58	5.09 (2.39)	3.86 (2.01)	2.39*	4.69 (2.16)	4.81 (2.38)	0.29	5.71 (2.22)	5.00 (2.35)	1.46	5.73 (3.13)	6.09 (3.11)	0.36
Because of requests by others	3.84 (1.89)	3.94 (1.93)	0.54	3.10 (1.67)	3.81 (2.09)	1.95	4.08 (1.83)	4.28 (2.06)	0.69	4.26 (1.95)	3.94 (1.53)	0.86	3.27 (2.05)	3.09 (2.17)	0.34
For status among my peers	3.38 (2.08)	3.27 (1.91)	0.67	3.14 (1.93)	2.86 (1.49)	0.70	3.50 (2.26)	3.58 (2.12)	0.30	3.61 (1.91)	3.48 (1.98)	0.56	2.82 (2.36)	2.45 (1.57)	0.56
For my image in society	3.10 (2.12)	3.38 (2.04)	1.43	2.68 (2.42)	2.64 (1.68)	0.10	3.17 (2.08)	3.53 (1.96)	1.28	3.68 (1.99)	3.94 (2.42)	0.68	2.09 (1.64)	2.82 (1.25)	1.12

Means that are highlighted are significantly different (*p < .05, **p < .01). Values are mean scores on a 9-point scale ranging from *not at all important* (1) to *very important* (9).

personal challenge" (7.29 to 7.94, $t[30] = 2.30$, $p < .05$ [two-tailed]); "to develop skills" (7.13 to 7.58, $t = 2.04$, $p < .05$); and "to express my creativity" (6.23 to 6.87, $t = 2.02$, $p < .05$).

Finally, exclusive to experts, the motive "to do something new/different" significantly increased over time (7.27 to 8.00, $t[10] = 2.19$, $p < .05$ [two-tailed]). Additionally, like beginners, experts had higher posttest scores for "for feelings of achievement" (7.82 to 8.45, $t = 2.28$, $p < .05$), and, like intermediates, recorded higher means for "to take risks" (7.18 to 7.82, $t = 2.28$, $p < .05$).

It should be noted that, due to the small sample sizes of the beginner and expert classes, appropriate nonparametric tests were also performed. However, since results mirrored those found above, dependent t-test findings were reported for ease of comparison and understanding.

Discussion and Implications

This study showed that, as a result of a two-week outdoor education course, some motives for participating in adventure recreation do change over time. Like White and Pennington-Gray's (2002) study of pre- and post-trip motives for skiers, the pattern of change was an increase in participants' motives over a relatively short period.

Results from both of these studies differ from Todd and Graefe's (2001) longitudinal examination of quiltmaker motives, where actual mean scores tended to decrease over time. This implies that quiltmakers may have been lowering their expectations that their activity would help achieve desired outcomes. However, it is important to note that the time lapse in this study was much greater than the other two: four years vs. a few weeks. Thus, the timing of data collection may be a critical factor when studying the dynamics of motivation, and different threats to validity should be considered. For instance, the longer the period, the more probable that extraneous effects of history, maturation, and experimental mortality could be biasing results. On the other hand, the shorter the time lapse, the greater the likelihood that pretest procedures may be influencing posttest outcomes.

In this study, the latter threat appears to be minimal. Using the ARM Instrument, Young, Anderson, and Anderson (2002) specifically examined the effects of exposure to the pretest. They found little evidence for a pretest effect, with the exception of four out of 30 variables. One of these items, however, was the motive "to develop skills," for which the posttest only group recorded significantly lower mean scores that the pretest/posttest group. As a precaution, readers should thus note that scores for this particular motive may be inflated in this study.

Second, the outcomes of the current study displayed that level of development is an important way to segment participants: different sets of motives become increasingly important to different user groups. A progression of change seems to occur where beginners focus on struggling to achieve, intermediates become more drawn by excitement and risk, advanced tend to focus on self-actualization, and experts seek new ways to challenge themselves to stay involved in the activity.

To that end, the pattern of shaded t-test results in Table 1 is a clear reminder that averages often mask underlying variations in the data. For instance, although seven motives significantly increased in importance for the entire sample, *six additional motives* differed significantly for a lone subgroup of that population, resulting in a total of 13 out of 19 motives (nearly 70%) changing significantly over time. As previously noted, differences for "for fun and enjoyment" and "for the competition with others or environment" were only registered for beginners, "for excitement and stimulation" and "to enhance feelings of myself" changed for just intermediates, "to express my creativity" only increased for advanced, and changes in "to do something new/different" solely affected experts. Furthermore, when a motive did differ for the entire sample, that difference varied significantly for just one or two subgroups, not all levels of development. For instance, only advanced participants' scores increased significantly for "for the personal challenge" and "to develop skills," and beginners and experts were the only segments for which "for feelings of achievement" increased. Finally, even though scores statistically increased for the entire sample for some motives ("to experience nature" and "for physical fitness"), that increase was not pronounced enough in any one subgroup to emerge as a significant change by level of development.

Examining motives that did *not* change significantly over time, either for any one subgroup or for the sample as a whole, is also important. In particular, motives related to social interaction ("to make friends" and "to socialize") and image ("because of requests by others," "for status among my peers," and "for my image in society") remained constant over time regardless of level of development. Thus, while social interaction remains moderately important to adventure recreationists (averaging 6 on a 9-point scale), image remains relatively unimportant (averaging 3). The former finding implies that, based on the results of this and previous studies (Anderson et al., 2000; Todd et al., in press), social interaction, operationalized in the ARM (Ewert & Hollenhorst, 1989) as social orientation, could be removed from the model since it does not appear to change with level of development. Furthermore, the "unimportant image" result reinforces one of two things: either image is truly of little concern to adventure recreationists, or societal pressures and norms often discourage individuals from openly admitting that seeking social recognition is a notable motive. As previously mentioned, SCUBA divers seem to be one group that has overcome that tendency: prestige became significantly more important as level of diving development increased (Todd et al., 2002).

The results of this study have important implications to theory and practice. If it is known how motives differ by level of development as well as which ones change over

time for each stage, two groups in particular can make great use of that data. Those at the regional or community planning level, such as resource managers, tourism professional, and community developers, could adjust their promotion strategies, site designs, and agency plans to reflect a better understanding of their constituents. Likewise, camp administrators, club organizers, and instructors could more effectively facilitate their participants' needs and experiences.

From a research perspective, even more light could be shed on how motives change over time by linking that information to perceived constraints and discontinuance behavior. For instance, Ewert (1993) found that novice climbers who failed to reach the summit (i.e., who were unable to negotiate various constraints) consistently reported lower levels of importance for all motives.

Another important issue would involve expansion of sampling techniques to include *post-experts*, a group that has been shown to differ not only in development-related factors (Todd, 1997, 2000) and motives for participation (Todd et al., 2002), but also in terms of their vulnerability to perceiving constraints (Todd & Graefe, 2000) and subsequently dropping out of an activity (Todd & Graefe, 2002). Ultimately, tracking subjects over longer periods of time could give a more valid picture of how (and at what rate) changes in development and motivation occur.

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Tourism Destinations

PROFILE OF WINERY VISITORS OF MICHGAN WINERIES BASED ON BEHAVIORAL SEGMENTATIONS

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Abstract: Since 1995, the number of wineries and sales of Michigan wine continued to increase. In addition to wine production, the vineyards have been designed for agriculture tourism including the development of tasting rooms and winery tours. Commercial winery is more than simply grape production and has an important relationship with visitors or customers. However, little information concerning the characteristics of Michigan winery visitors was available. Therefore the purposes of this study are to 1) develop a marketing relevant profile for travelers and winery visitors for Michigan wineries, 2) identify the marketing segments based on the visitors' attributes and behaviors, and 3) suggest marketing strategies for increasing winery visitors.

Introduction

Michigan is the fourth largest grape-growing state of the continental U.S. with over 13,500 acres of vineyards and the eighth state in wine grape production with 1,500 acres of wine grapes. Michigan has an impressive and well-respected wine industry (Michigan Grape and Wine Industry Council, 2002). Since 1995, the number of wineries in Michigan has grown from 17 to 25 and sales of Michigan wine in Michigan have expanded by 27 percent. The wine grape production is fairly evenly split between Michigan's southwestern counties and those around Grand Traverse Bay. Twelve locations with winery or wine tasting rooms are located in the Leelanau Peninsula region, 5 locations are in the Old Mission Peninsula region plus 10 locations are on the Lake Michigan Shore / Fennville region (Southwest wine region) (Michigan Grape and Wine Industry Council, 2002). With the rapid growth of vineyard areas, Michigan wineries produce more than 200,000 cases of wine annually, making Michigan 13th in wine production. As mentioned earlier, besides wine production, the vineyards have been designed for agriculture tourism including developing tasting rooms and winery tours (Michigan Grape and Wine Industry Council, 2002).

Agricultural tourism is a relatively new market for tourists and is a worldwide trend, which offers city dwellers a chance to escape the urban concrete and re-discover their rural roots. Mahoney (2000) defined "Agricultural tourism and Natural resource product tourism" as: "Pleasure travel involving the direct purchase or recreational harvest of agriculture or natural resource products and participation in recreation activities, educational programs, winery tours, dining, and overnight stays on working or heritage farms and ranches, processing facilities, and natural resource product operations." An agriculture tourism enterprise is a business conducted by a farm operator for the enjoyment and education of the public, to promote the products of the farm, and thereby generate additional farm income. The wine industry has an agricultural base and a big potential to be linked with tourism industry. In Michigan, nearly 27 commercial wineries, which can attract more than 350,000 visitors annually by creating some winery tours and developing wine tasting rooms (Mahoney, 2002). Again, commercial winery is more than grape production and has an important relationship with visitors or customers.

However, little information is available about the characteristics of people who have visited and will visit wineries and how marketing strategies and programs should be developed to attract winery visitors in the most effective manner. To develop a successfully commercial winery, an investigation is necessary to identify some information such as: the perceptions and customer behavior of winery visitors, community and development issues, marketing segments, and economic impact. Barron (2002) suggested that successful marketing really does begin with effective segmentation. Therefore, this study focuses on understanding the Michigan winery markets by making the profile of winery visitors in terms of using three variables: "Number of wineries visited", "Frequency of wine consumption", and "Wine purchased" and developing the marketing strategies to increase the number of winery visitors and the amount of wine sales and suggest marketing strategies to attract winery visitors and wine sales.

Study objectives and Hypothesis

Four objectives are:

1. To develop a marketing relevant profile for travelers and winery visitors in Michigan in terms of demographic and socio-economic characteristics and their behavior about visiting wineries, purchasing and drinking wine;
2. To identify different marketing segments for winery visitors by three winery behavioral variables: "Number of wineries visited during the past five years", "Frequency of wine consumption" and "Purchased wine from the wineries they had visited";
3. To conduct comparative analyses among four types of winery visitors delineated by three winery behavioral variables;
4. To suggest marketing strategies for increasing winery visits and wine sales.

Three hypotheses are used to identify marketing segments for Michigan wineries and different types of the winery visitors. Chi-square was employed where appropriate depending one the nature of the variables under examination.

Hypothesis 1: People who drink wines more frequently are more likely to visit wineries.

Hypothesis 2: People who visited more wineries are more likely to purchase wine from the wineries they had visited.

Hypothesis 3: People who drink wine more frequently are more likely to purchase wine from the wineries they had visited.

Literature Review

Compared to other U.S. main winery regions, wine produced by wineries in Michigan has a relatively lower brand image. Therefore, wine sales by winery visitors may be of greater importance for increasing the income of wineries in Michigan. Less marketing for visitors is done compared with New York and Ontario wine routes. While wineries with more than 70% in two wine regions open tasting rooms to visitors, less than 50% of Michigan wineries have tasting rooms open to visitors. Special events at wineries mainly have wine-related programs. Those two regions (Leelanau Peninsula, Old Mission Peninsula and Lake Michigan shore region) create more different types of events linked with wine-related programs such as food festivals and art and entertainment festivals. However, less than 50% of all commercial wineries in Michigan operate daily winery tour programs during the visitor peak season. Winery tours usually include only wine tasting. Few wineries provide visitors with interpretative programs to learn about the wine making process. Few education programs such as pairing food and arranging wine party for visitors are offered. Participation in associated wineries events and regional events are a main marketing activity in order to increase visitors' awareness of wineries and promote wine sales. The wineries of the Lelanau region actively participate in such events. However, the wineries in the Lake Michigan region have no independent winery festival. Relationship marketing linked with same region of wineries, Michigan wine council, Travel Michigan, and West Michigan Tourist associations are proceeding.

Consumer profile

Each consumer segment needs to be profiled in some detail. After segmenting consumers, marketers need further segment descriptors such as demographics, psychographics, attribute and behavior (Kotler, 1991). Consumer profile is used to permit marketing professionals and service providers to assemble services in a manner best suited to a specific consumer group's characteristics (Mazanec, 1992), such as size and cost to segment (Kotler, 1991) and preference and perceptions (Etzel and Woodside, 1982). Ultimately, marketing strategies apply consumer profiles as a mechanism to identify consumer preferences in primary, secondary, and tertiary markets (Court and Lupton, 1997).

There were two recent winery studies to attempt to profile winery visitor characteristics. Henehan and White (1990) studied six wine trails in New York State to evaluate the effectiveness of these wine trails and to make recommendations for future improvement. Wineries identified characteristics of their customers as someone over 30 years old, from New York State or an adjoining state, who lived in a metropolitan area, earned an middle- to upper-income, owned a small-to medium-sized wine cellar, and maintained an open mind about wines. Dodd and Bigotte (1997) studied Texas wineries to examine the perceptions and behavior of segments of winery visitors. They identified visitor socio demographic market segments and examined the difference between older visitors and younger visitors in behavior and perceptions of certain winery attributes. The authors of these winery studies noted that more research is needed to identify the most effective ways of targeting desired customers.

Procedure

Data Sources

One data came from "Welcome Center Traveler Survey" (WCTS), implemented by Michigan State University in partnership with the Michigan Grape and Wine Industry Council (MGWIC) and considered as a comprehensive study of wine tourism, winery visitors, and the economic impacts of wineries. The sample size of this survey is 1176 travelers in 2001. Of 1176 the travelers, 30% had visited at least one winery during the past five years and were used to profile the winery visitors of Michigan wineries. The other data came from the "Household Traveler Monitoring Survey" (HTMS), conducted by the Travel, Tourism and Recreation Resources Center of Michigan State University in 1996. A block of questions was added to the household survey beginning in January 2000 to collect information about winery tourism, after-visit purchase of wines produced by the wineries that are visited, and wine consumption in general. These questions continued on the survey through October 2000. A total of 4,408 interviews were completed during this period. Of them, 64% of all interviewers had taken a pleasure trip in the past twelve months and 21% of all interviews visited at least one winery during the past five years.

Study Method

For WCTS, an on-site, self-administrated survey gathered data from June to October 2000 at six different Michigan Welcome Centers: Port Huron, Clair, New Buffalo, Mackinaw City, Monroe and Dundee. Trained interviewers went to these six Welcome Centers on particular weekdays and weekends and spent five hours distributing on-page questionnaires and collecting data. A systematic sampling scheme- every 5th person was used to select the respondents randomly, who entered and left the Welcome Center facilities that house restrooms, vending machines, or the travel information outlet. For the HTMS, a telephone survey was conducted from 1996. Randomly sampled households in Michigan, Illinois, Indiana, Ohio, Wisconsin and Ontario were surveyed with a focus on travel and vacation behavior and destinations. The survey employed random digit-dial samples of household telephone numbers in the study region purchased from Survey Sampling, Inc. Approximately 475 persons age 18 or older who permanently reside in these households are surveyed every month. Since the inception of the survey approximately 38,000 persons have been surveyed.

Instrument Design

The WCTS instrument used one-page questionnaire consisting of 12 close-ended questions. Those included 1) information about current trip such as the primary reason and length of the trip, and a preference for types of agricultural activities; 2) information about the winery visitation on the current trip and during the past five years such as the frequency of visiting winery or wine tasting room, location of winery they visited, and knowledge about winery; 3) information about wine consumption and drinking; and 4) information about demographic and socio-economic characteristics such as the location of their permanent residence, racial or ethnic group, annual gross household income, number of people in their travel party on this trip, the gender of each, and other person on travel party. The HTMS instrument included 30 questions, which are almost the same as the WCTS questions except some questions related to perception about the wineries in other winery regions such as New York, California, France and Canada.

General Profile

Welcome Center Traveler and winery visitors

Michigan residents comprised about half part (46%) of the WCTS respondents. Forty-two percent were on vacation trips to, or through Michigan (Table 1). This explains the high

percentage, almost 80%, of Welcome Center travelers that were on overnight trips. About 62% of the Welcome Center travelers drink wine. About 17% of the Welcome Center travelers drink wine frequently (at least once every week). The high percentage of wine drinkers is particular due in part to the fact that the travelers have higher than average incomes. Half (52%) have incomes of $55,000 or more. Also, 48% of the travelers are 41-60 years of age. This age bracket also comprises a significant proportion of wine consumers.

About 30% (N=341) had visited at least one winery or wine tasting room (not including the trip on which they were surveyed) during the past five years. Seventy-two percent of persons who visited wineries or wine tasting rooms during the last five years purchased wine from at least one of the wineries that they had visited. Forty-five percent of winery visitors had visited two or three wineries during the past five years. Forty-five percent of winery visitors are from Michigan and Illinois comprised 17% of winery visitors. About 92% of winery visitors drink wine. Also 76% purchased wine from the wineries they had visited when they retuned home. Over half (53%) of winery visitors are 41 to 60 years of age.

Table 1: Profile of travelers and winery visitors

		Welcome Center Traveler Survey		Household Travel Monitoring Survey	
		Traveler*1	Winery visitors*1	Traveler	Winery visitors
Purpose of current trip	Vacation trip	42	46	-	-
	Visit friends or relatives	19	15	-	-
	Weekend getaway	13	13	-	-
	Trip to a second home	4	7	-	-
	Business/Shopping/Others	22	18	-	-
Length of current trip	Day-trip	21	19	12	10
	Overnight	79	81	88	90
Number of wineries visited during the past five years*2	Never visited a winery before	70	-	80	-
	Only one winery	8	28	7	38
	Two or three wineries	14	45	8	40
	Four or more wineries	8	27	5	23
Purchased wine	Did not purchase wine	28	24	28	30
	Purchased wine	72	76	72	70
Wine consumption	Do not drink wine	38	8	61	25
	Drink wine occasionally*3	45	57	29	51
	Drink wine frequently*4	17	35	10	24
Income	Less than $37,000	20	14	32	21
	$37,001 - $55,000	28	28	26	26
	$55,001- above	52	58	42	53
Age	21-30	12	6	23	17
	31-40	17	14	24	22
	41-50	23	22	24	24
	51-60	25	31	14	19
	61-70	16	17	9	13
	Over 71	8	10	5	6
State/Country of Residence	Illinois	15	21	15	13
	Indiana	4	3	13	13
	Michigan	46	45	25	22
	Ohio	14	13	17	20
	Other US	18	17	16	16
	Canada	3	2	15	16
	Other country	1	0	-	-

*1 Traveler means they had a pleasure trip during the past twelve months. Winery visitor means they visited any wineries or wine tasting room affiliated with a winery during the past five years. *2 They purchased wine from a winery they had visited during the past five years for Welcome Center Traveler Survey. *3 The definition for "Drink wine occasionally" is "Drink wine once or twice a month". *4 The definition for "Drink wine frequently" is "Drink wine at least once or twice a week".

Household Travel Monitoring Survey

Most of the information from HTMS is consistent with the results from WCTS except for wine consumption. In HTMS, 80% of the travelers had never visited the winery during the past five years and that rate is 10% higher than WCTS. A possible reason is 61% of the travelers do not drink wine, which is 20% higher than the result from the Welcome Center travelers. As for annual income, 10% less of travelers earn over $55,001, but that is 10% more of the travelers compared to the result of WCTS. This could be explained since a higher percentage of the travelers are under 40 years old in HMTS and less than in WCTS. Twenty five percent of travelers are from Michigan, which is an average of 10% higher than from other states because the sample size in Michigan is over-weighted.

Winery behavioral segment

"Number of wineries visited during the past five years" Segments

The WC travelers were classified into four different segments based on the number of wineries and tasting rooms they had visited during the past five years. The segments are divided thus: 1) Never visited a winery (70%), 2) Just one winery (8%), 3) 2-3 wineries (14%) and, 4) 4 and more wineries (8%). These were not limited to Michigan wineries or tasting room visits. From table 2, the results showed wine consumption, wine purchased, incomes and age are statistically significant among the "number of wineries visited" segment ($\rho < .05$). Also, 90% of visitors, who visited four or more wineries during the past five years, purchased the wine from the wineries they had visited. Most people (95%) purchased the wine from a retail store, which they visited. Still 10% of visitors purchased the wine from the wineries they had visited by mail order, telephone or Internet after they returned home. Half of them drink wine at least one or two times a week. HTMS revealed the same result based on the statistical significance ($\rho < .05$) of the "wine consumption", "wine purchased", "incomes", and "age" variables among four different segments. Thus it is safe to say that the people who like to visit more wineries are more likely to drink wine frequently, purchase wine after they visited that winery, have high annual income and are middle to old aged. The segment profile shown in Table 2 confirms that 'winery visitors" do exist, and a significant potential exists for after-visit marketing of wines, especially to frequent winery visitors and high-income visitors.

Table 2: "Number of wineries visited" segment

	Welcome Center Traveler Survey				Household Travel Monitoring Survey			
	Wineries visited during the past five years*				Wineries visited during the past five years			
	Never	One	Two or three	Four or more	Never	One	Two or three	Four or more
	Wine consumption				Wine consumption			
Do not drink[a]	52.1	15.4	7.2	1.1	70.2	37.5	20.9	12.2
Drink occasionally[a]	39.4	64.8	57.0	49.4	23.4	47.9	57.1	45.7
Drink frequently[a]	8.5	19.8	35.8	49.5	6.4	14.6	22.0	43.1
Purchased wine from the wineries they had visited					Purchased wine from the wineries they had visited			
Did not purchase[a]	100.0	39.1	22.9	10.2	NA	39.2	27.4	17.7
Purchased[a]	0.0	60.9	77.1	89.8	NA	60.8	72.6	82.3

*They visited the wineries during the past five years. Not counting the trip during which they were interviewed.
[a]All differences significant at the 0.05 level

"Purchase wine from wineries they had visited" Segments

About three quarters percent of the WCTS who had visited wineries during the past five years purchased wine from the wineries they had visited after trips (Table 3). The vast majority (93%) purchased their after-trip wines from retail stores near their homes; 10% did mail order purchasing. Ninety-six percent of visitors, who purchased the wine from the wineries they had visited, drink the wine at least one or two times a month. Based on the statistical test, people who purchased the wine from the wineries they had visited are likely to visit more wineries ($\rho = 0.000$), and drink wine more frequently ($\rho = 0.000$). Those results are consistent with the findings from HTMS except for the income variable. Based on the findings from two surveys, we can suggest that it would be beneficial, in terms of after-visit sales, to target frequent winery visitors more deliberately through promotions and by offerings and facilities focused on their preferences and expectations.

"Frequency of wine consumption" Segments

From table 1, about 63% of the Welcome Center travelers and 92% of winery visitors drink wine. According to the result of table 4, frequent wine drinkers are much more likely to visit wineries (65%) and purchase wines after their visits (85%). A higher percentage of more frequent wine drinkers purchase wines through mail order or on the Internet. A higher percentage of travelers from Illinois (21.5%) and states outside the Great Lakes Region (21.1%) drink wine frequently. Furthermore, frequent wine drinkers are likely to have higher annual income. Also, a greater percentage 55% of middle-aged (41 to 60) travelers drink wine frequently. Those findings from two surveys are consistent and strongly support the ideas that frequent wine drinkers are likely to visit more wineries, purchased wine after their visits, have higher annual income and are middle-aged travelers. This information can further aid in targeting advertising aimed at winery visitors.

Table 3: Purchased wine from the wineries they had visited during the past five years

	Welcome Center Traveler Survey			Household Travel Monitoring Survey		
	Purchased wine	Did not purchase wine	P-value	Purchased wine	Did not purchase wine	P-value
	Number of wineries visited during the past five years					
Only one winery	23.5	47.2		25.7	41.9	
Two or three wineries	44.6	41.5	***0.000***	43.3	41.1	***0.000***
Four or more wineries	31.9	11.3		31.0	16.9	
	Wine consumption					
Do not drink wine	4.0	18.2		11.3	45.5	
Drink wine occasionally	54.7	63.6	***0.000***	57.8	39.5	***0.000***
Drink wine frequently	41.3	18.2		30.9	15.0	

Table 4: "Frequency of wine consumption" segment

	Welcome Center Traveler Survey				Household Travel Monitoring Survey			
	Frequency of wine consumption			P-value	Frequency of wine consumption			P-value
	Do not drink wine	Drink wine occasionally	Drink wine frequently		Do not drink wine	Drink wine occasionally	Drink wine frequently	
Number of wineries visited during the past five years								
Had not visited a winery	93.6	60.6	35.0		91.6	64.3	51.5	
Only one winery	3.4	12.4	10.2	***0.000***	4.7	12.6	11.1	***0.000***
Two or three wineries	2.7	18.0	30.5		2.8	15.8	17.8	
Four or more wineries	0.3	9.0	24.3		0.9	7.3	19.6	
Purchased wine from the wineries they had visited								
Did not purchase wine	63.2	30.9	14.5	***0.000***	61.5	21.2	16.1	***0.000***
Purchased wine	36.8	69.1	85.5		38.5	78.8	83.9	

Target winery market

Based on the three significant winery behavioral segmentations, this study delineates four types of winery visitors by using three variables: "Visit four or more wineries during the past five years", "Purchased wine from the wineries they had visited" and "Drink wine frequently". The type 1 is the winery visitor who visited four or more wineries, purchased wine from the wineries they had visited during the past five years, and drink wine frequently. Type 2 is the winery visitor, who visited four or more wineries during the past five years, drink wine frequently but did not purchase wine from the wineries they had visited during the past five years. Type 3 is the winery visitor, who visited four or more wineries, and purchased wine from the wineries they had visited but did not drink wine frequently. Type 4 is the winery visitor who visited four or more wineries during the past five years but neither drink wine frequently, and nor purchase wine from the wineries they had visited. (Table 5 and figure 1)

Table 5: Four types of winery visitors

	Type 1	Type 2	Type 3	Type 4
Visited four or more wineries during the past five years	YES	YES	YES	YES
Purchased wine from the wineries they had visited	YES	NO	YES	NO
Drink wine frequently	YES	YES	NO	NO
Percentage of winery visitors from WCTS	46.4%	1.8%	44.6%	7.1%
Percentage of winery visitors from HTMS	36.9%	5.6%	44.4%	13.1%
Percentage of travelers from HTMS	36.9%	5.0%	45.4%	12.7%

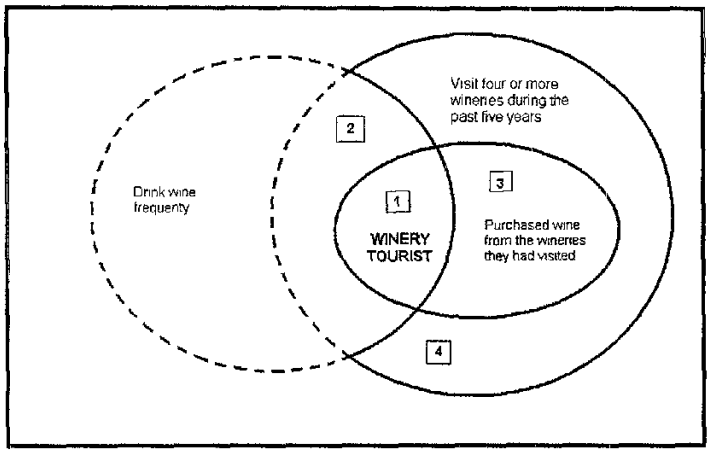


Figure 1: The target market of winery visitors

After identifying those four types, we could profile them in terms of their age, gender, income, state of permanent residence and some related variables. Table 6 provided the completed profile for two main types of winery visitors in Michigan wineries. From the WCTS result, 46% of winery visitors are type 1 winery visitor and 45% are type3 without drinking wine frequently, but drinking occasionally. Type 1 should be considered as the target market for the winery business in Michigan. For 70% of them have higher annual income level, 60% are over 50 years old and 63% are male for the respondents. For the other people in the respondent's travel party, the average age is also around 54 and 60% is female. Half of them are from Michigan and the rest are from other adjacent states. In addition to drinking wine at home, 90% of them drank in restaurants and 70% on their pleasure trips. The average number of wineries they had visited during the past five years is 9 and also almost 2 wineries they visited each year. An average of two people are in each travel party.

From the HTMS results, among the four types of winery visitors, the biggest group is the winery visitors in type 3 by 44% and 37% of the visitors are in typel category. This result is almost the same as the results for winery visitors who had taken a pleasure trip during the past twelve months. According to HTMS, 70% of type 1 winery visitor earns over $55,000 annually and almost 30% of them are from 41 to 50 years old. Regarding their original state residence, 78% of winery visitors came from other states rater than Michigan. The largest group is from Canada and than the group from Michigan by 10%.

Considering the 16% of Canadian visitors in the sample size and 22% from Michigan, Canada could be a potential target market for winery business in Michigan. The percentage of drinking wine at home or on a pleasure trip is almost the same, 95%. The average number of wineries they visited during the past five years is between 9 to 10 times and consistent with Welcome Center result.

Table 6: Profile of two types of winery visitors

		Welcome Center Traveler Survey		Household Travel Monitoring Survey	
		Type 1	Type 3	Type 1	Type 3
Income	Less than $37,000	-	5.3%	17.5%	17.2%
	$37,001 - $55,000	30.4%	15.8%	12.3%	32.8%
	$55,001- above	69.6%	78.9%	70.2%	50.0%
Age	21-30	-	5.6%	19.2%	20.0%
	31-40	16.7%	22.2%	13.5%	26.2%
	41-50	25.0%	11.1%	28.8%	21.3%
	51-60	29.2%	27.8%	15.4%	21.3%
	61-70	25.0%	16.7%	17.3%	6.6%
	Over 71	4.2%	16.7%	5.8%	6.6%
Gender	Male	62.5%	50.0%	42%	41%
	Female	37.5%	50.0%	58%	59%
State/Country of Residence	Illinois	15.4%	17.4%	6.8%	8.5%
	Indiana	-	4.3%	11.9%	16.9%
	Michigan	46.2%	30.4%	22.0%	25.4%
	Ohio	15.4%	21.7%	11.9%	21.1%
	Other US	23.1%	21.7%	15.4%	19.7%
	Canada	-	4.3%	32.2%	8.5%
Average number of wineries they had visited during the past five years		9	7	9.3	7.2
Average number of people in their travel party		2.3	3.5	2.1	2.8

Marketing Strategies

Two important objectives of the marketing strategies for Michigan wineries are to increase the number of winery visitors including return visits of exiting winery visitors (customers) and the first visit of the potential market, especially for travelers, and to increase the amount of wine, which the winery visitors will purchase during the trip and after they return home.

Higher quality of winery experiences

On an average, winery visitors will visit a winery twice a year. The satisfaction of winery visitors about wineries is extremely important factor in attracting the visitors to return. In additional to, the experience of visiting a winery will decide their positive or negative word-of-mouth promotion of the winery to other potential visitors. Dodd (1999) indicated that word of mouth is the most important information source used by visitors. Repeat visitors may be particularly influential weather they bring people along with them or repeatedly tell others of the experiences so these new visitors will come on their own (1999, p.25). Often, the winery visitors frequently purchase wine during or after the trip. The quality of the wine is the most important thing they make during the trip. Good image of their winery tour, good service, quality of the wine, and more information about where to purchase the wine will help the sales of the wines after they return home. Giving their customers (winery visitors) good impression and experience, providing professional service, and satisfying their needs could attract them to make a second visit.

Relationship marketing

In addition to giving a good image and experience to their customers, the wineries need to track their customers and keep the contact with them by developing a customer database, membership list and mailing list. By this way, the wineries can express current information including new products, promotions, and special events to their customers by mail, postcard or email.

Partnership with other businesses

Over 50% of the winery visitors of Michigan wineries are from other states or Canada rather than Michigan These people may be over-night travelers, and they may lack of tourism information about Michigan. Therefore, the wineries should develop partnerships with other local or regional tourism business such as lodging systems, restaurants or tourism information centers. Thus, winery visitors with higher income levels could be encouraged to visit a winery based on local accommodations.

Advertisement

Advertisements are a good way to attract the new visitors who never visit wineries. Many winery visitors are from other states and are not familiar with Michigan but can obtain information by stopping at Highway Welcome Center. The wineries can place their brochures in all Michigan Highway Welcome Center, hotels, or place billboards on the main highway advertising their wineries. Also, they could place the brochures at Welcome Centers and tourism information associations in other states to attract the visitors from other states. Except the close states like Illinois and Indiana, Canada is a larger market for Michigan wineries based on the Household Traveler Monitoring Survey's result.

Focus on aging visitors

Clearly a large proportion of winery visitors are over 50 years old. For type1 visitors, almost 30% of winery visitors are over 60 years old and retired, and 34% are in type 3. Because of their retired status, those people have more flexible time to schedule their pleasure trips. Therefore, the wineries could design some special winery tours or programs for the older group and have special promotion on the weekday for them. By doing this, they could increase the number of visitors and the sales of wine during the week and provide better service for the older visitors.

Conclusion

The results of WCTS and HNTS profiled the characteristics of the travelers and winery visitors in terms of their age, income, their state residence, the number of wineries they had visited during the past five years, frequency of wine consumption, and wine purchasing behavior. Three important winery behavioral segments identified the strong relationship between each variable and delaminates four types of winery visitors. The main target of winery market is type 1 visitors as they have a high annual income, are middle-aged, are from out of state, consume wine at home or on pleasure trips and visit wineries twice a year. If the winery can build good relationship with type 1 winery visitors, those customers will come back again. Dodd (1999) indicated repeat visitors purchase more accessory items or souvenirs that help to continue and promote the winery long after the trip. The Michigan wineries should understand the customers' needs, provided good service, create a good image, satisfy the customers, and maintain a good relationship with the customers.

Suggestions

This study focuses on understanding the characteristics of Michigan winery visitors and suggests possible marketing strategies for the Michigan winery business. The results cannot be generalized to areas outside of Michigan. Also, the sample size of winery visitors was not sufficiently big. For future research, the location to gather information about winery visitors should focus on the wineries. In addition to a profile of winery visitors, a profile of non-winery visitors would be potential topics for research to help the wineries further understand the characteristics of visitors who do not visit the wineries.

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ECONOMIC IMPACTS OF WINE TOURISM IN MICHIGAN

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Abstract: In Michigan, wine tourism is perceived as increasingly important concept because more and more tourists visit wineries and wine tasting rooms annually. However there have been few studies conducted concerning the economic impacts of wineries in Michigan even though the industry has been recognized as having significant economic impact potential.
The primary purpose of this study is to quantify both the economic impacts of winery visitors and wine production in Michigan. The three objectives that guided the design of the study are to: (1) segment winery visitors based on purpose of trip and length of trip, (2) estimate the economic impacts of winery visitors in Michigan using MITEIM, and (3) estimate the economic impacts of the wine production industry in Michigan using IMPLAN model.

Introduction

Agricultural tourism, such as visiting wineries, cider mills, historic farms or U-picks, and farm tours, has emerged as a strong and growing area of tourism recently. In Michigan, wine tourism is perceived as an increasingly important concept because more and more tourists visit wineries and wine tasting rooms annually. Wine tourism can comprise a substantial proportion of a winery's total sales, particularly for small wineries that do not have much access to other distribution outlets or wholesalers. Not only are tourists important for the sales they generate, but they also assist by educating others about wine and helping to change consumer attitudes and behaviors toward this product (Dodd and Bigotte, 1997). Therefore, income from tourists can be a major source of revenue, and their word of mouth advertising can be an important promotional tool for wineries and wine tasting rooms. Michigan now ranks 13th in wine production by volume in the U.S. and is the fourth largest producer of grapes for juice and non-alcoholic beverage processing in the nation. There are currently 27 commercial wineries in Michigan. It is estimated 600,000 people visited those wineries in 2000 (Mahoney et al. 2001). Previous research investigating the economic impact of tourist markets has sought to compare the relative economic impacts of tourist groups having different purpose of visit or different geographic origins. Without further description of the target segments, trip characteristics such as purpose of visit are of limited usefulness (Spotts and Mahoney, 1991). There have been few studies conducted concerning the economic impacts of wineries in Michigan, even though the industry has been recognized as having significant economic potential.
The primary purpose of this study was to quantify both the economic impacts of winery visitors and wine production in Michigan. A Project GREEEN grant and an additional grant from the Michigan Grape and Wine Industry Council funded the study.

The three objectives that guided the design of the study were to: (1) segment winery visitors based on purpose of trip and length of trip, (2) estimate the economic impacts of winery visitors in Michigan using MITEIM, and (3) estimate the economic impacts of the wine production industry in Michigan using IMPLAN model.

This study is valuable in that it partitions a single tourist market into three groups on the basis of primary purpose of winery visit and their relative level of spending, in order to estimate their economic impact.

Literature Reviews

Methods of Estimating Economic Impact

Economic impact analysis methods basically estimate average per-person spending, multiply this by the total number of visitors to determine the direct spending associated with the area or activity under investigation, and then apply multipliers to estimated secondary or indirect economic effects (Vogelsong & Graefe, 2001). A multiplier derives from the decision by firms to hire workers, produce output, purchase intermediate inputs, etc., and assumes that these decisions are dependent on the demand for their output. Expenditure on their output is what drives their production and creation of income (Burgan & Mules, 1992). Even if economic impact analysis is focused on generating direct expenditure data, it can be carried further by putting the expenditure data into an economic impact modeling package. These computerized databases model the economic impact of expenditures on the economy of a defined region, and are based on the economic multiplier or rate of money leakage that is known to occur within the region (McIntosh & Goeldner, 1984). Furthermore, these methods are capable of estimating indirect and induced impacts for a region under study. For instance, the $30 spent by visitors at a winery is the direct impact. This $30 may be comprised of a $20 wine purchase, a $5 food purchase, and $5 of wages and profits. Therefore, the expenditure of $30 at a winery will generate not only demand in other sectors (wine manufacturing, food manufacturing, and the like) but will also create immediate household income (wages and profits). The stimulus provided to those other sectors will in turn generate household income. Finally, the whole $30 will lead to household income in the form of wages and profits at a variety of stages of the production chain.

Input-output models are generally applied to tourism impact studies (Schwer, Gazel & Daneshvary, 2000). These models are accounting frameworks for analyzing the flow

of goods and services among businesses and between businesses and final consumers. These models are useful for defining the relationships, and the degree of interdependency, between various industries or sectors of an economy (Cox & Munn, 2001). Many economic impact studies include the use of computerized input-output models such as IMPLAN (Minnesota Implan Group, Stillwater, MN) to create a detailed description of how money entering a region travels through the economy and creates additional income and employment (Vogelsong & Graefe, 2001). There are other models including linear programming, computable general equilibrium, and social accounting matrix (Schwer, Gazel & Daneshvary, 2000).

Economic Impact of Wine Tourism

According to the Wine Institute and the California Association of Winegrape Growers, California's wine industry has a total annual economic impact on the state of $33 billion in wages, revenues and economic activity. California's wine industry created an estimated $12.3 billion in retail sales in the U.S. in 1998, and tourism directly related to the wine industry resulted in expenditures of $1.2 billion annually by 10.7 million winery visitors. These figures were calculated using the IMPLAN model.

Another winery economic impact study (Michaud, Segarra & Dodd, 1998) estimated the economic impacts of the Texas wine and wine grape industry on the Texas economy through each sector of businesses from the vineyards to the final consumers. Survey data from the state's vineyards and wineries for 1996 was used to construct an input-output model of the Texas economy and an industry impact framework using IMPLAN. Results indicated that the total core economic impacts of the Texas wine and wine grape industry were $85.8 million in output impacts, 1,157 jobs, $29.6 million in income impacts, and $46.6 million in total value added impacts in 1996. Much of these core economic impacts were attributable to the wine and wholesale trade sectors.

Michigan Tourism Spending and Economic Impact Model (MITEIM)

The Michigan tourism spending and economic impact model (MITEIM) was developed for the tourism industry within the state to estimate the economic impacts of tourism. The model estimates total visitor spending in an area and the associated economic effects in terms of sales, income, jobs and tax receipts. There are four steps to estimate the economic impact using the model. First, choose or edit a set of visitor spending profiles; second, enter the number and types of visitors; third, choose the multipliers for the local region; and last, enter applicable state and local tax rates. The basic rule of calculating economic impacts is to multiply the number of visits by the average spending per visit and then to multiply that product by the multiplier.

Spending data can be based on survey results or other recent studies. The figures from 1998 statewide lodging segment spending averages are defaulted in the model and can be easily adjusted for different purposes. To apply the model, visits are broken down between several distinct types of visitors with different spending patterns. For example, day visitor spending is quite different from that of overnight visitors, and spending also varies across groups of overnight visitors depending on the lodging types they use including: motels, campgrounds, owned seasonal homes, and staying with friends and relatives.

This model converts tourist spending to the income generated and the number of jobs supported by using sets of economic ratios and multipliers for the state and sub-regions. MITEIM itemizes the direct effects within key tourism-related sectors of the economy by using sector-specific ratios of jobs and income to sales. Total effects are presented in aggregate form and include both indirect and induced effects. In MITEIM, economic ratios and multipliers for the state and sub-regions are derived from input-output models estimated with IMPLAN Pro 2.0.

To estimate the economic impacts of winery visitors in Michigan, MITEIM was used for this study. There were three primary inputs to MITEIM: (1) the number of visits in party nights and shares for each segment, based on the length of the winery visits, (2) the spending profiles of each different segment on a party-night basis, and (3) a set of multipliers for Michigan's wine industry and wineries. Direct and total impacts were estimated in terms of sales, personal income, jobs, and tax receipts. Total impacts included indirect and induced effects, too. Direct effects were broken down by major sectors and compared with estimates of economic activity in Michigan to estimate impacts in absolute or relative terms.

To generate the spending profile of the model, six categories were used for this study: 1) lodging (motels, hotels, cabins, B&Bs, and campgrounds), 2) restaurants and bars, 3) groceries and take-out food and 4) drinks, gas and oil, 5) wine, and 6) souvenirs and other expenses. The winery visitors were segmented into three different types based on the length—half day, full day and overnight visitors—and the purpose of their trips. This will be discussed in more detail later in this paper.

MITEIM employs visitor spending profiles for a set of travel segments, to estimate visitor spending, and also utilizes a set of sector-specific multipliers. Basically, the numbers already established in the spending dataset and set up in the model were used, and the spending for wine purchases, generated from the inventory survey, were added. The model uses distinct spending profiles for each segment to capture differences in spending between them. Sets of multipliers, which are set up in the model for the state of Michigan and various subregions, were used for the analysis. Spending was estimated in categories and then applied to an input-output model of the area's economy. This figure was translated into spending associated income and jobs and also into estimating the secondary effects used to estimate spending and the economic impacts of wine tourism in Michigan (Stynes and Propst, 2000).

Study Methods

Two different survey methods were employed to gather the data for this study, one for tourists and the other for commercial wineries. These surveys were designed to collect different information essential for estimating spending by winery tourists and the direct and secondary economic impacts of Michigan wineries. The results from the tourist surveys produced comprehensive data on wine drinkers, winery tourists and characteristics of trips on which travelers visit wineries. Some of this information is used to segment the winery visitors that are used for the basis of economic impact analysis. A web-based survey of wineries was also employed to collect information about the wineries needed to estimate the industry's economic impact.

Web-based Survey of Wineries

This study of Michigan's commercial wineries was conducted using a web-based survey. This type of survey has lots of advantages compared to mail and telephone survey methods. It is completed 75% faster by using the Internet and at half the cost of conventional methods. In this study, a web-based survey was designed and used to conduct a marketing focused inventory of all Michigan wineries, including their facilities, services, products and events. This survey collected the following information: number of visitors, amount of transactions, average dollar value of a sales transaction, if and when the winery is open to the public, at-winery and off-site wine tasting, whether tours are available, special events, on-site marketing and retailing of wines and other related products, winery affiliated restaurants and lodging, number of persons employed all year and on a seasonal basis, and zoning and regulatory issues affecting winery development and marketing.

The questionnaires were also mailed out to wineries at their request. Twenty-one out of twenty-seven wineries that asked to fill out the survey did so; one third of them completed the survey through the Internet, and the rest of them were used mailed surveys. The total response rate was 78 percent.

Welcome Center Wine Tourism Survey

The Michigan Welcome Center Travelers Survey (2000) was conducted at six different Michigan Welcome Centers: Monroe, New Buffalo, Dundee, Port Huron, and Mackinaw City from June to October in 2000; 1,176 surveys were completed during that four month period.

Respondents entering and leaving the Welcome Center facilities that house restrooms, vending machines, and a travel information outlet were randomly selected using a systematic sampling scheme—every 5th person. Potential respondents were approached by trained surveyors and asked to cooperate in the survey. When the survey was completed, the surveyor collected it. This was not only more efficient in that as many as five persons could simultaneously complete the survey, but it also eliminated the introduction of interviewer bias.

The survey questionnaire consisted of twelve close-ended questions about length of trip (overnight vs. day trips, number of nights), purpose of trip and party size that were needed for economic impact analysis and some other wine related questions: whether they visited or planned to visit any wineries on the trip, whether they had visited any wineries in the last five years, whether they consume wine, whether they purchased wine, and also their socioeconomic characteristics.

Results

Using the information from the Welcome Center Travelers Survey, three different segments were selected for closer examination. Based on this segmentation, the analysis for economic impacts was developed with emphasis on the spending impacts of wine tourism. It is estimated that direct and secondary (indirect and induced) economic impacts of winery visitors are $16.6 million and 357 jobs in Michigan. Wine tourism generates direct economic impacts of $10.7 million, and it supports 206 jobs in Michigan. With the impacts of winery production, the total economic impact of the wine industry and wine tourism are $75.4 million—counting $58.8 million associated with winery production and $16.6 million related to wine tourism. Wineries support 756 jobs in Michigan, 399 in winery production and 357 in the wine tourism area.

Segmentation of Winery Visitors Based on their Trip Characteristics

To estimate the economic impacts of winery visitors, the data gathered using the Welcome Center Travelers Survey was segmented. Researchers expected that spending would be significantly different between people who visited the winery as their primary purpose of trip and people who merely stopped by the winery on the way home. People who stayed overnight in the area were expected to spend more money than people who visited the area as a day trip; therefore, segmenting the winery visitors by their trip characteristics was necessary to estimate their economic impacts. Based on these segments, their economic impacts were then calculated using MITEIM.

The Welcome Center Travelers Survey provided varied information about the trip characteristics of travelers who visited Michigan wineries. First, the purpose of trip characteristic was used for segmentation. Winery visitors were asked if their winery visit was the only reason for their trip, a primary reason for their trip, or a secondary reason for their trip. Secondly, the length of trip characteristic was used for segmentation in this study. The questionnaire asked if this was an overnight trip, and if so, how many nights they stayed during the trip. Using this information, the winery visitors were divided in three segments: people who visited wineries on a day trip with that visitation being the primary purpose for their trip, people on overnight trips who visited a winery as primary (but not only) purpose for their trip, and people whose winery visit was the secondary purpose for their trips.

Below is the outcome of the analysis based on the survey results:

Table 1. Segments of Visitors to Michigan Wineries

Segment	Type of Trip	Percent
One	Overnight trips and winery visit was a primary trip purpose	3.1
Two	Day trips and winery visit was a primary trip purpose	1.5
Three	Overnight and day trips, but the winery visit was not a primary trip purpose	95.4

Some economic impact studies would have attributed the entire trip spending to the wineries, but clearly this is not correct because the trip to the winery may occupy only one day of the trip, and there were other reasons for the trips such as shopping and viewing fall colors. Assigning the entire trip spending to the wineries would result in an inaccurate and invalid estimate of the economic impacts of wine tourism. All the estimated spending by persons visiting wineries on day trips, where the winery visit was the primary trip purpose, could be attributed to the wineries. One half of each day's trip spending was attributed to wineries for the 95% of the persons who visited wineries on either overnight or day trips where visiting the winery was not the primary trip purpose. In some cases, the winery visit may not have been planned before the trip. One day and a half day's trip spending of the persons who visited the winery as their primary purpose and stayed overnight in the area was attributed to the wineries.

Using a similar approach that is currently being applied in other tourism economic impact studies, a portion (not all) of the trip spending was attributed to the wineries. While this approach of attributing a portion of tourist trip spending to the wineries generates a conservative estimate of local economic impact of wine tourism, it can provide a more valid and accurate approximation.

Economic Impacts of Visits to Michigan Wineries--Wine Tourism

The first step in estimating tourism economic impacts is to estimate the number of visitors/tourists and to develop a profile of their trips. For example, the proportion of visitors that are on day trips vs. overnight trips is important in estimating economic impacts because length of trip has a significant effect on the amount and distribution of their trip spending. In the previous section, the profile of winery visitors was discussed with the information from Welcome Center Travelers Survey.

The number of winery visitors was generated from the inventory survey. Twenty-one wineries responded to the winery inventory survey, including providing estimates of the number of visitors to their wineries, and average retail purchases/transactions at the wineries. Two other wineries were surveyed on the telephone to provide additional information. Based on these results, it was estimated that, on average, Michigan wineries host 22,000 visits a year. This ranges from a few thousand to about 150,000. A weighted average was calculated from the estimates provided by the wineries to approximate visitation to all the wineries.

Approximately 600,000 persons visit Michigan wineries and tasting rooms, including those that attend festivals and special events hosted at the wineries. While this estimate is almost two times the previous estimate[1], it should be recognized that two wineries (including tasting rooms) host more than 225,000 visitors annually, and new wineries and expanded visitor services have been added since the previous estimate was developed. Also, wine tourism activities, events and marketing, and winery tourist visits have increased substantially over the last several years.

The Welcome Center Travelers Survey determined that the average size of parties visiting Michigan wineries is two persons. This means that on average, Michigan wineries host approximately 11,000 parties per year. About 83% of these parties purchase something at the wineries they visit including wine, wine accessories, mementos and food products. This does not include, as was discussed previously, the after-visit purchases of the products of the wineries that they have visited.

Direct Local Spending by Visitors to Michigan Wineries

The next step was to generate the spending profile for each different type of winery visitor. Since there was no spending information specific to winery tourists, profiles were developed by adjusting the MITEIM spending averages for Michigan tourists. A database of spending profiles developed for different tourism market segments was available in MITEIM. These spending profiles were estimated based on a 1998 Michigan Welcome Center visitor survey and other recent spending studies.

The MITEIM day trip segment profile was used for most winery visitors, counting one half of one day's spending for non-primary purpose trips and a full day for primary purpose day trips. The MITEIM profiles were adjusted to better reflect the trip characteristics of winery tourists. They were also changed to include estimates of spending at the winery that were derived from the inventories of the wineries. The inventory survey generated information on visitor purchases (average transactions) at the wineries. Based on this information, it was estimated that the average party spent $18 at the winery on the purchase of wine, and approximately another $5 on other products sold by the wineries including foods, jellies, and mementos. The $18 in wine purchases was substituted for the other shopping categories in the MITEIM profiles.

Retail spending at the wineries was included in the economic impact of winery visits, because total winery sales by Michigan wineries represent the producer's price without retail and wholesale margins added to capture what the consumer pays. The value added by the retailer and wholesaler are therefore not included in our estimates of

[1] The Michigan Wine Council estimates 350,000 persons visit Michigan wineries. (Michigan Wine Council, 2001)

the economic impacts of winery production for these purchases. When winery tourists purchase wine at the winery (directly from the wine producer), the price includes margins that are now captured directly by the winery. There may be some double counting of wine sales if the direct sales to consumers are also included in winery production figures. However, we believe that the amount of double counting of retail purchases of wine at the wineries is likely to be very minimal.

Winery visitors spent about $12.6 million in local communities near the wineries in 2001 (Table 2). The majority ($11.1 million) of this spending was by the 286,154 parties that visited wineries on either overnight or day trips where visiting the winery was not a primary trip purpose. As was discussed above, only a half-day ($38.70) of their local trip spending was attributed to the wineries. Winery visitors on day trips where the winery was the primary trip purpose spent about $255,000 in local communities near the wineries. Parties who visited wineries on overnight trips, during which visiting a winery was the primary purpose of their trips, spent an average of $130.85 per night in the local area, including an average of $18 on wine, for a total of $1.2 million. Again, it was believed that this was a conservative estimate, in that only one day and night of their overall trip spending was credited to the wineries.

Table 2. Winery Visitor Spending of Different Segments by Categories

	$ per party per trip		
Category	Half day[a]	Full day[b]	Overnight[c]
Motel, hotel cabin, B&B, campgrounds	0.00	0.00	50.00
Restaurants & bars	9.52	18.85	34.80
Groceries, take-out food/drinks	2.86	5.31	10.71
Gas & oil	6.32	12.43	15.34
Wine	18.00	18.00	18.00
Souvenirs and other expenses	2.00	2.00	2.00
Total	38.70	56.59	130.85
Party trips	286,154	4,500	9,346
Total Spending ($000's)	$11,074	$255	$1,223

*Spending profiles estimated from general Michigan traveler spending profiles in the MITEIM model

[a] Overnight and day trips, but the winery visit was not a primary trip purpose

[b] Day trips and winery visit was a primary trip purpose

[c] Overnight in Motel and Campgrounds trips and winery visit was a primary trip purpose

Direct and Indirect Economic Effects of Wine Tourism in Michigan

The spending estimates for different types of trips served as input for the MITEIM to estimate the secondary effects of wine tourism. The $12.6 million in winery tourist spending produced: $10.7 million in direct sales (the retail margins we subtracted from the $12.6 million), 206 jobs and $3.7 million in personal income. In this case most of the direct effects involved restaurants and bars, retail shops and lodging establishments near where the wineries were located.

Secondary effects of wine tourism were estimated to be almost $6 million and 151 jobs. Secondary wine tourism effects included both indirect and induced effects. Indirect effects would include the increased sales in restaurant supply businesses because of the increased business in restaurants resulting from wine tourism. The increased sales in local grocery stores resulting from the additional stays in B&Bs would be another example of an indirect effect of wine tourism related spending. The induced effects included increased sales in Michigan businesses, especially those located near the wineries, generated by spending by persons employed in the businesses that sell products and services to winery tourists. Employees in restaurants, hotels, retail shops and gasoline stations spend the wages and income they earn from wine tourism on consumer goods and services. This in turn generates additional sales, income and employment throughout the region's economy.

The total economic effect of wine tourism in Michigan is conservatively estimated to be $16.6 million in sales to businesses, 357 jobs and $6.7 million in personal income to employees and business proprietors. What is especially noteworthy is the significant positive impact wine tourism has on non-winery businesses located in communities near the wineries. For some tourists, wineries are the attractions that draw them to visit local communities, and for others a trip to the winery is a trip activity that adds to the quality of their experiences.

* This is $12.5 million in spending by winery tourists minus the retail and some wholesale margins on products they purchase while on their trips. The retail margins of many products purchased by tourists leak from the economy because the wholesaler, shipper, and manufacturer often lie outside the local area. While winery tourist spending on services is captured, the retail and possibly wholesale margins of imported goods they purchase will not accrue to Michigan's economy.

Economic Impact of Wine Production in Michigan

Total winery sales by Michigan wineries in 1998 were estimated to be $37.5 million. There are also 164 direct jobs in Michigan wineries, including full-time and part-time employees and sole proprietors. The amount of personal income including wage and salary income, payroll benefits and income of sole proprietors provided by wineries is estimated to be $4.2 million. Secondary sales in Michigan are $21.4 million. Secondary sales consist of purchases by Michigan wineries of goods and services from other Michigan businesses, and purchases of goods and services by winery employees and proprietors from the wages and income they are paid. The amount of indirect business taxes including excise taxes, property taxes and sales tax paid by wineries is estimated to be $5.4 million. The value-added effect of wineries is estimated to be $12.5

Table 3. Economic Impacts of Visitors to Michigan Wineries, Including Wine Purchases

Sector/Spending category	Sales $000's	Jobs	Personal Income $000's	Value Added $000's
Direct Effects				
Motel, hotel cabin or B&B	475	11	192	307
Camping fees	54	1	22	35
Restaurants & bars	3,236	92	1,205	1,731
Admissions & fees	-	-	-	-
Wine purchases	2,700	11	295	895
Other vehicle expenses	-	-	-	-
Local transportation	-	-	-	-
Retail Trade	3,646	88	1,897	3,091
Wholesale Trade	210	2	81	144
Local Production of Goods	294	1	32	66
Total Direct Effects	10,671*	206	3,724	6,269
Secondary Effects: Indirect and Induced Effects	5,955	151	3,012	4,605
Total Effects	$16,626	357	$6,736	$10,874

million. Value-added includes total income and indirect business taxes attributable to wineries.

The secondary economic effects of winery production include indirect effects that are changes in sales, income or employment within the state in backward-linked industries (e.g., agricultural supply, wine making ingredients and equipment) that supply products and services to the wineries. For example, the increased sales in a local farm supply store resulting from additional winery production and sales would be counted as an indirect effect. Induced effects are the increased sales or employment in non-winery businesses within Michigan from household spending of the income earned in wineries. Winery owners, managers and employees spend the income they earn in a variety of Michigan businesses to purchase products and services. Their purchases generate additional sales, income and employment in a variety of businesses including restaurants and retail stores.

It is estimated that spending by wineries for goods and services accounts for $16.5 million in sales, and supports an additional 153 jobs in other Michigan (non-winery) businesses. Spending of wages and salaries paid to winery employees and income to proprietors is estimated to generate $4.9 million in sales and another 83 jobs in Michigan (non-winery) businesses. The total direct and secondary economic effect of Michigan wineries is $58.8 million in sales and 399 jobs. The production/manufacturing side of the winery industry has a positive impact on many businesses in Michigan.

Conclusion and Implication

This study estimated the economic value of Michigan wineries of both the tourism and production sides of the industry. The industry has an economic impact of $75.4 million on Michigan's economy including $58.8 million on the production side and $16.6 million related to spending in local communities near the wineries. The results verify the economic and tourism contribution of Michigan wineries to the state and local communities near the wineries.

The findings of this study can provide a platform to investors, tourism promotion organizations, local economic development agencies and tourism businesses to enhance the climate for further growth and development of the industry. Special effort should be directed at increasing awareness of the potential contribution of wineries to attract and lengthen the stay of tourists to Michigan wineries.

Wine tourism is an effective marketing media for wineries and nearby tourism attractions. Wineries, the wine industry, and tourism communities can all benefit from efforts to develop and market wine tourism in Michigan. In addition to the direct sales benefit to both wineries and local tourism businesses, wine tourism provides wineries with an effective way to communicate and expand relationships with wine drinkers and potential winery visitors. Winery tourists also request that retailers and restaurants located near their permanent residences carry wines produced by the wineries that they visit. Wine tourism provides opportunities for wineries to develop stronger relationships with people who visited, a benefit that is not possible through advertising alone.

While the marketing potential of wine tourism is significant, wineries need to recognize that it is crucial to satisfy and "market to" persons visiting their wineries. There is a very good chance that the next person through the winery gates will be a frequent wine buyer with the potential for positive and negative word-of-mouth promotion of the winery depending on their experience.

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ATTITUDES TOWARD NEW ENGLAND FISHERS: A STUDY OF TOURISTS TO THE NEW HAMPSHIRE SEACOAST

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Abstract: A study of tourists to the New Hampshire Seacoast was conducted during the Summer 1998 and 1999 tourist seasons. A mail survey collected data on how seacoast visitors viewed potential management initiatives for coastal resources, the types of activities visitors have participated in and activities they are interested in participating in the future and visitors' attitudes and opinions regarding marine fisheries, fishers, and fishing communities. Since the cultural and historical aspects of fishing communities is one of the attractions that bring visitors to the seacoast area and public attitudes toward fisheries are not well known, this paper reports on how visitors perceive fishers and fishing communities, how they view the current status of marine fisheries, and examines motivations to participate in tourist activities related to commercial fishing and fishers' heritage.

Introduction

Currently, fisheries management is approached only through stakeholders directly involved, such as commercial fishers, managers and scientists. However, New England marine fisheries are becoming a prominent issue in the media through increasing public concern and litigation by environmental groups over sustainable fisheries. Because of this attention, management of New England fisheries will increasingly shift toward managing fisheries as a common resource, for the public good. However, we do not know much about public opinion and knowledge concerning New England marine fisheries or the fishers that harvest there. An accurate assessment of public opinion is needed to ensure effective policy making representation.

There have been limited studies on public opinion on New England marine fisheries and the cultural value of fishers. Beierle and Konisky (2000) studied the emphasis of public participation in environmental policy making, and demonstrated that public participation plays a central role in ecosystem management and community-based environmental protection. Determining public opinion of fishers and the factors that shape those opinions can lead to predicting the support the public will have for different management measures.

A recent study (Turcin 2001) examining willingness-to-pay for endangered Stellar Sea Lions demonstrated that survey respondents who lived farthest from the issue (and were least likely to be affected by the issue) were more willing to pay to protect Stellar Sea Lions. Studies like this may show that tourists are less affected by the socio-economic issues of the management decision, and may favor protecting the natural resources over cultural resources so these resources may be preserved for themselves and future generations.

However, fishers have been used as "marketing tools" for New England towns, to entice tourists to visit New England and experience a traditional way of life, for example:

> "A picture of a typical oceanside New England town always includes the lobsterman, headed out in his boat to empty his traps. The South Coast of Maine is home to that picture: small coastal lobster and fishing villages, quiet coves housing little boats, and dozens of sails flying over the water." (Visit New England 2002)

There have also been popular novels and movies, such as *The Perfect Storm* (Warner Brothers 2000), which dramatize fishers' lifestyles, and there has been a rise in seafood consumption and marketing of the health benefits of seafood (Holliday & O'Bannon 2000), despite declining seafood catch (Figure 1). Because of the romanticism of fishing and increased seafood consumption, the public may believe that it is important to preserve fishers' heritage and their lifestyle even though there has been evidence of declining catch.

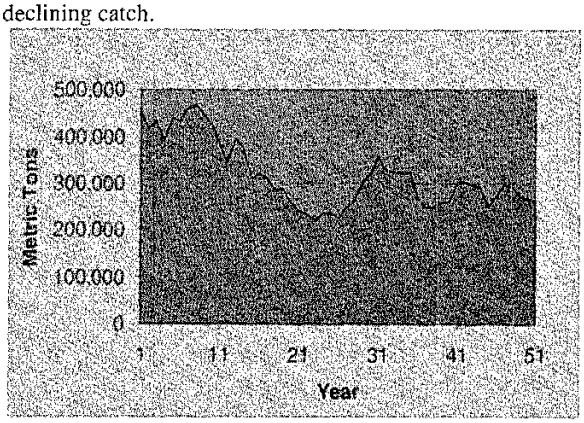


Figure 1 New England Marine Fisheries Landings, 1950-2000.

Source: National Marine Fisheries Service. 2000.

Given the recent attention of the media and environmental groups to New England marine fisheries (Diamon 2002, DeWeese 2002, Lindsay 2002, Dandurant 2002) and sometimes conflicting data, the public is presented with a variety of information and opinions. In order for the public to have an informed opinion on marine fisheries, more public education may be needed to present the public with the right facts.

This study conducted a survey of New Hampshire seacoast residents and tourists to gauge their attitudes toward New England marine fisheries and fishers, whether they believe fishers are an important part of our culture, and whether they would be interested in participating in educational activities involving fishers.

Methods

The target audience was tourists and local residents who took passage on the UNH Sea Grant Discovery cruises, New Hampshire Seacoast Cruises, and Isles of Shoals Steamship Company cruise ships during the summer tourism seasons of 1998 and 1999. The UNH Sea Grant Discovery cruises ("Discovery cruises") are education-based tours offered by the University of New Hampshire on their research vessel *Gulf Challenger*. This is a not-for-profit operation and most passengers are obtained by word of mouth. In contrast, New Hampshire Seacoast cruises and Isles of Shoals Steamship Company vessels ("commercial cruise operators") are for-profit operations, offer sightseeing cruises, party cruises and whale watches (and therefore are both sightseeing/entertainment and educational in nature) and are commercially advertised.

Excursion dates, times and types were randomly selected. Passengers were approached while waiting to board and asked to participate in a mail survey. The mail survey was designed and administered using standard data collection procedures and quality controls detailed in Dillman's Total Design Method (1978). Care was taken to ensure that the researchers and the research instrument did not bias the sample population towards a predisposition to support or oppose marine aquaculture development. A participation incentive program was developed to promote a high response rate (30% was anticipated).

The self-administered questionnaire was distributed to 750 passengers. A total of 420 completed surveys were received, yielding a 56% response rate. Responses were analyzed using SPSS statistical software and Chi-squared (X^2) and one-way analysis of variance (ANOVA) tests were used to examine for significant differences between passenger groups and attitudes.

Results

The UNH/Sea Grant Discovery cruise passengers represented 25% of the sample, while passengers of the commercial day cruise operators comprised 59% of the sample. Variables examined in our analysis included socio-demographic variables such as age, gender, education, income, and the distance of the respondent's primary residence from a saltwater coast, and attitude measures such as whether the respondent believes the heritage of fishers should be preserved, whether there is a New England marine fisheries crisis and whether large- or small-scale fishers are responsible, and the interest respondents have in attending educational activities involving fishers or scientists

There was no significant difference between the two respondent groups in the demographic variables of age, gender or education (Table 1), but there was a difference in income, employment status and distance from a saltwater coast (Table 2). Commercial cruise passengers tended to have higher income, had a greater percentage with full-time employment, and tended to live farther from the coast. Discovery cruise passengers included more respondents who were retired and live closer to a saltwater coast.

Table 1 Socio-demographic variables for Discovery cruise and commercial cruise passengers

Age	51 years (mean)
Gender	61% female 39% male
Education	16.2% high school 48.9% Bachelor's 25.9% Masters 6.2% Ph.D./Professional degree

X^2 analysis showed no significant differences between groups for these variables ($p<.05$).

Table 2 Socio-demographic variables for Discovery cruise and commercial cruise passengers

	Discovery (n=103)	Commercial (n=250)
Income ($)		
(median)	45-59,999	45-59,999
(mode)	30-44,999	30-44,999
(sd)	2.06	2.25
Employment Status		
Unemployed/PT	22%	14%
Full-time	43%	63%
Retired	31%	19%
Miles From Saltwater Coast		
0-10	52%	29%
10-50	37%	32%
50-100	10%	15%
>100	2%	24%

X^2 analysis showed significant differences between groups for these variables ($p<.05$).

Respondents were presented with the statement "The New England Marine Fishery in Crisis". Overall, 71% agreed and 20% disagreed. But there were significant differences between the Discovery cruise and commercial cruise passenger groups, with a larger percentage of the Discovery cruise passengers agreeing that there is a fisheries crisis (Figure 2).

Respondents were presented with the statements "Large-scale fishers are responsible for the fisheries crisis" and

"Small-scale fishers are responsible for the fisheries crisis". There were significant differences between groups, with Discovery cruise passengers more likely to agree that large-scale fishers are responsible for the fisheries crisis, while both groups tended to disagree that small-scale fishers were responsible (Table 3).

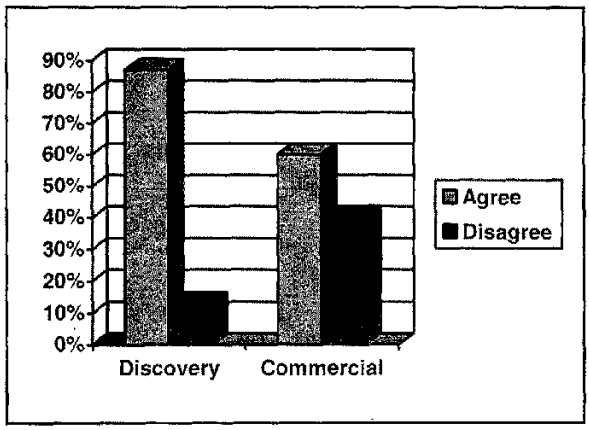


Figure 2 Responses of Discovery and Commercial cruise passengers to the statement "The New England Marine Fishery is in Crisis"

Table 3 Respondents' attitudes towards the statements "Large-scale fishers are responsible for the fisheries crisis" and "Small-scale fishers are responsible for the fisheries crisis"

Overall	Large-scale fishers	64% agree/36% disagree
	Small-scale fishers	9% agree/91% disagree
Discovery	Large-scale fishers	78% agree, 22% disagree
	Small-scale fishers	7% agree, 93% disagree
Commercial	Large-scale fishers	56% agree, 44% disagree
	Small-scale fishers	10% agree, 90% disagree

Differences were significant between groups only for large-scale fishers ($p<.05$).

Respondents were also presented with the statement "Fishers' heritage should be preserved". Overall, 75% agreed with the statement and 25% disagreed and there was no significant difference between the two groups.

We were interested in whether respondents' distance from the coast would influence their attitudes toward New England marine fisheries. As shown by Figure 3, passengers that lived farther from the coast were more likely to disagree there was a crisis or be unsure, while passengers living closer to the coast were more likely to agree that there is a New England marine fisheries crisis. This could indicate that there is a need for greater education of the public that lives in inland areas.

Respondents were presented with a variety of options of educational activities. Overall, respondents expressed interest in participating in the following activities (percentage of respondents answering that they would participate are in parentheses):

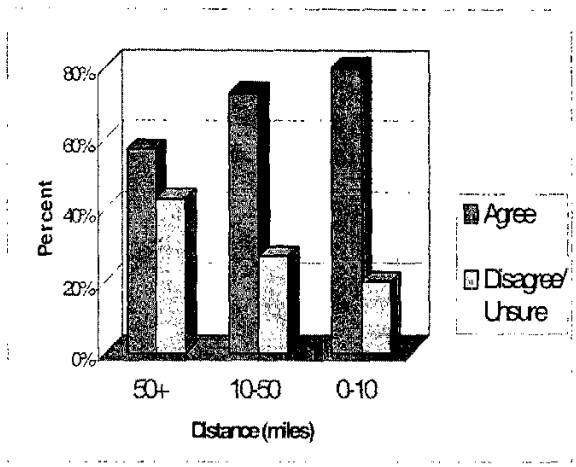


Figure 3 Distance of respondents' primary residence from a saltwater coast compared with whether or not there is a fisheries crisis.

- Presentation by a scientist or fisher (65%)
- Museum about NH marine fisheries (70%)
- Living history museum on fishing (64%)
- Whale watch that includes a visit to an aquaculture farm (82%)
- Excursion on a fishing vessel (52%)
- Marine environment museum (71%)
- Lobster boat excursion (54%)
- Shore-based aquaculture farm (68%)
- Ocean-based aquaculture farm (66%)
- All-day tour about aquaculture (61%)

Interest in the above activities was also associated with respondents' attitudes toward a New England marine fisheries crisis – respondents tended to be more likely to be interested in participating in educational activities if they agreed that there is a New England marine fisheries crisis.

Discussion

Almost three-quarters of the respondents agreed that the New England marine fisheries are in crisis, but that fishers' heritage should be preserved. Respondents also were interested in a variety of educational activities involving fishers, indicating that they are interested in learning more about fisheries. Therefore, recreation, education and tourism opportunities should reflect the growing public interest in marine fisheries issues and the desire for the public to explore and experience fishers' heritage. There is also an opportunity for managers and scientists to communicate with the public through these outlets.

Recommendations

Fishery management agencies, fishers and tourism businesses should work together in spreading awareness about fisheries issues. This could happen through businesses in coastal New England implementing

educational programs regarding fisheries, which could include fishing museums, presentations by fishers or scientists and education on fishing-related current events such as aquaculture, marine protected areas, developments in fishing gear and information on fishing regulations. Many of these ideas could be integrated into already-existing educational programs and displays.

Acknowledgements
We wish to thank the Isles of Shoals Steamship Company in Portsmouth, NH, New Hampshire Seacoast Cruises in Rye, NH and UNH Sea Grant/Discovery Cruises in Durham, NH for their help in collecting data for this study. We would also like to thank Torene Tango-Lowry for her help in data collection and analysis.

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Social Psychological Aspects of Outdoor Recreation II

A COMPARISON OF LEISURE CONSTRAINTS AMONG THREE OUTDOOR RECREATION ACTIVITIES: WHITEWATER RAFTING, CANOEING AND OVERNIGHT HORSEBACK RIDING

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Abstract: The purpose of this study was to compare leisure constraints across three outdoor recreation activities, whitewater rafting, canoeing, and overnight horseback riding, in the context of the three-dimensional leisure constraints model proposed by Crawford and Godbey (1987). The sample consisted of 650 outdoor enthusiasts from 14 U.S. states who showed an interest in outdoor recreation but did not participate in any of these activities in the last two years. A confirmatory factor analysis partially supported the three-dimensional model across the three activities. The model, however, failed to incorporate some of the constraint items. Comparison of leisure constraints showed that the importance of constraints varied across the three activities. Overall, rafting had the most intrapersonal constraints, horseback riding had the most structural constraints, and canoeing had the least constraints overall. Item-wise comparisons revealed different results than the factor-wise comparison. The implications of these findings for further research and providers are discussed.

Introduction

Leisure constraints have been a focus of leisure researchers and practitioners since the last two decades. Most of the leisure constraints research is dedicated to theory development and empirical testing of various theoretical approaches. The most widely accepted theoretical framework of leisure constraints was proposed by Crawford and Godbey (1987). This model was later elaborated by Crawford, Jackson, and Godbey (1991). These authors indicated that leisure constraints could be explained with a 3-dimensional hierarchical model (intrapersonal, interpersonal and structural). Since then, there have been some disputes on the hierarchical model. For example, Raymore, Godbey, Crawford and von Eye's (1993) study of high school students supported the hierarchical model, whereas Hawkins, Peng, Hsieh and EkLund's (1999) study of mentally retarded adults failed to support the model. However, the existence of three categories of constraints was supported (Raymore et. al, 1993) or supported with some modification (Hawkins et al., 1999). Most of these studies focused on the adequacy of the model in explaining constraints across various types of individuals in a general-leisure context.

Only a few studies have investigated if an individual has different constraints for different leisure activities (Jackson,1983; Jackson, 1994; and McCarville & Smale 1993). However, none of these studies compared the constraints within the same individuals. The purpose of this study, therefore, was to test the model proposed by Crawford and Godbey (1987), and to compare these constraints across three different outdoor recreation activities: whitewater rafting, canoeing and overnight horseback riding, within the same individuals.

Background

A significant development in leisure constraints research is the 3-category (intrapersonal, interpersonal and structural) model of leisure constraints proposed by Crawford et al. (1991). These authors proposed that constraints are categorized into three levels: intrapersonal, interpersonal and structural, which are encountered hierarchically. First, intrapersonal constraints are encountered. These include the individual psychological states and attributes that interact with leisure preferences, such as stress, depression, anxiety, religiosity, kin and non-kin reference group attitudes, prior socialization into specific activities, perceived self-skill, and subjective evaluation of the appropriateness and availability of various leisure activities (Crawford & Godbey, 1987, p.122). Since intrapersonal constraints are confronted initially, these are viewed as the most proximal and powerful constraints (Crawford et al., 1991).

When intrapersonal constraints are absent or negotiated, and the activity requires at least one partner, interpersonal constraints are confronted. These include lack of friends and family members to participate in a leisure activity (Crawford & Godbey, 1987). If interpersonal constraints are absent or negotiated, structural constraints occur (Crawford et al., 1991). These include family-cycle stage, family financial resources, season, climate, the schedule of work time, availability of opportunity, and reference group attitudes concerning the appropriateness of certain activities (Crawford & Godbey, 1987, p. 124).

The end result of constraints, however, is not necessarily nonparticipation. Shaw, Bowen and McCabe (1991) challenged the assumption that reported constraints lead to reduced participation in leisure. Shaw et al. (1991) found that more frequent reporting of at least some perceived constraints is associated with higher rather than lower participation. Scott (1991) proposed that three strategies are used to overcome constraints. These are, acquisition of information, alteration of timing, and acquisition of skill. Jackson et al. (1993) explained this complex process as a negotiation process. Further, Jackson et al. (1993) put

forward a proposition that participation is dependent not on the absence of constraints but on negotiation through them. In addition, interactions take place between the constraints (Jackson et al.,1993). For example, structural constraints play a role to suppress the desire (intrapersonal constraints). In this light, constraints are taken as phenomena that are more likely to result in modified participation than in nonparticipation (Jackson et al., 1993).

Empirical testing of this model, however, has revealed mixed results. Raymore et al.'s (1993) study of high school students supported the hierarchical model. Conversely, Hawkins et al.'s (1999) study of mentally retarded adults failed to support the hierarchical model. Nadirova and Jackson (2000) further proposed that different types of constraints within a single category might occur hierarchically. For example, the experience of structural constraints starts with costs and lack of skill, and then time commitments. This further broadens the leisure constraints negotiation concept in that negotiation not only occurs between categories but also within a category.

Hawkins et al. (1999) extended the definition of interpersonal constraints, which may have multiple meanings depending upon where one is situated relative to the dependence of an individual. For example, Hawkins et al.(1999) argued that dependence of mentally retarded people on caregivers has confounded the meaning of interpersonal constraints since their access to friends is determined by the caregivers. However, since the subjects of the Hawkins et al.'s (1999) study are adults with mental retardation, who have significantly lower intelligence than ordinary people (Godbey, 1999), the findings could not be generalized with the general population

Most of the leisure constraint research has been carried out in a general-leisure context. Only a few studies have been done to compare the constraints across different leisure activities. These studies include Jackson (1983), Jackson (1994), and McCarville and Smale (1993). In both Jackson's (1983) and McCarville and Smale's (1993) studies, each specific barrier was treated separately and compared across several leisure activities. Jackson (1994) compared constraints between outdoor and other forms of leisure activities, and among outdoor recreation activities. Fifteen specific constraints items were grouped into six dimensions of constraints: costs of participating, family and work commitments, facilities, social isolation, geographic isolation, and lack of skills. None of these studies, however, have attempted to compare the leisure constraints within the same individuals. Within a person, constraints for one leisure activity may differ from those for another activity.

This study, therefore, examined whether or not there are differences among the constraints for three activities within the same individuals. In doing so, the three categories constraints proposed by Crawford and Godbey (1987) were tested using confirmatory factor analysis, and three dimensions of constraints as well as individual constraint items were compared across the three activities.

Method

The data were collected with a self-administered questionnaire mailed to self-reported outdoor recreation enthusiasts listed in a targeted database available from a company specializing in survey sampling. The administration process followed a modified Dillman technique consisting of one packet with a letter requesting participation in the study and the instrument, a thank you/reminder card (one week later), and a second packet with a cover letter and an additional copy of the instrument (three weeks after the first mailing). To encourage participation, all communications with potential participants announced that their names would be entered in a lottery for a prize if they returned a completed survey.

The participants were selected with a stratified quota random sampling procedure. The strata consisted of 14 states in the continental U.S. A panel of outfitters was asked to list the states that represented the most important markets for their industry (AZ, CA, CO, FL, GA, IL, MI, MO, NJ, NY, OH, OR, PA, TX). Each state's quota (159 individuals) was defined based on availability of resources for purchasing the addresses. The individuals were randomly selected from a large pool of outdoor recreation enthusiasts from each state. From the 2,200 questionnaires mailed out, 75 were returned because of unusable addresses. Of the 2,125 remaining, 650 were returned and usable for a 30.59% response rate. Although this response rate is moderate for a study of non-participants, it does raise the question of possible non-response bias. Unfortunately, it was not feasible to test for differences between respondents and non-respondents due to limited resources.

In order to test differences between constraints for participation in three different outdoor recreation activities it was necessary to narrow down our sample to those respondents who reported not participating in rafting, canoeing, or horseback riding during the last two years. A total of 354 individuals from the initial pool of respondents fit this condition and were therefore selected for analysis.
The sample consisted mostly of females (57%) with a mean age of 49 years (SD= 14.86, range 21 to 89). The majority (51.8%) had a total household annual income of $75,000 and over, 44.7% had an income of $35-74,000, and only 3.5% had an income lower than $35,000. The vast majority of the sample (94.5%) were Caucasian/Whites, followed by Hispanic (2.0%), African American (1.7%), Native American 0.9%, and 0.6% Asian. With respect to home residence, most of the participants lived in suburban areas (32.2%), followed by small cities (18.7%), small towns (18.1%), large cities (16.1%), and rural areas (14.1%). Slightly more than half of the respondents had a college degree (52.9%), followed by graduate degree (28.1%), and high school diploma or lower (19%).

Operationalization of Dependent Variables

Respondents' constraints for participation in the three outdoor activities were assessed through the use of three identical multi-item ordinal scales (Table 1). For each item, the respondents were asked to indicate how strongly they agreed or disagreed with each reason listed in the

survey (1=strongly disagree to 5=strongly agree). They were also allowed to indicate "not applicable." The items were adapted from previous literature (Crawford & Godbey, 1987; Crawford et al.,1991). Since these measurements were adapted from previous literature it was deemed most appropriate to test the model's fit with the data using Confirmatory Factor Analysis.

Analysis and Results

An examination of the fit of the measurement model with 3 dimensions and 13 items revealed poor fit with the rafting data ($\chi2(63)$= 417.71, CFI=.76, NNFI=.76). In an attempt to improve the fit of the model without violating the theoretical accuracy of the scale, items that were responsible for large residuals and had the tendency to load in more than one factor were removed (Bentler & Chou, 1987). After deleting one item from the intrapersonal subscale the fit of the model improved significantly (Table 2). Additional improvements in model fit were accomplished by deleting three more items from the structural constraints dimension. The result was a more parsimonious model consisting of the original three dimensions and with a good fit with the data ($\chi2(24)$=102.42, GFI=.95, CFI=.93, NNFI=.93). This structural model was then applied to data for the same individuals' constraints to participate in canoeing and in horseback riding. The fit of those models was also acceptable: $\chi2(24)$=89.71, GFI= .94, CFI=.94, NNFI=.94 for canoeing, and $\chi2(24)$=135.31, GFI=.93,, CFI=.92, NNFI=.92 for horseback riding (Figure 1; Table 3).

Table 1. Constraint scales

Dimension	Item
Intrapersonal	The activity is too physically demanding
	The activity involves too much risk
	I don't like water sports/ I am intimidated by horses
	I can't swim/ride horses[a]
	I don't know what to expect
Interpersonal	I have no one to go with
	My family and friends are not interested in going
Structural	There are no such areas near me for this activity[a]
	The activity is too costly
	Family commitments keep me from going[a]
	The expenses of traveling and staying are too great
	I have no information about the outfitters who offer this activity
	I have no time to go[a]

[a]Items deleted after Confirmatory Factor Analysis

Table 2. Comparison of nested models of constraints to participation in whitewater rafting

Model	Scaled $\chi2$	df	GFI	CFI	NNFI	$\chi2$ Diff. test
Initial model (Crawford et al.,1991)	417.71	63	.86	.76	.76	
Model 2 – 1intrapersonal item deleted	242.89	52	.90	.84	.85	174.82*
Model 3 – 3 structural items deleted	102.42	24	.95	.93	.93	140.47*

*p<.05

Table 3. Summary of the overall fit indices estimated for the constraints to participation in all activities

Model	n	GFI	CFI	NNFI	$\chi2$/df	RMSEA
Whitewater rafting	478	.95	.93	.93	4.27	.09
Flat water canoeing	377	.94	.94	.94	3.74	.09
Horseback riding	491	.93	.92	.92	5.64	.10

Table 4. Comparison of three dimensions of constraints in three outdoor recreation activities

Constraints	Rafting	Canoeing	Horseback Riding	F
(Factors)	Mean (SD)	Mean (SD)	Mean (SD)	
Intrapersonal	2.67 (0.90)	2.35 (0.49)	2.49 (0.88)	19.55***
Interpersonal	2.95 (1.13)	2.92 (1.06)	3.04 (1.11)	1.88
Structural	3.04 (0.81)	2.82 (0.86)	3.09 (0.81)	20.80***

***p< 0.001

Table 5. Comparison of item wise constraints to participation in three outdoor recreation activities

Constraints	Rafting	Canoeing	Horseback Riding	
Items	Mean (SD)	Mean (SD)	Mean (SD)	F
The activity is too physically demanding	2.80 (1.13)	2.34 (1.08)	2.60 (1.16)	17.38***
The activity involved too much risk	2.99 (1.13)	2.31 (1.01)	2.33 (0.99)	70.86***
I do not like water sports/I'm intimidated by horses	2.13 (1.20)	2.10 (1.13)	2.35 (1.15)	7.22***
I can't swim/paddle canoe/ride horses	2.30 (1.35)	2.35 (1.11)	2.96 (1.29)	35.30***
I don't know what to expect from this activity	2.74 (1.17)	2.58 (1.15)	2.61 (1.2)	2.14
I have no one to go on a trip	2.83 (1.25)	2.74 (1.18)	2.91 (1.2)	2.67
My family and friends are not interested in this activity	3.06 (1.23)	3.07 (1.13)	3.17 (1.19)	1.08
There are no such areas near me for this activity	3.09 (1.32)	2.57 (1.16)	2.95 (1.12)	19.00***
The activity is too costly	2.95 (1.00)	2.56 (0.95)	2.91 (1.04)	26.81***
Family commitments keep me from this activity	3.26 (1.17)	3.20 (1.15)	3.19 (1.16)	0.82***
The expenses of traveling and staying are too great	3.02 (1.01)	2.60 (1.00)	2.77 (1.03)	24.54***
I have no information about the outfitters who offer this activity	3.13 (1.12)	3.26 (1.17)	3.60 (1.12)	22.26***
I have no time to go for this activity	3.35 (1.12)	3.31 (1.10)	3.31 (1.15)	0.29

***p< 0.001

Repeated Measures Analysis of Variance was used to test differences across activities for each of the dimensions and items. The results showed significant differences among the activities for intrapersonal constraints (F (2,600)=19.55, p<.001) (Table 4). The respondents had significantly higher intrapersonal constraints for rafting (m=2.67) than horseback riding (m=2.49) or canoeing (m=2.35). Post-hoc tests showed that the differences are significant for all three activities. No differences among activities were found with respect to the importance of interpersonal constraints. Lastly, the importance of structural dimensions differed across activities (F(2,610)=20.80, p<.001). Post-hoc tests showed that horseback riding (m=3.09) and rafting (m=3.04) received significantly higher average scores in this dimension than did canoeing (m=2.82). However, the difference between horseback riding and rafting was not significantly different.

The comparison of individual constraint items across the activities showed mixed results (Table 5). Among the five items under the intrapersonal constraints, two items showed consistent results with the categorical results, two items had reverse results, and one item had no significant difference. The items associated with physical demands and risk are consistent with the category results, with rafting being the highest and canoeing the lowest. However, for the items associated with no interest/intimidation and skill, horseback riding showed the highest constraints among the three activities.

Like the factor-wise comparisons, neither of the interpersonal constraint items differed significantly across activities (Table 5). For the structural constraints, rafting had the highest constraint for availability of the activity close to home, and activity and travel costs. This is different from the overall structural dimension, where horseback riding had the highest constraints. However, lack of information about the outfitters was felt the most for horseback riding. The results showed no significant difference for the item related to lack of time.

Discussion

The results partially supported the 3-dimensional model proposed by Crawford and Godbey (1987). The improved model, first tested with rafting, fit for all the three activities. Three factors explaining leisure constraints were found for each activity. However, the model could not incorporate some of the constraints items into three dimensions, as some of the items did not fit into the three factors. The structural dimension proved to be more complex than anticipated since three out of six items did not fit into the model. These items were "unavailability of area close to home," "family commitments," and "lack of time." Cost, lack of time and unavailability of areas are the most frequently reported structural constraints in the literature but these three items were not correlated with each other. Lack of time was the most important leisure constraint but it did not fit with the other structural items and was therefore deleted. Similarly, perceived skill did not fit into the intrapersonal category, which leaves some doubts on this constraint dimension. The interpersonal category had internal homogeneity since both of the items fit into the category.

Overall, rafting showed the highest intrapersonal constraints, horseback riding had the highest structural constraints, and canoeing was always the activity with the lowest constraints. However, the item-wise comparison was not always consistent with the factor-wise comparison. For example, although overall intrapersonal constraints were significantly higher for rafting, two intrapersonal constraints were higher for horseback riding than for rafting. These were, no interest/intimidation and perceived skill. Likewise, overall, horseback riding had the highest structural constraints but this holds true only for three out of six items in the item-wise comparison. The most important intrapersonal constraint for horseback riding was

perceived lack of skill. This item had no contribution to the structural dimension score since the item was deleted. Therefore, comparison of factor analysis-based dimensions concealed the importance of item-by-item constraints, as Jackson (1994) asserted. Nonetheless, the most important finding of this study was that the three types of constraints were different across the three activities for the same group of individuals.

Conclusions

The purpose of this study was to test the three-dimensional model proposed by Crawford and Godbey (1987), and to compare leisure constraints across three outdoor recreation activities, whitewater rafting, canoeing, and overnight horseback riding with the same individuals. The results partially supported the three-dimensional model proposed by Crawford and Godbey (1987). The modified model developed using confirmatory factor analysis fit for all three activities. The three-dimensional model, however, failed to incorporate all the items. Most worrisome is that half of the items within the structural dimension did not fit into the model. Therefore, the structural constraints dimension should be revised and the possibility of multiple subcategories should be explored.

Comparison of leisure constraints across the three outdoor recreation activities showed that the role of constraints differed even within similar activities. Overall, rafting had the most intrapersonal constraints since it was perceived as higher risk and too physically demanding. However, with the intrapersonal category, perceived skill and intimidation constraints were higher for the horseback riding. Canoeing was perceived as the least constrained activity. Interpersonal constraints were not significantly different across the activities. For the structural constraints, overall, horseback riding was the most constrained activity because of lack of information about the outfitters who offer the activity. However, rafting was perceived as costly and inaccessible. There was no difference across the activities in terms of time constraints. Since the factor-wise comparisons concealed the importance of individual constraints, it is suggested to examine the constraints item-wise rather than only within categories.

Overall, the findings indicate that outdoor recreation providers should consider each activity differently for the purpose of marketing. For example, whitewater rafting and canoeing are similar activities but the constraints that keep people from participating in these activities are quite different. Canoeing is the least constrained activity among the three activities. However, lack of time and lack of friends and family to participate in the activities play similar roles for three activities. Rafting was perceived as too physically demanding and risky; therefore information on the actual physical demands and risks might help people to overcome these intrapersonal barriers. Similarly, while the cost constraint was similar for rafting and horseback riding, the expense of traveling to suitable resource areas was a big issue to the rafters. This information suggests that outfitters should reconsider their pricing and transportation services. For horseback riding, the two most important intrapersonal constraints that keep people from participating are intimidation and not having the skill to ride horses. The most important structural constraint for horseback riding is a lack of information about the outfitters who offer this activity. Therefore, providers could prepare information on horseback riding and the opportunities for developing skill in order to overcome these constraints.

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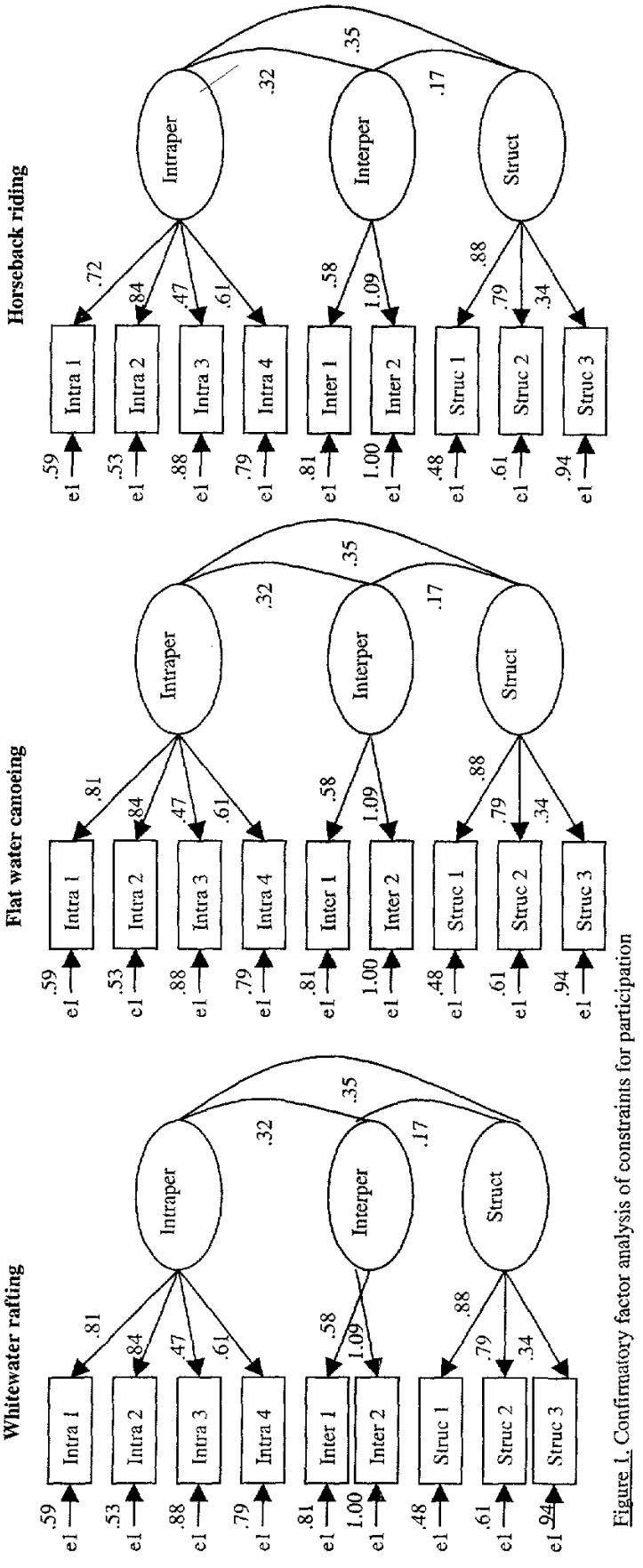


Figure 1. Confirmatory factor analysis of constraints for participation

Attitudes Toward Management of Recreation Resources

URBAN PERCEPTIONS OF NATIONAL FORESTS: THREE EXAMPLES FROM THE NORTHERN UNITED STATES

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Abstract: A study of the perceptions of the management and use of proximate National Forests by residents of the Boston, Detroit, and Minneapolis Metropolitan areas was conducted in 2000. Respondents were contacted by telephone and surveyed about their perceptions of the management and use of nearby National Forests. These include the Green Mountain and White Mountain National Forests for Boston; the Huron-Manistee, Ottawa, and Hiawatha National Forests for Detroit; and the Chippewa and Superior National Forests for Minneapolis. A total of 600 interviews were completed for each Metropolitan area using computer assisted interviewing and up to 10 calls to each number, resulting in a response rate of 72 percent. Responses included the personal importance that individuals placed on the National Forests, including benefits, attributes, their use of the Forests, and the importance they attached to goals for National Forest management and particular management practices. Results have implications for managers of public lands who are working to build a constituency among the residents of major Metropolitan areas within a half-day drive of the Forest. The study also provides information that can help guide research aimed at supporting urban outreach efforts.

Introduction

Public land management currently is not a matter to be decided only by public agencies, local residents, and interest groups. There is widening public and private interest in decisions concerning public lands; many of these decisions attract regional and national attention. Thus the geographic range of individuals and groups involved in decision making for public lands such as National Forests is increasing.

With scarce resources for the management of public lands, there is also a need to gain support from a wide range of constituents in order to build sound management programs. With National Forests and other largely rural public holdings, broadening the constituency for plans and programs can include reaching out to urban residents who live some distance from the Forest. In the Eastern United States, urban outreach often involves large cities that are within a half-day drive of one or more National Forests. However, National Forest managers do not have a great deal of experience reaching out to individuals in such areas. To guide their efforts, the Eastern Region of the National Forest System has initiated an "Urban Connections" project. This paper reports on an early effort under that project, a telephone survey of individuals living in the Boston, Detroit, and Minneapolis Metropolitan Areas undertaken to help guide the Urban Connections efforts in the Eastern Region and beyond. The purpose of this paper is to share some of the initial findings from the survey that may help guide the establishment of working relationships between the managers of public lands in largely rural areas and the residents of Metropolitan Areas within a half-day drive.

The Survey

Six hundred telephone interviews were conducted with individuals age 18 and above in each of three metropolitan areas: Boston, Detroit, and Minneapolis. At the beginning of each interview, to help orient respondents to the National Forests, interviewers provided the names of the closest National Forests. These included the Green Mountain and White Mountain National Forests for Boston; the Huron-Manistee, Hiawatha, and Ottawa National Forests for Detroit; and the Chippewa and Superior National Forests for Minneapolis. The interviews, which averaged 17 minutes in length, were carried out between May 27 and June 25, 2000. Computer-assisted telephone interviewing was used, with up to 10 attempts to reach each phone number. Successful interviews were completed with 72 percent of the numbers called.

Importance of National Forests

Respondents indicated that the National Forests were important, with more than 70 percent indicating that the National Forests were very important to them personally (Table 1). This and essentially all other findings were relatively uniform across the three Metropolitan Areas, suggesting the possibility of comparable findings in similar metropolitan areas of the Eastern Region. Respondents reported visiting National Forests quite frequently. Nearly half reported visiting the nearest National Forest in the past 12 months, and more than a quarter had visited it more than twice (Table 2). The fact that only 22 percent of the respondents reported that they had never visited a National Forest seems quite low. For example, the 1995 National Survey of Outdoor Recreation and the Environment indicates that for the Eastern Region of the National Forest System, which includes all of the study sites, two percent of the most recent trips to outdoor sites were to National Forests (Betz 2002). Along a similar line, there were an estimated 6 million visits to the Green Mountain and White Mountain National Forests in 2001 (English 2002). Given the reported 51 percent visitation rate to the nearest National Forest by residents of the Boston Metropolitan area (population approaching 6 million) this would assume 3,000,000 visits from the Boston metropolitan area to the two forests, or half of the visits to the two forests, or all of the visits to the White Mountain National Forest – which seems unlikely.

It is possible that those who have visited National Forests are more likely to respond to the surveys. But given a 72 percent response rate, the occurrence of such behavior is not likely to be widespread.

Table 1. Personal Importance of the National Forests

	Percent
Very important	71
Somewhat important	24
Not important	5

Table 2. Visits to National Forests

Visits	Closest N F Past 12 Months	All N F Past 5 years
	Percent of Respondents	
0	54	28
1	16	10
2	11	14
3-4	8	16
5-9	4	14
10+	4	15
Don't know	3	3

Despite their high level of personal importance, respondents had limited knowledge about which agency manages the National Forests; only one-fifth correctly identified the USDA Forest Service as the manager. Another 12 percent identified the Forest Service but placed that agency in the U.S. Department of the Interior. More than half of respondents reported that they did not know who manages the National Forests.

Preferred Use of National Forests

Passive activities in a natural environment topped the list of reasons that respondents gave for visiting a National Forest, followed by day use activities, camping, meeting with others, and boating or rafting (Table 3). Consumptive recreation activities such as fishing and hunting were ranked at the bottom of the list. In ranking benefits of a National Forest, home for plants and animals, making the air cleaner, and providing clean water ranked at the top of the list along with the quiet appreciation of nature, followed by recreation and jobs. Wood for homes and paper pulp and providing a meeting place were ranked at the bottom of the list (Table 4). A list of desired forest attributes developed by focus groups was consistent with the survey findings and emphasized an undisturbed natural environment (Table 5).

Table 3. Reasons for Visiting a National Forest

	Percent Agreeing
Sightseeing or viewing nature	96
To enjoy the fresh air	95
Experiencing the outdoors	94
To relax and gain peace of mind	92
Walking, hiking, or biking	78
Picnicking	70
Camping	53
To meet with others	49
Boating or rafting	35
Fishing or hunting	34

Table 4. Selected National Forest Benefits by importance ratings (percent extremely or very important)

	Percent
A home to animals and plants	93
Make the air cleaner	91
Provide clean water	88
Allow quiet appreciation of nature	86
A place to go for fishing, boating, and other outdoor recreation activities	68
Contribute products and jobs to the national economy	56
Provide a place to get shade on hot days	48
Produce wood for homes and pulp for paper	45
Provide a place to meet with others	36

Table 5. Desired National Forest Attributes (from focus groups)

No roads
Untouched
Foot-paths only
Waterfalls
Environmentally responsible logging
Lots of animals
No motorized vehicles
Mossy trees
Wildflowers
Fish
Diverse wildlife
Bike paths
Places for artistic inspiration
Deer trails only
Campgrounds by streams

Management Priorities for National Forests

As might be expected from individuals who want to experience a natural environment, respondents expressed the highest degree of agreement with statements that called for a management emphasis on protecting and preserving National Forests, followed by creating a healthy environment, outdoor recreation activities such as boating, hiking, and enjoying peace and quiet (Table 6). Providing for logging and mining ranked towards the bottom of the list of preferred management priorities; slightly less than half of the respondents agreed that a forest could be used for recreation and logging and mining at the same time. Less than two-fifths of respondents agreed that logging and mining should be allowed on National Forests. While 69 percent agreed that National Forests affect the quality of drinking water, few could explain the process by which that happened. When asked about more detailed management activities, respondents indicated that the Forest Service should give high priority to protecting, maintaining, restoring, and caring for the National Forests (i.e., caring for and planting trees, fighting wildfire). They ranked providing for education and outdoor recreation below those activities but above meeting the country's need for wood and minerals and building roads, bridges, and trails (Table 7). Sixty-two percent of respondents ranked the Forest Service good to excellent for its management of National Forests (Table 8). Those ratings were even higher for respondents who knew that the Forest Service manages NFs and those who visit the National Forests near their homes. Overall, respondents ranked the Forest Service highest for protecting the environment and lowest for being trustworthy (Table 9). Less than one in ten felt very well informed about the Forest Service.

Table 6. Percent Agreeing with Management Directions for National Forests

	Percent
Protected and preserved	99
Managed primarily to maintain a healthy environment with clean air and water	97
Used for recreation such as boating, hiking, and enjoying peace and quiet	96
Can be used for recreation and logging and mining at the same time	48
Logging and mining should be allowed	39

Discussion

Taken together, the results suggest that respondents have an image of National Forests as places that are personally important to them and highly valued as natural environments. Respondents reported that they make a significant number of visits to the nearby National Forests. They placed a high priority on the natural attributes of the National Forests and want the Forest Service to engage in management activities that protect, preserve, restore, and maintain these attributes and the areas that support them. They placed a lower priority on the use of the National Forests for outdoor recreation (particularly consumptive recreation like fishing and hunting), mining, logging, and providing access and facilities for users. These responses were quite consistent with previous studies of residents of Vermont and Massachusetts concerning the Green Mountain National Forest (Manning et al. 1999) and the White Mountain National Forest (Morrissey and Manning 2000) as well as a number of other studies. Other studies that provided similar results include Bengston and Xu (1995) and Shindler et al. (1993).

Table 7. Percent Giving High Priority to Selected Management Activities

	Percent
Protecting the forests	93
Maintaining, protecting, and restoring land for water quality and a healthy environment	91
Caring for and planting trees	88
Fighting wildfires	82
Providing public education about the forest, conservation, and local ecology	72
Providing opportunities for recreation such as camping, hiking, boating, or picnicking	52
Helping to meet the country's need for wood and minerals	30
Building roads, bridges, and trails to help people get to different parts of the forest	26

These perceptions need to be considered in terms of respondents' limited knowledge of who manages the National Forests, their acknowledged lack of information about the National Forests, and limited ability to explain the interrelationships between forests and water. While it would not be reasonable to expect a large portion of the public to know precisely who manages the National Forests, the relatively low level of knowledge of the managing agency raises other questions about knowledge of the National Forests. To what extent were the respondents aware that they were visiting a National Forest or other type of public holding? And did they know when they were on the National Forest or intermingled or adjacent holdings? Distinguishing between land ownerships may be difficult for many users, given intermingled ownership patterns on a number of the National Forests. In many cases individuals may not have an obvious need to distinguish among owners/managers, such as on a scenic drive through the countryside. The risk of possible confusion among managing agencies increases when we note that a number of respondents listed state and local agencies as managers of the National Forests.

Surveys such as the one used here are often conducted to help managers and planners better understand their

constituents, particularly those that they do not encounter on or near the Forests and with whom they do not have regular contact. With the National Forests and other largely rural resources, this is likely to be urban residents. Interpreting the results of these surveys is not always simple and straightforward given that (1) respondents may not be highly familiar with the National Forests and their management (which seemed to be the case here), and (2) the format of this type of a questionnaire does not lend itself to presenting detailed or complex questions. Tradeoffs between various management strategies are not easily presented and the implications of some of the management strategies are not always explicit. For example, what would be the implications of not producing timber or minerals on the National Forests? Would prices of a number of products rise markedly? Would harvesting or mining take place in other areas of significance to respondents? How would other uses of the National Forests change? Dennis (1998) reports on a study where he used conjoint analysis to evaluate the tradeoffs among different outputs of National Forest management. The analysis focused on a 7500-hectare area of the Green Mountain National Forest and the results suggest that participants were able to make tradeoffs among different outputs of National Forest management, including various levels of timber harvesting, wildlife habitat, hiking trails, snowmobile use, and off-road vehicle access.

Table 8. Overall Rating of the Job the Forest Service Does Managing the National Forests

	Percent
Excellent	16
Good	46
Fair	18
Poor	4
Don't Know	17

Table 9. Percent Who Rated the Forest Service Good to Excellent in Selected Areas

	Percent
Protecting the environment	65
Meeting the needs of the people	60
Caring for public lands	58
Providing clean water	55
Being trustworthy	47

One suggestion for helping respondents understand the location of the National Forests would be to use mail or Internet surveys with maps on them. Tradeoffs could be presented in a mail or Internet questionnaire but most likely the number would be limited. Perhaps a combination of surveys and follow-up focus groups would be useful in taking the results to another level of geographic and management detail. The limited focus groups used in this study were helpful in interpreting responses to the survey questions.

Conclusions

Residents of Boston, Detroit, and Minneapolis consistently affirm that National Forests are very important to them personally. They report that they have visited nearby and more distant Natural Forests and that they see these National Forests as important natural areas that should be managed and used in a way that preserves, protects, and restores the natural character and the experiences that it provides. They are not as highly supportive of active outdoor recreation, particularly consumptive activities such as hunting and fishing, logging, and mining or providing access to the Forest for recreation. These results are similar to a number of other studies of the values, ethics, and preferences of individuals concerning National Forests.

The overall results suggest that there is ample room for outreach efforts such as the Urban Connections program. These efforts can build on the high level of personal significance that individuals place on the National Forests as well as the high priority that they place on natural environments in those Forests. In future research studies, perhaps focus group discussions and studies using conjoint analysis can deepen our understanding of people/National Forest interactions and provide improved guidance for building urban connections.

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PUBLIC ATTITUDES TOWARD PROGRAMS DESIGNED TO ENHANCE FOREST RELATED BENEFITS ON PRIVATE LANDS

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Abstract: Public agencies may at times provide education, technical help, tax incentives, or other forms of aid to private landowners to help them enhance their land in ways that benefit the public. Since public funds are used to pay these expenses, it is important that program goals be correlated with underlying public values and concerns. We used a conjoint ranking survey to assess public preferences and acceptable tradeoffs with respect to programs that enhance timber quality and growth, promote public recreational opportunities, improve wildlife habitats, and the costs associated with these programs. The survey included personal interviews in which participants were asked to complete a series of demographic and attitudinal questions. Results will provide insight into public views on landowner and societal rights and responsibilities regarding private lands and relative values regarding forest based benefits on private lands.

Introduction

Approximately 88% of the northeastern forest is owned by private landowners (USDA Forest Service 1988, 1995). Most of this land, almost three-quarters of the total, is held by a broad assortment of nonindustrial private landowners (NIPF's). The mere extent of these holdings makes obvious their potential importance in meeting society's needs for timber, outdoor recreation, wildlife habitats, aesthetics, biodiversity, and other benefits that forests offer. An understanding of the role that private lands may play along with a greater ability to draw on the potential benefits can reduce the intense pressure being placed on the remaining 12% of the land that is in public ownership.

Prior research has focused primarily on the perspectives of landowners regarding benefits derived from their land. In this study we examined public perspectives toward private lands, for example what does the public expect from private forests and what are they willing to give up to obtain these benefits? To provide insight into these questions we administered a conjoint ranking survey and a series of attitudinal questions to visitors at the Adirondack Visitor Interpretive Center located in Paul Smith's, New York. The survey focused on public preferences for and costs associated with enhancing benefits from improved timber management, accessibility for outdoor recreation, and wildlife habitats on private lands.

Methods

Conjoint analysis is a technique for measuring psychological judgments that is used frequently in marketing research to measure consumer preferences (Green et al. 1988). Respondents choose between alternative products or scenarios that display varying levels of selected attributes. The utility of each attribute can be inferred from the respondent's overall evaluations. These partial utilities or part worths indicate the relative importance of each attribute's contribution to overall preference or utility. They can be combined to estimate relative preferences for any combination of attribute levels. Conjoint techniques are well suited for soliciting and analyzing preferences in environmental decisions that frequently entail tradeoffs between costs and benefits that are not represented efficiently in market transactions.

A random utility model is used to explain public preferences toward using varying amounts of public funds to enhance different mixes of benefits from timber, recreation, and wildlife habitats on private lands. When presented with a set of alternatives, individuals are assumed to make choices that maximize their utility or satisfaction. The utility that the ith individual derives from the jth alternative (U_{ij}) can be represented as:

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

where X_{ij} is a vector of variables, which may include transformations of variables, that represent values for each of the four attributes of the jth alternative to the ith individual; β is a vector of unknown parameters; and e_{ij} is a random disturbance, which may reflect unobserved attributes of the alternatives, random choice behavior, or measurement error. In the empirical study under consideration, a respondent's utility level (U_{ij}) for each alternative is not observed, but a ranking (r_j) is observed that is assumed to proxy for his or her underlying utility. McKelvey and Zavoina (1975) developed a polychotomous probit model to analyze ordinal level dependent variables.

Surveys were conducted in person at the Adirondack Visitor Interpretive Center. Each respondent was asked to rank 9 alternative scenarios depicting varying levels of public efforts to improve timber quality, recreation availability, and wildlife habitats on private land at varying cost levels. Each alternative was displayed on a sample card that contained a

different mix of the levels for the four attributes depicted in Figure 1. Only one level of each attribute was presented in a single alternative. An orthogonal sample design was used to select the particular levels to be included on each card to allow estimation over the entire range of alternatives ($3^4 = 81$) with the minimum of number of ranked alternatives. The orthogonal design also allows estimation of partial utilities for each respondent, thus outlining each respondent's preference structure.

Table 1 Sample card layout for the conjoint ranking survey

ALTERNATIVE # (1-9)	
EFFORTS TO IMPROVE:	
TIMBER	LESS/SAME/MORE
RECREATION	LESS/SAME/MORE
WILDLIFE	LESS/SAME/MORE
COST	$0/$250/$500
RANK ? (1-9)	

Respondents also completed a series of attitudinal questions using a 5-point Likert scale (strongly agree/agree/neutral/disagree/strongly disagree) and a brief demographic survey.

Before completing the surveys, respondents took a guided walking tour of demonstration sites that show the effects of different silvicultural treatments on timber growth and quality, wildlife habitats, aesthetics, and recreational opportunities. These topics were discussed during the tour. Upon returning to the visitor center, respondents were provided with an explanation of the purpose and form of the conjoint survey, and were given an opportunity to ask questions or discuss any portion of the survey. The walking tour and survey took approximately 45 minutes and 20 minutes to complete, respectively.

Results and Discussion

Although the conjoint data has not been fully analyzed, some descriptive statistics and preliminary data can be reported. Three hundred and seventy-three respondents completed the surveys. This included several introductory forestry classes from nearby Paul Smith's College. Eighty percent of the respondents were male and nearly 75% were less than 30 years old. Thirty-eight percent of the respondents owned some forest land; 13% were raised in a large city and 8% currently live in a large city.

While we do not believe that this sample is representative of the public at large, primarily due to the rural location of the survey, inclusion of college students, and possible self selectivity of those choosing to participate in the tour, we believe it will provide useful information. As mentioned previously, the orthogonal sample design allows estimation of partial utilities or preference structures for each respondent. These may be segmented by demographic profile to identify and analyze differences in the preferences for various segments of the sample.

Several interesting results emerged from analyzing responses to the attitudinal questions. Most respondents (85%) strongly agreed or agreed that the availability of forest recreation is important to society, and 82% believe landowners should be permitted to restrict access to their land. However, only 48% believe landowners should be given incentives to allow public recreation on their land.

Again, most respondents (90%) also strongly agreed or agreed that rare or threatened species should be protected and 77% believe that landowners should be given incentives to enhance wildlife habitats on their lands. Nearly 60% agreed that keeping land in forest was important and would vote to give tax relief to landowners who agree not to develop their land.

Nearly half of the respondents believe landowners should be permitted to do as they please with their land, but 88% disagreed with the statement that "Society has no responsibility to provide healthy forests for future generations". About half of the respondents agreed that land should provide an economic return to cover expenses associated with ownership, though many believe too much emphasis is placed on economics in land-use decisions. Most respondents agreed that both ecology and economics should be considered along with the needs of future generations.

Nearly 90% of the respondents agreed that wood products are important to society, but only about 40% agreed with separate statements indicating that either public or private lands should be a source for wood products. Seventy-two percent agreed that landowners should be able to earn a profit from their land.

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INFLUENCE OF BENCHMARKING ON WILDERNESS VISITOR AND MANAGER PERCEPTIONS OF CAMPSITE CONDITIONS

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Abstract: The purpose of this study was to compare visitor and manager perceptions of how heavily impacted wilderness campsites and restoration activities to restore them influence quality of visitor experience and opinions of managers. The study conducted in the Mission Mountains Wilderness ("MMW") is located in northwestern Montana and managed by the USDA Forest Service. MMW visitor results from 293 surveys, 32 interviews, and 2 focus groups were compared to results from a national survey of 33 Forest Service wilderness managers. Even though both visitors and managers indicated that observing restoration has both a positive influence on the quality of visitor experience and opinions of managers, visitor responses were more positive. There was a positive correlation between years visitors spent visiting wilderness and their responses to restoration, while manager responses tended to be less supportive of restoration the more years they worked. When visitors and managers were asked to reflect back over time and express how wilderness conditions influenced the quality of visitor experience, visitors indicated positive responses (many impacted campsites in the MMW have been, or are, currently being restored) while managers indicated that impacted campsite conditions over-time had significantly reduced the quality of visitor experience. Furthermore, managers expressed less support for the effectiveness of restoration the longer they were managers. Findings show that both visitor and manager perceptions of campsite conditions are influenced by previous benchmarking: suggesting that visitor and manager reactions to campsite conditions and support for restoration are based on information gained from prior visits, perceptions of what wilderness should look like, and by comparing the conditions of campsites observed at other wilderness areas. Overall, managers and visitors felt that restoration is a positive educational tool and demonstrates that someone cares about the area.

Introduction

The primary objectives of wilderness recreation management are to protect natural conditions and to provide opportunities for solitude and/or primitive and unconfined recreation experiences (Hendee, Stankey, & Lucas, 1990). Today when a person visits a wilderness setting, it is common to see recreational caused impacts, other visitors and evidence of management actions. Recreational impacts on biophysical resources of wilderness are a worrisome problem to managers charged with the responsibility of maintaining natural conditions. Problems include changes in vegetation and soil characteristics, wildlife impacts, water pollution, litter and improperly disposed of human waste (Washburne & Cole, 1983). For the purpose of this paper, impacts to the biophysical resource are considered to be loss of vegetative cover and subsequent soil compaction and erosion at campsites, lakeshores, meadows, and along trails. Natural or pristine conditions are defined as areas in wilderness that are predominately influenced by acts of nature and not from impacts related to recreational use.

Background

Since the 1960s, wilderness researchers have struggled with visitor perceptions of "natural or pristine" environments. What do people actually perceive as the goal of their wilderness experience, and how does this give the individual meaning? While many visitors enter wilderness with an appreciation of the natural environment (Kaplan & Talbot, 1983), it is not clear as to how many visitors actually find the quality of environment they are seeking. More and more wilderness managers' struggle with the following question: how is visitor experience affected when their idea of a "natural" environment is different from what they find during their wilderness visit? Restoring impacted campsites could potentially improve visitor experience, by removing signs of past resource damage and returning campsites to a natural condition (Kaplan & Talbot, 1983). The first time a visitor arrives at a wilderness setting and the condition of the setting at that time, is a significant aspect or benchmark for the visitor to reflect back on (Vaske, Donnelly, & Heberlein, 1980; Watson & Cronn, 1994). In future visits, visitors may have a predisposed perception of the conditions they expect prior to their arrival. These conditions may include, but are not limited to, the level of impact on trails and campsites and the number of people they may encounter. Studies have documented the importance of visitor expectations in influencing the wilderness experience, especially with regard to effects on the perception of resource conditions in the environment (Rossman & Ulehla, 1977). Additional research is needed to further study how wilderness conditions influence visitor perceptions of resource conditions. Martin, McCool and Lucas (1989) raise the question, "will we be able to provide the visitor's choice in their selection of campsites without limiting their freedom or creating a displacement of unhappy visitors?" (p. 623). How managers and visitors perceive heavily impacted wilderness campsites and how such campsites influence the choice, use of, and satisfaction with a campsite, are crucial if managers are to make intelligent decisions concerning the management of wilderness campsites.

Understanding Motivation

According to Stankey and Schreyer (1987), the reason people want to participate in a recreational pursuit is generally considered the motive for behavior. This motive must be translated to behavior through some choice process, which can be influenced by many situational factors. The object of choice might be a particular recreation environment, a behavior, or desired psychological condition. The selection of a particular wilderness environment depends on the attributes in the environment being perceived as suitable for fulfilling the needs that initially motivated the behavior.

Reasons for engaging in recreation behavior have been described, as "recreation experience preferences" in recognition of the fact that forces initiating behavior are voluntary and represent preferred conditions. This suggests that preferences for a particular behavior and environment are chosen in response to a given motivation and that the information available at the time leads visitors to expect that the behavior and environment will produce desired outcomes (Driver & Knopf, 1976). Thus, visitors participate in recreation with some expectation that they will encounter desirable conditions (Schreyer & Roggenbuck, 1978). Measurement of the extent to which these outcomes are attained is usually presented as satisfaction. If the expected outcomes are not forthcoming, the person is assumed to be dissatisfied with the recreation experience (Driver & Brown, 1978).

Perceptions of Onsite Conditions

One of the reasons people visit wilderness is to participate in recreation pursuits. Because motives represent reasons why people visit wilderness, it stands to reason the motives would be related to the quality of the onsite conditions encountered. Anderson (1980) measured changes in the behavior of users in response to perceived conditions. She discovered that visitors who found their perceptions different from the actual conditions made a psychological adjustment to the different conditions, or were displaced to a different area better able to meet their needs. Evaluations of impact can vary depending on the nature of the individual. For instance, research conducted by Vaske et al., (1980) demonstrated that people who had first visited an environment several years before tended to evaluate environmental conditions more negatively than those whose first visit occurred recently. These research findings suggest variations in motivations and previous experience or benchmarking are significant influences on how visitors and managers evaluate an experience and onsite conditions.

Benchmarks for Visitor Perceptions

Social psychologists have documented that standards people use to evaluate a setting are influenced by their expectations for that experience. This implies that different individuals may have different expectations for the same activity or setting. When a situation differs from what the person defines as appropriate, the experience is more likely to be evaluated negatively (Vaske et al., 1980; Watson & Cronn, 1994). Vaske and others suggest that visitors with no prior expectations of a wilderness setting are susceptible to viewing what they see during their first visit as being appropriate. Therefore, the standards visitors and managers use to evaluate a particular resource are determined by the condition existing during the person's initial exposure to the environment. Subsequent trips may then be compared against these initial evaluations when the visitor establishes a benchmark to reflect back on. This finding suggests that each new generation of visitors and managers may experience a different set of initial conditions. Visitors with a more extensive history of visiting wilderness generally perceive there to be more social and resource problems (Watson & Cronn, 1994; Cole & Hall, 1992). This information implies that these visitors are more sensitive to changing social and resource conditions and may assist managers in better understanding many of the problems visitors report. Understanding these problems would help managers evaluate and select management actions by incorporating more of the experienced visitor's perceptions of social and resource problems in the decision making process. Moreover, wilderness areas that have a high percentage of repeat visitors should find general visitor surveys more helpful in assessing resource conditions. Educational messages may also be tailored to be more in-depth regarding the management program and desired visitor behaviors when users have a good foundation and understanding of wilderness policy and management (Cole, Watson, Hall, & Spildie, 1997). The Wilderness Act of 1964 sets the tone for management actions that result in preserving or restoring natural conditions. McCool and Lime (1988) argue that management actions, while designed to preserve resources, enhance opportunities, and reduce conflict, can negatively impact the visitor. Use of management techniques requires an understanding of how visitors perceive such actions, management objectives for the site, as well as visitor expectations. Recent research findings suggest that new generations of wilderness visitors may have different expectations about what management actions are appropriate (Cole et al., 1997; Vaske et al., 1980; Watson & Cronn, 1994). This information may suggest that each new generation of wilderness managers, with little or no previous wilderness managing experience, may also share similar assessments, perceptions, and expectations of the wilderness resource as newly arriving visitors. Stokes (1990) argues that public support for management practices may provide resource managers with the basis to develop successful strategies to maintain wilderness quality. As stakeholders of the wilderness idea, he felt that visitors want to participate in management decisions and can provide important insights about the condition of wilderness and should be considered a key source of information when developing wilderness implementation schedules and policies.

Rationale for Revisiting Visitor Benchmarking

Wilderness can be regarded in two dimensions: (1) the psychological and (2) the biophysical. The psychological dimensions involve the perceptions, attitudes, values and responses visitors have toward wilderness. The biophysical characteristics of wilderness encompass the vegetation, wildlife, and interrelated geographical settings. Throughout the National Wilderness Preservation System it is common for wilderness visitors to observe heavily impacted campsites and management actions implemented to address them during their visit. This research attempts to understand the influence observing heavily impacted biophysical conditions at campsites and how measures taken to restore them influence the quality of visitor experience. Both visitor and manager attitudes and perceptions of the wilderness resource need to be examined to preserve the quality of visitor experience as well as the management of wilderness.

Theoretical Frameworks

What motivates visitors to spend time in wilderness and how they evaluate onsite conditions is a growing concern for managers and researchers (Cole et al., 1997; Hall & Shelby, 1993; Lucas, 1980). The use of theories to identify visitor intentions, how these intentions lead to benefits sought during the visit and how onsite conditions influence the quality of visitor experience is not well understood. Over the past twenty years, theories and models from the fields of psychology and sociology have been reshaped and applied to measure human behavior in wilderness settings. Previous studies (Cole, 1996; Hall & Shelby, 1993; Peterson, 1974) have used and adapted Lawler's (1973) Expectancy Model (see Figure 1) to explore the role of expectations and actual perceived conditions in the satisfaction of wilderness visitor experiences.

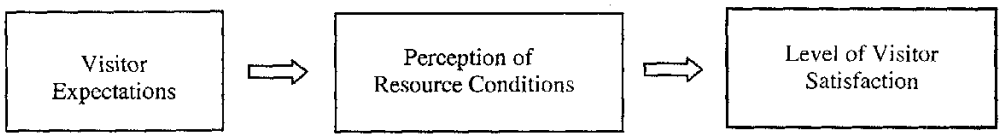


Figure 1 Expectancy Theory: Motivation for Wilderness Visitors (Lawler, 1973; Adapted by Hall & Shelby, 1993).

Expectancy theory illustrates that internally held information or beliefs about value and leisure outcomes determine an individual's attitudes, intentions and, ultimately, behavior. This study uses the expectancy theory as a starting point to illustrate how campsite conditions influence onsite experiences visitors go through before and during a wilderness visit. Although this research is not testing the validity of the model, it is used as a foundation for research conducted on visitor perceptions of resource conditions in wilderness. Expectancy theory suggests that outcomes or consequences are attractive to an individual because of some drive or need the individual possesses (Lawler, 1973). More specifically, the basic assumption of expectancy theory illustrates that the determinants of human behavior are the beliefs, expectations and anticipation individuals have concerning future events (Chung, 1977; Steers & Porter, 1987). A wilderness visitor's behavior is, therefore, goal directed and based on conscious decisions. Lawler (1973) suggests that people engage in behaviors that provide positive outcomes. Expectancy-valence theory (Ajzen & Fishbein, 1980) has also been used in wilderness settings to help understand how level of motivation, role of expectation, and onsite conditions influence the wilderness experience (Hall & Shelby, 1993). The expectancy-valence theory predicts visitor behaviors and the specific perceived consequences of the visitors' leisure experience. The valence included in the expectancy-valence theory is the attractiveness one has toward achieving that goal or outcome. Ajzen (1991) proposed that internally held beliefs about particular outcomes determine an individual's attitudes, intentions, and resulting behavior. Expectancy-valence theory has provided the foundation for other leisure theories and management frameworks which include the theory of reasoned action (Ajzen & Fishbein, 1980); the theory of planned behavior (Ajzen, 1991); experienced-based management (Driver & Brown, 1983); and benefits-based management (Driver, 1996). Within the expectancy-valence framework, the wilderness resource conditions selected by the visitor are embraced in the expectation that they will realize their desired wilderness experiences.

A number of researchers, with assistance from managers, developed a conceptual framework called "benefits-based management" to better understand what visitors are seeking in a recreational experience and the potential benefits to their lives (Bruns, Driver, Lee, Anderson, & Brown, 1991). Because visitors spend a majority of their time at wilderness campsites, the condition of the site may play an important role in the quality of visitor experience outcomes. Although managers are not in a position to provide benefits, they can set the stage for positive visitor experiences by managing settings for particular experiences and benefit outcomes (Stein & Lee, 1995). Because motives represent reasons why people visit wilderness, they likely relate to perceptions of conditions encountered as well as the anticipated benefits. Results from several studies suggest that a relationship does exist between the environmental conditions and anticipated visitor experience outcomes (Manfredo, Driver & Brown, 1983; Stein & Lee, 1995; Virden & Knopf, 1989; Yuan & McEwen, 1989). Because these studies produced mixed results, further research is needed to better understand the relationship between desired environmental conditions, the conditions of the resource experienced by the wilderness visitor, and how these factors influence visitor experience.

Theoretical Implications

Central to this study are the theoretical constructs taken from expectancy theory as adapted by Hall and Shelby (1993). As the data was collected and analyzed from the different data sets, information relating to how visitors conceptualize wilderness experiences and the many factors influencing the quality of visitor experiences began to emerge. As a result, The Quality of Wilderness Visitor Experience Model (see Figure 2, "The Model") is presented as an emergent feature illustrating the outcomes of the research findings.

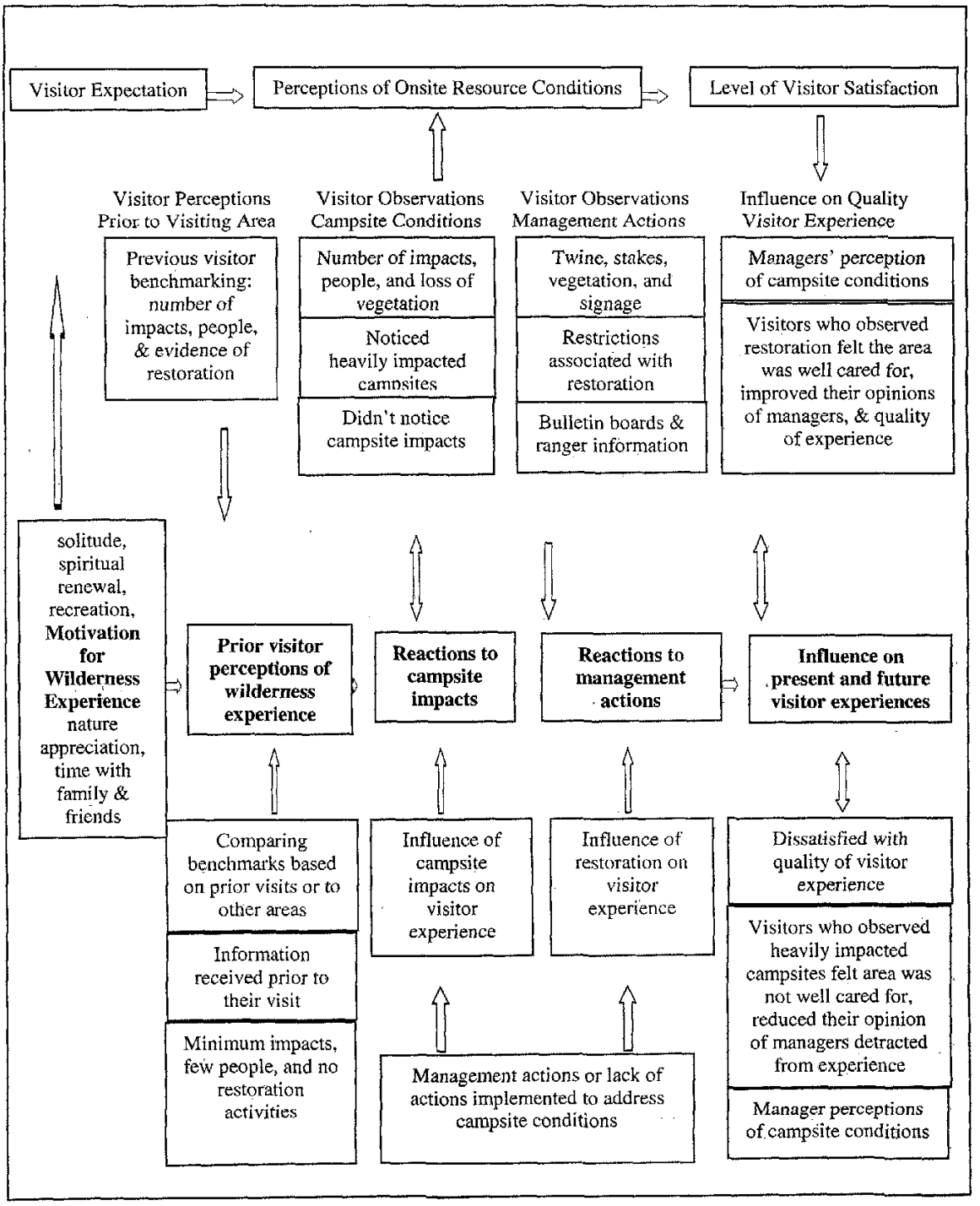


Figure 2 The Quality of Wilderness Visitor Experience Model (Expectancy Theory, Lawler, 1973; Adapted by Hall & Shelby, 1993; Flood, 2000)

The first set of findings emerging from this study supports previous research which suggests that visitors are motivated to spend time in wilderness based on specific expectations, perceptions of campsite conditions, while attempting to achieve quality wilderness experiences (Ajzen 1991; Bruns, Driver, Lee, Anderson, & Brown, 1991; Driver & Brown, 1983; Manfredo, Driver, & Brown, 1983; Stankey & Schreyer, 1987; Stein & Lee, 1995; Virden & Knopf, 1989; Yuan & McEwen, 1989). Although visitors are motivated by the desire to engage in quality wilderness experiences, this research supports other research findings that suggest managers play an instrumental role in providing these opportunities (Stein & Lee, 1995). The Model highlights factors identified as influencing the experience of wilderness visitors from the time they first enter the wilderness until their departure. Therefore, The Model provides a conceptual framework to better understand how visitor and manager perceptions of campsite conditions in wilderness influence the quality of visitor experience. The Model reflects the various stages, and potential variables, that influence visitor experience within wilderness settings. Specifically, the results reflected in The Model illustrate how motivation for a wilderness experience is tied to both visitor and manager perceptions of campsite conditions. The conditions visitors find at campsites can range from non-impacted, to heavily impacted with little or no signs of management activities, to heavily impacted and currently receiving restoration activities. The Model attempts to illustrate how the quality of visitor experience is influenced by: reasons for visiting, visitor and manager perceptions of campsite quality, previous and comparison benchmarking, and reactions to evidence of impacts and restoration activities by visitors and managers. The Model is used to specifically look at how wilderness visitor experience is tied to resource conditions, the level of management, and how these combined variables influence visitor opinions of how well a wilderness area is managed. The Model provides a proposed framework for better understanding visitor experiences and how specific campsite conditions potentially influence the quality of visitor experience. Ultimately, the model provides managers with a better analysis of visitor expectations and how onsite conditions at campsites influence the quality of visitor experience. A condensed version of The Model is illustrated in the Perceptions of Onsite Conditions: Visitor and Manager Perceptions of Quality Flow Diagram (see Figure 3). The diagram presents a three-fold depiction of visitor and manager perceptions of quality wilderness visitor experience. The process begins with the assumption that reasons for visiting are influenced by both onsite and offsite factors that can potentially influence quality of visitor experience. The second component of the diagram provides a visual narrative of the findings that explore interactions between prior experience and perceptions of onsite conditions and how previous onsite and comparison off-site benchmarking influence the quality of visitor experience. The third component of the diagram assesses visitor reactions to onsite biophysical conditions and how visitor experience is influenced by the effects of restoration, effects of impacts and how visitor and manager perceptions together potentially influence the quality of visitor experience. The Visitor and Manager Perceptions of Quality Flow Diagram was evaluated using a triangulation of data sets in this study. Findings reflected in the diagram include results from visitor exit surveys, focus groups, manager questionnaire, and onsite interviews.

Factors Influencing Visitor Motivation for Wilderness Experience

The first set of factors drawn from the findings illustrates the reasons visitors listed for visiting wilderness. Although the reasons for visiting are similar to those found in previous research, the order of importance changed. Manning's (1986) summary of research findings indicated that visitors ranked engaging in the recreational activities as their number one reason, followed by spending time with family and friends. Contrary to his findings, MMW visitors ranked the reasons as 1) engaging in recreational activities, 2) experiencing solitude, 3) spiritual renewal, or nature appreciation, 4) to spending time with family and friends (Flood, 1999). The increased emphases on experiencing solitude, spiritual renewal and nature appreciation was evident in all of the data sets. Drawing out the significance of what this means to individual MMW visitors was best illustrated by 6 of the long-time focus group members. These members indicated their reasons for visiting were not motivated by utilitarian reasons but for a sense of peace, passion for wildness, tranquility, healing and opportunities for solitude (Flood, 1999). Inferences could be drawn from these findings to suggest this is a mere reflection of our changing society with increasing numbers of people, shrinking resources and fewer opportunities for experiencing solitude.

Benchmarking the Conditions of Wilderness Campsites

Findings from the exit survey, manager questionnaire, interviews, and focus groups suggest that visitor perceptions of onsite conditions in wilderness are inextricably tied to the idea of benchmarking. Visitor benchmarking is defined as any perception or previous experience that defines the campsite condition expected at your wilderness destination campsite (Vaske et al., 1980). This research identified three different types of visitor benchmarking. The first type of benchmarking occurs when repeat visitors returning to the same wilderness evaluate onsite conditions based on observations made during prior visits. On subsequent trips, repeat visitors reflect upon the change in conditions at a specific campsite and compare their expectations to what they actually find. The second type of benchmarking occurs when prior to entering a wilderness; first-time visitors evaluate the conditions of a campsite based on what they think it should look like. The third type of visitor benchmarking happens when wilderness visitors compare and evaluate campsite conditions found in one place with those observed at other wilderness areas they have visited. Findings from this study suggest that visitors with the least number of years visiting the MMW were least affected by seeing other people and impacts, but most affected by observing litter. Although they lacked a benchmark for knowing the appropriateness of the campsite impacts they observed or the restoration activities to address these impacts, their negative reaction to observing litter left behind by previous visitors indicated

that they were bothered a lot by litter. In both the written comments made by MMW visitors and from the MMW interviews, it is apparent that many of the visitors' positive reactions to observing restoration activities and opinions of managers, was a result of seeing heavily impacted campsites being restored in the MMW and from visiting other wilderness areas where little or nothing was being done to restore these areas. Converging results from the MMW survey, manager questionnaire, interviews, and focus groups suggest that visitors do indeed benchmark campsite conditions.

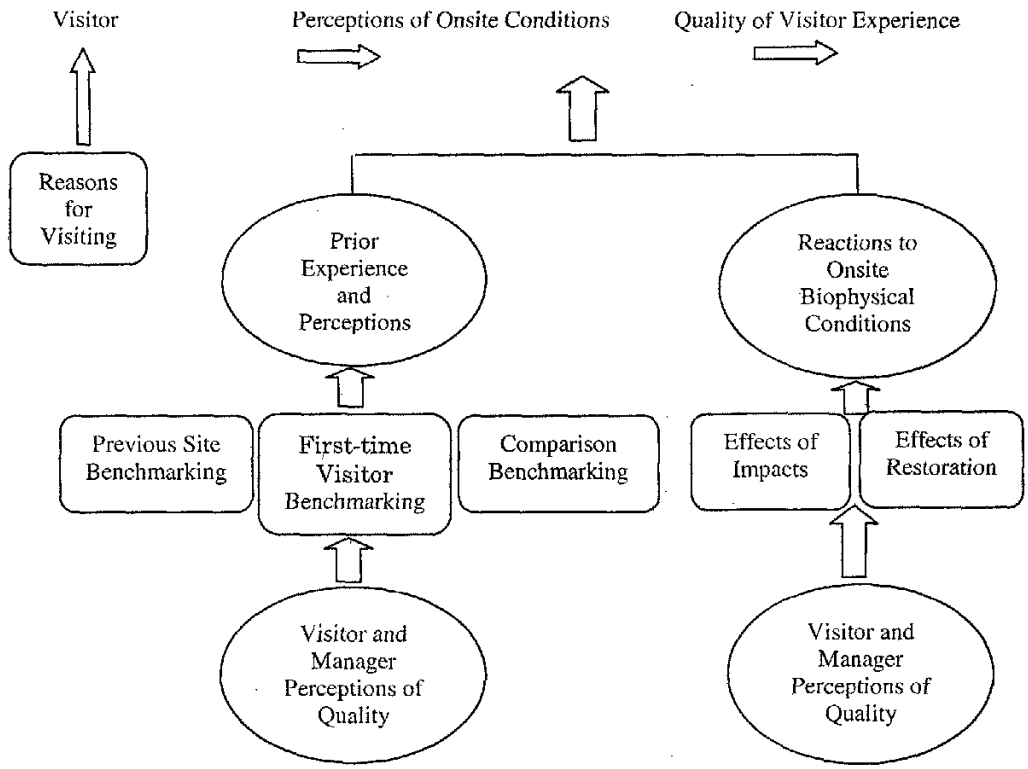


Figure 3 Perceptions of Onsite Conditions: Visitor and Manager Perceptions of Quality Flow Model (Flood, 2001)

Influence of Onsite Conditions at Campsites

The next set of factors influencing visitor experience takes place once visitors arrive at their destination campsite. A number of onsite factors influence the quality of visitor experience. These factors include visitor reactions to level of impact at campsites and level of management activities, or the lack thereof. Onsite observations by visitors are varied and may include acceptable campsite conditions, heavily impacted campsites that are devoid of native vegetation and seriously eroded, and/or observing evidence of management actions to restore them. These restoration activities may include information signs located at trailheads and at campsites, contact with wilderness rangers who provide onsite restoration education, evidence of stakes and twine and visitor restrictions. This stage of the model illustrates that visitor motivations to engage in specific wilderness experiences, and whether it is possible for them to attain a desired level of quality, are dependent on prior perceptions of the campsite conditions they expect to find at their wilderness destination campsites. As a result, visitor experiences are influenced by what they find at their campsite. These findings are supported by previous research (Cole et al., 1997; Martin et al., 1989). The third stage of The Model illustrates that when managers chose to restore heavily impacted campsites, the quality of visitor experience was improved, visitor opinions of managers were very positive and visitors felt that the area was well cared for. When managers did little or nothing to address heavily impacted campsites, the quality of visitor experience was greatly reduced, visitor opinions of managers were very negative, and visitors felt that the area was not well cared for.

Conclusions

The model emerged from the findings to provide a visual framework for assessing the relationship between visitor perceptions, conditions visitors observed at campsites during a wilderness visit and how these factors influence the quality of visitor experience. Whether

managers choose to ignore or restore heavily impacted campsites, these decisions influence the quality of visitor experience and opinions of managers. Moreover, it affects visitor perceptions and expectations of campsite conditions they will encounter in future visits. The Model provides an opportunity for assessing the relationship between conditions found at campsites and the influence these conditions have on the quality of visitor experience. It is hoped that additional research will be conducted to test the validity of the model.

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PUBLIC ATTITUDES TOWARD FOREST MANAGEMENT: A SHAWNEE NATIONAL FOREST EXAMPLE

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Abstract: One of the fundamental problems of modern public lands management is the accurate and representative assessment of public opinion. The purpose of this study was to examine differences in perceptions and attitudes of Shawnee National Forest management activities and plans among members of local and regional publics. A survey was administered to members of the public in counties adjacent to the Shawnee, in the remaining counties in Illinois, and in counties in three other states adjacent to southern Illinois. Results indicated that there were few differences in perceptions and attitudes among these three groups.

Introduction

One of the fundamental problems of modern public lands management is the accurate and representative assessment of public opinion. Highly vocal local publics and special interest groups tend to garner the lion's share of attention while the perceptions and opinions of regional and national publics go unnoticed. All environmental legislation requires the collection of the responses of interested and affected members of the public in the preparation of environmental impact statements and forest management plans. Public hearings are most often used to fulfill this obligation. Public hearings are onerous for members of the public who have little free time and who have to combat a fear of public speaking in order to attend and offer comments. As a result only special interest group spokespersons and the most highly motivated members of the public attend these hearings and they are often motivated by strong emotions (Creighton, Vining, 1992). Professional land managers feel besieged by such individuals and often have little sense of the sentiments of the public as a whole. This has particularly been true for managers on the Shawnee National Forest for whom the management planning process has been fraught with difficulties in interacting with local publics and special interest groups.

Although a few studies have examined differences in opinions and perceptions between members of environmental groups and members of the public (e.g., Cotgrove, 1980; Vining, 1992; Vining and Ebreo, 1991), little attention has been given to comparisons between local and regional publics. The purpose of this study was to examine these differences.

Method

A mail survey was administered to 1500 members of the public in areas adjacent to and some distance from the Shawnee National Forest in southern Illinois in the summer of 2001.

Setting: The Shawnee National Forest is a highly fragmented forest located in Southern Illinois. It is the only National Forest in Illinois and there are many conflicts over various forest uses. Over the past twenty years forest administrators have found it difficult to develop their management plan due to resistance from strongly divided and highly vocal local residents and special interest groups.

Participants: Research participants were randomly sampled from three geographic areas. The local sample comprised 700 residents of Southern Illinois counties that either included Shawnee National Forest land or were directly adjacent to counties including Shawnee National Forest Land. The regional Illinois sample comprised 400 residents of the remaining Illinois counties. The adjacent states sample comprised 400 randomly selected residents of counties in Missouri, Tennessee, and Kentucky adjacent to the border of Southern Illinois.

Instrument: The questionnaire was designed in consultation with Shawnee National Forest officials and with research scientists at the USDA Forest Service North Central Research Station in Evanston, IL. The questionnaire comprised 12 pages with 9 sections. The sections included Likert-scaled questions on attitudes regarding forest recreation, resource use, ecosystem protection, and forest administration. Three sections examined the acceptability, importance, and management priority of 26 forest activities and uses. Recreation behavior and demographics were measured in two other sections of the questionnaire.

Procedure: A total of 1500 questionnaires were sent to research participants in June 2001. The mailing included a cover letter, a questionnaire, and a postage-paid envelope for return mail. About four weeks later non-respondents received a postcard reminding them to complete the questionnaire and return it. A final mailing was sent to non-respondents about eight weeks after the first one. This mailing included a new cover letter emphasizing the importance of the survey, a questionnaire, and a postage paid envelope.

Results and Discussion

Response: After three mailings 314 completed questionnaires were received yielding a response rate of 21%. Because this is a low response rate I compared respondent demographics with those of the population from which they were drawn. Respondent demographics were quite comparable to population norms. A telephone followup with 30 non-

respondents indicated few systematic reasons for non-response. Most of the non-respondents indicated that they hadn't received the questionnaire or that they didn't have time to complete it. Several reasons for the low response rate seem likely. The questionnaire was too long and included too many repetitive items. The questionnaire also included items that required a substantial amount of knowledge about detailed forest management issues, and many participants probably felt that they couldn't respond adequately due either to lack of interest or lack of knowledge about Shawnee National Forest issues. Although survey results should be interpreted with some caution, the sample probably reasonably reflects the views of interested and affected members of the regional public.

Recreation Behavior: Respondents were asked to indicate how often they engaged in 20 recreational activities. They used a three-point scale in which 1 = never, 2 = occasionally, and 3 = frequently. Responses were factor analyzed with varimax rotation to determine if an underlying structure could capture and reduce the data set. This analysis resulted in four easily interpretable factors with eigenvalues > 1.0. The Active Consumptive factor included recreational activities oriented toward consuming resources such as fishing and hunting. The Active Nonconsumptive factor included activities such as hiking and backpacking, and the Passive Nonconsumptive factor included activities such as wildlife observation and sightseeing. A fourth factor included items related to driving for pleasure. Means were calculated for each factor in each geographic region by adding scores for each variable loading on the factor and dividing by the number of variables. These means are presented in Table 1.

Table 1 Self-reported recreation behavior frequency by geographic area

Variable	Local	Regional Illinois	Adjacent States
Active consumptive	1.68*	1.74*	1.51*
Active nonconsumptive	1.32	1.38	1.39
Passive nonconsumptive	1.97	2.04	1.99
Driving for pleasure	2.18*	2.15*	1.96*

1= never, 2= occasionally, 3 = frequently
*significant differences among the regions, $p < ,05$

One way analysis of variance was used to determine if differences in these factors existed across the three geographic regions. The Active Consumptive factor was significantly different with local and regional Illinois residents participating in these activities more than residents of adjacent states. Driving for pleasure was reported slightly more among Illinois respondents than those in adjacent states. There were no statistically significant differences in active and passive nonconsumptive recreation behavior frequency across the three geographic areas.

Despite the statistically significant differences, the usefulness of the variation in self-reported recreation behaviors among geographic regions is limited because the differences are so small as to be conceptually meaningless. For example, although active consumptive behavior was reported as more frequent in Illinois than in adjacent states, the difference is quite small and all of the values are within a similar conceptual range of occasional frequency. These results offer little in the way of recommendation for management policy, and indicate that proximity to the Forest has little impact on recreation behavior type.

However, an examination of relative frequencies of these self-reported behaviors is more helpful. Driving for pleasure and passive nonconsumptive behaviors are reported as more frequent than either of the active types of behaviors. Dwyer (2002) found similar results in a survey of residents of three urban areas. These results indicate that passive and nonconsumptive, non-commodity uses of the forest are most popular and that management for these activities should be emphasized.

Recreation attitudes: Respondents indicated the extent to which they agreed with 14 statements regarding recreation management and policy on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Responses were factor analyzed with varimax rotation to determine if an underlying structure could capture and reduce the data set. This analysis resulted in four easily interpretable factors with eigenvalues > 1.0 (total VAF= 51.90%). Means were calculated for each factor in each geographic region by adding scores for each variable loading on the factor and dividing by the number of variables. These means are presented in Table 2.

Table 2 Recreation attitudes by geographic area

Variable	Local	Regional Illinois	Adjacent States
Favor motorized vehicles, horses	2.77	2.80	2.73
Favor preservation	3.10*	3.20*	3.27*
Favor fees for services	3.40*	3.48*	3.68*
Prefer less developed recreation	3.31	3.13	3.18

1= strongly disagree, 2 = disagree, 3 = don't know, 4 = agree, 5 = strongly agree
Items with negative loads on factors were reverse coded
for presentation clarity
*significant differences among the regions, $p < ,05$

One way analysis of variance with geographic region as the independent variable was used to determine if differences in these factors existed across the three geographic regions. The results of these analyses indicated that local residents were somewhat less

likely to favor management for preservation and less likely to endorse fees for services on the forest than respondents from the regional samples. These differences are quite small, however, and the means all reflect similar sentiments. All three groups express moderate support for service fees, preservation, and less developed recreation over uses associated with motorized vehicles and horses.

Resource use attitudes: Respondents indicated the extent to which they agreed with 15 statements regarding forest resource uses on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree Responses were factor analyzed with varimax rotation to determine if an underlying structure could capture and reduce the data. This analysis resulted in five easily interpretable factors with eigenvalues > 1.0 (total VAF = 62.49%). Means were calculated for each factor in each geographic region by adding scores for each variable loading on the factor and dividing by the number of variables. These means are presented in Table 3.

Table 3 Resource use attitudes by geographic area

Variable	Local	Regional Illinois	Adjacent States
Extraction versus protection	2.86*	2.83*	2.84*
Harvest	3.02*	3.04*	2.94*
Manage for forest health	3.88	3.83	3.78
Protect native species	3.17	3.24	3.11
Timber issues	2.57	2.72	2.53

Scale: 1= strongly disagree, 2 = disagree, 3 = don't know,
4 = agree, 5 = strongly agree
Items with negative loads on factors were reverse coded
for presentation clarity
*significant differences among the regions, p < ,05

The means in Table 3 indicate that the participants were neutral on all of the factors except managing for forest health, which was supported. One way analysis of variance with geographic region as the independent variable was used to determine if differences in these factors existed across the three geographic regions. The results of these analyses indicated that Illinois residents' attitudes toward timber harvest were slightly more favorable, and that local participants were slightly more in favor of resource extraction than the other two groups. However, these differences are conceptually negligible even though they are statistically significant.

Ecosystem protection attitudes: Respondents indicated the extent to which they agreed with 18 statements regarding ecosystem protection on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Responses were factor analyzed with varimax rotation to determine if an underlying structure could capture and reduce the data. This analysis resulted in three easily interpretable factors (and two that were not readily interpreted) with eigenvalues > 1.0 (total VAF = 54.40%). Means were calculated for each factor in each geographic region by adding scores for each variable loading on the factor and dividing by the number of variables. These means are presented in Table 4.

Table 4 Ecosystem protection attitudes by geographic area

Variable	Local	Regional Illinois	Adjacent States
Favor protection	3.45*	3.56*	3.75*
Favor resource use	2.81*	2.91*	2.71*
Concern for env. quality	2.78	3.03	2.97

Scale: 1= strongly disagree, 2 = disagree, 3 = don't know,
4 = agree, 5 = strongly agree
Items with negative loads on factors were reverse coded
*significant differences among the regions, p < ,05

Overall, the mean attitudes toward ecosystem protection in Table 4 show that respondents favored protection more than resource use activities. Concern for environmental quality was neutral with a large proportion of respondents indicating that they did not know the answers to the questions loading on this factor. One way analysis of variance with geographic region as the independent variable was conducted to determine if differences in these factors existed across the three geographic regions. Respondents from adjacent states were significantly more likely to favor protection than Illinois residents were, though even so the means are quite close. The regional Illinois sample favored resource use slightly more than the local respondents or those in adjacent states. As has been the case with the other analyses reported so far, these means are conceptually very close even though their differences are statistically significant. The relative differences among the factors seem more important and interesting than the differences by region.

Forest management and administration attitudes: Respondents indicated the extent to which they agreed with 14 statements regarding forest management and administration on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree Responses were factor analyzed with varimax rotation to determine if an underlying structure could capture and reduce the data. This analysis resulted in three easily interpretable factors with eigenvalues > 1.0 (total VAF = 47.55%). Means were calculated for each factor in each geographic region by adding scores for each variable loading on the factor and dividing by

the number of variables. These means are presented in Table 5.

Table 5 Attitudes toward Forest administration by geographic area

Variable	Local	Regional Illinois	Adjacent States
Trust, faith in forest managers	3.45	3.28	3.35
Want more public involvement	3.45	3.28	3.35
Consolidate land	2.81*	3.12*	3.17*

Scale: 1= strongly disagree, 2 = disagree, 3 = don't know,
4 = agree, 5 = strongly agree
Items with negative loads on factors were reverse coded
for presentation clarity.
*significant differences among the regions, $p < .05$

Overall the survey respondents trusted Shawnee National Forest managers and yet they also expressed a desire for more public involvement. Differences among the three geographic regions on these variables were not statistically significant, indicating that local respondents did not feel any differently about forest managers or the need for additional public involvement than regional respondents. Although managers may not welcome the idea that more public involvement is perceived to be needed they would surely be pleased to know that most members of the public feel they are doing a good job. Not surprisingly local respondents were significantly less enthusiastic about land consolidation, which would be accomplished either through land purchases or trades, than were regional respondents.

Acceptability, importance, and priority of forest uses: Respondents were asked to rate a set of 26 forest uses and activities on five-point scales of level of acceptability, level of importance in the local economy, and level of management priority. The mean values for these items are presented in Table 6. The highest values within each measurement category are marked with pluses and the lowest values are marked with minuses.

In general, activities that are rated as acceptable and important are rated as low management priorities. Also, the activities and uses that are rated as more acceptable and important tend to be those with low impacts such as wildlife observation and sight-seeing. Activities and uses rated as least acceptable and important tend to be those associated with commodity extraction. These findings are in accord with a recent broadly-based survey of public opinion in several large cities (Dwyer, 2002). One way analyses of variance with a Bonferroni alpha correction revealed few differences among the three geographic regions.

These results indicate that a heavy emphasis on extractive activities, except in terms of managing them properly, is unacceptable to members of the public who see non-extractive activities as more appropriate and important. These opinions may be at odds with Forest Service priorities and with the wishes of certain local and special interest groups. However, these data show that the broader public sees things somewhat differently than these groups.

Table 6 Resource Activities Acceptability, Importance and Management Priority

Variable	Acceptability	Importance	Priority
Commercial harvest	3.84	2.81 -	3.47 +
Harvest for health	2.95	3.82	1.93 -
ATVs and ORVs	2.33 -	2.45 -	2.63
Mineral extract	2.04 -	2.55 -	3.73 +
Oil and gas	2.09 -	2.60 -	3.68 +
Hunting	3.81	3.72	2.27
Fishing	4.26	3.94	2.05
Hiking	4.59	4.01 +	1.85 -
Backpacking	4.58	3.98 +	1.88 -
Tent camp in devel.	4.60 +	3.98 +	2.00
RV or car camp	4.09	3.77	2.26
Horseback riding	3.93	3.68	2.45
Sight-seeing	4.66 +	4.10 +	1.71 -
Non-comm extract	3.36	3.15	3.02
Open land mgmt	3.60	3.40	2.51
Mountain biking	3.49	3.15	2.90
Rock climbing	3.75	3.63	2.69
Outfitter / guide	3.75	3.51	2.77
Nature study	4.61 +	3.98 +	1.84
Wildlife observe	4.67 +	4.04 +	1.73 -
Bird watching	4.67 +	3.93	1.88
Large group rec.	3.67	3.43	2.72
Research	4.40	3.93	1.76 -
Target shooting	2.66 -	2.64 -	3.47 +
Rock collecting	3.28	3.07	3.12
ATV use by disabled	3.50	3.34	2.65

Five point scale from 1 = very unacceptable, very low importance,
and very low priority to 5 = very acceptable, very high importance,
and very high priority
(+) item was highly endorsed

(-) indicates low endorsement

Conclusions

Although the results of this study must be interpreted with caution due to a low response rate, demographic comparisons and post-survey interviews with non-respondents revealed that the sample could be quite representative of interested and affected members of the public. In addition, the findings are quite similar to another survey in which a higher response rate was obtained (Dwyer, 2002). Overall these results paint a picture of few differences among residents of three regions of increasing distance from the Shawnee National Forest. There were few differences in attitudes or behavior among the local, regional Illinois, and adjacent states samples. Even differences that were statistically significant were so small as to be conceptually meaningless.

These results draw attention to the divide between public land managers and interested and affected members of the general public. Managers are beset by highly vocal local publics and representatives of special interest groups whose opinions and attitudes do not necessarily reflect those of the general public. Twight and Lyden (1989) showed that forest managers were more aligned with industry groups. They concluded that this was a result of the socialization of forest managers in an agency that has regularly encountered pressure from various industry groups. Moreover, several studies have shown that managers are heavily influenced by their own training, attitudes, and opinions. More than thirty years ago Clark, Hendee, and Campbell (1971) concluded that managers' perceptions of user preferences were more characteristic of the managers' own values and predispositions than realistic perceptions of the public's actual opinions and reactions. Other studies have found similar results (Absher, McAvoy, Burdge, & Gramann; 1988; Vining, 1992; Vining & Ebreo, 1991).

In order to be more responsive to the public, land managers need to find better ways to get feedback from broader and more representative publics. Traditional methods of gathering public involvement such as the public hearing or advisory group are not up to the task. Although surveys can be cumbersome they offer the best prospects for understanding the views of interested and affected members of the general public.

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Tourism Behaviors and Motivations

PREDICTING NATURE-BASED TOURIST ROLES: A LIFE SPAN PERSPECTIVE

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Abstract: The concept of stable, clearly identifiable patterns of tourist behavior, or roles, is a relatively recent development. Yiannakis and Gibson (1988, 1992) identified fifteen tourist roles based on leisure travelers' vacation behaviors. Building on this work, Gibson (1994) used discriminant analysis to determine the combination of needs and demographics are associated with several of the tourist roles over the life course. The purpose of this study is to present the characteristics associated with three nature-based tourist roles: the Explorer, the Nature Lover and the Ecotourist (Murdy, 2001). Using Levinson et al.'s (1978) model of the adult life course, market segments were created for each role using needs and demographics.

Introduction

Tourism is the world's largest industry. The growth of tourism has been accompanied by the development of scholarly research about the industry, its impacts, and tourists. One body of literature addresses the sociodemographic characteristics and needs associated with selected vacation styles, or tourist roles. For example, Yiannakis and Gibson (1988) found that preference for a tourist role is linked to a person's place in the adult life course. However, the motivation for selecting one tourist role over another remains largely unexplored. In this presentation, I will describe how three nature-based tourist roles may be predicted using needs, sociodemographic characteristics, and the combination of these attributes, and how this may be further used to identify key market segments.

The Adult Life Course

The seminal work of Levinson and his associates identified four major life eras through which one passes: Childhood and Adolescence, Early Adulthood, Middle Adulthood, and Late Adulthood (Levinson, Darrow, Klein, Levinson, and McKee, 1978; Levinson, 1996). Each of these eras has specific goals or tasks associated with them. Because this study addresses the behaviors of adults, only the three adult stages are discussed. The adult initial era, Early Adulthood, occurs between the ages of about 17-45 years. The tasks during this era include moving into and exploring the adult world, creating an adult identity, and creating and establishing a life structure. The second era of the adult life course is Middle Adulthood, which lasts from about 40-65 years. Tasks associated with this era include reevaluating the existing life structure, construction of a stable and satisfying life structure, modify this life structure as necessary, and adapting to biological, social and psychological changes associated with aging. The third era, starting around 60 years, is Late Adulthood. These older adults address tasks such as maintaining some form of youthful vitality and establishing a new relationship in society with the primary emphasis placed on the self.

While the general structure of the adult life course is similar for men and women, important differences exist. Levinson (1996) attributed many of these differences to gender splitting, or the divisions of masculinity and femininity that pervade human life. Gender splitting is most profound in the "Traditional Marriage Enterprise," in which the woman, who doesn't work outside the home, accepts her role as subordinate to her husband and as the primary caregiver to any children.

However, the "Traditional Marriage Enterprise" is rapidly changing. Women have joined the workforce in increasing numbers for a variety of reasons, including single parent homes, a shrinking labor pool, and a gender revolution that places greater value on women in the workplace. These changes may indicate a tendency for more similarities between the life structures of men and women (Levinson, 1996). With more similar career and home-life goals, the period tasks should become more alike. However, women interviewed by Levinson found the image of the traditional woman daunting. The image of the self as a career woman often resulted in conflicts that tore at the psyche. Similarly, men are also finding increasing turmoil as each partner in a marriage struggles to define the relationship and their roles. Therefore, while some similarities may be found in the life structure of women and men, differences also exist.

Tourist Roles

The concept of stable, clearly identifiable patterns of tourist behavior, or roles, is a relatively recent development. Cohen (1972) proposed the existence of four roles: the drifter, individual mass tourist, organized mass tourist, and explorer. Cohen argued that engagement in these roles is motivated by a search for novelty while maintaining some degree of familiarity within the destination environment. To achieve this sense of novelty in a foreign environment without becoming overwhelmed by it, the individual and organized mass tourists operate within an "environmental bubble" of the familiar at the destination by confining themselves to amenities similar to those at home. On the other hand, the drifter is immersed in the host culture, living with the indigenous population, eating their foods, and avoiding the typical tourist route.

Based on Cohen's theoretical work, Pearce (1982, 1985) identified fifteen travel related roles. Of these roles, only

five could be considered touristic. The remainder of the roles included roles such as business travelers, migrant workers, overseas journalists, and missionaries. Pearce identified behaviors associated with each role, providing a conceptual bridge for the development of other tourist role typologies.

Building on the work of Cohen and Pearce, Yiannakis and Gibson (1992) developed an extensive typology of tourist roles based on tourists' behavioral vacation preferences. They (1988, 1992) identified fifteen tourist roles based on leisure travelers' vacation behaviors. Using multidimensional scaling, the authors found three underlying constructs associated with each role: strangeness-familiarity, stimulating-tranquil, and high-low structure. This work using the Tourist Role Preference Scale provided a theoretical background for research that integrated tourist role and life course theory.

By examining the tasks associated with each life course stage, Gibson and Yiannakis (Gibson, 1989, 1994; Gibson and Yiannakis, 1993, 2002; Yiannakis and Gibson, 1988) discovered a relationship between tourist role preference by life stage and specific developmental tasks. They concluded that tourists engage in specific roles at different era of the adult life course to meet the underlying needs associated with that life course era. For example, the Action Seeker is interested in partying, going to nightclubs and uncomplicated romantic interludes. This role is most popular among men and women in the Early Adulthood era, during which they address such tasks as the exploration of the adult world, breaking away from their family, and gaining more personal freedom. The logical conclusion is that the Action Seeker role is most associated with needs for freedom, stimulation, exploration, change, and sexual gratification.

More recent studies confirm the findings of Yiannakis and Gibson. Using time series analysis, Yiannakis, Gibson, and Murdy (2000) identified several needs that predict selected tourist roles. This work further established the relationship between tourist role preference and needs over the life course. Needs associated with each tourist role and life course stage also varied between men and women. For example, the male Anthropologist was associated with the needs for health, companionship, escape, status, and feeling connected to one's roots. For women, the Anthropologist role was related to needs for stimulation, financial security, safety, personal growth, and feeling connected to one's roots. The life course era most associated with this role was Middle Adulthood (40-59 years) for both men and women. From this work, a tentative relationship between tourist role preference and the underlying needs associated with life course era was hypothesized.

Nature-based Tourism

Recently, nature-base tourists have come under scrutiny. Despite the lack of a clear definition of ecotourist, a number of scholars have provided insights into the needs associated with and market segments of nature based tourists. Eagles (1992) also identified social interactions as a motivation among Canadian ecotourists. He also identified safety, escape/change and physical activities as motivations for ecotourists. In addition, Weaver and Lawton (2002) segmented ecotourists staying at an ecolodge into three groups: softer, or those who liked ecotours but also enjoyed a beach resort; harder, or those who sought nature based learning, sustainable behaviors, self reliance, undisturbed or obscure destinations, & risk and challenge; and structured ecotourists, who like escorted ecotours, interpretation, leaning about the natural environment, and plan their own ecotour arrangements. They also found that some needs are also associated with these segments. Specifically, escaping the city, seeing fauna in their natural settings, experiencing the peace and tranquility of the natural environment, learning about the natural environment, self discovery, being physically active, and social interactions all motivated the respondents to participate in an ecotour. From the work of both Eagles and Weaver and Lawton, it is clear that there appear to be some common motivations among ecotourists.

Wight (1996) used demographic characteristics to create two target markets in her study of North American adventure, cultural, and ecotourists. The two markets included the general consumers from seven metropolitan areas and experienced ecotourists, who were recruited from ecotour companies with operations in North America. Both sets of tourists reside in urban areas, came from a variety of age groups, are typically middle to upper income earners, and live as couples. The primary differences between these markets included: experienced ecotourists were generally older, living either as a family with children (24%) or alone (25%), with very high educational levels, more actively engaged in prolonged nature-based recreational activities, and who were willing to spend more per trip than the general consumers. The general consumers were more likely to have children, engage in nature-based activities for less than 48 hours, well educated, although less well educated than the experienced ecotourists, and preferred summer trips. Wight's work suggests that lifestyle and demographic characteristics may be helpful in segmenting the nature-based tourists market.

However, a comprehensive analysis determining which needs and sociodemographic variables are associated with nature-based tourist roles at each era of the life course has not been conducted. Therefore, the purpose of this study was to determine which needs and sociodemographic characteristics predict preference for nature-based tourist roles at different eras of the adult life course for men and women. Specifically, the following three research questions were posed:

1. Which needs predict preference for specific tourist roles at different eras of the life course for men and women?
2. Which sociodemographic characteristics predict preference for specific tourist roles at different eras of the life course for men and women?
3. Which combination of sociodemographic characteristics and needs best predict preference

for specific tourist roles at different eras of the life course for men and women?

4.

Methods & Procedures

Data Collection: A purposive sample of 2076 respondents was used for this study. The data were collected in two phases. Phase I data were collected during the spring and summer of 1993 (Gibson, 1994) from residents of Southern New England, and the data for phase II were collected during the summer of 2000 from residents of Connecticut. Because gender and age affect tourist role preference, the researcher used a purposive sampling procedure to ensure sufficient numbers of each gender across each the three adult life eras discussed earlier.

The Instrument: The instrument used for this research was comprised of three parts. Part I was the Tourist Role Preference Scale (TRPS) developed by Yiannakis (1986) and subsequently modified in work with Gibson (Gibson, 1994; Yiannakis & Gibson, 1992). This portion of the instrument consists of tourists' behavioral preferences, and contains 32 statements measuring 18 tourist roles. Each item measures the degree to which the subject engages in particular vacation behaviors using a five point Likert-type scale. The range of possible responses was from 1 (never like me) to 5 (always like me). The test-retest reliability coefficients for the tourist roles ranged from .66 to .84. Cronbach's α of internal consistency scores were also high, ranging from .82 to .87 (Gibson, 1989; Yiannakis & Gibson, 1988). The validity of this portion of the TRPS was established by testing the degree to which the operational definitions used in the TRPS corresponded to the conceptual definitions. Using a principal components factor analysis, operational items were assumed to measure the conceptual definition if they had a factor loading of .70 or higher on the same factor as the conceptual definition (Yiannakis & Gibson, 1992). This test indicated congruence between the operational items retained for the TRPS and their conceptual definitions.

The second section of the instrument consists of items developed by Yiannakis (1991) and adapted by Gibson (1994) to determine need satisfaction. Again, a five point Likert-type scale is used, with responses ranging from 1 (unsatisfied) to 5 (satisfied). Cronbach's α for this portion of the survey is .91. Construct validity for the needs section was established by correlating each need with a total needs score, with the results ranging from .47 to .68. A test of the criterion validity of this section was conducted using a one-way analysis of variance. An item measuring life satisfaction was trichotomized into high, moderate, and low scores. This measure was then compared to the total needs score by level of life satisfaction. It was found, as hypothesized, that subjects with higher scores on need satisfaction were also more satisfied with their life in general (Gibson & Yiannakis, 2002). The third section of the instrument measures six demographic characteristics. Subjects provided information concerning their gender, educational level, occupational category, income, age, and marital status.

Data Analysis: The respondents were classified into Levinson's (1978, 1996) three life course eras based on their ages: Early Adulthood (17-39 years), Middle Adulthood (40-59 years), and Late Adulthood (60 years and over). Responses to TRPS questions were dichotomized by collapsing the responses for each role into high and low scores based on their frequency distributions (similar to Attle, 1996, and Gibson, 1989, 1994). Similarly, the respondents' need satisfaction scores were also recoded based on their frequency distributions. The data were analyzed using logistic regression.

Results and Analysis: Q1: Which needs predict preference for specific tourist roles at different eras of the life course for men and women? The needs that predict preference for the Ecotourist role among men in Early Adulthood included satisfied needs for independence and change combined with unsatisfied needs for accomplishment, escape, family, and sexual needs. The model accurately classified 73.68% of those included in the analysis. Among men in Middle Adulthood, a combination of satisfied needs for escape and growth and unsatisfied needs for privacy, control and financial security contributed to selection of this role. The percent correct classification of this analysis is 68.03. Men in Late Adulthood who preferred the Ecotourist role are predicted by unsatisfied needs for control over their lives and for family, which combined with satisfied needs for privacy, financial security, feeling connected with their roots, feeling good about themselves, stimulation, and being cared for. This model correctly classified 71.21% of the respondents. Note that some needs overlap from one era to the next. For example, the need for control appears in both Middle and Late Adulthood.

Similarly, female Ecotourists are also predicted well by needs. Women in Early Adulthood preferring this role are predicted by a satisfied need for stimulation combined with an unsatisfied need for control over their lives. The accuracy of classification for this analysis is 70.87%. Middle aged women select this role when the combination of an unsatisfied need for health and a satisfied need for feeling connected with their roots enter the model. This model correctly classified 61.34% of the respondents. Among women in Late Adulthood, the mix of needs included satisfied needs for love and escape and unsatisfied needs for health and sex as predictors of preference for the Ecotourist role. The correct classification rate is 72.88%. Note that there is no overlap here among the needs in each model.

Q2: Which sociodemographic characteristics predict preference for specific tourist roles at different eras of the life course for men and women? The model using sociodemographic variables only to predict the Nature Lover role among men in Early Adulthood had no predictors enter it. Similarly, the analysis using these variables to predict this role among men in Late Adulthood resulted in an insignificant model. However, income and education both entered the model as predictors of preference for this role among men in Middle Adulthood. Income levels of $10,000 to $19,999 and $50,000 to $59,999 per year both make a positive contribution to the

model. On the other hand, holding a high school, technical school, or four year college degree makes a negative contribution to the model. Finally, this model fit the data moderately well (χ^2=35.8, p<.004, correct classification rate=72.58%). As with their male counterparts, women preferring the Nature Lover role are not predicted well by sociodemographic variables, as no variables entered the models.

Q3: Which combination of sociodemographic characteristics and needs best predict preference for specific tourist roles at different eras of the life course for men and women? The results of the combination of needs and sociodemographic variables as predictors of the Explorer role show promise. Male Explorers in Early Adulthood are predicted by needs only. These include a satisfied need for status combined with unsatisfied needs for family and companionship. The accuracy of classification is 60.7%. Among men in Middle Adulthood, satisfied needs for financial security, health, and stimulation combined with unsatisfied needs for safety and family as predictors of preference for this role, along with the income level of 50 and 59,999 dollars, which makes a positive contribution to the selection of this role among middle aged men. The percent correct classification for this model is 67.96. Men in Late Adulthood have several levels of income and education affecting the selection of this role, as well as a mix of satisfied needs for being connected with their roots, safety, and financial security and an unsatisfied need for independence. This analysis accurately classified 83.15% of the respondents.

Female Explorers in Early Adulthood are best predicted by a combination of income levels and an unsatisfied need for family. The accuracy of classification is 66.67%. Women in Middle Adulthood preferring this role are predicted by a satisfied need for independence combined with an unsatisfied need to be cared for. Also, the educational levels of some high school, high school, and technical school also entered the model. This model correctly classified 69.5% of the respondents. Finally, a mix of satisfied needs for safety, growth and change and an unsatisfied need for creativity predicted preference for the Explorer among women in Late Adulthood. This model has a percent correct classification rate of 66.33%.

Discussion

The results of the logistic regression models support three major findings:

1. Needs alone predict preference for nature-based tourist roles across the adult life course with a satisfactory success rate (63.88%, 81 models)
2. Sociodemographic variables provide marginal results when predicting preference for nature-based tourist roles across the adult life course (64.83%, but only 41 models generated)
3. Needs and sociodemographics combined offer the best prediction of nature based tourist roles preference across the life course (70.25%, 80 models)

The results also support the work of Gibson (1989, 1994), Gibson & Yiannakis (2002) and Yiannakis and Gibson (1988) by showing that needs and sociodemographic variables predict tourist role preference across the life course. They also support the work of Yiannakis and Gibson (1992), Pearce (1982, 1985), and Cohen (1972) by showing that needs are the underlying factors that drive preference for specific vacation behaviors.

Based on this research, distinct market segments are also created. The work of Weaver & Lawton (2002) and Eagles (1992) are supported, showing that ecotourists are in fact motivated by needs. However, demographic characteristics alone appear to be less useful as market segmentation characteristics when predicting who chooses these types of vacation behaviors. Despite this, some support exists from this research for the types of market segments established by Wight (1996). Specifically, the current research shows that socio-demographic variables, in conjunction with needs, do combine to create precise market profiles for nature-based tourist roles.

Conclusions

If the results were to be used by practitioners, model selection is dependent on the goals of the user: if the intent is to develop the most parsimonious model, needs alone suffice. However, if the objective is to develop a profile of the tourist for marketing or destination development purposes, the combined model offers the most comprehensive understanding of each type of tourist in each life course era. Further, the following recommendations for future research are offered:

1. Use micro level approach by analyzing each role across 10 life course stages to eliminate any masking effects.
2. The interaction of sociodemographic variables and needs should be studied.
3. A structural model should be developed to determine the relationship between needs, sociodemographic variables, destination attributed, and preference for nature-based tourist roles.

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HOW IMPORTANT IS A CASINO TO A COMMUNITY AND HOW IMPORTANT IS A COMMUNITY TO A CASINO: AN EMPIRICAL BASIS FOR COOPERATIVE MARKETING BETWEEN CASINOS AND COMMUNITY TOURISM PROMOTION AGENCIES.

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Abstract: Cities, towns and communities have developed casinos for several reasons. The first of which is to: attract more tourists, remain competitive with other destinations and more fully utilize the existing tourism infrastructure; the second is to keep local money inside the local economy by giving residents the opportunity to gamble at home. Although several states have developed casinos in their respective jurisdictions, casino gaming remains a controversial economic and social activity. There has been rising debate with respect to the real value of casinos as an economic development tool, and much discourse has resulted from the political debate in jurisdictions still considering whether or not to legalize casinos. Gaming has opponents and advocates. Both parties provide arguments to support their position. Research on the impacts of casino gaming has indicated mixed results. This research examined the effect of non-local visitors to Detroit casinos on the local economy, based on visitors' spending. Additionally, a typology of casino gamers based on visitors' primary trip purpose was developed to indicate the relationship that exist between the casinos and other community tourism-related attractions. Results indicated that the gaming market is not homogeneous and that casino visitors spend money inside, as well as outside the casino in the community. This suggests that cooperative marketing between the casinos and other community tourism-related businesses and agencies is a key strategy for successful gaming development.

Introduction

Cities, towns and communities have developed casinos for several reasons. The first of which is to: attract more tourists, remain competitive with other destinations and more fully utilize the existing tourism infrastructure; the second is to keep local money inside the local economy by giving residents the opportunity to gamble at home. Although several states have developed casinos in their respective jurisdictions, casino gaming remains a controversial economic and social activity. Research on the impacts of casino gaming has indicated mixed results. Gaming has opponents and advocates. Both parties provide arguments to support their position. There has been rising debate with respect to the real value of casinos as an economic development tool (Eadington, 1996), and much discourse has resulted from the political debate in jurisdictions still considering whether or not to legalize casinos (Cabot, 1996).

Casino gaming:

No matter what casino gaming opponents have said, the number of casinos in the United States has considerably increased. According to the American Gaming Association (www.aga.com), some form of casino gaming exists or has been approved to operate in 31 states. There are more than 470 commercial casinos operating in 11 states. The first casino opened its doors in Nevada in 1931. In 1978, New Jersey initiated its first casino. It was not until 1989 that other states started authorizing casino gaming in their respective jurisdictions. From 1989 to 1998, nine additional states --Colorado, Illinois, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri and South Dakota- authorized commercial casino gaming. Additionally, there exist approximately 160 Native American casinos in 27 states (AGA 2000). As indicated in Table 1, in the Midwest, there are 94 gaming venues.

Table 1. Gaming facilities in the Midwest.

State	Number of gaming facility
Illinois	9
Iowa	16
Indiana	9
Minnesota	16
Missouri	9
Michigan	19
Wisconsin	16
Total	94

Source: Adapted from Midwest Gaming and Travel, October 2001, p. 46-47.

The proliferation of casinos and regulatory relief and new emerging markets increase competition, not only between gaming states, but also within states. To remain competitive in a near-mature market, casino operators continue to look for new ways to redefine themselves as all-round entertainment facilities. This trend is characterized by the development of elements ancillary to gaming, which is reflected primarily in the development of hotels, golf courses, RV parks, conference and convention centers, theaters, entertainment centers, retail facilities, concert hall, marinas, and a variety of recreationally oriented facilities. As a result of the increased diversity and growing importance of recreational facilities and non-gaming amenities there is an incremental revenue growth in virtually every gaming market.

Tourism:

There is recognition that tourists are attracted to urban destinations by the combination and variety of attractions, events, and services they have to offer.

The Broad field of travel is commonly divided into four major segments based upon purpose of trip. They are (1) business-related travel; (2) personal business, including visiting friends and relatives; (3) conventions and meetings; and (4) pleasure travel. There is some overlap between these trip purpose segments. For example, while the primary trip purpose may be attending a convention or visiting friends and relatives, this may be integrated with pleasure activities (Crompton, 1999). Crompton (1999, p. 10) offers the following taxonomy of tourist attractions (Table 2).

Table 2. A taxonomy of tourist attractions.

Arts	Theaters, Art galleries, Museums, Performing groups, Music concerts
Heritage places	Ethnic cultural places, Shrines/churches, Historical sites and structures, educational instructions, Industry factory tours
Parks	National, State, Local, Beaches, Theme parks
Recreation	Events and festivals, aquatic and coastal areas, Outdoor recreations (e.g., camping, fishing, hunting), Sports, (e.g., golf, tennis, skiing, sailing, softball), Fitness and wellness centers
Arenas	College sports, professional franchises, Concerts and exhibitions
Other	Gambling places, Cruise ships

Source: Crompton, 1999, p. 10.

According to Crompton (1999), the challenge for recreation providers is not merely to provide services that people want; it is to package them so they can be accessed conveniently. Packaging means that the agency links with other sources and necessary support services, such as restaurant and hotel, and offers a fixed price for the total experience to targeted groups. For example, "if an agency offers a fishing trip to senior citizen groups, the package may include a chartered bus, lunch, fishing poles, and a staff person who meets the chartered bus and provides interpretation and assistance with bait, fishing, cleaning fish, and so forth" (Crompton 1999, p. 5). Targeting groups from outside of the community with packages would help to re/position the community as a tourist destination.

Tourism economic development involves actively partnering with the community tourism providers to create new events designed to attract outside visitors to stay in the jurisdiction for multiple days, and spend more. According to Compton (1999), strengthening linkages between tourism providers in the community may contribute to sustainable tourism economic development. Partnerships make pragmatic sense because tourism organizations/suppliers often have complementary assets; for example, some have the expertise while others have available funds for promotion. Cooperative partnerships are key to economic development

Casino gaming development:

Advocates of casino gaming maintain that casinos are a key attraction that can stimulate and revitalize a community's economy, particularly its tourism industry (Cabot 1996). According to Eadington (1996), the opening of a casino, or casinos, in a region that previously had no legal casino gaming "has tapped a substantial latent demand for the activity" (p. 4). Many recently legalized casino jurisdictions, such as Windsor and Montreal, the Golf Coast and Tunica County in Mississippi, Foxwoods in Connecticut, or Juliet and Elgin in Illinois, he explains, have experienced surprising revenue and visitation rates. On the other hand, opponents (e.g., Grinols and Omorov 1996) argue that 80 percent to 90 percent and more of the bulk of casino revenues come from residents. Considering the added costs of casino gaming, they argue, it appears that the costs outweigh the benefits, and thus, maintain that casinos are not a viable option for economic development. Oddo (1997), for example, argues that casinos cannibalize sales from cinemas, restaurants and other businesses that depend on discretionary dollars. Restaurants in many states have reported that their revenues dropped in response to the opening of a nearby casino, and many restaurants have closed.

Casino gaming in Detroit:

The debate about casino gaming establishment in Detroit started in the 1980's (Trebilcock and Foster, 1999). The controversy about the potential economic and social impacts of casino gaming did not stop the development of casinos in the City of Detroit. On November 18, 1996, the passage of Proposal E allowed the City of Detroit the initiation of up to three land-based casinos. Like many other cities, the City of Detroit has embraced casino gaming as a strategy for additional tax revenue and for economic growth. After the passage of Proposal E three land-based casinos were established in Detroit. However, Proposal E did not settle the debate over casino establishment in the City. Casino gaming advocates indicate that the city has benefited from the casinos, while gaming adversaries oppose this view.

The only empirical study that focused on the economic impact of the Detroit casinos on the local economy was sponsored by the Detroit Metro Convention and Visitors Bureau, and conducted by Michigan State University's Travel, Tourism and Recreation Resource (Moufakkir, Holecek, van der Woud and Nikoloff, 2000). Results of this study indicated that non-local casino visitors whose primary purpose was to visit the casino contributed $165 million to the local economy.

The objective of the present study was to provide a background for bridging the gap between casino gaming opponents and advocates, and thereby encouraging cooperative marketing designed to increase the market

potential of the community tourism-related businesses and organizations. Two research questions were specifically addressed:

1. How important is a casino to a community?
2. How important is a community to a casino?

Methods

The data gathered in this study were collected using two research procedures: (1) an intercept survey, and (2) a follow-up telephone survey. Casino visitors were randomly intercepted entering or exiting the casino building. Non-local casino visitors were screened out and asked whether they were willing to participate in the study. Those who agreed to provide a telephone number were asked about the appropriate time when they would be more receptive to complete a 15-12 minute questionnaire.

Of the 9099 intercepted visitors, 1887 were non-locals. Non-locals were defined as those visitors who did not reside in the Tri-county are (Macomb, Wayne and Oakland county). Seventy-seven per cent provided a telephone number. Of these 853 successfully completed the questionnaire, representing a 62% response rate.

Several administrated response inducement techniques were employed to achieve a desirable rate of response:

1. Social exchange theory –building trust and explaining to the respondents the importance of the study,
2. Record time preference to be contacted,
3. Offer an incentive –building a sense of commitment.
4. Leave a message in case the selected respondent was not available,
5. Ask for appropriate time to call back,
6. Leave a phone number in case respondent wished to call back.

Results

Ratio of local/non-local casino visitors

As indicated in Figure 1, twenty-one percent of the casino visitors were non-local and seventy-nine were local. Of the non-locals, 38% came from Michigan, 38% from Ohio and 24% from other states. This indicates that the Detroit gaming market is a diverse market

Outcome of money wagered at the casino

When asked about their gambling experience, 66.3% of the respondents reported that they came out behind on the money they wagered the day they were intercepted. Almost 25% reported coming out ahead, while 9% broke even.

Expenditures

The average total trip expenditure per person per day (excluding gaming expenditures) was $52.98. Because it was assumed that visitors who were on a charter bus trip had different spending patterns than those who were not on a bus tour, trip expenditures were broken down by bus visitors and non-bus visitors. Average spending in the study area –Macomb, Wayne and Oakland counties-- are presented in Table 3..

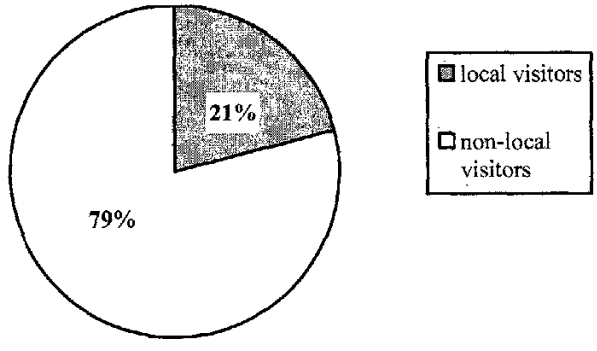


Figure 1. Breakdown of local and non-local visitors

Table 3. Average spending (US$) in the Detroit area by type of expenditures

Spending categories	Non-bus visitors	Bus visitors	Total visitors
Lodging	$16.26	$5.85	$15.62
Food & beverages inside the casino	7.48	10.65	7.90
Food & beverages outside the casino	13.66	6.22	13.25
Gasoline purchased inside the Metro area	4.88	0.00	4.55
Other local transportation	0.49	1.37	0.58
Other expenses	11.53	4.06	11.07
Average total spending per person per day	$54.31	$28.16	$52.98

Slightly over one-quarter of the respondents reported that they spent money on lodging. More than one-half (55.3%) spent money on food and beverages inside the casino, and 37% spent an amount of money on food and beverages outside the casino. Over one-quarter (35.3%) spent money on gasoline in the Detroit metro area, while only 4% spent some money on local transportation. Over one-half (16.10%) spend between $100 and $750 on other spending categories.

Tourism-related activities non-local casino visitors participated in while on trip:

Over one-half of the respondents reported that did not engage in any other recreational activity besides gaming. The remaining half indicated that they patronized restaurants (14.1%), visited friends and relatives (10.6%), engaged in shopping activities (7.9%), attended a sporting event (6.6%), participated in sightseeing (4.9%), visited museum or hall of fame (4.1%), explored the City (3.5%), engaged in nightlife activities (2.1%), and 5% reported that they engaged in other activities.

Based on primary trip purpose, a typology of the gaming market was developed. This typology is depicted in Figure 2.

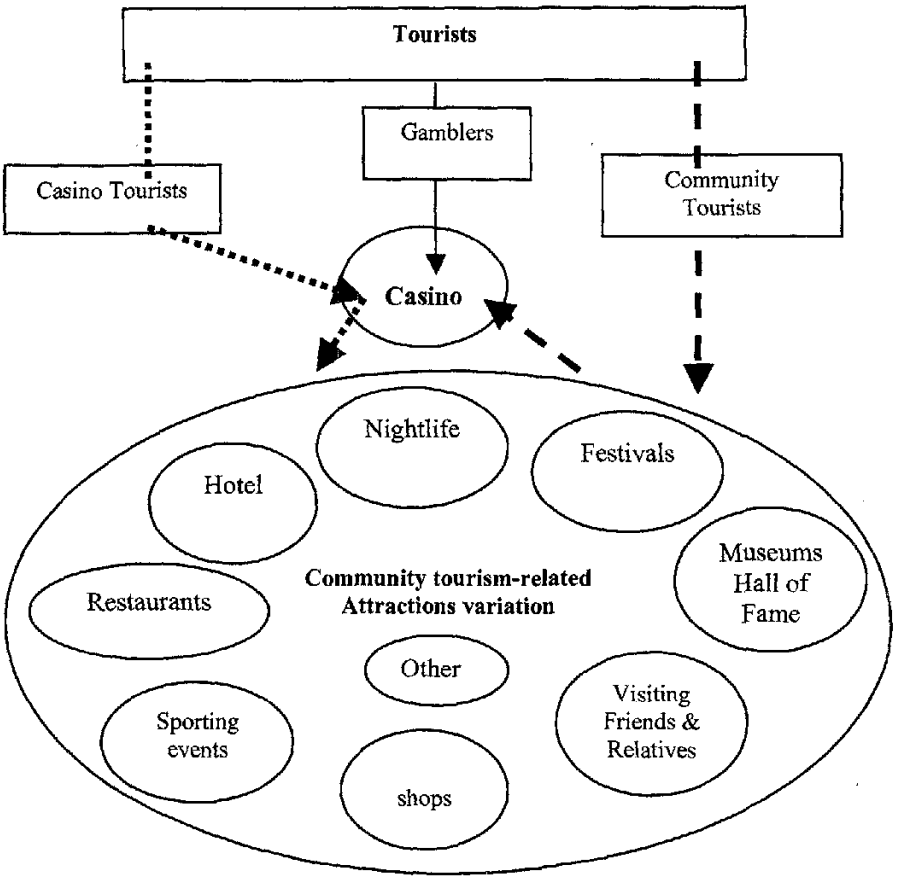


Figure 2. A typology of the tourism gaming market based on primary trip purpose.

Based on primary trip purpose, the Detroit gaming market could be segmented into three groups: (1) the Gamblers, (2) the Casino Tourists, and (3) the Community Tourists. As indicated in Table 4, the first group constituted 53% of the gaming market, the second group 6%, and the third 41% .

Table 4. Detroit non-local gaming market.

Gamblers	53%
Casino Tourists	6%
Community Tourists	41%

Three types of casino tourists were identified:

1. The gamblers: these are casino patrons whose primary trip purpose was to visit the casino only and go back to where they came from or to other destinations without spending any money in the community outside the casino.
2. The community tourists: are the patrons whose primary trip purpose was other community related tourism attractions than the casino. They mainly came to the community either for shopping, to attend a special event, to visit friends and relatives or for reasons other than to visit the casino. However, these visitors had patronized the casino while on their trip. The casino had been an extra recreational activity they engaged in while in the community. As such, these visitors spent money both inside the casino as well as outside the casino on other things.
3. The casino tourists: these visitors are those whose primary reason to visit the community was the casino, however they engaged in other community tourism-related attractions. They, therefore, spent money both in the community outside the casino, as well as outside the casino.

Conclusion

This research indicated that the gaming market is not a homogeneous group. Casino visitors spend money inside as well as outside the casino, in other community spending venues. Based on the typology offered, it is clear that several segments of the gaming market can be identified, and targeted, based on their trip purpose. Several recreation providers are thus needed to develop successful packaged services tailored to specific segments of the gaming market. Out-of-state tourists are usually looking for a package of different experiences. Rather than competing with each other, tourism providers can jointly advertise to the gaming market, enticing gamers to stay longer in the community, and spend more. Tourism products include all the attractions, events and experiences that visitors anticipate. Attractions bring visitors to a community while service makes their stay more pleasant.

According to Crompton (1999), the challenge for recreation/tourism providers is not merely to provide services that people want; it is to package them so they can be accessed conveniently. Packaging means that the agency links with other sources and necessary support services, such as restaurant and hotel, and offers a fixed price for the total experience to targeted groups. For example, "if an agency offers a fishing trip to senior citizen groups, the package may include a chartered bus, lunch, fishing poles, and a staff person who meets the chartered bus and provides interpretation and assistance with bait, fishing, cleaning fish, and so forth" (Crompton 1999, p. 5). Targeting groups from outside of the community with packages would help to re/position the community as an interesting tourist destination.

Tourism economic development involves actively partnering with the community tourism providers to create new events designed to attract outside visitors to stay in the community for multiple days, and spend more. According to Compton, strengthening linkages between tourism providers in the community may contributes to a healthy tourism development. Partnerships make pragmatic sense because tourism organizations/suppliers often have complementary assets; for example, some have the expertise while others have available funds for promotion.

If the rationale behind casino development is to contribute to the well-being of the community, it is, therefore, necessary that, in a near-saturated and highly competitive market, all community tourism-related businesses (including casinos) and organizations (including casino officials) work together. This research, based on a case study of the casino development in Detroit has demonstrated that both the casinos and other tourism-related businesses are benefiting from casino visitors. Cooperative marketing seems to be a logical strategy for a gaming community to maximize benefits, remain competitive and achieve its goals. Additional research is needed to shed more light into the impact of casino gaming development on the City of Detroit and its residents.

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DEVELOPING A TYPOLOGY FOR UNDERSTANDING VFR AS A PRIMARY PURPOSE VS. VFR AS A TYPE OF ACCOMMODATION

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Abstract: This study examined VFR travelers in relation to their behaviors. Data were collected at fourteen sites Alachua County, Florida in 2001. Some of the sites included: hotels, local attractions and special events. A fixed choice questionnaire contained items asking about mode of transportation, demographic characteristics, number of people in the travel party, number of nights away, type of accommodation, types of information sources used to make the travel decisions, participation in 20 local activities, and 23 items measuring various images of the City of Gainesville and Alachua County. Results suggested that there seems to be a distinction between all three segments of the VFR market. AFR's tend to stay longer, have smaller travel parties, dine out take in the nightlife and visit a community or state park. They rely heavily on friends and relatives and previous visits for information. This segment tends to be younger with lower incomes. NAFR's stay the least amount of time, relay on friends and relatives and previous visits for information about the area, and visit scenic areas, dine out and visit a community park, this market is older with higher incomes and higher education levels. OFR's stay longer periods of time (one week on average), have larger travel parties (families?), like to participate in outdoor recreation, dining out and visiting scenic areas. This segment tends to be the most heterogeneous with varying life stages, ages and income levels.

Introduction

Travel for the purpose of visiting friends and relatives (VFR) is an understudied area in tourism research (Cohen & Harris, 1998). VFR has been consistently listed as one of the primary motivations for pleasure travel within the United States (Lehto, Morrison, & O'Leary, 2001). With respect to the size of the market, VFR travel accounts for 43% of all weekend travel (Kate, 1987). A substantial portion of the overnight travelers in the United States stay in unpaid accommodations. Indeed, 48% of weekend travelers stay with friends or relatives (Kate, 1987). The volume of VFR travel is also noteworthy (Cohen & Harris, 1998). In 1998, 732 million away-from-home room-nights were non-commercial in nature, representing, potentially, billion of dollars in untapped hotel revenue (Shifflet & Goldstein 1999).

The VFR market also has a larger economic impact on host communities than has been traditionally assumed. Spending and other economic variables are of critical importance to tourism destinations. In the past, the VFR market has been under-appreciated in terms of its contribution to local economies. This has primarily been due to the VFR markets limited use of commercial lodging establishments. The economic value of spending on other activities has been often underestimated (Lehto et. al. 2001).

Moscardo, Pearce, Morrison, Green and O'Leary (2000) proposed a typology of VFR travel which included five discriminating variables (Figure 1). These variables included accommodations used, focus of visit (VFR as activity or primary motivation), domestic vs. international travel, short vs. long haul travel and sector definition. Key to their typology is the distinction between VFR as an activity and VFR as a prime travel motivation or trip type. VFR as an activity indicates that this type of traveler participates in a variety of activities, one of which might include renewing or enjoying social connections. VFR as the primary purpose of travel suggests that the sole purpose of the visit is social obligations and that other activities might be secondary to the experience.

	VFR as Primary Purpose	**Other Primary Purpose**
Friends and Relatives Homes	44.9% (N=88) "VFR ALL AROUND"	15.3% (N=30) "STAY WITH FRIENDS/RELATIVES"
Commercial Accommodation	39.8% (N=78) "VFR IN COMMERCIAL ACCOMMODATIONS"	**Not included in this study**

Figure 1 A Proposed Typology of the Visiting Friends and Relatives (VFR) Traveler

Purpose of the Study

The purpose of this paper was to explore the behavioral differences between the VFR market defined by motive and those defined by accommodation. A typology for understanding this relationship was developed. The research questions guiding this study were: (1) Is there a difference in length of stay based on the three types of VFR groups? (2) Is there a difference in travel party size based on VFR group? (3) Is there a difference in the types of activities the three VFR groups participate in? (4) Is there a difference in use of information sources for planning based on VFR group? (5) Are there different demographic differences among the three VFR groups?

Data Collection and Analysis

Data were collected at fourteen sites Alachua County, Florida in 2001. Some of the sites included: hotels, local attractions and special events. A fixed choice questionnaire contained items asking about mode of transportation, demographic characteristics, number of people in the travel party, number of nights away, type of accommodation, types of information sources used to make the travel decisions, participation in 20 local activities, and 23 items measuring various images of the City of Gainesville and Alachua County.

The data collectors were students from the University of Florida. They were paid for their time and attended orientation and training sessions before beginning data collection. Using systematic random sampling techniques, a total of 862 surveys were completed between January and October. Surveyors were asked to approach every fourth person, alternating between males and females. Only those individuals who responded "yes" to the question "Do you live outside Alachua County?" were included in the study. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 10. Respondents were recoded three VFR groups. The typology of VFR traveler included VFR-stay at friends and relatives, VFR stay in other accommodations, other primary purpose of trip and staying in friends and relatives home.

The three groups were analyzed to understand the differences in behaviors of the VFR market. Crosstabs were used to examine the differences in activity participation by VFR group.

Results

The VFR All-Around travelers were predominantly 18-30 years of age, were "couples" and living in all-adult homes. Their incomes were split among 4 categories, with 16% earning less than $24,000 per year, and 18.7% earning in excess of $125,000 per year. Their level of education was high – 26.7% held an advanced degree, while 25.6% had a college degree. Overwhelmingly, they were employed full-time.

The VFRs Staying-With-Friends/Relatives were primarily 31 to 45 years of age, at the "couple" lifestage, with incomes of between $50,000 to $75,000 dollars. Their highest level of education was a college degree. Most (58.6%) were employed full-time, although a sizeable portion (20.7%) were retired.

The VFR In Commercial Accommodation group were largely middle-aged, with 72.8 % between 31 and 65 years old. They were predominantly (78.2%) in the "couple" or "family" lifestage. Incomes for this group were chiefly in the $50,000 - $100,000 range. Their highest level of education was a college degree, and they were employed full-time (although 12.8% were retired).

The VFR travelers to Alachua County reported varying participation in activities during their visit. Significant differences were found between the VFR All Around, Non-primary purpose VFRs, and VFRs in commercial accommodations groups on eight of twenty activities.

The VFR All-Around group was more likely to participate in dining out, taking in nightlife, visiting a community park, visiting a state park, or attending a theatrical performance.

The "primary purpose" VFRs staying in commercial accommodations were more likely to visit scenic areas of the county, while the "non-primary purpose" group actually staying with friends/relatives were more likely to be found canoeing or kayaking on their visit.

Table 1 Types of Activities Participated In by VFR Segments (N=196)

	VFR All Around		Stay with Friends/relatives		VFR in commercial accommodations	
	N	%	N	%	N	%
Attend a UF sporting event*	4	2.3	7	4.0	3	1.7
Dining out*	55	31.8	12	6.9	33	19.1
Shopping/antiquing	38	22.0	14	8.1	29	16.8
Take in nightlife*	18	10.4	9	5.2	4	2.3
Attend a non-UF sporting event	2	1.2	1	0.6	1	0.6
Visit a scenic area*	17	9.8	15	8.7	18	10.4
Visit community park*	19	11.0	14	8.1	17	9.8
Visit state park*	17	9.8	10	5.8	9	5.2
Golfing	12	6.9	3	1.7	4	2.3
Birding/wildlife viewing	9	5.2	3	1.7	4	2.3
Attend a concert	3	1.7	1	0.6	4	2.3
Boating	5	2.9	1	0.6	4	2.3
Swimming	21	12.1	12	6.9	18	10.4
Attend art gallery/museum/historic site	16	9.2	4	2.3	17	9.8
Diving in the springs	2	1.2	3	1.7	1	0.6
Attend a theatrical performance*	9	5.2	2	1.2	0	0.0
Attend a festival	2	1.2	1	0.6	2	1.2
Canoeing/kayaking*	5	2.9	7	4.0	3	1.7
Fishing	5	2.9	2	1.2	2	5.2
Tubing in the springs	11	6.4	1	0.6	3	1.7

* significant at alpha <= .05

Table 2 Travel Behavior and VFR Segments Table

	VFR All Around		Stay with Friends/relatives		VFR in commercial accommodations	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Travel Party Size	2.42	3.96	3.97	3.43	3.01	1.92
Nights Away	7.83	15.90	6.73	11.13	4.22	5.93

Table 3 Sources of Information Used by VFR Segments

	VFR All Around		Stay with Friends/relatives		VFR in commercial accommodations	
	N	%	N	%	N	%
Chamber of Commerce	3	1.7	0	0.0	2	1.1
Previous Visit	35	19.3	12	6.6	32	17.7
Own travel files	1	0.6	0	0.0	1	0.6
Travel club	2	1.1	0	0.0	1	0.6
Friends and relatives	63	34.8	19	10.5	49	27.1
Internet	17	9.4	2	1.1	11	6.1
Map	6	3.3	1	0.6	3	1.7
Travel guide	4	2.2	0	0.0	0	0.0
Road signs*	10	5.5	1	0.6	1	0.6
University materials	2	1.1	4	2.2	4	2.2

- significant at alpha <= .05

Table 4 Demographics by VFR Segments

	VFR All Around	Stay with Friends/relatives	Commercial accommodations
Age*	%	%	%
18 to 30	35.7	16.7	15.6
31 to 45	20.2	43.3	39.0
46 to 65	29.8	13.3	33.8
65+	14.3	26.7	11.7
Life Cycle Stage			
Single	23.3	10.0	15.4
Couple	36.0	43.3	43.6
All adult homes	18.6	16.7	6.4
Family	22.1	30.0	34.6
Income			
Less than 24K	16.0	14.3	6.2
24,001 to 35,000	8.0	4.8	10.8
35,001 to 50,000	13.3	14.3	12.3
50,001 to 75,000	17.3	42.9	23.1
75,001 to 100,000	21.3	4.8	24.6
100,001 to 125,000	5.3	9.5	13.8
Over 125,001	18.7	9.5	9.2
Highest level of education			
Less than high school	3.5	6.9	2.7
High school graduate	14.0	3.4	18.7
Technical school	2.3	0.0	2.7
College degree	25.6	34.5	38.7
Some graduate school	10.5	13.8	1.3
Some college	17.4	17.2	16.0
Advanced degree	26.7	24.1	20.0
Employment Status			
Employed full time	64.4	58.6	69.2
Employed part time	10.3	6.9	6.4
Homemaker	3.4	6.9	5.1
Student	13.8	6.9	2.6
Retired	8.0	20.7	12.8

* Significant at alpha <= .05

Conclusions

There seems to be a distinction between all three segments of the VFR market. AFR's tend to stay longer, have smaller travel parties, dine out take in the nightlife and visit a community or state park. They rely heavily on friends and relatives and previous visits for information. This segment tends to be younger with lower incomes.

NAFR's stay the least amount of time, relay on friends and relatives and previous visits for information about the area, and visit scenic areas, dine out and visit a community park, this market is older with higher incomes and higher education levels.

OFR's say longer periods of time (one week on average), have larger travel parties (families?), like to participate in outdoor recreation, dining out and visiting scenic areas. This segment tends to be the most heterogeneous with varying life stages, ages and income levels.

Understanding of the various market segments of the VFR market will allow marketers to better bundle packages. More focused advertising strategies can be created to address the needs of the various segments. Programs like "Be a tourist in your home town" might educate residents on the inventory in their town, which could lead to more active participation in activities in the community (therefore more $$). Future research should focus on determining the different economic impacts of the various segments. It would be interesting to examine cultural differences in the VFR market (expand initial work by Lehto, Morrison & O'Leary).

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A MODEL OF DESTINATION IMAGE PROMOTION WITH A CASE STUDY OF NANJING, P. R. CHINA

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Abstract: Destination image has long been a popular research topic in tourism studies. However, methods used to integrate image in real marketing practice and evaluating the market performance in a systematic way are still puzzling to practitioners. A destination image promotion model is proposed in this paper as an effort to solve the problem. The roles of some major factors such as image identification, image communication vehicles, and image promotion tools, are discussed. In order to test the model's applicability, the city of Nanjing, China is used as a study case. Some observation and survey results on Nanjing's image promotion practices are introduced and analyzed, including data collected in a large-scale image measurement questionnaire survey conducted during the Fall of 2000.

Introduction

The unprecedented growth in the tourism industry during the last several decades has created major challenges in destination marketing (Li, 2001). More and more nations, regions, and cities are involved in tourism competition with the aim of benefiting from local tourism development. While tourists are glad to enjoy a myriad of destination choices, destination marketing organizations (DMOs) find it increasingly difficult to differentiate their destinations from neighboring or foreign competitors. Thus, establishing a unique identity, or image, becomes a major concern of not only the tourism scholars, but also the industry practitioners and destination marketers. In fact, the widely recognized importance of destination image has made it "one of the most pervasive topics in the tourism literature" (Fakeye & Crompton, 1991, p.10) (e.g., Baloglu & Brinberg, 1997; Bramwell & Rawding, 1996; Chen & Hsu, 2000; Chon, 1990; Crompton, 1979; Echtner & Ritchie, 1993; Gartner & Hunt, 1987; Li, 1999; Mackay & Fesenmaier, 1997; Morgan & Pritchard, 1998).

It is generally recognized that accurately assessing the destination image is of vital importance to a successful imaging strategy (Baloglu & Mangaloglu, 2001; Reilly, 1990; Walmsley & Young, 1998). Numerous research papers have been published on destination image measurement (e.g., Baloglu, 2001; Baloglu & Mangaloglu, 2001; Chen, 2001; Chen & Hsu, 2000; Chen & Kerstetter, 1999; Choi, Chan, & Wu, 1999; Coshall, 2000; Echtner & Ritchie, 1993; Embacher & Buttle, 1989; Fakeye & Crompton, 1991; Gartner, 1989; MacKay & Fesenmaier, 2000; Milman & Pizam, 1995; Oppermann, 1996; Reilly, 1990; Schneider & Sonmez, 1999). Although it is widely accepted that image is one of the most effective tools in tourist destination marketing, how to integrate image in real marketing practice, and how to evaluate the market performance in a systematic way are still puzzling issues, especially in developing countries like China. Therefore, in this paper, a destination image promotion model is proposed as an attempt to solve these problems.

Despite its importance and interest to scholars, destination image studies are still considered as atheoretical and lacking in conceptual frameworks (Baloglu, 1996; Fakeye & Crompton, 1991). This is also reflected by its widely employed yet loose and subjective definitions. Almost every researcher has his/her own definition of image. In this paper, Crompton's (1979) definition is recommended, which is "The sum of beliefs, impressions, ideas, and perceptions that people hold of objects, behaviors, and events ".

"Destination image promotion" is defined, in this paper, as a strategy to enhance a destination's competitive position through the identification and promotion of its image. Destination image promotion is an important strategy in place marketing and promotion.

Different Understandings of Destination Image

As noted, a variety of understandings exist over destination image. Figure 1 introduces five different perspectives to conceive destination image: one focus is on the functional aspect of image, and understanding it as "the presentation of functional attributes of a destination product". From "the pictorial and conceptual summary", "the sum of differentiated implication and association", to "an expression of a destination's individuality", it is steadily realized that destination image is far more than simply a slogan or some pictures. An image is a communication channel and a way of expression. We propose to consider image as "A perspective and methodology in destination management". Thus, image becomes a tool of destination management, and image promotion is an indispensable part of the destination marketing.

Destination Image Promotion

In their review on image studies between 1971 and 1999, Gallarza, Saura, and Garcia (2002) grouped most studies into eight topics, with image promotion categorized under the topic of "destination image management policies". Although the majority of researchers agree that image plays a significant role in destination marketing, only a handful of works can be found about the practical methods of marketing and promotion destination image (e.g., Bramwell & Rawding, 1996; Kotler, Heider, & Rein, 1993; Li, 1999; Morgan & Pritchard, 1998). Even fewer provide a framework to evaluate the promotion performance of destination tourism organization.

Kotler et al. (1993) pointed out that destination image marketing is one of the four place marketing strategies (the

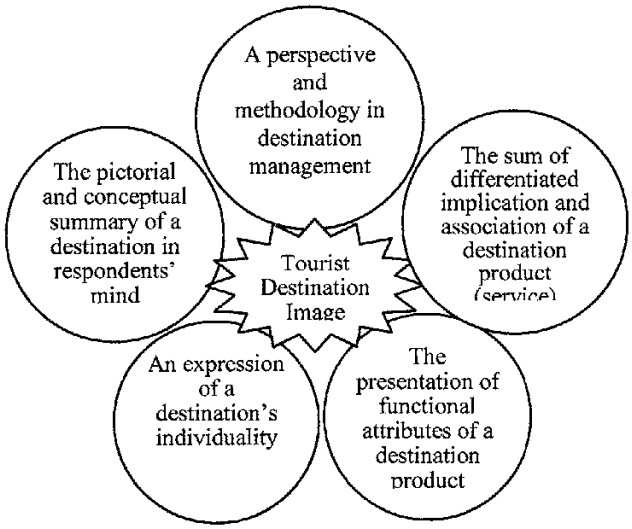


Fig. 1. Different understanding of destination image

other three are attraction marketing, infrastructure marketing, and people marketing). They further indicated that there are three image vehicles, which are slogan, theme, and positioning; visual symbols; and tourist events. Yang, Guo, and Wang (1999) put forward that a successful destination image marketing strategy is made up of three parts – image projection, image transmission (which is, in other words, image promotion), and image reception. And they designed a model of "destination image marketing process". There are several studies on place marketing introducing major image promotion tools, such as traditional advertisements (Li, 1999), promotion materials (Briggs, 1997), public relations (Morgan & Pritchard, 1998), attending / hosting exhibitions, travel and tourism conventions (Ahmed, 1991), and the Internet (Marcussen, 1997; Wu, 2000). Most studies suggest that a major part of destinations' marketing efforts should be directed to the creation and management of a positive image. These studies try to identify image strengths and weaknesses of different destinations. Some use specific places as study cases and design the imaging strategy for these destinations from a marketing perspective.

A Proposed Model

The entire image promotion process (Figure 2) is designed from the perspective of a destination tourism organization (DTO). It starts with two pilot steps: DTO internal assessment and destination image building and projection. An internal assessment of the tourism organization helps to identify who is responsible for the promotion process, with what responsibilities, and how the work is being done. Image building and projection is the establishment of a specific image of one destination. It makes the promotion of a destination image possible. Following the image promotion process is the feedback process. When image information reaches the potential market, the audience will decide whether they like it or not. If favorable, there will follow a decision-making process, which may ultimately lead to a trip to the destination. On the contrary, if the image is considered as negative, the concerning information will be discarded. In either way, feedback will be directed to the DTO, and helps to improve future image building and projection.

The actual promotion process incorporates two parts as image identification and communication. Image identification, more widely known as image measurement, provides the basic knowledge about current image held by target markets. The use of "identification" is suggested here, rather than "measurement", as the former tends to be taken in a flexible manner, while the later is more strictly and academically defined. With all the information collected about the destination image, the DTO could create a promotion plan, which bridges image identification and communication. Also it provides feedback for future image design. In image communication, tourism organizations send the appropriate image message to the target market(s). Effective image communication is actualized by selecting and using the right image vehicles and tools. Image vehicles make the abstract destination image identifiable and accessible, while promotion tools bring the image information to the tourists. Image promotion tools can be basically categorized into five kinds. Traditional advertisement are advertising tools such as TV, radio, printing and outdoor media. Promotion materials are advertisements distributed by tourism organizations, rather than paid media. It includes printings such as brochures, maps, posters, albums etc. With the development of modern technology, CD-ROMs, DVDs, slides, videotapes are also widely used. Public relations may be the most creative and effective method to promote

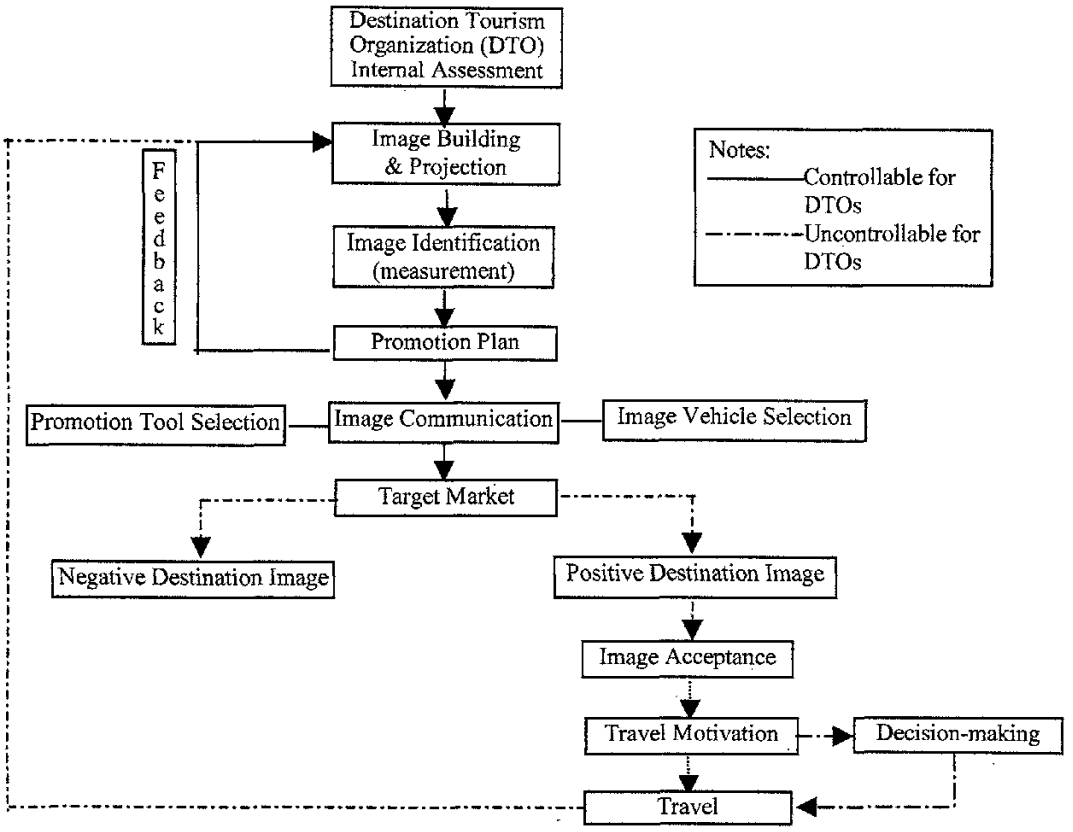


Fig. 2 Destination Image Promotion Model

destination image. Major strategies in destination public relations include hosting press conference, art or sports events, family trips, etc. Travel agents are the opinion leaders, who have the most influential power in tourists' travel decisions. Attending or hosting travel marts and conventions are good opportunities for DTOs to introduce their destination products to the agents. The Internet is a new promotion tool, which can reach the target market directly and efficiently, with a low cost. All these tools can be integrated into a systematic promotion strategy, which cooperates with the image vehicle in communicating destination image to the target market. This paper will focus on how image identification and communication are mutually affected in the image promotion practices of Nanjing

The case city

In this project, Nanjing, a Chinese tourist city is chosen as our case destination. Nanjing is the capital of Jiangsu, one of the most prosperous provinces of the country. It is located at the eastern part of China, about 3 hours drive to Shanghai. It has a population of about 5.5 million, covering an area of nearly 6.6 thousand square kilometres. In history, Nanjing used to be the capital of 10 Chinese dynasties, and hence becomes one of China's most famous ancient capitals. Nanjing is among the first group of Chinese cities open to foreign visitors. In 1999, Nanjing hosted a total of 379 thousand foreign tourists, and 13.4 million domestic tourists.

From Oct. 2000 to March 2001, a questionnaire survey on Nanjing's image was taken among foreign and domestic tourists. To sample foreign tourists, questionnaires were distributed to major local hotels and international travel services. 228 English-speaking tourists from Europe, North America, and Australia participated in the survey, with a response rate of 76%. 15,536 questionnaires were collected from domestic tourists (including 5,641 local citizens) at Dr. Sun Yat-sen's Mausoleum during Oct 1-6, 2000. Tourists filled in the questionnaires with the help of research staff, and everyone received a small gift as an incentive. This contributed to a 100 percent response rate. The questionnaires investigate Nanjing's image through open-ended questions about Nanjing's representative objects, and frequent descriptors. Tables 1 & 2 provide a summary of the responses to these inquires. Other questions include the respondents' communication channels of the image information, Nanjing's city grading and respondents' own demographic characteristics.

Table 1. Nanjing's Representative Objects

Nanjing's Representative Objects (foreign tourists)	(domestic tourists)
Yangtze River Bridge, Yangtze River, Pearl, Dr. Sun Yatsen's Mausoleum, Citizens, Dr. Sun Yat-sen, Trees, Nanjing Museum, Hotels, Zhonghua Gate Citadel, Universities and schools, City Wall, Plum Blossom Festival, Scenery	Dr. Sun Yatsen's Mausoleum, Rain Flower Stone, Salty Duck, Confucius Temple, Xuanwu Lake, Rain Flower Terrace, The Presidential Palace, Nanjing Pressed Duck, Yangtze River Bridge, "Nanjing Massacre" Memorial Hall, Xinjiekou (the downtown area), Ming Tomb of Emperor Hongwu

Table 2. Frequent Descriptors about Nanjing

Frequent descriptors (foreign tourists)	(domestic tourists)
Friendly (12.28%), Clean(7.02%), History(7.02%), Beautiful(7.02%), Modern (5.26%), Combination of history and modernization, Development, Spacious, Mature	Ancient capital (68.83%), Green(64.01%), Clean(57.61%), Beautiful (0.84%),Crowded (0.75%), Prosperous, Convenient, Good environment, Modern, Lively

According to the survey, both domestic and foreign tourists agree that tourist attractions occupy a majority of the representative objects to Nanjing's image, although their opinions vary in which one are most representative. Dr. Sun Yatsen's Mausoleum and Yangtze River Bridge are the only overlapped parts in their answers. As for the top descriptors of Nanjing by domestic tourists, around 60% of respondents use "ancient", "green" and "clean" to describe this city, which is a significantly high percentage for so large a sample size. Meanwhile, there is a surprisingly sharp decline between the top three answers and other descriptors. In contrast, the descriptors used by foreign tourists tend to be more diversely and even distributed.

Butler's "destination life cycle" theory (1980) can help to explain the difference. As a tourist destination, Nanjing's image is in a different phase of life cycle in domestic and international market. A highly agreed usage of descriptors implies that a uniform image (featured by "ancient capital", "green", and "clean") has already been established in domestic tourists' mind (i.e., in "Consolidation" or "Stagnation" period). However, for most foreign tourists, Nanjing is a new and fairly unknown tourist destination (i.e., in "Involvement" or "Development" period). Its image is still obscure with a lack of uniqueness to other Chinese cities.

Nanjing Municipal Tourism Bureau is the local governmental authority responsible for city image promotion. Its Market Development Department supervises the actual marketing practices. It is observed that Nanjing's image communication efforts are trying to be consistent with the above survey results, although not in a purposeful manner. The city has achieved some successes in the use of image vehicles, i.e., tourist events, slogan, theme, and positioning, and visual symbols. Some city tourist events have built a nation-wide reputation, such as the International Plum Blossom Festival. The festival is a celebration of the coming of spring and the blooming of plum blossoms, which is the city flower. It has been successfully held annually since 1996, boasting an increasing scale and growing fame. The event has done a good job in integrating the city image and tourist resources. However, it is yet to be incorporated into the city image promotion strategy, and needs to demonstrate a more direct connection with Nanjing's city image. In addition, its over-reliance on government sponsorship and a lack of economic concern, constrain itself from further development.

Slogan, theme, and positioning are a weak point of Nanjing's image strategy. It is surprising to find that the city doesn't have a fixed official slogan as yet. In the past several years, a few slogans were used either for annual city promotion or major events. However, most are changed without even obtaining market feedback. The problem is partly the result of a debate on the cultural and historic feature (theme) of Nanjing. In the 10th Five Year Plan of Nanjing Tourism Industry (2001-2005), a new slogan as "Nanjing: City of Culture, City of Green ('Lvsegudu, Wenhuazhicheng' in Chinese)" was proposed. Although it is far from the end point of the search for a city slogan, this slogan is undoubtedly a constructive trial to combine the main features of the city. Regretfully, the slogan hasn't an official English translation (the current one is done by authors), which is rare for a city trying to involve itself in international tourism competition.

Visual symbols can be understood as a system of image visual factors, such as destination logo, mascot, advertisement, welcome center, vehicle and so on (Li, 1999). A spatial structure of Nanjing's visual image (Table 3) shows that some areas directly influencing tourists' image are just the representative objects of the city. However, few areas successfully impress the tourists with the right image information the city wants to promote. More image messages should be incorporated in the future planning of these areas, such as adding ancient Chinese style in future architectural design, stop the erosion of modern facilities to the city green lands, and building a welcome center or tourism map board. Details like the dress and language of the staff shall also be improved in

Table 3. Spatial Structure of Nanjing's Visual Image

First Impression Area: (entrance)	*Lukou* Airport, Railway Station, *Nanjing* Port, Gateway areas of tourist attractions, hotel building
Last Impression Area: (exit)	Same as above
"Corona Effect" Area: (impressive)	*Xinjiekou*, Dr. *Sun Yatsen*'s Mausoleum, Confucius Temple, *Hunan* Road
Landmark Area: (unique)	Dr. *Sun Yatsen*'s Mausoleum, Confucius Temple

order to create an atmosphere connected with Nanjing's "ancient, green and clean" image.

In the city's unsophisticated use of promotion tools, the image message selection has been proved to be highly related with promotion effectiveness. In this regard, the "standard snapshots" of Nanjing can be a good example of how to design pictorial image messages in advertisements. The most widely used pictures of Nanjing in its promotion materials are about Confucius's Temple, Dr. Sun Yat-sen's Mausoleum, the Ming Tomb of Emperor Hongwu, and Xuanwu Lake, all of which are famous tourist attractions of the city. These pictures successfully combine the features of "ancient", "green" and "clean", as well as the representative objects themselves. All these successfully present the uniqueness of the city. In some other materials trying to focus on the city's hospitality services or shopping convenience as a modern metropolis, foreign managed hotels and shopping centers were shown. But the city finds this can hardly be a successful promotion theme, as they conflict with Nanjing's impression in tourists' mind.

Conclusion

While work on measuring and promoting Nanjing's image is still underway, some conclusions can be reached from the above observations. These include:

1. Tourist destinations in development period (Like Nanjing in international market) should focus their marketing efforts on image promotion., these destinations should first establish a unique image, making itself differentiate from other destinations. Then, most promotion work should centered on communicating the image to the target market.

2. Image identification plays a vital role in successful destination image promotion. It is necessary to investigate how tourists hold destinations in mind. Practically, the image identification process will figure out the most representative objects and descriptors of the destination, which has the most marketing potential.

3. Image vehicles and promotion tool strategies should be consistent with established positive images. Potential tourists build their images from different information resources. When reading promotion materials, or taking a trip, they will compare their image to what they actually see. They expect to find something already in mind. If so, the image will be enhanced. In Nanjing's case, promoting the "ancient", "green" and "clean" features will obviously be more effective than promoting the city as a "shopping paradise".

4. Image promotion strategy should vary in different market segmentation. Different markets may possess different images on a single destination. This may be based on cultural or social difference. Also, the image's life cycle period could also contribute to these differences. When Nanjing promotes and other destinations promote their images, strategie should differentiate between domestic and international markets.

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Recreation and Resource Management Issues

COLLABORATIVE RECREATION AND TOURISM PLANNING WITHIN A NATIONAL PARK CONTEXT: THE PROCESS, STAKEHOLDER IDENTIFICATION, AND EXPECTED OUTCOMES

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Abstract: Recent economic, political, and social forces have resulted in collaboration and public-private partnerships being endorsed as sound mechanisms for planning, developing, managing, and marketing recreation and tourism on public lands (Selin and Chavez 1995; WTO 1996; Selin and Myers 1998; Crompton 1998; Bramwell and Lane 2000). Generally, many commentators contend that stakeholder collaboration has the potential to lead to dialogue, negotiations, and the building of mutually acceptable proposals about how tourism should be developed (Bramwell and Lane 2000). However, despite their endorsement, little empirical research has been conducted to explain the processes that occur when interactions take place within recreation and tourism partnerships (Selin and Chavez 1994). Little is known about how the objectives, processes, and outcomes of collaborative alliances are shaped by the nature of their participants (Wood and Gray, 1991). This study used qualitative research methods including participant observation, document analysis, informal discussions, and personal interviews to investigate the processes through which conveners identified potential stakeholders to form the Boston Harbor Islands National Park Area Partnership and to participate in the park's General Management Planning process. The study documents the influence of stakeholder groups on the outcomes of the planning process and raises specific issues for future research.

Introduction

According to Jamal and Getz (1995), inter-organizational collaboration theory offers strong possibilities for managing tourism and recreation related issues at the destination level. Collaboration occurs when a group of autonomous stakeholders engage in an interactive process, using shared rules, norms, and structures to act or decide on issues related to a particular problem domain (Wood and Gray 1991). As a process, collaboration emerges out of an environmental context called antecedents and then proceeds sequentially through a problem-setting, direction-setting, and structuring phases (Wood and Gray 1991; Selin and Chavez 1995). According to Gray (1989), five features that are critical to the process of collaboration are: 1) the stakeholders are interdependent, 2) solutions emerge by dealing constructively with differences, 3) joint ownership of decisions is involved, 4) stakeholders assume collective responsibility for the future of the domain, and 5) collaboration is an emergent process.

One form of collaboration that is increasingly gaining recognition and acceptance as a mechanism for planning and managing recreation and tourism is the public-private partnership. Partnerships are regular, cross-sector interactions between parties based on some agreed rules or norms, intended to address a common issue or to achieve a specific policy goal or goals (Bramwell and Lane, 2000). Within the United States, recent economic, political, and social forces have combined to make collaboration and partnership an explicit priority of agencies responsible for planning, managing, and developing recreation and tourism on public lands (Selin and Chavez 1995; Selin and Myers 1998; Crompton 1998). Elsewhere in the world, public-private partnerships are increasingly being adopted as new mechanisms for developing, marketing, and promoting tourism (WTO 1996). Thus, one may observe that public-private partnerships have been endorsed globally.

The increasing significance of collaboration and partnerships has led some scholars to suggest that collaboration offers a dynamic process-based mechanism for resolving planning issues, and coordinating recreation and tourism development at the local or community level (Selin and Myers 1995; Selin and Chavez 1994; Jamal and Getz 1995). Generally, many commentators contend that stakeholder collaboration has the potential to lead to dialogue, negotiations, and the building of mutually acceptable proposals about how tourism should be developed (Bramwell and Lane 2000). However, some scholars have serious conceptual and practical concerns related to collaboration and partnerships.

First, Wood and Gray (1991) contend that no firm conclusions have yet been drawn about 1): how the convener uses various forms of authority to identify and persuade stakeholders to participate, 2) which differences can be observed when conveners are responsive to stakeholder initiatives instead of implementing their own ideas, and 3) which specific roles conveners might play in helping to organize the problem domain. Second, Reed (1997) contends that despite its contribution to understanding community-based planning processes, research on collaborative tourism planning relies on rather weak theories of power relations within community settings. The author contends that no effort has been made to explain why, how, and under what conditions those with power would be willing to distribute it to others. Third, according to Hall (1996), community-based approaches to planning may be inadvertently ignoring broader issues of power and the inability of some interests to effectively participate in the decision making process. The pluralistic basis of much of community-oriented planning fails to account for how certain values and interests are excluded from the tourism decision-making process. As a result, it is not known to what extent the patterns of shared, differing, and opposing interests among the stakeholders influence the collaboration's potential for successful outcomes (Wood and Gray 1991).

In conclusion, one may observe that, in-spite of their increasing significance, little empirical research has been conducted to explain the processes that occur when interactions take place within recreation and tourism partnerships (Selin and Chavez (1994). Little is known of the process through which conveners select stakeholders. Furthermore, it is known how the objectives, processes, and outcomes of collaborative alliances are shaped by the

nature of their participants (Wood and Gray, 1991). Therefore, more empirical research on collaborative recreation and tourism partnerships is needed in order to make their outcomes more predictable.

The Study

This study was undertaken as part of a wider study that investigates factors that influence efforts by the National Park Service to promote racial, ethnic, and cultural diversity in the planning, management, and use of natural recreation resources. The study is based on the newly established Boston Harbor Islands National Park Area Partnership. The two major purposes of the study are: 1) to explain the processes through which conveners identified potential stakeholders to form the Boston Harbor Islands National Park Area Partnership and Advisory Council, and to participate in the park's General Management Planning process; and 2) to document how members of the Boston Harbor Islands National Park Area Partnership and other stakeholders influenced outcomes of the planning process. The guiding research question was 'How did the conveners of the Boston Harbor Islands National Park Area Partnership identify stakeholders and stakeholder representatives, and how have these influenced both the planning process and expected outcomes?'

Method

This study used qualitative research methods including participant observation, document analysis, informal discussions, and personal interviews to collect and analyze data related to the Boston Harbor Islands National Park Area collaboration and general management planning process.

Sampling

Three types of non-probabilistic sampling techniques including convenient, purposeful and snowball sampling were used to select participants for the interview phase of the study (Tashakkori and Teddlie 1998). Convenience sampling involves selecting respondents on the basis of availability and ease of data collection. It includes the use of captive samples. Purposeful sampling is a strategy in which particular settings, persons, or events are selected deliberately in order to provide important information that cannot be obtained as well from other choices (Maxwell 1996). In purposive sampling, individuals are selected based on specific questions/purposes of the research and on the basis of information available about these individuals/groups (Tashakkori and Teddlie 1998). On the other hand snowball or chain sampling involves selecting respondents on the basis of information obtained from other selected sample members or from other individuals. Since each new person has the potential to provide information regarding other suitable cases, the sample mushrooms as the study continues (Tashakkori and Teddlie 1998). All representatives of the Boston Harbor Islands National Part Area partnership and the Advisory Council listed on the mailing list were requested to participate in the interviews. Initially all 41 partnership and Advisory Council members had indicated their intention to participate but due to logistical and other unforeseen circumstances, only 27 individuals representing the Partnership, the Advisory Council, NPS staff, and purposely selected members of the local racial and ethnic minority communities and neighborhoods were interviewed.

Data Collection and Analysis

The data for the study was collected in two distinct phases. In the first phase, the researcher participated in a daylong familiarization tour of the Islands, attended public meetings and workshops related to the General Management Planning process, and examined documents related to the partnership initiative. During this initial phase, the researcher obtained and studied the enabling legislation, official brochures, written public comments from the issues scoping phase of the park planning process, formal correspondences, and minutes kept at the Boston Harbor Islands National Park Area Partnership offices. The goal of this exercise was to identify some of the factors, processes, and issues involved in establishing the National Park as a partnership, to identify the relevant stakeholders, and to document aspects of the park's General Management Planning process. Subsequent visits were organized in order to attend public comment workshops organized for various municipal and neighborhood groups, Partnership and Advisory Council meetings, and Native American consultative meetings. The researcher also attended two workshops organized by the Boston Community Partnership Initiative to identify some of the views and concerns of the area's minorities about the Boston Harbor Islands Partnership process. Some of the Partnership, Advisory Council, and public workshops were tape and video recorded. As a result of the extensive involvement, the researcher was able to gain entry and develop close relationship with key players in the partnership, advisory council, and the National Park Service office in Boston. Content Analysis technique was used to analyze the data from the first phase of the study. Through this technique, the researcher identified a number of themes and concepts related to the collaboration, partnership, and public involvement in the Boston Harbor Islands National Park Area planning process. These themes and concepts were used to develop a semi-structured interview guide for the second phase of the study.

The second phase of the study involved semi-structured interviews with members of the Boston Harbor Islands National Park Area Partnership, the Advisory Council, and the National Park Service Staff, and selected members of various racial and ethnic groups. The advantage of the semi-structured format is that it provides an outline of the main areas to be covered by the researcher while allowing for the flexibility necessary to diverge and explore new ideas and areas in more depth (Clarke 1999). The semi-structured interviews allow the interviewer to explore motives and feelings, and to probe responses in a way that is not amenable to structured interviews or questionnaires (Clarke 1999).

Interview Administration

The interviews were conducted between November 2000 and March 2001. This was necessary because many of the potential interviewees are very busy people involved with other civic and business related issues. Initially, an introductory letter explaining the

purpose of the study and an interview guide were mailed to potential interviewees who had agreed to participate. A total of 27 interviews were conducted with key representatives of the partnership, advisory council, the National Park Service, and selected representatives of racial and ethnic minority groups. The interviews were either conducted at the partnership offices, the interviewee's office or home, or at a restaurant whichever was most convenient. Due to pressure of time, some interviewees requested to be interviewed twice either because they had other engagements or had a lot to say about the issue. Six interviews were conducted by telephone. The interviews lasted for 1 to 2 and1/2 hours and all were tape recorded and later transcribed by a professional transcriber. All interviews were tape recorded and transcribed.

Computer Assisted Qualitative Research Data Analysis

A computer-based qualitative research data analysis program, QSR N5, which is the latest version of NUDIST, was used to analyze the data. To prepare the interview data for analysis and interpretation, the interview transcripts were imported into the N5 program in text format. Using sentences as the unit of analysis, the browser feature of the document explorer was used to browse the contents of each transcript for main ideas, issues, concepts, and themes. The emerging ideas, concepts, and themes were coded and stored as nodes in the Nodes Explorer facility of the N5. The nodes index system is designed to allow the user to create and manipulate concepts and store and explore emerging ideas (Richards and Richards 1998). The nodes of the index system, where indexing is kept, are optionally organized into hierarchies, or trees, to represent the organization of concepts into categories and subcategories, a taxonomy of concepts, and index codes. A tree node system was developed for purposes of this study. The researcher adopted a strategy that allowed the major categories identified from the mainstream literature to be used as initial codes while allowing case specific issues, concepts, and themes emerging from the interviews to be coded as new categories.

The researcher made a nodes report for all categories and subcategories and made printouts of all texts coded under each node. This exercise was undertaken to allow the researcher to abstract from the data in order to study the emerging patterns, refine the categories, edit the relevant texts, and note any necessary changes. Generally speaking, N5's indexing system allows the researcher to select a node, explore, and change it, or move it elsewhere in the tree system as appropriate.

Findings

1) Establishment of the Boston Harbor Islands National Park Area and Partnership

The evidence available indicates that over the years several factors provided impetus for the park to be established. However, it is only recently that the commonwealth of Massachusetts established the 17 Boston Harbor Islands State Park to protect the islands' resources. Unfortunately, the state could not afford the resources necessary to develop the park as a prime recreation area and there were also private property owners within the islands whose involvement was needed. As explained by one voting partner there was need to bring in new money to upgrade the park's facilities and services. *We couldn't get enough money from the state legislature to improve it. So.. find ways to tap all the different public resources and stop subsidizing the public park, but get the private sector pay, which is brilliant.'* One way of attracting the much needed federal funding and status that comes with a national park was to establish a unique park that was collaboratively managed by all interested stakeholders. This was achieved by formalizing an informal arrangement between different groups that had been working together to ensure the islands were utilized in a manner that did not compromise their integrity. The group got local leaders and key players to buy into the idea of petitioning Congress to consider special legislation establishing the islands as a National Recreation Area.

The full context within which the Boston harbor Islands National Park Area partnership is captured in the following excerpt from a report of an interview between another researcher and the chief of legislation and planning, *'....what I was trying to do when drafting the Harbor Island legislation was to make sure we had the right players at the right level to make things happen that needed to happen. It was not just the staffers, the staffers are important. But, it needed to be a board of decision-makers. It couldn't be too big because if it were too big it wouldn't work.... We had this dilemma. The board had to be workable, and it had to be decision-makers who could really manage this thing. These were the accountable people who could make this happen. But then there are all these supporters and constituencies, and interest groups that you also need. I think the most important thing about it, and where we got the idea for the park, was we had a working committee that was working on this project. In a very simplistic way, all we did was to write legislation that formalized what we were doing informally. We realized that if we just had a forum where we could continue doing this, we should all talk to each other more. It was ideas like that. ..It was an enormous amount of work to get something that was acceptable for everybody and could actually be put into place, people could understand, would meet the national park concerns as well the concerns of all the different organizations and constituencies, and so forth* (Moir 2000).

The Boston Harbor Islands National Park Area was created as unit of the National Park System by a legislative act of the US Congress. A major stipulation of the enabling legislation (Public Law 104-333 of 1996) is that Boston Harbor Islands National Recreation Area will be managed in partnership with the private sector, the commonwealth of Massachusetts, municipalities surrounding Massachusetts and Cape Cod Bays, the Thomson Islands Outward Bound Education Center, and the Trustees of Reservations, and with historical, business, cultural, civic, recreational, and tourism organizations. Section 1029 e (2) of the legislation specifically established the Boston Harbor Islands Partnership comprising of 13 members.

Section 1029g 9(1) directed the Secretary of the Department of Interior to establish the Boston Harbor Islands Advisory Council whose purpose is to represent various groups with interests in the recreation area and make recommendations to the Boston Harbor Islands

Partnership on issues related to the development and implementation of an integrated resource management plan. The council, which currently has 28 members, includes representatives of municipalities, educational and cultural institutions, environmental organizations, business and commercial entities, including those related to transportation, tourism, and the maritime industry; advocacy organizations, Native American interests, and community groups. The Partnership is unique in that, within the National Park System, it is the only partnership within the park system that has a permanent advisory council that has voting powers and a non-profit organization, the Island Alliance, whose purpose is to help with fundraising activities. Administratively, the National Park Service provides staff to the Partnership and its Advisory Council through a dedicated project office from the Boston Support Office.

2) The Boston Harbor Islands National Park Area Partnership Planning Process

The general framework for planning and decision-making within the National Park Service consists of a number of legal requirements and policy documents (NPS-1998). First, a 1978 amendment to the National Park Service General Authorities Act of 1970 requires comprehensive general management plans for all units of the national park system. Second, the National Historic Preservation Act of 1966, National Environmental Policy Act of 1969, and other federal laws require analysis of potential impacts of management alternatives, which is documented in environmental impact statements or environmental assessments. Third, the Government Performance and Results Act of 1993 and the National Parks Omnibus Management Act of 1998 both require that results-oriented goals be identified and evaluated through park strategic plans, annual performance plans, and annual performance reports. In addition to these laws, planning and management within any park unit must take relevant local state laws and other municipal bylaws into consideration.

i) Partnership structuring, Stakeholder Identification, and Problem Definition

The Boston Harbor Islands National Park Area Partnership and the project office used a number of methods and techniques to obtain public input into the park's planning process. The main methods and techniques used included representation through the Partnership and Advisory Council, wide distribution of the Park's Draft General Management Plan, public comments, partnering with national/local environmental organizations, posting notices at strategic positions and venues, formal public workshops and meetings, legislated consultative meetings with Native Americans, outreach through community organizations, direct mail using lists developed through community groups, educational outreach through the local school system, representative through open partnership subcommittees, use of newsletters, the media, and Internet, informal networking with notable members of local racial and ethnic groups. To jumpstart the park planning process, the Boston Harbor Islands National Park Area Project Manager/Superintendent called a highly publicized public meeting that was attended by all representatives of the organizations and agencies named in the enabling legislation and the general public. The purposes of this meeting were to introduce the newly established park unit to those attending the meeting, to fill the vacant positions in the partnership and advisory council, and to start groundwork for public involvement in the park planning process. The project office used both electronic and print media to publicize the meeting.

The evidence obtained indicates that the project office staff also made personal calls to individuals belonging to organizations that had long been associated with the Boston Harbor Islands issues. For example, one informant stated, *'There was a series of four meetings that...I recall how this was done. We got one of the calls because we had been involved early on in the process and what they were asking for was mailing lists. Who is it that we were working with around the harbor? And I think they asked that to all of these identifiable advocacy groups...like Urban Harbors Institute here at the University, Save the Harbor/Save the Bay, the Boston Harbor Association, and a whole bunch of different groups that they knew were working in the Friends of Boston Harbor Islands.. And they did that to invite them to come to a series of meetings at which this whole park was described and some time was spent on that...what it was that would be expected of the Advisory Council, the fact that it had a certain structure that was defined by the legislation and this idea that they needed to fill these different categories and they were hoping that people would identify individuals who would be able to be nominated to the Advisory Council. Well those meetings...there were, as I say, 3 or 4 of them very well attended. I remember the last one there were over a hundred people there...and the people were there I think to try to participate in the Advisory Council.*

Several issues had to be addressed before the chair, vice chair, and two voting members of the Advisory Council could be elected. Having agreed that the first order of business for the new park was to constitute the Advisory Council, it became apparent that the legislation had overlooked communities and neighborhoods as a legitimate category of stakeholders. The group decided to constitute communities and neighborhoods as a new category and decided that each category of stakeholders would have four individuals instead of the minimum number of three provided in the legislation. Meeting participants were requested to join the group that best represented their interests. Participants ended up negotiating among themselves how to distribute the seats in the Advisory Council. However, negotiations only occurred between the various non-profit advocacy groups. All agencies and organization named in the legislation had guaranteed seats in the Partnership and the Advisory Council. Some interest groups agreed to either rotate the seats between themselves or be represented by one individual.

Recognizing the absence of minorities in the partnership, members of the Advisory Council deliberately made the decision to elect a Native American to joint the Partnership as a voting partner and an African American as an alternative. It took twelve months after the first meeting, to fully constitute the Partnership with two representatives of the Advisory Council as partners. The partnership has 28 organizations represented on the Advisory Council and

eleven federal, state, municipal and private agencies. Once the partnership was constituted, the following committees were established: planning, operations, education, finance, and marketing. A decision was made that these committees would be open to anyone, including members of the general public with interest and important contribution to make. Participants were informed that all committee, partnership, and Advisory Council meetings would be announced well in advance to allow for adequate preparation

ii) Public Involvement in the Park's General Management Planning Process

The public involvement process had two distinct phases: issues scoping and public comment on the Draft General Management Plan. To identify or scope the relevant issues and concerns, the Partnership sponsored a series of seven public workshops throughout the Greater Boston Metropolitan region between January and March of 1998. Public workshops were only conducted in places where Advisory Council members volunteered to sponsor meetings. The format for the public involvement workshops was standard in all cases. After formal introduction and presentation of the resources, facilities, issues, and the mandate, participants were given time to work through the issues and make recommendations. The Native American input was obtained through a separate process involving daylong consultation meetings between the National Park Service and the tribal council representatives. In total, more than 400 people attended the meetings.

Each group of workshop participants worked with a moderator through a number of questions. The input from the public involvement workshops and comments were collected and summarized. Generally the results reflected two polarized views: pro-development and pro-preservation.

iii) Outcomes of the Scoping Phase of the Planning Process

The pro-development participants requested that the park partnership respect the scale of the islands when planning for new development, ensuring that any new construction fit well into the fragile island environment. These participants suggested that explained that the partnership pursues some type of economic generators to support desired programs and services. However, a few felt that some islands should be kept as "natural" as possible, but with a few added perks, like: clean restrooms or outhouses; potable water; changing rooms; piers; "limited" overnight accommodations; food concessions (along with a non-franchise coffee shop); a bait shop; and a monument to the islands' initial occupants. Participants also suggested that the partnership consider harbor-side sites for facilities to support public use of the islands, and proposed the use of renewable energy sources such as wind, sun, and the tides for the islands.

On the other hand, the pro-preservation participants constituted the majority and expressed a strong desire to preserve the natural and cultural aspects of the islands. Recognizing that some development would take place on certain islands, many participants suggested preserving the undeveloped islands in as natural a condition as possible. Others participants were against opening up all the islands for human activity and suggested some islands be reserved for wildlife. Participants also emphasized the protection of the islands' botanic resources and even suggested reestablishing vegetation that was present prior to European settlement. A number of people called for the continued protection of the waters and beaches of Boston Harbor, pointing out that motorboat traffic and pollution would increase with greater visitation. However, many in this group also suggested that the traditional recreational activities be maintained and enhanced where possible. The most commonly identified activities included swimming, fishing, boating, kayaking, canoeing, camping, hiking/walking, and picnicking. The general perception was that the Boston Harbor Islands should provide a wide range and variety of resource-dependent recreational activities. The group suggested that commercial activities be avoided because of their inherent conflict with the natural setting. The group also suggested that the public be provided recreational opportunities that suit all levels of income and sophistication, and that the programs should have educational value as well.

iv The Preparation of the Drafting of the General Management Plan

To prepare the General Management Plan, a National Park Service planning team constituted a planning committee that consulted with the various partners, the Advisory Council, and various advocacy and interest groups. Resource data on the island system was gathered and analyzed on an ongoing basis. This data was combined with input from the scoping phase to develop two alternative concepts for the park. Alternative A emphasized preserving the resources while alternative B emphasized providing activities for the visitor. After discussion with Partnership and Advisory Council members, the planning committee identified the need for a third Alternative C. Alternative C emphasizes preservation of resources while letting visitors to discover the natural and cultural history of the islands. The idea is to develop creative and educational programs that entertain visitors and give meaning to the resources. Also, the plan is to protect resources by instilling stewardship in visitors who return repeatedly to experience the park's multifaceted possibilities through an array of creative activities. The focus of alternative C is on a setting that attracts visitors with much activity being concentrated on larger islands while giving ample opportunity for visitors to escape crowds, enjoy nature, and explore historic sites. It is planned that there will be frequent ferry services to developed island hubs from where water shuttle services will take visitors to other islands. It is foreseen that there will be programs and recreation facilities developed for diverse populations and that visitor programs, rather than facilities, will provide enticements to the islands. Visitor accommodation to the park will consist of overnight stays at primitive and improved campsites and in lodging facilities on a few islands where appropriate. Generally stronger emphasis is on balancing resource protection and visitor enjoyment by only providing recreation opportunities that are compatible with resource protection. The implications is that appropriate management areas will

be established within the Boston Harbor Islands National Park to reflect the desired resource conditions. The management areas identified include: potential mainland gateways; visitor services and park facilities areas; areas of historic preservation emphasis; areas of managed landscape emphasis; areas of natural features emphasis; and special use areas. By consensus, alternative C was endorsed by both the Partnership and the Advisory Council as the preferred alternative for the Draft General Management Plan.

Discussion, Recommendations, and conclusions

This study set out to answer the question "How did the conveners of the Boston Harbor Islands National Park Area Partnership identify stakeholders and stakeholder representatives, and how have these influenced both the planning process and outcomes? The evidence available indicates that stakeholders were identified at three different stages of the collaboration process. First Stakeholders were identified through an informed network of agency staff, advocacy groups, and property owners with an interest on the Boston Harbor and its Islands. This network consisted of individuals, agencies, and organizations with interest in improving the social, economic, and environmental conditions in the Boston Harbor Islands general area and adjacent communities. However, some individuals and groups within the network were simply interested on historical, cultural, and recreational aspects of the harbor and its islands. There is over whelming evidence that this network was responsible for bringing about legislation that created the Boston Harbor Islands National Recreation Area and the Partnership.

Second, the legislation (Public Law 104-333 of 1996) that created the Boston Harbor Islands National Recreation Area also specifically named public agencies, private business organizations advocacy groups, and, Native Americans as stakeholders with legitimate interests. This resulted from lengthy and complex negotiations involving local, state, and congressional representatives and a special Congressional delegation from the Commonwealth of Massachusetts to Washington D.C. Third, other legitimate stakeholders were identified during the partnership structuring and public involvement processes. The open nature of the process used to identify stakeholders enabled diverse interests to be represented both in the Partnership and the Advisory Council. Theoretically, any individual who learned about the partnership and advisory council meetings had the opportunity to attend and volunteer to be involved with any committee.

It is clear that the Partnership structure was cleverly designed not to give any one party the overall authority. However, the legislation ensured that whatever is done within the park area conforms to National Park Service standards. The consequence is that while property owners remain autonomous, the National Parks, through both the Northeast Regional and the Boston Harbor Islands project offices, is in a stronger position to guide the planning process and so the NPS has a stronger influence on outcomes of the planning process. This is especially important because the language of the planning documents must meet the standards of the Office of Management and Budgets if Congress is to endorse it and allocate the necessary operational funds . On the other hand, individual property owners have a greater influence on projects that may be funded and built on their properties. Property owners have greater influence on the contents of both the Park's Strategic and Implementation plans. Since within the Boston Harbor Islands National Park Area real estate ownership gives stakeholders greater negotiating powers, it is possible that Native Americans as a group were not named as a partner because they hold no real estates within the Islands.

However, because federal and state laws recognize Native Americans as a legitimate interest group, of all the non-mainstream racial and ethnic groups, Native American interests seem to be taken more seriously in both Partnership and Advisory Council deliberations. Other than the mainstream and property owners, as a racial or ethnic group, Native American had the most extensive and intensive involvement with the planning process. It is evident that the legal mandate requiring continuous consultation with Native Americans, the extra effort by the leadership of the partnership, and the long-term vision of the NPS Northeast regional and the Boston project office staff all contributed to greater Native American involvement

The special accommodation accorded Native Americans has resulted in the group making significant contribution to the planning process. The group has made two significant proposals. Furthermore, because Native American have special recognition as an interest group with government to government relationship at both the state and federal level, this group has sufficient power and was able to negotiate with the National Park to request for an extension of the public comment period to allow for meaningful involvement by the group. Thus one can conclude that, compared to other racial and ethnic groups, Native Americans had greater impact on the outcome of the planning process. This effect is attributable mainly to the force of legislation but also to the skillful and accommodative approaches of the partnership, NPS regional, and Boston Harbors project office leadership. Therefore, legislation both empowers and legitimizes stakeholders.

Generally, it is the finding of this study that involving diverse communities of interests resulted in a compromise or consensus decision on what type of recreational activities and services should be allowed on certain areas of the islands within the Boston Harbor Islands National Park Area. The involvement of different stakeholder groups has resulted in a consensus plan that accommodates the diverse and at times conflicting interests. The public involvement and review processes has produced a General Management Plan that allows for a multiplicity of use by designating desired activities and programs to islands that can support them with minimal negative impacts. Specifically, the General Management Plan identified the following six management zones: areas for visitor services and park facilities, areas with historic preservation emphasis, areas with managed landscape emphasis, areas with natural resource emphasis, areas for special use facilities, and potential mainland gateways. In this regard, one can conclude that the Boston Harbor

Islands National Park Area Collaboration and public involvement process was successful because the outcomes from the process reflected input from the different participating stakeholder groups. Therefore, from public policy perspective, it appears that public involvement and community participation in recreation and tourism resource planning and development on public lands would be greatly enhanced by formulating policy that explicitly require direct participation by various interest groups in planning and managerial decision-making. Greater emphasis or effort should therefore be placed on providing for interest group and citizens representation on partnership boards and advisory councils as opposed to merely attempting to influence planning and decision making through traditional public involvement or comments processes

However, this study raises a number of issues. To begin with, Bramwell and Sharman (1999) and Bramwell and Lane (2000) state that collaborative planning must be evaluated in terms of its scope, intensity, and extent to which consensus emerges. One issue that still needs to be investigated is the extent to which the Boston Harbor Islands Partnership was successful in getting all relevant parties and interest groups involved with the collaborative planning process. An important question that still needs to be answered is, 'How inclusive was the planning process of all racial, ethnic, and interest groups within the Greater Metropolitan Boston general area? A related question relates to the extent to which participants from various racial and ethnic groups fully represented those group's interests? These are issues and questions worthy of further investigation.

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A CHANGING LANDSCAPE IN THE WILDLAND-URBAN INTERFACE: PERMANENT AND SEASONAL HOME OWNERS, RECREATION AND FUEL MANAGEMENT

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Abstract: This paper reports research completed in the fall/winter seasons of 2001/2002 on home owners living in the wildland urban interface for the USDA Forest Service. The primary research focus was to understand human dimensions of wildland fire, particularly attitudes toward and approval of three fuel treatment types (prescribed burning, mechanical thinning, and defensible space). Questionnaires were mailed to homeowner lists obtained from county tax assessors in selected areas of California, Colorado and Florida. The goal of the study was to understand similarities and differences between permanent and seasonal home owners. The consideration of wildland fire during the home buying process, recreation use levels, and attitudes toward and approval of fuel treatments were the dependent variables examined across three study areas for permanent and seasonal home owners.

Introduction

There is a growing concern over significantly more residents living near and recreating in public lands. Baby boomers (i.e., 40 to 60 year olds) are purchasing homes that might serve as a vacation home for pre-retirement years and then eventually move into the home full-time (Godbey and Bevins, 1987; McHugh, Hogan, and Happel, 1995). Some city dwellers are finding that technology has allowed them to live further away from urban areas. Hence, a different type of wildland urban interface home owner may exist as either a full-time resident or part-time, vacation resident (Lee, 1991).

As public land managers consider the benefits and costs of increased (and possibly different) home owners, wildland fire and the challenges with more structures and lives at risk becomes a serious management concern (Cohen, 2000; Davis, 1990). Some wildland fire mitigation (e.g., defensible space) requires home owners to be home and involved in their own defense. Garder, Cortner and Widman (1987) found wildland urban interface residents held a low awareness of fire severity and preferred resource managers to be responsible for mitigation strategies. Winter and Fried (2000) found Michigan home owners viewed wildland fires as uncontrollable and the resulting damage random in terms of which homes might be lost.

Seasonal home owners present a unique situation in that they may not maintain their home site because they are not there throughout the year or they may prefer low maintenance as their residency is "vacation time." Researchers (Green, Marcouiller, Deller, Erkkila, and Sumathi, 1996) have examined differences in home owners and found permanent residents to be more supportive of economic development and less supportive of land use planning. Based on this small body of literature, a need exists to further understand whether length of living in a home (i.e., part-time, full-time) influences how home owners view wildland fire risks and mitigation programs.

Thus, the problem statement of the research was to identify and examine similarities and differences between seasonal and permanent home owners on topics related to forest use and fire management. Specifically the following topics were examined: (1) the home buying decision process, (2) recreation usage levels and activities, and (3) attitudes toward fuel treatment programs.

Methods

This research was funded by USDA Forest Service, Pacific Southwest Research Station, in Riverside, California. This study is one of many funded by that station investigating human dimensions of fire management, particularly in wildland urban-interface areas.

Selection of study areas began by examining the national list of communities at risk published by the USDA State & Private Forestry (2001). Efforts were made to encourage principal investigators of fire research projects to select communities on this list. Additionally, discussions with the Forest Service station and examination of Census data provided direction on specific geographic areas. Three study areas were selected to represent different fuel types and forest management priorities. These areas were: (1) San Bernardino National Forest, California; (2) Grand Mesa, Uncompahgre and Gunnison National Forests (GMUG), Colorado; and (3) Apalachicola National Forest, Florida. San Bernardino NF is located outside of the Los Angeles area; GMUG NF is located between Grand Junction and Ouray, Colorado; and Apalachicola NF is located near Tallahassee.

In all three geographic areas, home owner lists were obtained either directly from the county or from a third party database firm. Every effort was made to obtain the most recent list and in some cases, the list had just been updated. Visits to each of the areas were made to identify at risk wildland urban interface areas so that targeted sampling could occur. In California, two entire communities/districts of a city were identified as the sampling frame. In Colorado, township and range sections in three counties were identified as the sampling frame. In Florida, sections of communities in three counties were identified as the sampling frame. In total, 1,000 households were studied in each state area (Table 1). The only exception to this was in Colorado where one incorrect list.

Table 1. Sampling frame

State	Type of residency	Population N (%)	Sample n (%)	Respondents n (%)
California	Permanent	1,966 (36%)	362 (36%)	119 (40%)
	Seasonal	3,565 (64%)	638 (64%)	176 (60%)
Colorado	Permanent	955 (72%)	566 (72%)	254 (80%)
	Seasonal	377 (28%)	215 (28%)	66 (20%)
Florida	Permanent	2,219 (88%)	711 (71%)	267 (82%)
	Seasonal	306 (12%)	289 (29%)	57 (18%)

Table 2. Response rates

State	Type of residency	Sample Size	Bad Addresses	Net Sample Size	Returned	Response Rate
California	Permanent	362	74	288	119	41%
	Seasonal	638	117	521	176	34
Colorado	Permanent	566	20	546	254	47
	Seasonal	215	14	201	66	33
Florida	Permanent	711	33	678	267	39
	Seasonal	289	23	266	57	21

of homeowners for a section within a township was provided and almost all the mail came back undeliverable In Colorado, 781 surveys were mailed to correct addresses. In addition to seasonal and permanent homes with land ownership, a list of seasonal permittees in California (N=463) and Colorado (N=32) were provided by the local Forest Service offices. These homeowners (with leased land) received the same questionnaire and participated at high response rates (approximately 70%), however, are excluded from the analysis provided here.

An eight-page questionnaire was designed by the researchers with the assistance of the Forest Service cooperators. The questionnaire included questions about home type and tenure, consideration of wildland fire during the home buying process, past experiences and actions related to fire education and assistance, recreation usage on local public lands, belief statements about fuel treatments leading to outcomes, attitudes about fuel treatments, intentions to support fuel treatment techniques, and demographic items.

A modified Dillman mail procedure was used where each household received a personalized letter, a prepaid business reply envelope, and a prenumbered questionnaire. The letter included an incentive offer whereby one out of 250 households could be selected for a $25 gift certificate to either Walmart or Lowe's. A reminder postcard was mailed approximately one week after the original questionnaire mailing. After three weeks those households who had not yet responded were mailed another questionnaire, personalized letter, and prepaid business reply envelope. Press releases were mailed (timed to match the two survey mailings) to local papers to increase awareness of the research study. It is important to note the California and Colorado mailings were done shortly after 9/11 and anthrax being found in US mail.

Response rates ranged from 21 to 47 percent (Table 2). In all three study sites, permanent homeowners responded at a higher level than seasonal homeowners.

Findings

The results of this study are presented by (1) the home buying decision process, (2) recreation usage levels and activities, and (3) attitudes toward and approval of fuel treatment programs. In the presentation of these topics the emphasis is placed on understanding similarities and differences between seasonal and permanent home owners who live in wildland urban interface areas in each state's case study location.

Home buying process

To understand some of the ways homeowners acquire land

Table 3. Means of acquiring home in wildland-urban interface settings

	California - San Bernardino NF		Colorado - GMUG NF		Florida - Apalachicola NF	
	Permanent Home-owners	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Home-owners*
Property was handed down or purchased from within the family	1.8%	6.9%	7.9%	8.2%	21.9%	26.3%
Property was purchased with the help of a realtor or sales office	74.6	69.5	60.3	62.3	34.6	17.5
Property was purchased directly from previous owner	17.5	17.2	26.0	26.2	39.6	56.1
Another way (mostly buying land and then building)	6.1	6.3	5.8	3.3	3.8	0
Total	100.0	100.0	100.0	100.0	100.0	100.0

and/or a home in wildland urban interface areas, respondents were asked whether a realtor was involved, whether the property was purchased from the previous owner, or whether the property was handed down or purchased from within the family. Respondents were also provided an "other" category with the opportunity to explain their answer. Since a house was implied in the question, several individuals selected "other" and then wrote they first bought the land and then built or had the house built. In California, the majority of both permanent (74.6%) and seasonal (69.5%) homeowners purchased their home through a realtor or sales office (Table 3). Less than one in five homeowners, permanent or seasonal, purchased directly from the previous owner. Fairly similar results existed for both permanent and seasonal homeowners in Colorado. Florida results were quite different. Over fifty percent of seasonal homeowners purchased directly from the previous owner and the next most popular response was acquiring their house through the family. The least popular response for seasonal home owners was through a realtor. Florida permanent home owners were slightly more likely to purchase a home from the previous owner than through a realtor.

A profile of retirement plans of home owners was created. Households in the wildland urban interface areas studied were more likely to be retired in California and Colorado in comparison to Florida households (Table 4). In all three states, permanent homeowners who were not yet retired were much more likely to stay living in their house full-time compared to seasonal home owners planning to live in their house full-time (representing an increase of people living in the area full-time). Specifically, 12 percent of California seasonal homeowners, 28 percent of Colorado seasonal homeowners, and 27 percent of Florida seasonal homeowners planned to live in their seasonal home full-time after retiring. Seasonal homeowners in all three states were also slightly more likely to sell their seasonal home after retirement than current permanent homeowners.

A final question was asked about the consideration of wildland fire by homeowners during the home buying process. In California, permanent homeowners were more likely than seasonal homeowners to consider fire "a great deal" before and during the home buying process (Table 5). After the home purchase, California seasonal homeowners were more likely to consider fire "a great deal" than permanent homeowners. In Colorado, permanent and seasonal homeowners had similar responses across the three phases. Importantly those who expressed "a great deal" of consideration increased across the home buying phases. In Florida, seasonal homeowners were more likely to consider fire "a great deal" than permanent homeowners before and during home search. This pattern reversed after homeowners purchased their home with almost one-third of the permanent homeowners giving wildfire a great deal of consideration.

Recreation usage levels and activities

Permanent and seasonal homeowners recreate in the national forest near their home at varying levels of use. In California, a greater proportional of seasonal homeowners recreated in the forest compared to permanent homeowners, however, permanent homeowners were more likely to use the forest on a daily basis (Table 6). In Colorado, a very high proportion of seasonal and permanent homeowners recreated in the forest. Similar to California, a greater proportion of seasonal homeowners in Florida recreated in the nearby forest.

Besides frequency of use, homeowners were also asked about the outdoor recreation activities they enjoyed on the forest over the past 12 months. In California, the most frequently mentioned activities were snow activities (i.e., downhill and cross country skiing), hiking/walking, and all

Table 4. Retirement plans of homeowners in wildland-urban interface settings

	California - San Bernardino NF		Colorado - GMUG NF		Florida - Apalachicola NF	
	Permanent Home-owners	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Home-owners*
Already retired	31.9%	33.3%	32.8%	32.8%	24.9%	23.2%
Plan to live in current home full-time for retirement	52.2	11.7	57.6	27.9	66.1	26.8
Plan to live in current home part-time for retirement	9.7	43.9	6.7	32.8	5.1	42.9
Plan to sell this home and move away for retirement	6.2	11.1	2.9	6.6	3.9	7.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 5. Consideration of wildland fire during the home buying process

		California - San Bernardino NF		Colorado - GMUG NF		Florida - Apalachicola NF	
		Permanent Home-owners	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Home-owners*
Before searching for a home	Not at All[a]	48.2%	52.4%	40.3%	44.1%	77.7%	75.1%
	Moderate Amount	31.5	36	45.1	45.8	18.8	16.7
	A Great Deal	20.4	11.6	14.4	10.2	3.4	8.3
During the home buying process	Not at All	43.9%	45.7%	33.6%	37.3%	74.1%	70.9%
	Moderate Amount	34.5	40.7	47.7	47.5	23.4	20.9
	A Great Deal	21.5	13.6	18.8	15.3	2.6	8.4
After purchasing a home	Not at All	23%	20.1%	14.5%	18.5%	32.1%	47.7%
	Moderate Amount	52.1	39.5	43.6	44.9	37.7	37
	A Great Deal	24.8	40.3	41.9	36.6	30.1	15.2

a. Seven point scale where "0" = not at all, "3"= moderate amount, and "6" = great deal. Results are presented at three category levels where "not at all" was 0 and 1, "moderate amount" was 2, 3, and 4, and "a great deal" was 5 and 6.

terrain vehicles (ATV) riding. In Colorado, ATV riding, snow activities and hiking/walking were most frequently mentioned. In Florida, ATV riding or pleasure riding/touring, hiking/walking, and hunting were the most frequently mentioned activities

Attitudes toward and approval of fuel treatment rograms

Attitude and approval of three types of fuel treatment programs that reduce the risk of structure loss were evaluated by homeowners living in wildland urban interface areas. The treatment types were (and defined as): prescribed burning defined as resource managers using planned fire to reduce fuels, regenerate desired plant or animal species, and promote ecological health; mechanical fuel reduction defined as resource managers using chainsaws, brush mowers, and specialized machines to cut and remove shrubs, trees, and other fuels; and defensible space defined as homeowners maintaining a fire-safe zone consisting of 30 feet around homes that is free of flammable vegetation. Attitude and approval were each measured on 7-point scale for the three fuel treatments. In California and Colorado, both permanent and seasonal homeowners had more positive attitudes toward defensible space than mechanical fuel reduction or prescribed burning (Table 7). Colorado homeowners, particularly permanent

Table 6. Recreation use levels

State	Type of residency	% of home-owners	Usage of nearby national forest for recreation: Daily	Couple times per month	Couple times per year
California	Permanent	67%	30	21	16
	Seasonal	81	4	36	41
Colorado	Permanent	94%	24	45	25
	Seasonal	92	23	28	33
Florida	Permanent	74%	28	20	26
	Seasonal	83	11	39	33

Table 7. Attitude toward fuel treatment by wildland urban interface home owners

		California - San Bernardino NF		Colorado - GMUG NF		Florida - Apalachicola NF	
		Permanent Home-owners	*Seasonal Home-owners*	*Perma-nent Home-owners*	*Seasonal Home-owners*	*Perma-nent Home-owners*	*Seasonal Home-owners*
Prescribed burning	Extremely Negative[a]	31.6%	25.7%	20%	27.7%	5%	7.1%
	Neutral	38.5	41.5	39.7	35.5	19.4	25
	Extremely Positive	29.9	32.8	40.2	36.9	75.6	67.8
	Mean	-.17	.13	.53	.22	2.03	1.68
Mechanical fuel reduction	Extremely Negative	5.9%	6.4%	6.8%	7.8%	5%	3.6%
	Neutral	27.9	33.7	32.8	31.3	19.4	39.3
	Extremely Positive	66.1	59.9	60.4	60.9	65.5	67.8
	Mean	1.68	1.42	1.51	1.36	1.72	1.55
Defensible space	Extremely Negative	3.3%	9.2%	6.8%	4.7%	7%	8.8%
	Neutral	16.8	28.3	25.9	25	38.2	40.4
	Extremely Positive	79.8	62.5	67.3	70.3	40.9	50.9
	Mean	2.23	1.50	1.70	1.77	1.35	1.23

a. Seven point scale where "-3 =strongly disagree", "0 =neither agree/disagree", and "3=strongly agree". Results are presented at three category levels where "strongly disagree" was -3 and -2, "neither agree/disagree " was -1, 0, and 1, and "strongly agree" was 2 and 3. The mean was calculated on a 7-point scale.

homeowers, were more positive toward prescribed burning than California residents. In Florida, both permanent and seasonal homeowners held a very positive attitude toward prescribed burning.

Besides attitudes, homeowners were also asked to rate their overall level of approval. In California and Colorado, both permanent and seasonal homeowners had higher levels of approval of defensible space than mechanical fuel

Table 8. Overall approval of fuel management approaches

		California - San Bernardino NF		Colorado - GMUG NF		Florida - Apalachicola NF	
		Permanent Home-owners	*Seasonal Home-owners*	*Permanent Home-owners*	*Seasonal Homeowners*	*Permanent Home-owners*	*Seasonal Home-owners*
Prescribed burning	Strongly disapprove[a]	30.6%	25.2%	14.4%	17.4%	4.6%	1.9%
	Neither approve/ disapprove	43.2	47.9	41.5	33.3	16.8	16.7
	Strongly approve	26.1	27	44.1	49.2	78.6	81.5
	Mean	-.10	.12	.83	.89	2.14	2.17
Mechanical fuel reduction	Strongly disapprove	11%	6.9%	9.1%	7.3 %	7%	9.5%
	Neither approve/ disapprove	38.5	44.9	38.5	50.1	45.4	45.3
	Strongly approve	50.5	48.1	52.4	43.5	47.6	45.3
	Mean	1.11	1.16	1.24	1.03	1.13	1.06
Defensible space	Strongly disapprove	6.5%	8%	3.1%	3.2%	7.8%	2%
	Neither approve/ disapprove	23.1	37.2	32.3	27.4	40.4	54.9
	Strongly approve	70.4	54.7	64.7	64.7	51.7	43.2
	Mean	1.76	1.38	1.79	1.87	1.25	1.20

a. Seven point scale where "-3 =strongly disapprove", "0 =neither approve/disapprove", and "3=strongly approve". Results are presented at three category levels where "strongly disapprove" was -3 and -2, "neither approve/disapprove" was -1, 0, and 1, and

reduction or prescribed burning (Table 8). Colorado homeowners held higher levels of approval of prescribed burning than California residents. In Florida, both permanent and seasonal homeowners strongly approved prescribed burning.

Conclusions and Implications

As demographers and resource managers are seeing, greater numbers of households are moving into wildland urban interface areas. Our results show that many current permanent, but not yet retired, households plan to stay in their homes, that sizable portions of seasonal homeowners plan to live in their now vacation home upon retirement, and few permanent or seasonal homeowners plan to move elsewhere. Our results further show that wildland fire is not a strong consideration when purchasing a home in interface areas. Awareness and consideration of wildland fire appears to strengthen once a resident moves into a home. Reaching home buyers will remain a challenge. Results showed a wide variety of ways home owners look for homes to buy. The role of the previous owner, whether this person is a stranger or a family member, discussing any risks associated with living in the interface seems quite important, particularly in Florida where a majority acquired a home through a previous owner or family member.

Households living in the wildland urban interface are clearly recreationists. Opportunities to educate residents about wildland fire and fuel hazard mitigation programs may be the most cost effective means to reaching home owners during the time they are recreating or exposed to recreation literature (e.g., maps, trailhead signs, interpretive centers).

Based on the three locations studied, differences were found between permanent and seasonal homeowners, as well across the three states. Of the fuel treatment programs, defensible space is the preferred (in terms of very positive attitudes toward and strong approval levels) alternative in California and Colorado. In Florida, prescribed burning received very positive attitude and approval ratings. These results clearly show if home owners' views and support are solicited, then specialized and localized fire/fuel treatment plans might result. It is important to note that while state names were used in this paper, the results are not intended to be generalized to those states.

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Service, Southwest Pacific Research Station, Riverside, California. "strongly approve" was 2 and 3. The mean was calculated on a 7-point scale.

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Carrying Capacity in Recreation Settings

CROWDING RELATED NORMS IN OUTDOOR RECREATION: U.S. VERSUS INTERNATIONAL VISITORS

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Abstract: Research on crowding-related norms has begun to explore differences across settings, time, activities, and visitor characteristics such as age, economic status, and country of origin. The literature examining visitors' country of origin suggests a mixed pattern. While there is some evidence of differences across country of origin, other studies have not indicated such. This paper presents a meta-analysis of this issue using data from multiple studies conducted in the U.S. national park system. Findings indicate relatively few differences between U.S. and international visitors regarding a variety of crowding-related norms and associated measures. Where there are differences, these tend to be associated with the "preference" dimension of crowding-related norms and with visitor reports of the number of other visitors typically seen. Understanding visitor norms across cultures will enable managers to provide for an improved national park experience for all.

Introduction

Research in cultural diversity in outdoor recreation has been driven by the recognition that different cultural and ethnic groups may not share the same attitudes, beliefs, and norms regarding acceptable recreation experiences (Simcox, 1993). Understanding these differences is especially important in U.S. natural resource environments where a majority of managers come from anglo-european ancestry, may share similar land-use management philosophies, and are used to dealing with client groups with comparable backgrounds (Williams & Carr, 1993). While there exists a relatively large body of work on norms in outdoor recreation (Manning, 1999), recent studies have begun to explore norms reported by international groups (Vaske, Donnelly, & Petruzzi, 1996; Kim & Shelby, 1998).

Crowding and Carrying Capacity

Crowding in outdoor recreation has received extensive research attention. It has been defined as a negative and subjective evaluation of use levels and is understood as a normative concept (Manning, 1999). This implies that outdoor recreation visitors often have preferences, expectations or other standards by which to judge a situation as crowded or not. Crowding has often been addressed within the context of carrying capacity.

Rising visitation to the national park system has raised tensions between conserving important park resources while at the same time providing for quality recreation experiences. Carrying capacity has therefore become increasingly important for park planning and management. In its most generic form, carrying capacity has been defined as the amount and type of visitor use that can be accommodated in a park or related area while sustaining resources and the quality of the visitor experience. Contemporary carrying capacity frameworks such as Visitor Experience Resource Protection (VERP) rely on indicators and standards of quality to determine and manage carrying capacity (Graefe Kuss, & Vaske, 1990; Manning, 1986; Manning, Lime, Hof, & Freimund, 1995; National Park Service, 1993; Shelby & Heberlein, 1986; Stankey et al., 1985).

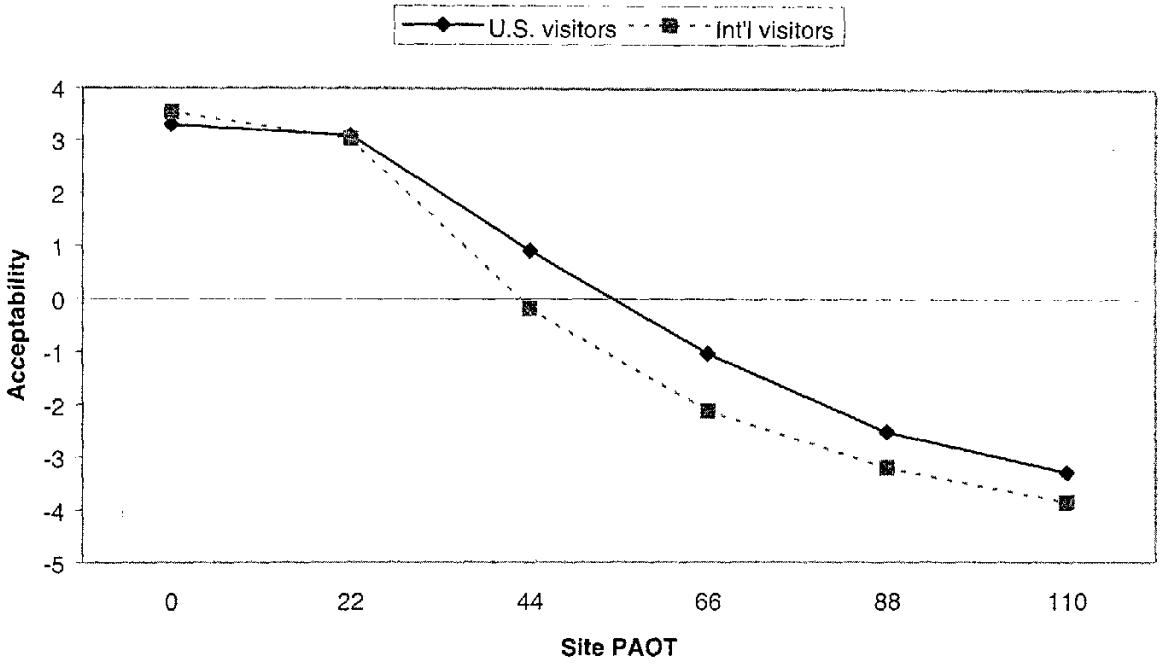
Indicators of quality are measurable, manageable variables that help define the level of resource protection and type of visitor experience to be provided and maintained. Indicator variables may include elements of the physical, social, and managerial environment that are important in determining the quality of natural, cultural and historical resources and the quality of visitor experiences. Examples of crowding-related indicator variables often used in carrying capacity research include number of people at one time (PAOT) at attraction sites and along trails, waiting times, length of tours, and size of tours. Standards of quality are minimum acceptable conditions of indicator variables. Carrying capacity can be managed by monitoring indicators of quality and implementing management activities to ensure that standards of quality are maintained.

Normative Research

Research on visitor-based standards of quality has increasingly focused on personal and social norms. Norms in the field of outdoor recreation have been defined as standards that individual and groups use for evaluating behavior, social and environmental conditions (Donnelly, Vaske, & Shelby, 1992; Shelby and Vaske, 1991; Vaske, Graefe, Shelby & Heberlein, 1986). If visitors have normative standards concerning relevant aspects of recreation experiences, then such norms can be measured and used as a basis for formulating standards of quality (Manning, et al. 1999).

Recent reviews of the outdoor recreation norm literature suggest that there are definitional and methodological issues surrounding normative theory and its application (Roggenbuck, Williams, Bange, & Dean, 1991; Manning, Johnson & Vande Kamp, 1996). Despite these potential shortcomings, norms have been shown to be useful for describing, predicting and influencing recreation behavior. The most common application of normative research has been in crowding studies, where encounters, proximity and conflict issues have been examined resulting in development of standards of quality.

Several techniques of norm measurement exist. These include "long" and "short" question formats, both of which can employ either numerical or visual approaches. In the long question format, respondents are asked to evaluate a range of impact conditions, such as increasing numbers of people at an attraction site. The range of conditions can be presented to visitors numerically or by a set of visual images. Resulting data provide a measure of personal crowding-related norms of respondents and these data can be aggregated in a social norm curve such as those presented in Figure 1.



In the short question format, an open-ended question is asked. For example, respondents might be asked to simply report the maximum number of other visitors acceptable, or asked to pick the visual image that most closely approximates this condition.

Finally, a number of evaluative dimensions can be used to measure crowding-related norms. For example, it is common to ask respondents to report the maximum number of other visitors "acceptable". However, other evaluative dimensions can also be used, such as "preference" and "tolerance".

Most studies of crowding-related norms have focused on U.S. national parks and related outdoor recreation areas. Consequently, resulting data are derived primarily from U.S. respondents. However, several recent studies in the U.S. national park system have included large enough sample sizes to begin to explore potential differences between U.S. and international visitors to these sites.

Study Methods and Analysis

Data on crowding-related norms for 13 sites in 5 U.S. national park units were used in this study (Alcatraz Island, Arches National Park, Mesa Verde National Park, Statue of Liberty National Monument and Yosemite National Park). Respondents were asked to report their norms across a number of indicator variables such as PAOT at attraction sites, PAOT along trails, waiting times to visit park attractions, frequency of tours, size of tour groups, and length of tours. Both long and short form data were used.

In the long form approach, respondents were asked to rate the acceptability of a range of impact conditions on a scale of –4 ("very unacceptable") to +4 ("very acceptable"). These conditions were represented either numerically or visually. Results were graphically represented as a norm curve. Norm curves of U.S. and international visitors were tested for statistically significant differences using a General Linear Model multivariate analysis, specifically Pillais trace criterion (Norusis, 1990).

In the short form approach, respondents were asked to report their "acceptability", "preference" and "tolerance" for conditions of indicator variables. Once again, these conditions were represented either numerically or visually. Using PAOT at attraction sites as an example, "acceptability" was measured by asking respondents "which photograph shows the highest number of visitors you think would be acceptable to see?" Similarly, "preference" and "tolerance" were measured by asking respondents "which photograph shows the number of people that you would prefer to see?" and "which photograph shows the number of people that would be so unacceptable that you would no longer visit?" Respondents were further asked to report conditions they thought these

indicators "should be managed for", and conditions that were "typically seen" or experienced. Differences between U.S. and international park visitor norms were examined using independent sample t-tests.

Overall crowding at these sites was measured using the 9-point Likert scale widely accepted in crowding literature, where 1 = "not at all crowded" and 9 = "extremely crowded." Differences between U.S. and international visitors' crowding perceptions were examined using independent sample t-tests.

A comparison of differences in norms between various ethnic groups among U.S. visitors was not possible due to variation in the ethnicity measure over different studies. Further, an examination of differences in norms among international visitors by country of origin was not possible due to insufficient sample sizes.

Results

Table 1 summarizes results of comparisons between U.S. and international visitor norm curves across several crowding-related indicators using long form data. Only 6 of the 20 comparisons were different to a statistically significant degree. In each of these cases, U.S. visitors reported higher norms than international visitors.

Table 1 Differences in norm curves between U.S. and international visitors to U.S. national parks.

Indicator	Park/ Site	F value
Attraction site PAOT	Alcatraz Island	4.7*
	Mesa Verde: Cliff Palace	0.6
	Mesa Verde: Spruce Tree House	1.9
	Mesa Verde: Sun Point Overlook	0.7
	Yosemite: Bridalveil Fall	2.9*
	Yosemite: Glacier Point	0.4
	Yosemite: Yosemite Fall	1.5
Trail PAOT	Arches National Park	1.7*
	Mesa Verde: Spruce Tree House	0.0
	Yosemite: Bridalveil Fall	2.2*
	Yosemite: Mirror Lake	1.7
	Yosemite: Vernal Fall	0.8
	Yosemite: Yosemite Fall	0.9
Frequency of tours	Mesa Verde: Balcony House	2.7*
	Mesa Verde: Long House	0.9
Size of tour groups	Mesa Verde: Balcony House	0.8
	Mesa Verde: Long House	0.3
Length of tours	Mesa Verde: Balcony House	0.6
	Mesa Verde: Long House	0.1
Waiting time	Statue of Liberty	3.2*

* significant at $p<0.05$

Table 2 summarizes results of t-tests between U.S. and international visitor norms across a variety of indicator variables using short form data. Data are organized by respondents' acceptability, preference, and tolerance for attraction site and trail PAOT. Respondents' norms regarding conditions the National Park Service should manage for, and conditions typically seen, are represented in the later part of the table.

Comparisons were made between U.S. and international visitor "acceptability" of attraction site and trail PAOT. Of the eleven comparisons, only one (trail PAOT at Arches National Park) emerged as significant. In this case, international visitors reported an average of 21 people on the trail as the maximum acceptable number of people compared to U.S. visitors who indicated an average of 26.

Similarly, t-tests were performed to compare U.S. and international visitor "preferences" for attraction site and trail PAOT. Of the twelve comparisons, ten emerged as significant. In all ten cases, international visitors preferred seeing fewer people at the sites or trails.

Comparisons were made between "tolerance" levels of U.S. and international visitors for attraction site or trail PAOT. Of the twelve comparisons, only site PAOT at Spruce Tree House at Mesa Verde National Park emerged as significant. In this case, international visitors indicated an average tolerance of 79 people as compared to U.S. visitors who indicated an average tolerance of 89 people.

Comparisons were made between U.S. and international visitor norms for site and trail PAOT the National Park Service "should manage for". Of the twelve comparisons, only management action for site PAOT at Alcatraz Island emerged as significant. In this case, international visitors indicated the National Park Service should manage for 43 people at Alcatraz Island as compared to U.S. visitors who indicated management for 45 people. Finally, in five of the twelve comparisons made, international visitors reported typically seeing significantly fewer people at the attraction sites or trails than U.S. visitors.

Table 3 summarizes results of t-tests to examine differences in crowding perceptions across both visitor sub-groups. Of the eleven comparisons, only one was statistically significant.

Table 2 T-test indicating differences in norms between U.S. and international visitors across a variety of indicators.

Crowding norm	Indicator	Park/ Site	U.S. visitors	International visitors	t-test
Acceptability	Attraction site PAOT	Alcatraz Island	36.4	35.9	1.4
		Mesa Verde: Spruce Tree House	45.0	43.4	0.5
		Yosemite: Bridalveil Fall	15.3	14.8	0.6
		Yosemite: Yosemite Falls	73.9	67.9	1.4
	Trail PAOT	Arches National Park	25.6	20.7	4.2*
		Mesa Verde: Spruce Tree House	26.9	26.6	0.2
		Mesa Verde: Sun Point	30.9	29	0.9
		Yosemite: Bridalveil Fall	13.5	13.2	0.3
		Yosemite: Glacier Point	33.5	34.6	-0.6
		Yosemite: Mirror Lake	18.7	17.7	0.9
		Yosemite: Yosemite Falls	33.9	32.0	0.9
Preference	Attraction site PAOT	Alcatraz Island	25.7	24.0	2.1*
		Mesa Verde: Spruce Tree House	25.1	15.6	2.7*
		Yosemite: Bridalveil Fall	8.3	5.9	3.1*
		Yosemite: Yosemite Falls	42.4	32.3	2.3*
	Trail PAOT	Arches National Park	10.4	6.4	5.7*
		Mesa Verde: Spruce Tree House	16.5	12.4	2.3*
		Mesa Verde: Sun point	15.4	11.6	1.8
		Yosemite: Bridalveil Fall	7.7	4.7	4.3*
		Yosemite: Glacier Point	19.9	18.6	0.7
		Yosemite: Mirror Lake	10.9	8.1	3.1*
		Yosemite: Vernal Fall	2.2	1.9	2.9*
		Yosemite: Yosemite Falls	20.6	14.0	3.6*
Tolerance	Attraction site PAOT	Mesa Verde: Spruce Tree House	89.3	79.3	2.3*
		Yosemite: Bridalveil Fall	25.1	24.6	4.3
		Yosemite: Yosemite Fall	135.1	129.4	1.1
	Trail PAOT	Arches National Park	48.4	48.8	-0.1
		Mesa Verde: Spruce Tree House	42.4	41.6	0.5
		Mesa Verde: Sun Point	55.9	53.4	0.9
		Yosemite: Bridalveil Fall	25.7	24.9	0.8
		Yosemite: Glacier Point	61.0	62.1	-0.6
		Yosemite: Mirror Lake	26.1	25.6	-0.6
		Yosemite: Vernal Fall	4.9	4.8	0.4
		Yosemite: Yosemite Falls	56.5	55.6	0.4
Management Action	Attraction site PAOT	Alcatraz Island	44.6	42.8	2.2*
		Mesa Verde: Spruce Tree House	65.0	57.1	1.8
		Yosemite: Bridalveil Fall	19.2	19.9	-0.7
		Yosemite: Yosemite Falls	103.7	100.6	0.6
	Trail PAOT	Arches National Park	34.6	32.4	1.3
		Mesa Verde: Spruce Tree House	33.1	30.6	1.3
		Mesa Verde: Sun Point	43.8	42.9	0.3

Table 2 Continued

Crowding Norm	Indicator	Park/ Site	U.S. visitors	International visitors	t-test
		Yosemite: Bridalveil Fall	25.7	24.9	1.0
		Yosemite: Glacier Point	49.5	48.2	0.6
		Yosemite: Mirror Lake	33.8	34.7	0.6
		Yosemite: Vernal Fall	4.0	4.0	0.4
		Yosemite: Yosemite Falls	45.1	42.3	0.5
					1.2
Typically seen	Attraction site PAOT	Alcatraz Island	41.5	39.2	2.6*
		Mesa Verde: Spruce Tree House	42.4	37.5	1.5
		Yosemite: Bridalveil Fall	18.1	18.1	0.0
		Yosemite: Yosemite Falls	61.7	56.0	1.5
	Trail PAOT	Arches National Park	18.8	15.8	3.0*
		Mesa Verde: Spruce Tree House	20.4	18.8	1.1
		Mesa Verde: Sun Point	15.6	17.2	-1.0
		Yosemite: Bridalveil Fall	15.1	12.8	2.2*
		Yosemite: Glacier Point	31.0	31.2	-1.0
		Yosemite: Mirror Lake	11.6	9.9	2.0
		Yosemite: Vernal Fall	2.9	2.9	-0.1
		Yosemite: Yosemite Falls	26.7	23.7	2.0*

* significant at p<0.05

Table 3 T-test indicating differences in crowding perceptions between U.S. and international visitors.

Site	U.S. visitors	International visitors	t-test
Alcatraz Island	3.5	3.6	-0.6
Arches National Park	3.2	3.3	-0.4
Mesa Verde National Park	3.3	3.9	-1.7
- reported at Cliff Palace	3.3	3.6	-1.1
- reported at Spruce Tree House	2.6	3.2	-2.6*
- reported at Sun Point			
Statue of Liberty	3.7	3.8	-0.8
Yosemite National Park			
- reported at the Base of Bridalveil Falls	4.7	4.3	1.4
- reported at Glacier Point	3.8	3.8	0.0
- reported at Mirror Lake	3.4	3.7	-1.1
- reported at Vernal Fall	4.3	4.2	0.3
- reported at Yosemite Falls	3.5	3.5	-0.5

* significant at p<0.05

Conclusions

Results of this study indicate fairly inconsistent patterns between U.S., and international visitors regarding crowding-related norms and associated measures. This suggests there are relatively few differences in norms between these two sub-groups. Where significant differences exist, they tend to be associated with "preferences" and number of visitors "typically seen." In each of these cases international visitors prefer seeing fewer people at a site or on a trail as compared to U.S. visitors. At the four sites where significant differences across number of people typically seen emerged, international visitors reported seeing fewer people as compared to U.S. visitors. Crowding perceptions did not vary between U.S., and international visitors.

The relatively few differences in norms between these visitor sub-groups suggest there may be relatively well-established, widely accepted images and associated norms concerning U.S. national parks. While this study examined differences across only two sub-groups, it is important to explore potential differences among other visitor sub-groups based on variables such as gender, age, socio-economic status, etc.

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EXPLORING SATISFACTION AMONG PADDLERS IN TWO ADIRONDACK CANOEING AREAS

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Abstract: An exploratory study examining the relationships between visitor satisfaction, perceived crowding, and expected crowding was conducted using both quantitative and qualitative methods. The study sample consisted of non-motorized watercraft users in two adjacent popular canoe areas in New York State's Adirondack Forest Preserve: the Saint Regis Canoe Area (SRCA) and the Saranac Lakes Wild Forest (SLWF). The SRCA is managed essentially as a non-motorized wilderness area with no road access, while the SLWF allows for some motorized recreation and is easily accessible. A total of 80 questionnaires and 36 questionnaires combined with interviews were collected during weekends in June, July and August 2001. Nineteen percent were day visitors; 81% camped at least one night. Overall satisfaction levels were very high; 67% reported that they were very satisfied, 33% reported that they were satisfied, and none reported that they were neutral, dissatisfied, or very dissatisfied. Compared to visitors who reported being satisfied, those who reported being very satisfied expected and experienced significantly less crowding. Of those interviewed, six categories or "families" of responses (social contact within party, social contact outside party, beauty and aesthetics, unanticipated or uncontrollable elements, management considerations, and elements of nature) were identified in over three-quarters of the interview sample, and were judged to be the most salient contributors to visitor satisfaction.

Introduction

New York State's Adirondack Park includes six million acres of public and private land where state land is classified into distinct management areas. The Saint Regis Canoe Area (SRCA) and Saranac Lakes Wild Forest (SLWF), two adjacent management areas, are composed of a series of small lakes and ponds connected by a system of portage trails. They are a haven for campers, paddlers and anglers. An estimated 15,000 people visit the study area every year, with a 5% yearly increase in use (Middleton, 2001). Despite their proximity, the SRCA and SLWF are managed quite differently (New York State, 1997). The SRCA is the only designated canoe area in the Adirondack Park. Management guidelines for the SRCA emphasize preserving the wilderness character and prohibit motorized use. In contrast, the SLWF is designated as a Wild Forest, allowing for more diverse recreation opportunities, including motorized recreation (with horsepower limits). In addition, the SLWF is readily accessed from several roadside parking lots, and contains two major campgrounds, each with more than 285 sites. Even though the management guidelines for these adjacent areas differ, they share an emphasis on visitor recreation. New York State (1997) defines a Canoe Area as "an area where watercourses ... makes possible a remote and unconfined type of water-oriented recreation" (p. 29). A Wild Forest is defined as "an area where the resources permit a somewhat higher degree of human use ... while retaining an essentially wild character" (p. 32).

Recreation and human use are not unique to the Adirondack Park. Parks and forests have encouraged recreation and human use since the beginning of park management in the United States. For example, the 1916 Organic Act that established the National Park Service cited a dual mission for the parks: to preserve the scenery and provide for enjoyment of the people. The accent on human use has led recreation managers and researchers to be concerned about the quality of the recreational experience, or visitor satisfaction, as a major determinant of successful management techniques.

Visitor satisfaction is deeply embedded in the history of outdoor recreation research (Manning, 1999; Stewart & Cole, 1999). Research regarding visitor satisfaction had its beginning in the 1960s, when Wagar (1964) noted that providing high quality experiences should be the goal of recreation managers. Similar management observations were expressed by many researchers who followed Wagar. In their 1982 article, Schomaker and Knopf noted: "satisfaction has emerged as a central variable in the study of outdoor recreation behavior" (p. 173). Ditton, Graefe and Fedler (1981) remarked: "satisfaction in recreation has typically been regarded as the goal of recreational resource management" (p. 9). Manning (1999) recently demonstrated the importance of satisfaction to recreation researchers by citing 63 pages of references, all related directly or indirectly to the topic of satisfaction. Clearly, satisfaction has and continues to be an important focus in outdoor recreation research and management. However, a dilemma in outdoor recreation is apparent because visitors continually report high levels of satisfaction, regardless of situation or measurement technique (Manning, 1999; Stewart & Cole, 1999).

Statement of Problem

A 1997 study of the SRCA demonstrated that user density and visitor encounters explained little of the variation in perceived crowding or visitor satisfaction (Dawson, Newman & Fuller, 2000). The findings also sparked questions about the relationship between crowding and visitor satisfaction. Some visitors experienced low levels of crowding and reported high satisfaction, but others experienced high levels of crowding and high satisfaction.

These findings are consistent with other studies of crowding and satisfaction, where most studies indicate that density or encounters explain a low amount of the variation in satisfaction (Stewart & Cole, 2001). It has been suggested that there must be other situational variables that contribute to visitor satisfaction (Dawson et al., 2000).

Traditional research methods, generally quantitative in design, have so far failed to identify these situational variables or measure their contribution to perceived crowding and satisfaction (Stewart & Cole, 1999). Some researchers suggest that the traditional research methods of post trip surveys are poorly suited to measure satisfaction (Stewart & Cole, 1999). Post trip surveys require visitors to rely on long-term memory. Often, perceptions of the trip satisfaction change when people reflect on the experience. In actuality, moods, desires, motivations and satisfaction are not consistent through the duration of a trip, and traditional measures fail to measure during-trip satisfaction (Stewart & Cole, 1999).

A mixed-method approach, using both quantitative and qualitative methods, could be a useful way to test the existing satisfaction model in the SRCA and SLWF, and at the same time describe the experiences of visitors and discover how they understand and attach meaning to satisfaction. Analysis of quantitative data does not explain individual meanings attached to satisfaction. Linking quantitative and qualitative data can provide a way to combine the traditional use of statistics with individual experiences and trip anecdotes, to better explain visitor satisfaction and crowding perceptions (Henderson et al., 1999).

Purpose of Study

There were two major purposes of this study: (1) to examine the current relationships between expected crowding, perceived crowding and satisfaction in the SRCA and SLWF using a "traditional" quantitative survey, and (2) identify other variables that visitors associate with or identify as contributors to their satisfaction through the analysis of in-depth visitor interviews.

Methods

Visitors to the SRCA and SLWF participating in non-motorized forms of water-based recreation comprised the population of interest in this study. Data were collected using two techniques: a quantitative questionnaire and a semi-structured face-to-face interview. Administration of the questionnaire and face-to-face interviewing began in late June 2001 and was completed in late August 2001. To assess visitor satisfaction in crowded conditions, data collection was limited to Fridays, Saturdays and Sundays from late June through late August, 2001. Weekends host the majority of visitors, and conditions were more crowded during these times than during weekdays. An equal number of weekends were spent collecting data in each management area.

All data were collected in the field, as opposed to using mail-back questionnaires. Collecting data on-site minimized recall bias and allowed visitors to respond with their immediate thoughts and feelings. Sampling occurred at portage trails throughout the two canoe areas. All visitors were approached at the entrance points of the portage trails, where the trails met the lakes. Visitors were asked of their willingness to participate in the questionnaire and possibly an interview, and were told of the fifteen to thirty minute time commitment.

All visitors who were encountered on the portage trails were asked to participate in the questionnaire. One visitor in every third group encountered was asked to participate in both the questionnaire and the interview. Thus, there were two types of study participants, those who only filled out the questionnaire, and a smaller number who filled out the questionnaire and completed an interview.

Results and Discussion

A total of 116 questionnaires and 36 interviews were collected during weekends in June, July and August 2001. The refusal rate was less than 2%. Only two visitors refused to participate in the questionnaire, and no visitors refused to participate in the interview. The two visitors who did not participate would not provide a reason for their refusal.

Tests of five characteristics revealed only one significant difference between questionnaire-only participants and questionnaire/interview participants (Table 1). Members of both groups were predominately male and averaged approximately 36.7 years old. Neither average party size (4.4 people) nor average trip length (3.3 days) differed significantly between questionnaire-only participants and interview/questionnaire participants. Only mean number of previous visits differed between groups, with questionnaire-only participants averaging fewer than half as many previous visits as questionnaire/interview participants. This difference is attributable to the presence in the relatively small questionnaire/interview group of three outliers who reported 88 or more previous visits to the area. The distribution of other values was similar between groups.

Quantitative Results

The results of the survey question regarding visitor satisfaction resembled those of previous studies. On a five-point Likert-type scale, all visitors chose either satisfied or very satisfied with their trips. The relationship of overall satisfaction to both perceived crowding and expected crowding was tested using ANOVA (Table 2). Both variables were significantly related to variation in satisfaction. Compared to visitors who reported being satisfied, those who reported being very satisfied expected and experienced significantly less crowding. However, the variance explained by these relationships was less than 10%. These results are consistent with previous studies of satisfaction and crowding (Stewart & Cole, 1999).

Table 1. Profile of visitor characteristics by questionnaire and interview participation.

Visitor Characteristic	Overall Sample (n = 116)	Questionnaire Only (n = 80)	Questionnaire & Interview (n = 36)	Test for Differences [a]
Gender (% male) [b]	66.4	71.3	55.6	χ^2 =2.08, p =.149
Age (mean years) [c]	36.7	37.0	36.3	F = .06, p = .813
Party Size (mean size) [c]	4.4	4.5	4.0	F = .97, p =.328
Trip Length (mean days) [c]	3.3	3.2	3.5	F = 1.02, p =.315
Previous Visits (mean times) [c]	7.8	5.3	13.3	F = 4.24, p =.042

[a] Tests for differences between questionnaire-only and questionnaire/interview participants.
[b] Subgroup differences tested with χ^2 contingency.
[c] Subgroup differences tested with ANOVA.

Table 2. ANOVA test for relationship of expected crowding and perceived crowding to satisfaction level.

Variable	Mean Satisfaction	F	p	Eta^2
Mean Perceived Crowding				
Satisfied	3.73	7.622	.007	.064
Very satisfied	2.82			
Mean Expected Crowding				
Satisfied	3.12	9.978	.003	.075
Very satisfied	2.60			

Qualitative Results

The purpose of the qualitative analysis was to identify environmental and personal variables that contributed to visitor satisfaction. Interview data were analyzed using basic content analysis, where the interview questions were read and analyzed for similar themes or ideas. The 36 interviews were transcribed and imported into the qualitative analysis program ATLAS.ti (Scientific Software Development, 2002), providing a way to organize qualitative data into logical categories. A total of 818 phrases were identified and grouped into 72 different codes, with each code capturing a single recurring theme or idea. For example, "we enjoy being away from cell phones and email" and "I don't think that walkman and walkie-talkies have any business out here myself," were both coded as "technology negative." Related codes were grouped together in larger, superordinate categories called "families." For example, the codes "no technology" and "different from everyday" were categorized into the "change of pace" family. Both positive and negative codes were identified as contributors to satisfaction. Therefore, some families are comprised of both positive and negative elements of satisfaction.

Sixty-nine of the 72 codes were grouped into twelve families (Table 3). Six families (social contact within party, social contact outside party, beauty and aesthetics, unanticipated or uncontrollable elements, management considerations, and elements of nature) were identified in over three-quarters of the interview sample, and were judged to be the most salient contributors to visitor satisfaction. These six families are discussed below.

Social contact outside party. Contact with other visitors had an impact, both positive and negative, on visitor satisfaction. Perceived crowding was an important component of visitor satisfaction in positive, neutral, and negative ways. Although the term 'crowding' implies a negative evaluation of density (Manning, 1999), for the discussion of this family, crowding will be represented in positive, neutral, and negative ways.

Table 3. Family category names and ercentage of interviews the contained the family.

Family	% Interviews [a]
Social contact outside party	100
Social contact within party	100
Beauty and aesthetics	89
Unanticipated or uncontrollable elements	89
Management considerations	81
Elements of nature	78
Activities	67
Wilderness or illusion of wilderness	50
Adventure and challenge	42
Unspoiled trip	36
Change of pace	31
Familiar	31

[a] Indicates the percentage of interviews in which that family category was present.

For about half of the interview participants, seeing other people or feeling crowded detracted from their overall trip satisfaction. One visitor clearly articulated his disapproval of other visitors by stating: "my satisfaction would be better if there were fewer people here" (SRCA 29F 8/11).[1] Another visitor from an urban area was bothered because he envisioned a more isolated experience than what he actually received:

[1]Interview code, where the first four letters refer to the location of interview, the middle number and letter refer to gender of participant and chronological number of interview, and last set of numbers is the month and day of the interview.

> There seems to be a lot more people up here than normal. Yeah, I realize its vacation time and all, but we used to come up here, the first couple of years we'd come up here, we'd be coming up the week before Labor Day weekend and we wouldn't see a soul for three or four days. I mean, they'd all come in for the weekend, but during the week we wouldn't see anybody. I mean, you live in the city and you just get tired of people. If you do what I do you get real tired of people. (SRCA 36M 8/24)

These comments demonstrate a correlation between direct crowding and satisfaction. In contrast, other comments demonstrate a correlation between indirect crowding and satisfaction. For example, one visitor stated: "The only thing is, on weekends you could very well come in here and not find a campsite. I don't know what those people do. They probably have to carry or something. If only there weren't so many people. That's the problem these days." (SRCA 21M 7/21). The negative impacts of direct and indirect crowding are consistent with the focus of many previous studies.

Despite the obvious negative reaction that some interviewees had to crowding, nearly all of the interview participants were relatively neutral in regard to some aspects of crowding. One visitor explained: "It [crowding] hasn't been negative I don't think. You know, one time today we had this one carry with this large group, and they were just kind of in the way. You know, it wasn't their fault, they were just doing the carry themselves" (SRCA 33M 8/11). The neutral reaction that so many visitors had in regard to crowding can be partially explained by the "respect for others" code, where there was a mutual understanding and respect among visitors. One visitor expressed this mutual respect in the following quote:

> We went up to Long Pond Mountain yesterday, and there were like twelve canoes at the base of the hike, and it was like trying to find a parking space, but you just move it in. Because you're working on kind of a code of honor, everybody leaves everybody's stuff alone, because you expect everybody to leave your stuff alone. There are a few exceptions to that, but for the most part... it's not like when you live in a city, where if you leave your car unlocked, you come back to the car and everything is gone. Or you leave your windows open because its warm, and you come back and somebody stole the moose, you know, the stuffed moose off your dashboard or something. (SRCA 36M 8/24)

In contrast, some interviewees reported being positively affected by the presence of other visitors. Meeting new people and feeling like part of a special community was an affirmative experience for some. An overriding theme of positive crowding was the idea of a shared experience with strangers, or having something in common with the rest of the people there. One male visitor demonstrated this by stating:

> I mean, it's beautiful, we all love to canoe, or else we wouldn't be here. And everybody is happy and satisfied with that, and having beautiful weather, or, even if it rains it rains. That's part of camping. But everybody that you see wants to be here. It's almost like you're sharing this experience with a bunch of people you don't know. (SRCA 36M 8/24)

Similarly, the sense of belonging to a group and feeling surrounded by people with similar interests was an encouraging thought for about one-third of the interview participants. To be in the vicinity of so many people who share the same interests was a comforting feeling. One visitor illuminates this idea:

> Especially in the Adirondacks I've noticed that the people up here are all up here for the same reason, so their all happy, their courteous, no ones out to start a fight or rumble about anything, so to be around people it doesn't really matter, because they just add to the experience as opposed to detracting from it. (SRCA 11M 7/14)

Within group social contact. The opportunity to socialize and spend time with other members of the party was perhaps the most important factor of visitor satisfaction to the interview participants. Every interview participant mentioned some form of companionship as a contributing factor to their satisfaction. Simply spending time with friends or family was the major contributing factors to this family, and subsequent visitor satisfaction. Demonstrated by the following quotes, nearly all interviewees commented on opportunities to spend time with their traveling companions, to have fun together, to rekindle relationships, and share experiences:

> It's just time spent alone, just the two of us, which is always great and hard to do in everyday life. (SRCA 20F 7/21)

> This has always been a father/son bonding weekend. It's enjoyable. We always look forward to this week. (SRCA 31M 8/11)

> I think it's the fact that we laugh a lot. That's probably what it is, we just have a good time. We're not really here to accomplish anything but have a good time. (SRCA 14M 7/15)

> Well, he's my best friend, so I get to share things with him that I wouldn't be able to share with anyone else, talk about things that I can't talk to anyone else about, um, and we've been doing this stuff since the very beginning so it's always been something where its been the two of us together. (SRCA 11M 7/14)

> [It's] somebody to share it with, and to show them different things that they haven't seen before. Everyone is kind of getting something new, even if it's not the same new thing. Everyone is kind of sharing something different, so that's fun. Really different. (SRCA 18F 7/21)

One aspect of companionship that was mentioned by only four interview participants but remains important is the tension and arguments that can arise among members of a party. People participating in outdoor recreation are, as one visitor put it, "real people." Despite the arguments and bickering, visitors' satisfaction is likely to remain high. Arguments appear to have a both negative and positive effects on visitor satisfaction. One visitor summarized her experience immediately following a difficult portage:

> When you get in a lot of pain for one reason or another, it's easier to get annoyed with people. Uh, I get annoyed if I'm in the front of the canoe and the person steering it doesn't pay attention and we watch the scenery go by horizontally, and that really annoys me, and so I become bitchy. (SRCA 17F 7/21)

Naturally it seems that the argument and frustration this visitor experienced would cause her satisfaction to diminish. However, she continued on to say:

> But, there were a couple times like after the canoe from Fish Pond where we were all just at the end of our tethers and we all made the effort to try to get along, and go the extra mile, because we knew everyone else was in the same boat, and that really made you much happier, seeing other people try hard too. (SRCA 17F 7/21)

In this woman's experience, the negative result of group tension was resolved into a positive experience by the resulting behavior of the group.

Beauty and aesthetics. The natural beauty and aesthetics associated with spending time outdoors were, not surprisingly, also important to visitor satisfaction. Just under three-quarters of interview participants mentioned the beauty of the area, or the scenery. Statements regarding natural beauty were most often short and direct:

> The scenery. It's just incredible. Fresh air, and the lakes, and just the scenery in general. (SLWF 26M 7/28)

> It's probably because it's just so beautiful, I mean, it's just so beautiful here. The water is clear, it's clean, um, you know, for us, the weather is fantastic. (SLWF 25F 7/28)

For some, the unique geography of the SLWF and SRCA contributed to satisfaction. One visitor stated: "For people who like canoeing, I mean, you can't beat it. If you're willing to do short carries you can canoe for days without hitting the same water" (SLWF 22M 7/28). Many other visitors mentioned a similar version of the latter statement; a general overview of enjoying the outdoors, and specifically the Adirondacks. A visitor with this general attitude stated: "Just being out in nature, and being out in the Adirondack park which is a fantastic place to be. Really, really beautiful area" (SRCA 17F 7/21). And lastly, a female visitor from Vermont exclaimed: "It's beautiful, I love it up here. Go Adirondacks!" (SRCA 35F 8/24).

Unanticipated or uncontrollable elements. Weather, abundance of insects, and other uncontrollable aspects of nature affected satisfaction in both positive and negative ways. The following two quotes represent the negative impact that poor weather can have on an outdoor trip:

> The weather. That's it though, the weather. The fact that I've dragged my camera out about six times and put it away six times because of the rain. (SRCA 11M 7/14)

> Well, you know the weather is always the thing that puts a damper on one's spirits, so yesterday morning's rain was the only thing. (SLWF 3M 6/30)

In contrast, half the interview participants reported that summer conditions were one of the most satisfying aspects of their trips. Exemplifying the attitude of several visitors, one commented: "The weather has been perfect, not a rain cloud once. Yeah, it's been beautiful!" (SLWF 28F 7/29). Others may have experienced poor conditions, but it did not seem to diminish their satisfaction. One rainy weekend visitor remarked "onto each camping trip a little rain must fall. I mean, if you're lucky you get a sunny day" (SRCA 36M 8/24). Another example of this attitude is demonstrated by this quote:

> I mean, yeah, of course it would be nice if it was sunny and warm, but, at the same time, you know, its not about; the rains no big deal, its not like we can't, you know, do what we're doing but just with rain. So, it can be a little uncomfortable and frustrating, but overall I think it doesn't really affect the trip, but yeah, I think that would be the one thing I would like to change. (SRCA 11M 7/14)

One of the more interesting but less frequent unanticipated causes of satisfaction was coded as "unexpected delights." Unexpected delights refer to the little things that left a lasting impression. Five interview participants mentioned events like this that contributed to their satisfaction. On a rainy July weekend, one visitor was surprised when he found "some nice people left the lean-to with some dry wood. That was nice" (SRCA 15M 7/15). Another interviewee who arrived on a cold weekend without a jacket was pleased to find that "the people who were outfitting me had all the equipment that I asked for and things that I forgot to bring with me, like this jacket, they had it up there" (SLWF 9M 7/06). And lastly, two visitors witnessed a turtle laying eggs at one of the campsites. To ensure that the eggs remained protected, they surrounded the site with stones and left a note in a plastic sandwich bag to explain the purpose of the stones. One visitor came across this, and thought it was fantastic: "seeing the little spot with the turtle eggs that somebody left a note by. I think that was pretty cool, cause I've camped out at that spot before, so we stopped there, and that was really cool" (SRCA 15M 7/15).

Management conditions. Attributes of the two areas controlled by management contributed both positively and negatively related to visitor satisfaction. Among this sample of non-motorized paddlers, comments about motorboats were uniformly negative, but other management conditions made positive contributions to satisfaction. For example, the SLWF and SRCA are essentially unrestricted for visitors, which was positive for many who chose to visit. There is no fee, and the campsites are available on a first-come first-serve basis. These attributes caused visitors to begin their trip relatively hassle free, and already satisfied, as exemplified by the comments of several Canadian visitors. A visitor from Ontario stated: "It's accessible. A lot of places in Canada now you have to reserve camp spots six months ahead of time. If you don't do it in January you can't go" (SLWF 3M 6/30).

The one disadvantage to having this type of unrestricted system is the availability of campsites. On a nice summer weekend it is likely that all or nearly all of the campsites will be taken by Friday evening. Twenty-percent of interview participants acknowledged that this possibility affected their satisfaction. This dip in satisfaction is demonstrated by the following visitor: "as long as you can find a place to camp, now that was a little bit of a problem yesterday when we were tired and had to go all the way to the other end, but at least we found a place" (SRCA 17F 7/21). Campsites become a "home away from home" for visitors, and it is important that they not only find a place to camp, but that it possesses positive attributes. The following quote emphasized the "home" function of campsites:

> The area is so nice and where we've been the campsites are spread out enough that unless people are just yelling and crazy, even though they might be right around the corner from you, you still are in your own little section, and your still kind of in your own spot. (SRCA 18F 7/21)

Elements of nature. Simply being in nature, surrounded by water, trees, and flowers was highly satisfying for many visitors. Some expressed sentiments like: "The sunset was really gorgeous. And the stars, the fresh air, and that sort of thing, just being outside" (SLWF 26M 7/28); "What makes me satisfied? The hooded merganser, and a flock of brown ducklings were feeding, that would be a second one. The water lilies would be a third. Seeing loons, of course, would be a fourth" (SLWF 8M 7/06). Enthusiasm for seeing wildlife was especially widespread; nearly all of the interviewees indicated seeing wildlife was an influence on their overall satisfaction. One visitor stated:

> We saw beavers, and loons, course we're used to loons by now, being in the Adirondacks, and we canoe in Maine a lot too, but, uh, loons are always wonderful. And some other birds... But, the wildlife is great. There's no moose here, but it's the serenity of being out here with the trees and the natural everything, and no McDonalds. (SRCA 17F 7/21)

For other interview participants it was natural elements other than wildlife that factored into their satisfaction. One visitor was overjoyed by the display of wildflowers: "[I] paddled up pink pond today, and it's just full of beautiful flowers, pickerel weed, and wild roses, white lilies and yellow lilies. You know, it's just a beautiful place to be" (SRCA 21M 7/21).

Discussion

The nature of qualitative inquiry provides the opportunity to examine how a small number of people feel about the phenomena in question. In this study, with the phenomena in question being visitor satisfaction, the interviewees indicated some surprising results. Social factors and setting attributes were the most prominent elements. The importance of setting attributes had been cited previously (Herrick & McDonald, 1992). Previous studies have also indicated the importance of social groups in context to leisure (Stokowski & Lee, 1991); and in the context of satisfaction and crowding in outdoor recreation settings, this has been a minor theme. Many multi-item satisfaction scales do consider social experiences in regard to satisfaction (Whisman & Hollenhorst, 1998); however, results often indicate that visitors consider other variables, like spending time in nature or adventure and excitement, before social considerations.

In this study, spending time with other party members outweighed other elements as a reason for satisfaction. In addition, contact with visitors outside of the immediate party was evaluated as positive by many interview participants. This positive relationship has been previously documented (Stewart & Cole, 2001), but most previous studies have focused almost exclusively on the negative relationship between encounters and satisfaction. Interview participants in the SRCA and SLWF indicated that the negative impacts of outside party social contact in this study were generally because of indirect encounters. For example, the lack of available campsites caused a negative reaction by many interviewees. It has been documented in other studies that seeing the consequences of human use can have a negative impact on experience. The presence of trash or litter (Roggenbuck et al., 1993), lack of available parking (Herrick & McDonald, 1992), and impacts at campsites (Roggenbuck et al., 1993) have all been found to negatively affect trip quality.

Positive social contact with other visitors included the sense of belonging to a larger group and the ability to socialize in a new setting. Some interview participants mentioned the friendly nature of other visitors, and their willingness to offer advice on where to find campsites, and the conditions of trails. Through observations and interview results, it is clear that the social encounters that visitors viewed as positive occurred at locations other than campsites. Positive interactions usually occurred on portage trails or while paddling. When visitors felt secure and private at their campsites, contact with other visitors outside of their space was positive. This illustrates the importance of campsite location and proximity to other campsites. For overnight visitors, campsites become a

home away from home; a place to reflect on the day's events, relax, spend time socializing with group members, and feel unconstrained. As long as personal space is not invaded, the presence of some other visitors in other, less personal spaces can be positive or neutral for some visitors.

The identification of twelve contributing factors to satisfaction lends added support to the multiple dimensions of satisfaction. Further, the codes that comprised the families were both positive and negative in their contribution to satisfaction. Despite the discovery of several negative codes, satisfaction remained unaffected. Identifying what makes people satisfied has been the guiding force behind many studies of outdoor recreation. The guiding force behind this study was not only to identify those specific elements, but also discover why people continually report being highly satisfied with their experiences regardless of evaluating contact with others as positive or negative. It seems that visitors to the SRCA and SLWF were not overly critical in their evaluation of trip quality. They identified positive and negative setting attributes, experiences, interactions and outcomes, but the accumulation of all these events was positive.

Future Research

Further exploratory research is needed to explain why high satisfaction ratings occur so frequently among outdoor recreation participants. The experiences of outdoor recreation participants are multifaceted and dynamic, and qualitative research methods are a useful way to understand the underlying motivations and inspirations to participation from a broader life perception. The semi-structured format of the interview questions in this study may have limited the ability of the researchers to fully address all of the contributing factors to satisfaction, or to examine the full breadth of meanings visitors associated with trip satisfaction and experience. A future study using a less structured interview format would allow participants to express themselves more freely and may be useful in exploring the complex, dynamic nature of satisfaction even more thoroughly.

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CARRYING CAPACITY & VISITOR EXPERIENCE: CAPE HATTERAS NATIONAL SEASHORE

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Abstract: The number of people living the United States is expected to increase by 63 million by the year 2025, bringing the total population to over 300 million. As population size increases, recreation and park managers can expect to experience an increase in the number of visitors/users. In 2000, the National Park Service recorded nearly 300 million visitors throughout the national park system. Cape Hatteras National Seashore over the past 40 years has recorded a 1200% increase in visitation. Statistics from the first half of 2001 reveal a 29% increase in visitation when compared to the first half of 2000. Located on protected barrier islands in North Carolina, Cape Hatteras National Seashore consists of more than 70 miles of shoreline and 30,000 acres that serve as a notable tourist and recreation destination. As population and park visitation increases, protecting these destinations, and the resources and experiences they provide are of major importance to recreation and park managers. Current and accurate information is needed to better understand the influence of crowding and carrying capacity on park resources and visitor experiences. The purpose of this research is to determine social carrying capacity based on selected variables at Cape Hatteras National Seashore, and to the existing body of literature. A sample of 300 on-site and mail-back questionnaires of visitors to Cape Hatteras National Seashore conducted during a yearlong study, spanning from May 2001 to May 2002 was analyzed. The purpose of this study focuses on issues of social carrying capacity and comprehending visitor perceptions and expectations of crowding in relation to how the number of people on the beach influence the quality of visitor experience. Visitor standards toward encountering other visitors as well as their perceptions of current use levels, if a relationship exists between crowd sizes expectations and selected crowding variables, and to compare visitor's perceived crowding levels with actual visitor density. Analysis and discussion will focus on the relationships between visitor norms/preferences and actual density and encounter levels
Analysis and discussion will focus on the relationships between visitor norms/preferences and actual density and encounter levels. Researchers and managers can use this information to assess current and changing social conditions regarding visitor experiences. Results will specifically assist NPS managers in making appropriate management decisions, maintaining standards of quality, and will add to the existing body of literature regarding social carrying capacity.

Introduction

The number of people living in the U.S. is expected to increase by 63 million by 2025, increasing the total population to over 300 million (Mitchell, 2001). In 2000, the National Park System recorded nearly 300 million visitor days (Manning, 2001), and expects visitation to increase to approximately 500 million by 2010 (Wang, 1997). As the U.S. population numbers increase, recreation and park managers can expect to experience an increase in the number of visitors/users. As population and park visitation increase, pressures on park resources and the quality of visitor experience will increase, possibly exceeding carrying capacity. Carrying capacity can be defined as the level of recreation use an area can withstand while providing a sustained quality of recreation (Wager, 1964), and as the level of use beyond which experience parameters exceed acceptable levels specified by evaluative standards (Shelby & Heberlin, 1985).

Recent research indicates that biophysical resources and social resources of parks are at risk of suffering significant impacts with increased recreation demand (Cole, Watson, Hall, & Splidie 1997). Air pollution and the biodegradation of vegetation and soil are occurring due to increasing number of visitors (Andereck, 1993). Manning and O'Dell (1997) report that the quality of the visitor experience degrades as park resources degrade, and as crowding, conflict, or other social impacts occur. Cole (1994) emphasizes that overuse of a recreation area can lead to the degradation of that area and thus reduce the quality of visitor experience. With such impacts from increasing number of visitors and users, park managers are challenged to create a balance between providing recreational opportunities while protecting natural resources (resource carrying capacity) and the quality of visitor experience (social carrying capacity). The National Park Service Organic Act of 1916 (NPSO) mandates park managers, "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations" (http://www.aqd.nps.gov/ard/oa.htm). In order to comply with NPSO mandate and to adequately address potential problems, National Park Service (NPS) managers need current and accurate information to better understand the influence of crowding and carrying capacity on park resources and visitor experiences. The purpose of this study is to determine if the social carrying capacity at Cape Hatteras National Seashore (CAHA) is being exceeded based on selected variables. Russell & McLean (1997) defined social carrying capacity as "the amount

of visitor use that individual visitors can sustain before the number of visitors begins to intrude upon individual quality of the experience".

Since being established in 1953 and over the past 40 years, CAHA has recorded a 1200% increase in visitation. Statistics from the first half 2001 reveal a 29% increase in visitation when compared to the first half of 2000. Located on protected barrier islands in North Carolina, CAHA consists of more than 70 miles of shoreline and 30,000 acres that serve as a notable tourist and recreation destination. As population and park visitation increases, protecting these destinations and the resources and experiences they provide are of major importance to park managers. Present and future park managers are challenged to provide recreational opportunities for increasing numbers of visitors while protecting ecosystems within the park and the quality of individual recreational experiences. Data from this study will be utilized to comprehend visitor standards toward encountering other visitors as well as their perceptions of current use levels. Data analysis will help to determine if a relationship exists between crowd size expectations and selected crowding variables, and will help to compare visitor's perceived crowding levels with actual visitor density. Analysis and discussion will focus on the relationships between visitor norms/preferences and actual density and encounter levels. Researchers and managers can use this information to assess current and changing social conditions regarding visitor experiences. Results will specifically assist and guide NPS managers of CAHA in making appropriate management decisions, maintaining standards of quality, and add to the existing body of literature regarding social carrying capacity.

Data Collection & Methods

Data was gathered at 27 data collection sites that included off-road-vehicle beach access areas, walkover beach access areas, visitor centers/lighthouses, and sound-side access areas within CAHA. Data was collected from May 2001 to May 2002 to control for possible seasonal use differences and account for all types of visitors. At each data collection site the number of people and ORV's were recorded, and at selected data collection sites visitors were chosen on a random basis to participate in the study. Visitors were asked if they would be willing to take part in the research, and those who participated were administered an on-site questionnaire, and given the opportunity to participate in a mail-back questionnaire. Visitors answered a number of questions designed to determine visitors' attitudes toward different activities and resources, preferences for management actions, as well as questions designed to determine their standards toward encountering other visitors and their perceptions of current use levels.

The on-site questionnaire collected general information such as travel distance, length of stay, group size, state, visitor rating of their overall experience in the park, and information designed to determine visitor standards toward encountering other visitors. Visitors were specifically asked to estimate the total number of visitors they have seen on the beach, specify the maximum number of people per day they find acceptable and tolerable, and specify the maximum number of people they should see before managers limit use. The mail-back questionnaire collected additional information about visitor demographics, planned activities, economic analysis, airplane fly-over's, and information to determine visitor perceptions of current us levels. Participants were asked how crowded they felt, how acceptable was the number of people they saw, did the number of people enhance or detract from their experience, and would they have like to seen more or fewer people. Questions were designed on a 9-point scale to allow participants opportunities for both negative and positive responses to other visitors. To increase the response rate, a reminder postcard and mail-back questionnaires were sent to non-respondents.

Results

For the intent and purpose of this study, a random sample of 300 on-site and mail-back questionnaires were analyzed from the research study's on-going larger sample. With this information a representation of the CAHA visitor profile was developed. The data from the 300 visitors of CAHA indicated that the sample was primarily males (65%), white (84.7%), with an average age of 46 years of age. A greater percentage of respondents reported obtaining a college degree as the highest level of education that they have completed. The traveling distance for visitors ranged from 1 to 6000 miles and averaged approximately 411 miles, although a larger percentage of the population came from North Carolina (33%) and Virginia (25%). Visitors to the park traveled in an average group size of 3.5, and the majority of respondents (70.3%) visited 1 to 4 times per year and the larger percentage (78.6%) vacationed 7 days or less. Respondents indicated that recreational fishing (32.5% reported as primary activity), swimming/sunbathing, visiting lighthouses, and bird watching were the top four activities that visitors planned to participate in while at CAHA.

Results from the comparison of visitor encounters to norms (Table 1) shows that the number of people that respondents reported seeing on the beach ranged from 1 to 3000, and the average estimate of people seen on the beach by respondents was 98. This number is below the average maximum acceptable number of people of 210, and far below the average reported maximum tolerable number of people (342), and the maximum number of people before use is limited (357). This indicates that, by in large, visitors in the sample did not feel crowded by other visitors to the park, and that social carrying capacity is not being exceeded. Another interesting point revealed from this data is that even though all visitors were not able

to specify their norms for encounters, more visitors indicated that there was a maximum tolerable number that mattered to them, than a maximum acceptable number, and approximately 45% of participants responded that used should not be limited. Obviously the exact wording used to determine what standards should be applied is very important. Note the difference in averages for the three slightly modified questions dealing with how many people is too many, from acceptable, tolerable, and limiting use.

Table 1 Comparison of Visitor Encounters to Norms

	How many People did you see on the beach today?		What is the maximum number of people per day you would find acceptable to see on the beach?		What is the maximum number of people per day you could tolerate seeing on the beach before you would no longer visit this park?		What is the maximum number of people per day you think you should see along this section of the beach before managers start to limit use?	
	N	%	N	%	N	%	N	%
Matters but I can't Specify	NA	NA	50	16.7	74	24.7	69	23
Does not Matter to me	NA	NA	85	28.3	86	28.7	21	7
Use should not be Limited	NA	NA	NA	NA	NA	NA	134	44.7
Cant Remember	15	5.0	NA	NA	NA	NA	NA	NA
Low	1		0		8		10	
High	3000		5000		4000		2000	
Mean	98.46		210.35		342.04		356.82	

Crowd size expectation data revealed that approximately 95% of visitors had some expectation of crowd size, with 50.3% of them correctly anticipating the number of visitors they expected to see. Approximately 20% of the visitors in the sample expected to encounter fewer people, and 24.1% expected to see more people. Using a one-way analysis of variance, the relationship between visitor's expectations of crowd size and perceived crowding was explored (Table 2).

As expected, this data indicates that visitors who expected to see fewer people on the beach felt significantly more crowded than those with accurate or over-estimated expectations. They felt the number of people they encountered were significantly less acceptable, and believed that the other people on the beach detracted more from their experience than people who expected more visitors, or those who had accurate expectations. With only 6.2% of visitors feeling they encounter a lot more people than they expected, these results do not indicate experience

degradation at this time. One interesting point from Table 2, and similar to other research findings, is that no matter what expectations visitors had about crowd size, they all reported that they would liked to have seen fewer people on the beach.

The relationship between density and crowding measures is shown in Table 3. This data shows that the actual number of people at a site/location has little to do with how respondents perceived crowding at each site. This analysis showing virtually no relationship between visitor density and perceived crowding provides support that the charcter and/or type of use/behavior may negatively impact visitor experiences and the perception of crowd size far more than the actual number of visitors at a site.
Additional examination reveals that although respondents were likely to overestimate the number of people they encountered (average estimate =98 compared to average actual count of 54) on the beach, their estimates were highly correlated with actual visitor counts.

Table 2 Relationship between Crowd expectations and other crowding variables

	How crowded did you feel?		How acceptable is the number of people?		Enhance or Detract from your experience?		Would have like to seen more or fewer people?	
Crowding Expectation	N	Mean	N	Mean	N	Mean	N	Mean
Expected more	70	1.99a	70	3a	70	.91a	68	-.03
About what I expected	143	2.73b	143	2.69b	144	.97b	144	-.13b
Expected fewer	60	4.68c	60	-.12c	60	-.8c	60	-1.97c
Total	273	2.97	273	2.2	274	.57	272	-.51
F	57.518		63.986		29.385		44.51	
Sig. Level	.000		.000		.000		.000	

Table 3 Relationship between density and crowding measures

Perceived Measures	Number of people at site Mean = 54.09	
	r	Sig
How many people did u see?	.542	.000
How crowed did you feel?	-.028	.749
How acceptable is the number of people seen?	.080	.352
Did the number of people enhance/detract from your experience?	.069	.424
Overall, I would you have liked to have seen more or fewer people on the beach?	-.001	.987

Conclusion and Implications

Results from this research will supply information to assist researchers and managers assess current and changing social conditions regarding visitor experiences. CAHA park managers can use this data to guide them towards making appropriate management decisions, maintaining standards of quality, and understanding the influence of crowding and carrying capacity on park resources and visitor experiences. Social carrying capacity research provides managers with frameworks that incorporate resource and social norms into management decisions and actions, and develops indicators and standards of quality for the visitor experience with a focus on perceived crowding. With population growth and increasing number of visitors to parks, managers and decision-makers need information derived from research to help understand park conditions, both biophysical and social, and to comply with the NPSO to protect park lands for future generations.

Data analysis indicated that visitor expectations of crowd size play a vital role in determining how they perceive the number of other visitors. This information can be of importance to park managers to possibly develop appropriate expectations by improving the accuracy of what visitors can expect at the destination. For example, through the use of media resources such as brochures, pamphlets, Internet, managers can portray an image of large crowds. A second note derived from this study is that it is important for managers trying to determine what standards to implement to take into account the specific wording of questions. Particular wording can change how people respond to similar questions. Note the difference in the means of how many people are acceptable, with a mean of 210 and tolerable with a mean of 342. Managers can use the results from this research to focus on understanding relationships between trip activities, specific sites, behaviors, and expectations. Finally, it appears as if regulations or management actions designed to curb undesirable behavior or separate visitors with incompatible uses may be more effective tools to maintain desirable social conditions than limiting numbers of users. In conclusion, we can say that current visitor standards at CAHA on crowd size are not being exceeded. The before mentioned data and the overall visitor experience rating average of 8.89 have provided us

with good indications that social carrying capacity at CAHA is not being reached.

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APPLYING THE VISITOR EXPERIENCE AND RESOURCE PROTECTION (VERP) FRAMEWORK TO CULTURAL RESOURCES IN THE NATIONAL PARKS

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Abstract: The National Park Service has developed the Visitor Experience and Resource Protection (VERP) framework for addressing carrying capacity in the National Parks. This framework has been successfully applied to natural and recreational resources in diverse units of the National Park System. However, most units of the National Par System also contain significant cultural resources. This paper outlines how the VERP framework might be applied to cultural resources, the challenges this may present, and some suggestions of how to meet these challenges.

Introduction

Although most people probably associate the National Parks with scenic landscapes and natural resources, nearly all National Parks in the United States also contain significant cultural resources. In fact, nearly two-thirds of all national parks in this country were designated with the specific purpose of preserving cultural resources. Like other resources contained in these special places, cultural resources are potentially threatened by public use. The National Park Service uses the concept of carrying capacity to protect resources from being overused. Over the past decade, the National Park Service has developed and applied a management by objectives framework – Visitor Experience and Resource Protection (VERP) – to address carrying capacity in the National Parks. Application of VERP to cultural resources represents both opportunities and challenges.

In this paper, we will:

- Discuss the significance of cultural resources in National Parks
- Discuss the VERP framework
- Discuss VERP's opportunities for use with cultural resources
- Discuss some challenges in applying the VERP framework to cultural resources
- Propose possible strategies for applying VERP to cultural resources

Cultural Resources in the National Parks

Cultural resources are an important part of the National Parks in the United States. They offer visitors an important link to historic events and cultures and a way to bring history to life. While nearly all of the National Parks contain some cultural resources, 222 units of the National Park System were created specifically to conserve cultural resources. With increasing use of the National Park System, concern for the integrity of the cultural resources contained in the National Parks has been raised.

The primary measure of cultural resource integrity is the resource's eligability to be listed on the National Register of Historic Places. The National Register of Historic Places is the nation's official list of cultural resources that should be preserved. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service (National Park Service, 2002).

The National Register's standards for evaluating the significance of properties were developed to recognize the accomplishments of all peoples who have made a significant contribution to our country's history and heritage. The criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the National Register. The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. Places considered for inclusion on the National Register must also:

- be associated with events that have made a significant contribution to the broad patterns of our history or;
- associated with the lives of persons significant in our past or;
- embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master or;
- that possess high artistic values or;
- that represent a significant and distinguishable entity whose components may lack individual distinction or;
- have yielded or may be likely to yield, information important in prehistory or history (National Park Service, 2002).

The mandate to consider carrying capacity in the national parks

Under National Park Service administrative policies, park superintendents are mandated to address carrying capacity

concerns as they relate to cultural resources. "Park superintendents will set, enforce, and monitor carrying capacities to limit public visitation to, or use of, cultural resources that would be subject to adverse effects from unrestricted levels of visitation or use. This will include (1) reviewing the park's purpose; (2) analyzing existing visitor use of, and related impacts to, the park's cultural resources and traditional resource users; (3) prescribing indicators and specific standards for acceptable and sustainable visitor use; and (4) identifying ways to address and monitor unacceptable impacts resulting from overuse. Studies to gather basic data and make recommendations on setting, enforcing, and monitoring carrying capacities for cultural resources will be conducted in collaboration with cultural resource specialists representing the appropriate disciplines (National Park Service, 2001)."

Not only do these policies state that carrying capacities will be set, but also how they will be set. According to the above policy statement, a framework like VERP is to be used to determine the carrying capacity for cultural resources within national parks. Early work on how best to analyze and manage social and resource carrying capacity resulted in the Limits of Acceptable Change (LAC) framework, developed by the U.S. Forest Service in 1985 (Stankey, et.al., 1985). Since then, several planning and management frameworks have been developed to address carrying capacity, including the National Parks and Conservation Association's Visitor Impact Management (VIM) process (Graefe, et. al., 1990), the Parks Canada Visitor Activities Management Process (VAMP) (Environment Canada and Park Service, 1991). In 1992 the National Park Service began development of VERP to address carrying capacity issues in units of the National Park System. All of these frameworks includes refinements to address specific needs of each agency. However, they all share a set of common steps: 1) a description of desired future conditions for park resources and visitor experiences, 2) identification of indicators and standards of quality, 3) monitoring techniques to determine if and where standards of quality have been violated, and 4) development of management actions to ensure that indicators are maintained within designated standards of quality (National Park Service, 1997).

The VERP process uses nine elements to accomplish these steps. These elements and their relationship to cultural resources are outlined and discussed below.

Element 1: Assemble an interdisciplinary project team

The VERP process has several strengths when being applied to cultural resources. First, the process calls for an interdisciplinary team and this is very useful when cultural resources are the focus of planning efforts. Effective management of cultural resources often requires several disciplines working together. Often, many disciplines, from

historians, and archeologists, to hydrologists and ecologists, are necessary to adequately manage and interpret cultural resources. Consultants may be needed for the VERP process. This gives managers an opportunity to gain perspectives on cultural resources from disciplines not normally represented on park staff.

Element 2: Develop a public involvement strategy

Public involvement is necessary for any planning effort. However, when non-renewable resources, like cultural resources are involved, public involvement is essential. Public participation helps the planning team understand the values people hold in relation to park resources and the visitor experience, and is critical to creating a plan that can be implemented. Any planning decision is a compromise between competing values. Understanding public values enables the planning team to make informed decisions. Informed decision-making helps ensure that important public values related to irreplaceable cultural resources are adequately represented and protected.

Element 3: Develop statements of park purpose, significance and primary interpretive themes; Identify planning constraints

The VERP process challenges park planners and managers to clearly identify the most important aspects of park resources and the quality of the visitor experience. Park purpose and significance statements clarify the most basic assumptions about park use and management, and provide context for how a park should be managed and used. Park purpose is the reason or reasons the area was set aside as a unit of the National Park System. Park significance statements capture the essence of the park's importance to our natural or cultural heritage. Identification of park purpose and significance can help park planners identify important interpretive themes or information about the park that every visitor should leave the park knowing. With cultural resources, interpretation of the site is often one of the most important components of the visitor experience. Therefore, the VERP process gives cultural resource managers an opportunity to improve on interpretation and, thereby, the visitor experience.

Element 4: Analyze park resources and the existing visitor use

Element four of the VERP process allows park planners and managers an opportunity to take an objective look at the current condition of park resources and visitor experience. Baseline information is important as a point of comparison for future monitoring of indicator variables. Additionally, it allows resource managers an opportunity to separate fact from widely held, though possibly erroneous assumptions about current conditions. This may help managers clarify which carrying capacity issues are most salient.

Element 5: Describe a potential range of visitor experiences and resource conditions (potential prescriptive zones)

The objective of element five is to determine the range of potential visitor experiences and resource conditions that can be accommodated in the park. The focus moves from

descriptive to prescriptive. This element helps park managers provide for a diversity of park experiences. Visitors may come to national parks for different and sometimes conflicting reasons. By clarifying the potential range of experiences and conditions, managers can begin to eliminate uses of park resources that are incompatible with the park's purpose. For cultural resources, this is important because certain management practices may need to be undertaken (stabilization, reconstruction, etc.) depending on the desired condition of cultural resources and the range of potential visitor experiences chosen.

Element 6:Allocate the potential zones to specific locations in the park (prescriptive management zoning)

In element 6, the potential management zones described in element 5 are allocated to specific places within the park. This step helps further clarify what types of use are appropriate in the park. This element is a synthesis of elements 2 through 5, taking into account input from the public, the planning foundation set by park statements of purpose and significance, potential and limitations of park resources, and the range of experiences and resource conditions that park managers wish to provide.

The preceding six elements of the VERP framework allow park managers to take an objective, interdisciplinary look at conditions and resources as they currently exist within the park. The interdisciplinary team sets an overall direction for park management based on the park's resources, and purpose and significance. From this information, an acceptable range of experiences and resource conditions is determined. The remaining steps in the VERP framework help managers determine if these acceptable conditions can be maintained with current or increased visitor use levels.

Element 7: Select indicators and specify standards for each zone; develop a monitoring plan

Element 7 is a pivotal element because it is the point at which the VERP framework moves from being qualitative to being quantitative. Once prescribed social and resource conditions are converted into indicator variables that can be measured and monitored, park staff can determine whether or not conditions are acceptable and take management action if needed. To do this, indicators of quality must be selected and a standard for each indicator variable must be set. Indicators are specific, measurable, manageable variables that reflect the overall condition of park resources and the quality of the visitor experience. Indicator variables measure visitor impacts on the biological, physical and cultural resources of a park, and the visitor experience. Standards are the minimum acceptable condition for each indicator variable.

A critical element of selecting and monitoring indicators is understanding the relationship of the variable to visitor use. This is an often overlooked characteristic of indicator variables for carrying capacity. A potential indicator variable may represent the integrity of a resource, however, if the indicator is not related to visitor use of the resource, it has little utility in carrying capacity planning. Determining the relationship between cultural resource indicators of quality and visitor use has proven to be a primary challenge to using the VERP framework with cultural resources. Figure 1 shows a hypothetical relationship between use and impact at a resource that demonstrates that as use increases, impact to the resource also increases. The actual relationship between use and a specific indicator of quality may not be as simple as implied by this figure. However, it is useful to understand the actual relationship to determine an appropriate standard of quality.

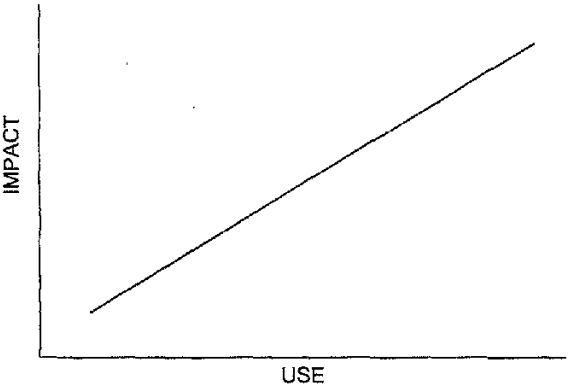


Figure 1. Hypothetical relationship between use and impact.

Elements 8 & 9: Monitor resource and social indicators and take management action

Once indicators of quality are chosen and standards for each indicator are set, the focus of activities shifts from planning to management. Indicator variables are monitored according to the monitoring plan developed in the previous element. Monitoring and analysis may identify one of two situations that will trigger management action. The resource may deteriorate to a point that would indicate that standards will soon be violated. This would trigger action to prevent the resource from deteriorating below the standard. Monitoring may also indicate that the resource has deteriorated beyond the minimum standard of quality. In this case, management action may be taken that restricts or modifies use to the degree necessary to restore and maintain acceptable conditions.

VERP's opportunities for use with cultural resources

The VERP process has several characteristics that make it useful for evaluating carrying capacity of cultural resources in the National Park System. Preliminary elements of the VERP framework require parks to determine the purpose and significance of the resource. This requires managers to understand what makes the resources they manage special and important. The benefits of this exercise include an understanding what characteristics of cultural resources are fundamental to their being listed on the National Register, a greater understanding of historic events, personality or culture that the resource attempts to interpret, and the potential to improve interpretation of the site to the public.

Carrying capacity planning has sometimes been described as development of a compromise between absolute protection of resources and the unrestricted access to resources for recreational use (National Park Service, 1997). If one of these goals cannot be compromised, then a framework like VERP is not necessary. By applying this principle, parks are required to determine the "bottom line" about the amount of allowable resource impact with regard to cultural resources. Since cultural resources are often rare and non-renewable, any impact to the resource may be seen as too much. However, in many cases, the actual amount of impact that can be allowed is more than no impact at all. In fact research on the impacts of recreation on ecological resources suggests that even relatively little recreation use may cause some resource impacts (Hammitt and Cole, 1998). The "bottom line" for the allowable amount of impact may be the point at which a cultural resource is no longer eligible for the National Register.

Another strength of VERP for use with cultural resources is that the process allows managers to determine specific threats to resources and the current status of the resource. For cultural resources, some types of potential impacts include artifact removal, artifact displacement, collapse of architectural fabric, loss of architectural elements, defacement, disturbance or displacement of cultural deposits, social trails that develop into erosion channels, intrusive management actions, introduction of exotic materials (crystals, human ashes), compaction of soils, compaction of fill resulting in damage to artifacts, and loss of opportunity for conducting traditional activities (National Park Service, 2002a). Cultural resources can be monitored for these types of impact and specific threats can be identified. This allows management actions to be tailored for the specific problems that exist with the cultural resources within each park.

Finally, the VERP framework requires parks to consistently monitor the condition of the resource. This requirement facilitates and guides long-term investment in resource monitoring. Without the monitoring component, VERP and other carrying capacity frameworks cannot meet their objectives of appropriately compromising the competing values of resource protection and access to the resource.

Challenges in applying VERP to cultural resources

For cultural resources, there may be an implied "zero tolerance" for impacts to nonrenewable resources as noted above. While in specific cases this may be true, it is often not the case. However, the implied "zero tolerance" for impact may represent a barrier to determining appropriate indicators and standards of quality.

To meet the "zero tolerance" challenge to understanding the carrying capacity of cultural resources, a site specific integrity index could be used. Managers could determine the thresholds that would shift any particular resource from eligible to ineligible on the National Register. A site-specific integrity index could be created for each site that would use measurable attributes that contribute to the site's integrity. These attributes could be monitored and changes at each site can then be translated into an estimate of change in integrity at that site. When the integrity index drops below a certain level, management actions could be triggered to control the impacts of visitor use and bring the resource back within acceptable standards.

While a resource integrity index would be useful in quantifying the amount of impact a resource is receiving, it does not reveal the relationship between visitor use and impacts to resource integrity. One way to begin to understand this relationship is by use of control sites. It may be possible to identify cultural resources within a relatively small geographic area with similar characteristics that receive differing levels of visitor use. If this is possible, natural deterioration of the sites could be assumed to be relatively constant since natural conditions would be relatively similar. Therefore, by comparing the condition of these sites, the relationship between impact to the resource and visitor use levels could begin to be understood. Figure 2 shows the how this could work.

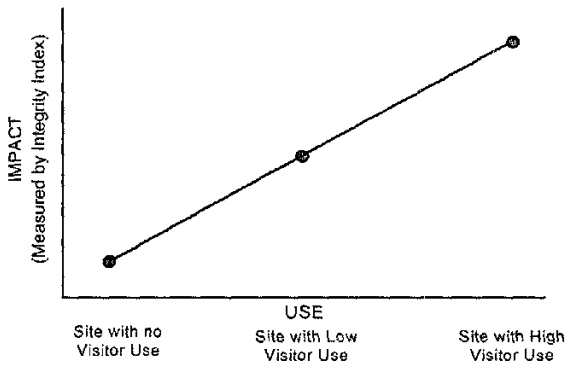


Figure 2. Hypothetical relationship between use and impact as determined by control sites.

Conclusions

While there are some significant challenges to using VERP or related carrying capacity frameworks with cultural resources , this paper suggests that these frameworks can be usefully applied to cultural resources. The "zero-tolerance" assumption sometimes associated with cultural resources and difficulties with relating visitor use to these impacts are the primary challenges to using the VERP framework for carrying capacity planning for cultural resources. These challenges might be at least partially overcome by using a site-specific integrity index as described above. In this way, a set of indicator variables could be measured and an relatively objective measure of resource integrity would result. Standards for this integrity index could then be formulated and monitoring could begin. Response of the integrity index could be related to visitor use of the resource through the use of control sites. Cultural sites, preferably within the same park or protected area, that receive little or no visitor use could provide cultural resource managers with "control points" for comparison to sites that receive larger amounts of visitor use. By comparing the sites, a relationship between visitor use and impact to cultural resources could be determined.

Carrying capacity planning frameworks like VERP offer resource managers an opportunity to take an informed, objective look at the resources they manage. By requiring an interdisciplinary team approach, the significance of a given resource is determined from a variety of disciplinary and professional perspectives. Public involvement in the process helps assure that the values that a resource holds to society are considered and maintained. Baseline data about the current condition of the resource helps managers understand the impacts and threats the resource faces now, and helps managers decide what type of visitor experience they hope to provide. By monitoring key indicators of resource integrity and taking management actions to assure that these indicators do not drop below minimum standard of quality, managers can help ensure that cultural resources will be adequately protected and that these resources will provide a high quality visitor experience.

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Management/Roundtable Session

CAMPER ATTITUDES AND PERCEPTIONS CONCERNING THE PRESENCE OF PETS IN TEN PENNSYLVANIA STATE PARK CAMPGROUNDS

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Abstract: The purpose of this study was to determine camper opinion on whether or not furred pets should be permitted in state park campgrounds within the Commonwealth of Pennsylvania. The study was commissioned so that Pennsylvania Bureau of State Parks administrators could make informed decisions regarding the direction of pet policy. Surveys were taken at 10 state parks throughout the summer camping season of 2001. The results typically showed greater differences between pet owners and non pet owners than between Pennsylvania residents and non residents. Overall, about 73% of respondents were in favor of permitting pets in campgrounds. Additionally, the majority expressed that if pets were allowed, they would not change the frequency of their visits. Of those who said the frequency of their visits would change, more indicated an increase. It is recommended that pets be permitted in state park campgrounds, but that careful consideration should also be given to developing a management plan that meets the needs of campground visitors while protecting park resources.

Introduction

Pets are an integral part of the lives of millions of Americans, and many pet owners even find enjoyment in involving their pets in recreational activities such as camping. However, camping with a pet in public camping areas can be a source of conflict, because those who are not camping with a pet often find the presence of pets to be a nuisance. One challenge to resource managers has been striking a balance between opposing sides of the issue. The Pennsylvania Bureau of State Parks (BSP) policy regarding the presence of furred pets in overnight campground areas has historically been one of exclusion, although for part of the early 1990s, pets were allowed in Pennsylvania State Parks on a trial basis, but were ultimately banned due to public opposition. Now a decade later, there are many people within the Commonwealth of Pennsylvania, as well as some from out of state, who would like to see the policy changed to allow furred pets—dogs and cats in particular—in state park campgrounds. At the same time, there exists a portion of the population who are equally opposed to allowing pets. Therefore, the Pennsylvania BSP initiated the 2001 Pet Pilot Project in which, for the 2001 camping season (Memorial Day, May 27 through Labor Day, September 2), pets were allowed in ten state park campgrounds under a specified set of rules and regulations.

Relevant Literature

As long as humankind has walked the face of the earth, interactions with animals—whether positive or negative—have been common. Despite the persistent struggle to tame their wild surroundings, humans have benefited from the presence of members of the animal kingdom. Their furry (and some not-so-furry) friends have served as a source of food, clothing, and shelter. Animals have been trained to carry humans from place to place, to make their work easier and to entertain them. Many animals have even provided valued companionship. Today in the United States, pets have become a major part of life for many. In 1993 alone, pet owners spent about $15 billion on their animals (Mogelonsky, 1995). Additionally, in 2001 there were 63.4 million households with a pet, up from 61.2 million in 1998 (Animal Sheltering, 2001). Although this figure is inclusive of all species of pet, the increase reflects a two-percent increase in dog-owning households, and an eight-percent increase in cat-owning households. In a similar study in 1999 by the Pet Food Industry (PFI), it was found that out of 101.7 million total households, 55 percent had at least one dog or one cat (Feedstuffs, 2000). There were 34.7 million cat-owning households, compared to 38.2 million dog-owning households. Dogs and cats lived together in 16.2 million households. In total, there were 58.5 million dogs in the U.S. and 72.6 million cats—increases of 1.5% and 2% from the year before, respectively.

These short-term increases are part of a longer-reaching trend. The American Veterinary Medical Association (1996) reported that the number of dogs in the U.S. had increased from 52.4 million in 1987 to 52.9 million in 1996. Similarly, the number of cats increased from 54.6 million to 59.1 million over those same years. The average number of dogs per dog-owning household was 1.69, and the average number of cats per cat-owning household was 2.19. These figures clearly show an increasing number of pets in the United States. However, according to Crispell (1994), married couples with children under 18 are the most likely to have pets (57%), and married couples with adult children still living at home are the second most likely (52%). These groups are expected to grow at a slower rate than single-parent families and people living alone. Therefore, it is expected that the percentage of those households with pets might actually decrease. Crispell (1994) projected a drop of 1%, from 42% to 41%, by the year 2010.

Of those people who own pets, a great many take their pet(s) along when they travel. According to a survey conducted by the American Animal Hospital Association (Sawicki, 2000), 67% of pet owners traveled with their animals in 1998, compared to 53% in 1996. Of these, 99% traveled by car. The major reasons for such an occurrence may be economical and/or emotional (Leggat & Speare, 2000). There are many pet owners who would rather avoid

the costs of boarding their pets. At the same time, some pet owners consider Fifi or Fido to be members of the family. In fact, 50-80% of pet owners fell into this category (Franklin, 2001). This emotional attachment seems to run deep. According to a 1997 American Animal Hospital Association survey, 79% percent of respondents claimed they felt guilty when they went on trips and left their pets behind. Forty-eight percent often stayed home specifically because of their pet; 53% believed their pet would come to their rescue in case of trouble; 60% included news of their pets in holiday greetings; and 27% even take pets for family pictures or pictures with Santa Claus (Libbon, 2000). There is even medical evidence to suggest that emotional attachment to pets has valid health benefits. For example, in a study of coronary patients during the late 1990s, after a one-year follow up, 28% of patients who did not own a pet had died. In contrast, only 6% of those who did own a pet had been laid to rest (Franklin, 2001).

Notwithstanding the potential benefits that pets provide, there exist certain health and safety concerns that accompany the presence of pets. Sanitation is an important issue. Pets can carry parasites or diseases, especially in their digestive systems, that can ultimately affect human beings. The filariform larvae of the zoontic canine hookworm (*Ancylostoma caninum*), for example, have been found in soil contaminated by animal feces (Leggat & Speare, 2000). These larvae are then able to pass through the skin of humans (i.e. bare feet) into the body where they are able to carry on their life processes. Attacks by pets are a concern as well. Jeffrey Sacks, of the Center for Disease Control (CDC) in Atlanta, estimates that there are 4.5 million people bitten each year, and children, especially those under the age of 10, account for about 10% of these (Marder, 1997). In 1994, the number was as high as 4.7 million people bitten (or 1.8% of the population) (Sacks, Kresnow & Houston, 1996). Most of these were relatively inconsequential. In fact, only 800,000 of those who were bitten sought medical care. However, some bites do indeed prove fatal. Between 1979 and 1994, a total of 279 people were killed as a result of dog attack (Sacks, Sattin & Bonzo, 1989; Sacks, Lockwood & Sattin, 1996). In 1995 and 1996, another 25 dog-bite-related fatalities occurred (Journal of the American Medical Association, 1997). Of those 25, 80% were children, and 72% were male. Thirty percent of attacks involved more than one unrestrained dog off the owner's property; twenty-two percent involved a restrained dog (or dogs) on the owner's property; forty-eight percent involved an unrestrained dog (or dogs) on the owner's property. Overall, 36% of attacks were by a single dog, and 64% were by groups of more than one. Rottweilers were the breed most frequently involved. It has also been found that, in general, dogs that are male and un-neutered/un-spayed are more likely to bite than dogs that are female and neutered/spayed (Gershman, Sacks & Wright, 1994).

In spite of the potential dangers, people continue to include pets in many of the activities in which they participate, which means that conflicts are sure to arise in public areas where non pet lovers encounter pets. Overnight camping areas are one particular "hot" topic for debate, and pet lovers appear to be winning many of the battles. Many national parks permit pets in overnight camping areas. About one fourth do not allow pets in the park at all (Aguirre, Starkey & Hansen, 1994). Numerous private campgrounds consider themselves "pet friendly." Also more and more state park systems are allowing pets in at least some of their overnight camping areas. In fact, as of the writing of this article, only three states remain (not including Pennsylvania) which fully restrict pets from state park campgrounds: Hawaii, New Jersey and Rhode Island. The state of Florida recently made the decision to allow pets. From August 1997 through July 1998, pets were permitted in five Florida state parks on a trial basis. During those twelve months, a study was conducted by Holland and Holdnak (1998) of the University of Florida to determine visitor reactions and attitudes to the presence of pets in those five state park campgrounds. It was discovered that about 70% of survey respondents (N=486) favored a change in policy to allow pets. Most of these insisted that rules be effectively enforced. Only 22% showed a desire to keep pets out. Additionally, about 28% indicated that they would increase the frequency of camping visits were pets allowed, compared to only about 9% who said they would visit less frequently. Of the 41% who reported that the presence of pets had some impact on their overall camping experience, those who perceived positive impacts outnumbered those who perceived negative impacts by more than two to one. Indeed, the results showed that a majority of Florida campers preferred that pets be allowed. But the minority opinion was an important one as well. Therefore, the challenge to management was in finding effective means by which to provide recreation and camping opportunities to both groups of people. Certainly the concept is key in all public recreation area management issues, so an understanding of public opinion becomes a cornerstone of management practice.

Overall, the number of pets in the United States appears to be increasing. This does not necessarily mean that more people own pets, but may instead indicate an increase in the number of pets per pet-owning household. Pet owners appear to be very attached to their pets and include them in many of their activities, including recreational endeavors such as camping. At the same time, there are many people who do not own pets and would prefer not to encounter pets in public areas, such as campgrounds. This conflict of opinions has ultimately provided the impetus for this study.

Research Methods

The survey instrument consisting of 43 questions was adapted from a similar study undertaken by the Florida State Park System (Holland & Holdnak, 1998). A few questions were added and a few removed to better fit the purposes of this study. The instrument was designed to assess the attitudes of campers in Pennsylvania State Park campgrounds concerning whether or not pets should be allowed in overnight camping areas. Midway through the summer season, a scannable survey form was adopted in order to simplify data coding. The study was conducted at ten state parks within the Commonwealth of Pennsylvania

(*Parker Dam; Sinnemahoning; Cook Forest; Oil Creek* [backpacking trail with overnight shelters and tent sites]; *Shawnee; Pine Grove Furnace; Blue Knob; French Creek; Promised Land; Fowlers Hollow*), each selected by the BSP. Surveys were collected throughout the 2001 summer camping season—a period of approximately three months, from Sunday, May 27 (Memorial Day Weekend) through Sunday, September 2 (Labor Day Weekend). Five Slippery Rock University (SRU) graduate and undergraduate students and one SRU graduate were employed to collect data throughout the summer. Another six were hired specifically for the final weekend of the study, bringing the total number of surveyors to 12.

Approximately six visits were carried out at each park. The following exceptions occurred: four visits at Sinnemahoning, eight at Cook Forest, seven at Blue Knob, and eight at Promised Land. Each visit was to last eight hours, or until all campers at the campground had a chance to be surveyed, whichever came first. In order to survey a broader population sample, it was suggested that four visits occur on weekend days and two on weekdays. Like the Florida study, this study utilized a randomized convenience sample. An effort was made to survey one camper from each campsite. Surveyors were instructed that, in the event there were too many occupied campsites to be surveyed during a particular visit, they were to use a randomization strategy similar to the following: choose at random one of the first five sites, and then proceed to every fifth site. Additionally, some parks only allowed pets in certain areas or loops of their respective campgrounds. In these instances, surveyors were to collect data from campers in those areas first, and then branch out into other areas of the campground in order to ensure that those campers potentially most affected by pets would be surveyed. Only campers found outside of their tents or RV's were approached. Surveyors introduced themselves, explained what they were doing and who they were representing, and asked campers if they were willing to participate in the study. If so, campers were read an informed consent statement and then given the survey. If not, surveyors moved on to the next campsite. The vast majority of surveys were read aloud by the surveyors, who recorded camper responses, but some campers preferred to fill them out by hand. The average survey took about 10 to 15 minutes to administer, but some took as long as 25 or 30, depending on the extent of comment of the individual being interviewed. After each visit, completed surveys were sent to SRU for coding and analysis.

Data was examined for demographic trends such as the following: camper distribution by park; camper distribution by residence; camper gender. Where appropriate, chi-squared tests for independence were used to determine statistical significance between groups. Other variables that were examined include: Camper trip satisfaction; Nights spent camping in the previous 12 months; Nights spent camping in PA in the previous 12 months; Nights spent camping in PA State Parks in the previous 12 months; Frequency of pet ownership; Frequency of campers who brought pets along on the current camping trip; Camper opinion regarding the $2 per night pet fee; Frequency of campers who selected a particular campground because pets were permitted; Frequency of respondents who observed pet droppings not picked up by pet owners; Frequency of campers who did not observe pet droppings picked up by pet owners; Frequency of campers who observed interactions between pets and wildlife; Camper perception of the impact of pets in campgrounds on campground safety; Camper perception of the impact of pets in campgrounds on the observation of wildlife; Camper perception of the impact of pets in campgrounds on campground noise; Camper perception of the impact of pets in campgrounds on the overall camping experience; Camper support for the current policy of restricting; and Frequency of expected future visits if pets were permitted in campgrounds.

It was hypothesized that greater differences would be evident between pet owners and non pet owners than between Pennsylvania residents and non residents, and that pet owners would generally be more in favor of allowing pets than would non pet owners.

Results

A total of 605 campers were surveyed in the ten Pennsylvania State Park campgrounds participating in the study. Table 1 shows the distribution of surveys taken at each park. Although the number of visits to each park was approximately the same, there

Table 1 - Campers Surveyed by Park

Park	N	%
Blue Knob	33	5.5%
Cook Forest	130	21.5%
Fowlers Hollow	11	1.8%
French Creek	73	12.1%
Oil Creek	10	1.7%
Parker Dam	113	18.6%
Pine Grove Furnace	29	4.8%
Promised Land	80	13.2%
Shawnee	90	14.8%
Sinnemahoning	36	6.0%
Total	605	100.0%

was considerable variation among the numbers of surveys collected at each. For example, the greatest number of surveys was taken at Cook Forest (n=130), while the fewest (n=10) were collected at Oil Creek. The variation in numbers of surveys collected can be attributed to such differences among parks as types of facilities (i.e. traditional family campground vs. backpacking trail shelters vs. fishing access areas, etc.), popularity, size, and location. Pennsylvania residents comprised 85% of the sample. Fourteen percent of the campers were from other U.S. states, and approximately one-half of one percent of the campers surveyed were from foreign countries. Roughly half of the non residents surveyed (8.7% of the total, excluding foreign visitors) were from Ohio, New York, and Maryland—all of which are adjacent to Pennsylvania. The remaining 6% of the campers surveyed

were from a variety of other states, with less than five campers from each state.

Almost half of the respondents were 25–44 years of age. The next most common age group, with approximately 34% of campers, was 45-64. Eighty-eight percent of campers surveyed were under the age of 65, while 5% were under the age of 25. Most interviewees (32%) were camping in pairs, while less than 1% were camping alone. Approximately 71% were camping in a group of four or fewer, and only 1.2% were with a group of ten or more. Survey respondents were distributed evenly between the genders. Fifty-three percent of campers surveyed were male, while 47% were female. Few campers could be considered "local" residents, as fewer than 13% lived within 25 miles of the park where they were surveyed. However, most campers (68%) traveled fewer than 100 miles, and about 36% fewer than 50 miles. Only about 32% of the campers traveled more than 100 miles to the park.

Demographic characteristics of pet owners and non pet owners were compared to determine if there were any significant differences between the two groups. Chi-squared tests for independence were used to determine degrees of significance. The level of significance was set at <0.01 throughout the entire project. There were more pet owners camping in the state parks than expected. The percentage of pet owners interviewed at individual parks ranged from a low of 58% (Sinnemahoning) to a high of 91% (Fowlers Hollow). Although rates of pet ownership varied from park to park, there were consistently more pet owners than non pet owners interviewed. A chi-squared test revealed that this difference in pet ownership was statistically significant (χ^2<0.0001). In contrast, there was no significant difference between Pennsylvania and non-Pennsylvania residents regarding pet ownership. Seventy-five percent of Pennsylvania residents were pet owners, compared to 69% of non residents. The percentage of female pet owners was greater than the percentage of male pet owners. Females were almost four times as likely to be pet owners as non pet owners, while males were only twice as likely to be pet owners. This difference is significant (χ^2=0.0041), and may possibly be related to women's safety concerns and the protection that dogs may provide.

Campers were asked to rate their level of satisfaction with the current trip. The great majority of campers (96.6%) indicated that they were either satisfied or very satisfied with their camping trip. Only 1% of the campers surveyed indicated that their camping experience was poor or very poor.

Table 2 - Frequency distribution of reported level of satisfaction

Level	N	%
Very Satisfying	392	65.4%
Satisfying	187	31.2%
Fair	14	2.3%
Poor	3	0.5%
Very Poor	3	0.5%
Total	599	100

Campers were asked whether or not they currently owned dogs or cats. Seventy-three percent of respondents reported owning dogs, cats or both. There were about twice as many campers who owned only dogs as campers who owned only cats. About 27% of campers did not currently own a dog or cat as a pet. Compared to the 30% of pet owners surveyed who usually traveled with their pet only 23% had their pet with them on the camping trip during which the survey was conducted. Almost 77% of the campers had left their pets at home. This difference may have been due in part to a lack of awareness among pet owners of the Pet Pilot Project in Pennsylvania State Parks. Other factors may have included individual preferences not to camp with a pet. Almost three-fourths of survey respondents owned pets. About one-third of those claimed to usually travel with their pet. In comparison, only about one-fourth of pet owners had brought their pet along on the current camping trip.

One important component of this study was to identify the reactions of campers to actual pet encounters as well as the perceived impacts of pets on campgrounds and their resources. About 58% of respondents indicated that they had seen a dog in the campground on their camping trip. Forty-two percent reported seeing no dogs at all. Only about 4% indicated that they had seen a cat in the campground on their camping trip. Ninety-six percent reported seeing no cats at all. Almost 94% of campers reported that they had not observed interactions between pets and wildlife, compared to only 6% who had. When asked what effect permitting dogs and cats in campgrounds has had on camper safety, the majority (68%) of campers indicated that they felt safety was not affected. Of those who felt safety was impacted, almost 20% felt that the impact was positive, while only about 12% indicated that they felt safety was impacted negatively. Pet owners differed significantly from non pet owners in their perception of the impact of pets on camper safety (χ^2=0.0018).Pet owners were more likely to feel that impacts on camper safety were positive, while non pet owners were more likely to feel that impacts were negative. However, the majority of each group indicated a neutral response regarding the effects of pets on camper safety. Campers were also asked about their perception of the impact of pets in campgrounds on the observation of wildlife. Overall, about 21% indicated that they felt that permitting pets would have a negative effect on wildlife observation, while only about 6% indicated that the effects would be positive. The remaining 73% indicated a neutral response. Again the difference between pet owners and non pet owners was statistically significant (χ^2=0.0012). While the majority of each group remained neutral, a greater percentage of pet owners (7%) than of non pet owners (3%) thought that any impact on the observation of wildlife would be positive. In contrast, 30% of non pet owners and 18% of pet owners thought there would be negative impacts.

The majority (68%) of respondents also felt that the impact of pets on campground noise would be neutral. Only 4% indicated that the presence of pets would have a positive impact, while almost 28% indicated that the impact would be negative. The difference between pet owners and non

pet owners was once again statistically significant (χ^2<0.0001). In fact, non pet owners were almost twice as likely as pet owners (42% and 23%, respectively) to perceive negative impacts of pets on campground noise. Additionally, the percentage of pet owners who perceived a neutral impact (72%) was notably higher than that of non pet owners (56%). Campers were also asked how permitting pets in campgrounds impacted their overall camping experience. Of the total sample, about 60% responded "neutral." Almost 26% said that pets had positive impacts on their overall camping experience, while only about 14% indicated that the effect was negative.

Table 3 - Frequency distribution of respondents' perceptions of the impacts of pets on the overall experience

Perceived impact	N	%
Strongly Positive	83	15.4%
Somewhat Positive	56	10.4%
Neutral	326	60.5%
Somewhat Negative	45	8.3%
Strongly Negative	29	5.4%
Total	539	100

Again the majority of both pet owners (56%) and non pet owners (73%) indicated a neutral response. The difference between the two groups was again statistically significant as well (χ^2<0.0001). Almost 33% of pet owners, compared to only 6% of non pet owners, felt that pets contributed positively to the overall experience. On the other end of the spectrum, about 20% of non pet owners and 11% of pet owners indicated that the impact would be negative.

From this study it appears that encounters with pets were not particularly common. The majority of survey respondents perceived that the impact of pets on campground resources—particularly safety, wildlife observation, noise, and the overall camping experience—were neither positive nor negative. As might generally be expected, pet owners were significantly more likely to perceive impacts as positive, and non pet owners were more likely to perceive impacts as negative. It appears that the great majority of campers had little or no problem with the notion of allowing pets in Pennsylvania State Park campgrounds. Almost 73% of campers liked the idea of allowing pets in campgrounds, while only 21% supported the current policy of pet restriction. Of those who supported letting pets in, almost all (70.2%) agreed that rules must be in place and enforced.

Again the difference in opinion between pet owners and non pet owners was significant (χ^2<0.0001). Almost 80% of pet owners favored letting pets in state park campgrounds, while about 17% were opposed. In contrast, 51% of non pet owners favored letting pets in, while almost 36% said pets should be kept out. There was not a significant difference between Pennsylvania residents and non residents regarding support for the current policy. The majority of both groups (approximately 72% in each) supported letting pets in the campgrounds, while only 21% of both groups preferred the current policy. Campers were asked

Table 4- Frequency distribution of support for current policy of restricting pets

Feelings on current policy	N	%
Keep pets out	126	21.1%
Neutral	38	6.4%
Let pets in (unrestricted)	14	2.3%
Let pets in (with restrictions)	420	70.2%
Total	598	100.0%

Table 5 - Frequency of expected future visits if petswere permitted in campgrounds

Frequency Change	N	%
Great Increase	93	15.6%
Some Increase	89	14.9%
No Change	349	58.4%
Some Decrease	51	8.5%
Great Decrease	16	2.7%
Sample n	598	100.0%

about the expected frequency of future visits, were pets to be permitted in Pennsylvania State Park campgrounds. The majority (58%) indicated that there would be no change. Of those that did indicate a change, 30% indicated an increase, and 11% indicated a decrease. Approximately half of those who said they would visit more often indicated that the frequency would increase greatly. Only about 3% of those that said they would visit less frequently indicated that the change would be great. The difference between pet owners and non pet owners was again significant (χ^2<0.0001). Thirty-nine percent of pet owners indicated that they would increase the frequency of their visits if pets were permitted in campgrounds, compared to only 2% of non pet owners. On the opposite end of the scale, 7% of pet owners said that they would visit less frequently if pets were allowed, compared to about 23% of non pet owners who would reduce their visits. Similarly, when campers were asked whether they would seek or avoid campgrounds that allowed pets, a slight majority of respondents indicated that they would neither seek nor avoid those campgrounds. About 31% indicated that they would probably seek pet campgrounds, while almost 19% indicated that they would avoid those campgrounds that permitted pets.

Generally, there appears to be considerable support for changing the current policy to permit pets in Pennsylvania State Park campgrounds. Almost 73% of the campers were in favor of such a change. It also appears that if pets were allowed in Pennsylvania State Park campgrounds, the majority of survey respondents would not change park visitation habits. Any change in visitation that might occur, however, would likely be a net increase, as more campers would plan to increase, rather than decrease, the frequency of their visits.

Summary

Significant differences exist between pet owners and non pet owners on almost every issue examined. Of particular interest is the fact that almost 80% of pet owners asserted that pets should be allowed in state park campgrounds, compared to 51% of non pet owners. Additionally, if pets

were allowed, more than 30% of pet owners would increase their visits to state park campgrounds, and almost 40% would seek out those campgrounds that allowed pets.
Fewer differences appear to exist between Pennsylvania residents and non residents. In fact the only statistically significant difference was in nights camping in the previous 12 months. Not surprisingly, Pennsylvania residents spent significantly more time camping in the state of Pennsylvania and in Pennsylvania State Parks. It is also interesting to note that, even though the difference was not significant, more residents than non residents seemed to be aware of the Pet Pilot Project. The majority of respondents felt that the impacts of pets in campgrounds were neutral. While most of the concerns expressed were related to campground noise and the observation of wildlife, many campers perceived the presence of pets to be beneficial to camper safety and to the overall camping experience.

Overall, there appears to be considerable support for changing the current policy to permit pets in Pennsylvania State Park campgrounds. Almost 73% of the campers indicated that they were in favor of such a change. It also appears that if the current pet policy were changed to allow pets in Pennsylvania State Park campgrounds, the majority of survey respondents would not change park visitation habits. However, any change in visitation that might occur would likely be a net increase, as there are reportedly more campers who would increase the frequency of their visits than those who would decrease. In fact, inferred from the percentages of campers who indicated some change in visitation if pets were permitted, it may be possible that an overall net increase of nearly 27% would occur.

Conclusions

While there is substantial support for changing the pet policy, preservation of park resources should continue to be a primary goal. If pets are ultimately allowed in Pennsylvania state parks, a point may be reached over time at which the benefits of having pets in campgrounds diminish as park resources and/or visitor satisfaction levels become more seriously impacted. In this case, management may need to adapt or revise policies and/or practices in order to protect the resource and provide quality recreational experiences. Resource and visitor management planning will likely be essential to the success of any future pet programs as well as to the health and welfare of park resources. Continued monitoring of visitor satisfaction may also be a valuable tool that can be used to help guide the future direction of pet policy.

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Trends and Patterns in Recreation and Tourism

CONVERTING ABANDONED RAILROADS TO RECREATION USE IN ISABELLA AND MIDLAND COUNTIES: A COMPARISON OF RESIDENTS AND BUSINESSES ADJACENT TO A RAIL-TRAIL

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Abstract:
Converting abandoned railroad corridors to recreational trails often generates opposition from adjacent residents. Opposition can arise during the planning process of establishing the trail. However, concerns about abandoned railroads being converted to trails are often misconceptions. Once a park is developed these concerns often disappear. This research examined the differences in adjacent residents' and nearby businesses' perceptions and support for the Pere Marquette Rail-Trail (PMRT) located in Michigan's Midland and Isabella Counties. In Midland the trail is seven to eight years old, while in Isabella, the trail was being planned with construction scheduled shortly after the study. Many Midland County residents and businesses held more negative views similar to their Isabella counterparts during the development phase. However, the results suggest the experience of Midland County residents with the rail-trail once established reshaped their opinions towards greater acceptance. These and other distinctions are outlined in this paper.

Introduction

Converting abandoned railroad corridors to recreational trails often generates opposition from adjacent residents. Opposition can arise because of the process that is used to establish the trail or because of the perceived consequences of the trail. Research on this subject typically describes resident attitudes at a single point in time. Moore, Graefe & Gitelson (1994), described trail-related problems experienced by landowners and attitudes of landowners living near rail-trails. They found that current satisfaction levels with a trail were related to the initial attitudes of adjacent landowners. Parker and Moore (1999) found there were differences in the attitudes of adjacent landowners to a proposed trail, caused by how the residents had first learned about the trail. Both, Parker and Moore (1999), and Kaylen, Bhullar, Vaught and Brashler (1993) suggest concerns about abandoned railroads being converted to trails are often misconceptions. Once a trail is developed concerns are reduced and might even disappear. Turco, Gallagher and Lee (1998) suggest that adjacent residents who receive benefits from rail-trails are likely to perceive the system positively and be supportive, however, those who do not receive benefits, or who believe that the cost associated with trails outweigh the benefits, are more likely to perceive a rail-trail negatively.

Our research examined the differences in adjacent residents' and nearby businesses' perceptions and support for the Pere Marquette Rail-Trail (PMRT) not at a single point in time, but at two different stages of its development. The Midland County segment of the PMRT was completed in 1993. The Isabella County segment of the trail was completed in August of 2001. We studied residents and businesses in Midland and Isabella counties in 1999 and 16 months before the Isabella segment was completed in 2001 (Figure 1).

The objective of our study was to compare attitudes of adjacent residents and businesses along the existing segment of the PMRT in Midland County to those situated along an abandoned segment awaiting construction in the adjoining Isabella County. Comparing groups in different stages of trail development may provide a better understanding of the attitudes toward this type of land use conversion and allow park and recreation managers to better design and manage rail-trails, so that nearby residents' and business' interests are addressed.

The research focused on two main questions:

1) What are residents' and businesses' perceptions of the PMRT in different stages of its development?

2) How has support of residents and businesses changed in the different stages of the PMRT's development?

Background

This study of nearby businesses and adjacent residential landowners is part of a larger, multi-year case study examining the usage and benefits of the PMRT located in Midland and Isabella counties. The objectives of this project were: 1) to evaluate the

economic, social and community benefits; 2) to provide benchmarks to government agencies on trail use and benefits; 3) to investigate new trail monitoring technologies; and 4) to provide outreach products to assist Michigan communities in rail-trail planning and implementation. The project was funded largely by the Michigan Department of Transportation, through the 1998 Inter-modal Surface Transportation Act and the State of Michigan, as well as the Michigan Agricultural Experiment Station.

The Midland County segment of the PMRT begins in the City of Midland and traverses the County for 22 miles before entering Isabella County. It was developed in four sections over a four-year period beginning in 1992. The City of Midland three-mile segment is paved to a width of 12 feet and 14 feet elsewhere in the County. It is open only to non-motorized activities, primarily bicycling, walking/running and in-line skating. Beyond linking the communities of Midland, Sanford, North Bradley, and Coleman, the PMRT also connects a number of city and County parks and recreation facilities, as well as numerous businesses.

The extension of the PMRT from Midland County into Isabella County begins at the eastern Isabella County line, just west of Coleman. The Midland County segment of the rail- trail ended in the center of Coleman and Midland County Parks received a grant to complete the Midland County portion of the trail to the western Midland County line. When this study was conducted Isabella County Parks was planning to construct its eight-mile segment of the trail from the eastern outskirts of Clare to the Midland County line, connecting with the existing and newest Midland County segment. In August 2001, the rail-trail extension of six miles in Isabella County was finished.

Methods

The data gathered in this study were collected by a mail survey in Spring 2000 from a census of businesses and residents in Midland and Isabella Counties. Businesses were near or adjacent to the trail and residents were private, non-commercial ownerships adjacent. Resident names and addresses were obtained from local tax assessor offices using property tax records and plat maps. Business names and addresses were obtained through phonebooks and on-site enumeration.

Two survey instruments were developed for the samples. The nearby business survey was four-pages and the adjacent resident survey was eight-pages. A personalized cover letter and postage paid envelope was mailed along with the survey instrument. The first mailing was April 18, 2000. A follow-up reminder and/or thank you postcard was mailed on April 26, 2000. Two weeks after the postcard mailing, a second survey mailing was sent to all those who had not yet responded.

Of the 142 Midland County businesses that were mailed a survey, 86 returned a completed survey resulting in a 61percent response rate. Of the 283 Midland County adjacent resident names and addresses, six were returned as undeliverable and 157 (57%) returned a completed survey. Of the nine Isabella County businesses that were mailed a survey, six returned a completed survey resulting in a 67 percent response rate. Of the fifty-one adjacent Isabella County resident names and addresses, nine letters were returned as undeliverable and 26 completed surveys were returned. A 62 percent response rate was achieved for the Isabella County adjacent resident survey.

Although questions were alike for residents and businesses in both counties, Midland County residents and businesses were also asked to reflect on the PMRT when it was being developed in 1993.

Results

Resident and Business Characteristics

The setting of the PMRT segment in Midland County is more urban and suburban as compared to the more rural setting of the segment in Isabella County. The type of residential ownership in Midland County was predominantly single family on small and large lots, while In Isabella County it was half agricultural and half single family. The average distance of the residences from the trail was larger in Isabella County than in Midland County.

Residents in Midland County had occupied their properties for a fewer years than Isabella County residents (Table 1). There were more households with children and less retirees in Midland than there were in Isabella County.

The Midland County businesses were mostly service or retail oriented and half of the Isabella County businesses were light industrial, while the other half were service or retail (Table 2). Midland County business properties were located further from the trail than Isabella County business properties.

Table 1 Selected Resident Characteristics

Characteristic	Midland County (n=157)	Isabella County (n=26)
Agriculture land	6%	54%
Average years property occupied	20 years	32 years
Households with children	35%	25%
Retirees	37%	50%
Average distance of home to trail	218 yards	375 yards

Table 2 Selected Business Characteristics

Characteristic	Midland County (n=87)	Isabella County (n=6)
Consumer services & retail	75%	50%
Light industrial	8%	50%
Non-profit	8%	-
Other	10%	-
Average years property occupied	24 years	23 years
Number of employees	Range: 1-10000	Range: 3-70
Average distance of business buildings from trail	333 yards	65 yards

Perceptions

When asked what the influence of the PMRT was (Midland County) or would be (Isabella County) on their county, community, family and self, Midland County residents were much more positive about the influence than Isabella County residents were (Table 3).

Businesses in both Midland and Isabella County were more positive about the influence of the rail-trail than residents were. When asked what the influence of the rail-trail was or would be on their County, community and employees, Midland County businesses were more positive than Isabella County businesses (Table 4).

In terms of overall satisfaction, Midland County residents were more satisfied with the PMRT than Isabella County residents (Table 5). Seventy-six percent of Midland County residents were satisfied as compared to 28 percent of Isabella County residents. Seventy-two percent of Midland County residents thought the PMRT was better than the abandoned railroad right-of-way, compared to 35 percent of the Isabella residents. Businesses in both Midland County and Isabella County were slightly more satisfied than residents in both counties (Table 6). Eighty-one percent of midland County businesses and 50 percent of Isabella businesses thought that the PMRT was better than the abandoned railroad right-of way (Table 6).

For those residents who were dissatisfied, key concerns in Midland County were loss of wildlife and habitat, increasing number of people and noise, loss of privacy and increase of trespassing. Isabella County residents voiced similar concerns about the planned trail, along with concerns about trash, litter and crime.

Table 3 Adjacent Residents Perceived Influence of the PMRT(a)

	Midland County*			Isabella County**		
	Negative	Neutral	Positive	Negative	Neutral	Positive
County	1%	13%	86%	31%	27%	42%
Community	2	14	84	35	23	42
Family	10	27	63	34	35	31
Own life	14	25	61	35	42	23

(a) Influence rated on a scale of 1=very negative, 2=moderately negative, 3=neutral, 4=moderately positive, 5=highly positive. 1 and 2 = negative in table, 3= neutral, 4 and 5 = positive

* Trail existed 8 years in Midland County

**Trail did not exist in Isabella County yet

Table 4 Nearby Businesses Perceived Influence of the PMRT(a)

	Midland County*			Isabella County**		
	Negative	Neutral	Positive	Negative	Neutral	Positive
County	1%	8%	91%	0%	33%	67%
Community	1	7	92	0	33	67
Employees	1	43	56	0	50	50

(a) Influence rated on a scale of 1=very negative, 2=moderately negative, 3=neutral, 4=moderately positive, 5=highly positive. 1 and 2 = negative in table, 3= neutral, 4 and 5 = positive
* Trail existed 8 years in Midland County
**Trail did not exist in Isabella County yet

Table 5 Adjacent Residents' Satisfaction with the PMRT(a)

	Midland County*	Isabella County**
Satisfied with PMRT	76%	28%
Neutral	12	32
Dissatisfied with PMRT	12	40
PMRT better than abandoned railroad right-of-way	72%	35%
Neutral	16	30
PMRT worse than abandoned railroad right-of-way	12	35

(a) Satisfaction rated by scale of 1-5 where 1=very dissatisfied, 2=moderately dissatisfied, 3=neutral, 4=moderately satisfied, 5=very satisfied. In table 1 and 2=dissatisfied, 3=neutral, 4 and 5=satisfied.
Better/worse rated by scale of 1-5 where 1=much worse, 2=moderately worse, 3=neutral, 4=moderately better, 5=much better. In table 1 and 2=worse, 3=neutral, 4 and 5=better.
* Trail existed 8 years in Midland County
**Trail did not exist in Isabella County yet, asked about perception of what the future next to the trail will be like

Table 6 Nearby businesses' satisfaction with the PMRT(a)

	Midland County*	Isabella County**
Satisfied with PMRT	78%	40%
Neutral	20	20
Dissatisfied with PMRT	2	40
PMRT better than abandoned railroad right-of-way	81%	50%
Neutral	17	17
PMRT worse than abandoned railroad right of way	2	33

(a) Satisfaction rated by scale of 1-5 where 1=very dissatisfied, 2=moderately dissatisfied, 3=neutral, 4=moderately satisfied, 5=very satisfied. In table 1 and 2=dissatisfied, 3=neutral, 4 and 5=satisfied.
Better/worse rated by scale of 1-5 where 1=much worse, 2=moderately worse, 3=neutral, 4=moderately better, 5=much better. In table 1 and 2=worse, 3=neutral, 4 and 5=better.
* Trail existed 8 years in Midland County
**Trail did not exist in Isabella County yet; asked about perception of what the future next to the trail will be like

Support

Both businesses and residents rated the rail-trail concept across various stages of the PMRT's development, construction, initial completion, and current status. About half of adjacent Midland County residents were supportive of the idea of the PMRT before it was built compared to 19 percent of adjacent Isabella County residents (Table 7). In Midland County support among residents sagged in the planning process to increase again after the trail was completed, to 75 percent of the residents supporting the trail as it is today. Isabella County residents' support increased slightly in the planning process.

Businesses were more supportive in general. Two-thirds of Midland County businesses and 83 percent of Isabella businesses were initially supportive of the trail (Table 8). Again support sagged both among Midland and Isabella County businesses in the planning process, to increase again after the trail was built in Midland County.

Businesses rated themselves as better informed about and involved with the PMRT than residents in both Midland and Isabella counties (Table 9 and 10). Midland County residents rated themselves as better informed and more involved with the trail than Isabella residents did, whereas businesses in both counties rated themselves about equally informed about and involved with the trail.

Table 7 Adjacent Residents' Support for the PMRT(a)

Stage in trail development	Midland County	Isabella County
Idea of trail before it was built	49%*	19%
Trail planning process	35*	23
Trail after it was built	61*	No data
Trail today	75	No data

(a) Support rated by scale of 1-5 with 1=very opposed, 2=moderately opposed, 3=neutral, 4=moderately supportive, 5=very supportive. Support is rating or 4 or 5.
* Trail existed 8 years in Midland County; residents were asked to recall their support in the different stages
**Support for existing trail in Midland County

Table 8 Nearby Businesses' Support for the PMRT(a)

Stage in development	Midland County	Isabella County
Idea of trail before it was built	68%*	83%
Trail planning process	52*	40
Trail after it was built	77*	No data
Trail today	84	No data

(a) Support rated by scale of 1-5 with 1=very opposed, 2=moderately opposed, 3=neutral, 4=moderately supportive, 5=very supportive. Support is rating of 4 or 5.
* Trail existed 8 years in Midland County; businesses were asked to recall their support in the different stages
**Support for existing trail in Midland County

Table 9 Adjacent Residents' Knowledge of and Involvement with the PMRT

	Midland County	Isabella County
Informed about construction and design	40%	23%
Attended planning meetings	10	Not asked
Involved in trail development	7	4
Members of the "Friends of the PMRT"	5	0

Table 10 Nearby Businesses' Knowledge of and Involvement with the PMRT

	Midland County	Isabella County
Informed about construction and design	60%	67%
Attended planning meetings	14	50
Involved in Trail development	16	17
Members of the "Friends of the PMRT"	15	0

Discussion and Conclusions

In Midland County, the PMRT adjoins the property of 277 non-corporate owners (primarily residences) and is near to 142 businesses. Many in these ownerships have seen an active railroad degrade into an abandoned industrial corridor and then be converted to an active rail-trail providing a paved surface for walking, running, bicycling, and in-line skating as well as connecting Coleman, North Bradley, Sanford and Midland by a non-motorized park and transportation system. The extension of the PMRT through the northwest corner of Isabella County is designed to provide recreational and transportation opportunities for County residents and visitors, particularly a long distance bicycling opportunity.

Findings of this study show that Midland County residents and businesses are more positive and satisfied with their existing portion of the PMRT than Isabella residents and businesses with a planned extension of the trail. However, the experience in Midland County suggests that once the trail is established there, positive interactions and community benefits reshape the perceptions of residents and businesses about the rail-trail. It is especially noteworthy that both nearby businesses and adjacent residents in Midland County recognize that the trail is a county and community asset, even more than an asset for their employees and families. This awareness of assets beyond their family and neighborhood demonstrates a strong sense of community associated with trails.

In Isabella County, among businesses there is more support or neutrality than opposition to the proposed trail. Concerns focus primarily on safety of trail users and liability for businesses at driveway crossings. Most current nearby Isabella businesses are located in an industrial park and do not have a service function that will relate directly to trail users as customers.

However, their support focuses on the trail being a community improvement, serving the recreational and fitness needs of their employees and attracting visitors to the local area. For adjacent residents in Isabella County, three distinct groups of opinions are evident. One-third of the respondents see the trail as an improvement over the existing abandoned industrial corridor. Another third were neutral and a final third were negative.

Support for the PMRT among Midland County residents and businesses increased as the development of the PMRT reached its completion and after it opened in 1993, suggesting first-hand information about the trail and the performance of key management tasks leads to more confidence in the rail-trail concept. Two-thirds of the nearby businesses and half of the adjacent residents In Midland County were supportive of the trail concept prior to construction. That support sagged during the planning and construction process. This may be due to relatively few (15 percent of businesses and 5 percent of residents) being actively involved during this phase. However, once the trail was built and officially opened support surpassed initial concept levels, as first hand knowledge of the trail was easy to obtain. It is especially revealing that today, almost a decade after the construction of the first section of the trail (City of Midland) support has risen to 84 percent of nearby businesses and 76 percent of residents. As managers have performed key management tasks, such as, surface maintenance, trash removal, litter cleanup and law enforcement patrol, nearby businesses and residents have gained confidence in the site and the rail-trail concept.

Based on this census of adjacent residents and nearby businesses in Isabella County the development of the PMRT segment there has engendered a wide variety of public opinion. These opinions range from strongly supportive of the concept, construction and implementation of the trail to opposed to it at all phases.

The PMRT is a park with hundreds of neighbors, each important. It is vital to address concerns in a way that enhances the recreational experiences of trail users, while protecting the rights of neighbors. Improved vegetative screening, rapid response to complaints concerning illegal activity such as motorized use and trespassing, positive education, and reinforcement of appropriate trail use and trail etiquette can continue to improve neighbor support for this highly regarded trail. Disregarding these now relatively small concerns in Midland County can allow them to grow into significant problems, threatening the substantial support and goodwill of neighbors. In Isabella County after the trail is constructed, efforts should be made to encourage residents, employees of local businesses, and visitors to use the trail. Messages that promote enjoying nature, health benefits and relaxation would be positive for motivating adjacent residents. Special attention by managers, users and law enforcement should be made to insure that concerns nearby owners expressed about litter, crime, trespass, etc. don't materialize and are dealt with proactively. Over time, the goal would be that a majority of the adjacent residents and businesses would be strong supporters, users and stewards of the rail-trail, just as they are in adjacent Midland County.

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THE POTENTIAL INFLUENCE OF PRIVATIZATION ON QUALITY TOURISM

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Abstract: Increases in travel and tourism are leading to the destruction and degradation of many of our most pristine natural resources. Privatization, if utilized properly, can prevent these tourist generating destinations from mayhem. Privatization will ensure the quality of a travel experience as well as maintain the beauty and preservation of a destination. Traditionally, tourism has focused on publicly managed national attractions such as, National Parks and Forests; however, public agencies are not able to meet the demand of recreational tourists. Many of our tourism destinations are operated under a mass tourism framework.

Introduction

Travel and tourism is one of the largest single sources of revenue for businesses all over the world (Pulec, 2001). This industry was one of the largest U.S. private employers of the 20th century, with travel and tourism accounting for more than 10% of the United States' total gross domestic product in 1995 (Goeldner, 1997). Tourism is often seen as reasonably achievable even for communities with minimal public funds (Tooman, 1997). Furthermore, there are a number of benefits associated with tourism. Tourism alliances have benefited both small cities and suburbs surrounding these growing communities. For example, Tooman (1997) suggests an increase in hotels and restaurants inevitably leads to more jobs and a better seasonal economy in these areas. He further states that "tourism does provide previously unavailable employment and income, labor force participation and proprietary income is an indication not only of tourism's ability to generate income but also of its ability to encourage entrepreneurial activity" (Tooman, 1997, p. 3). Furthermore, More and more small communities are becoming economically dependent upon tourism. Many American communities have come to rely on tourism because it is a relatively "clean" industry and is often considered a universal remedy for local economic problems. Although recent studies suggest positive qualities of tourism, such as, revenue, there are foreseeable problems with travel and tourism.

Although tourism can exist in nearly any environment, it is often centered on natural resource based attractions such as national parks, and public beaches. Visitors to these destinations are demanding a "quality experience." Inevitably, a high quality tourism experience will sell for above costs. The profit gained from this experience is the incentive to achieve excellent service and maintain the status of the destination. The quality of service is valued far more when reputation is at stake (Augustyn & Ho, 1998). Unfortunately, as increased numbers of people are traveling, and demanding quality tourism experiences, the resources that they desire are becoming degraded due to exceeding their visitor carrying capacities. This is especially true in non-developed countries, where political pressure from agencies desiring to increase tourism revenue, short-sighted concessionaires, and inadequate maintenance funding have resulted in turning pristine wildlife viewing areas into lifeless dustbowls.

Traditionally, tourism has focused on publicly managed national attractions such as National Parks and Forests. However, public agencies are unable to meet the demands of recreational tourists. In addition, public tourism is often mandated to serve as many people as possible and is not trusted by the local people. They also face difficult legislative battles in establishing new protected areas and are plagued by bureaucracy. Many of our tourism jewels are operating under a mass tourism framework. Mass tourism presents a strain on local resources, such as water, and sewage. The congestion and volume of tourists present problems in itself. Many of these public agencies cannot handle the large growth of travel and tourism in their infrastructure. For example, Muller (2001), states that land and space are currently used as monetary means for tourism. Planners must anticipate the effects of future demands; ensure there is an adequate supply of open space. Alternatively, Banerjee (2001) disputes the need for additional open space is associated with parks, playgrounds, or systems of open space that are under the public ownership. Other research findings note that little expansion of parks and open space in American cities has been seen in recent decades (Banerjee, 2001).

Possible Solutions

For many observers, the sense that the public realm is declining is further corroborated by a growing trend of what is commonly described as "privatized" public spaces. One example of this type of destination is privately owned and operated parks. Several factors are contributing to the steady growth of private parks. Langholz and Lassoie (2001), describe the first factor as being the failure of government from the unwillingness to meet the demand of society for nature preservation. The private individual must take on the

responsibility. The second factor is explained as the increase in interest in biodiversity conservation. The last issue behind private funding of parks is the rise of eco-tourism. With the rise in interest in eco-tourism by many, this is easily explained.

The private sector enables entrepreneurs to manage their own business as they see fit within the scope of the law. This type of tourism can provide a means to quality tourism. Van & Hubert (2000) explain private tourism being "all businesses that are for-profit organizations directly related to the tourism industry" (p. 1). The private sector is often seen as more hands on and consumer conscious. According to Milke (1996), privatization of tourism is a good policy because it puts the service provider in closer contact with the people it serves. On the other hand, Sem & Clements (1996) argue that typically the public sector owns and manages the attraction whereas the private sector creates the jobs and services necessary to meet the visitors' needs. The private sector can provide the necessary means to serve the public where the government fails. According to Powell (1996), the private sector has more opportunities than the public. The private industry is more likely to see what is directly happening and are apt to make more direct/precise decisions.

Perhaps the best example of how privatization can help meet the demand for quality tourism destinations is the increase in privately operated eco-tourism destinations. Eco-tourism has been regarded as a key resolution to problems with tourism. This specific type of tourism is growing more and more popular in the tourism travel sector. Eco-tourism, also known as nature tourism supports more culturally and ecologically responsible travel that ideally all involved parties gain from (Luzar, et al. 1998). Eco-tourism is a prudent choice in the fact that it allows for tourism or what might have been known in the past as mass tourism to remain manageable. Furthermore, eco-tourism is a type of tourism moving away from fordism. It enables cultural/recreational opportunities, protection of wildlife, education and positive economic impact. Eco-tourism allocates capital for local and regional markets, increases local and international awareness of the importance of ecosystem preservation, and increase decision-makers' conservation programs for the areas (Muller, 2000). The results have a more indirect implication, which is reflected in the following statement by Luzar et al. (1998):

> Eco-tourism generates billions of dollars globally and is reported to be growing at a rate of 10% to 15% annually, the fastest growth rate in the travel market. Much of this growth has been in travel to developing countries (20%) that offer eco-tourists pristine environments often coupled with indigenous cultural experiences. (p. 3)

Additional research has noted that tourists are willing to pay for additional cost for eco-tourism exploration. As a successful operation, green tourism can provide supplemental profits to private land managers as well as provide rationalization for managing the resource base for sustainable use. Beyond its economic importance, tourism development promotes the preservation of cultural and social values, including historical sites of interest that might otherwise be lost. This is also the case for green tourism because it promotes culturally and ecologically sensitive travel (Luzar, et al. 1998).

Promising solutions include providing support to developing communities over a mutually agreed time frame to enable them to achieve economic growth and development. Other studies suggest proper planning as a suggestion to alleviate problems with travel and tourism. Programs that are already in progress could take the necessary steps to revamp their agendas. Briassoulis (2001) suggests indicators selected to address problems in planning for sustainable development should be related to one another because the planning process involves a sequence of interdependent decisions linking goals, targets, time horizons, course of action, means and implementation processes and cannot be broken up into bits and pieces. The problem is planning now for the future. Being blinded of future occurrences presents a challenge when trying to plan so far ahead of time. Inevitably, limitations are common when planning for upcoming proceedings. For instance, very few expected the actions of terrorists on September 11. Americans are starting to eat out less and are avoiding air travel. According to Samuelson (2001), with the effects of September 11, it is roughly estimated that there have been 80,000 layoffs or one in seven workers. With the unexpected, planning can take a turn in a different direction at any time.

Conclusion

Possible solutions to the threat of public land overuse have been brought to the forefront; however, with a lack of group consensus or motivation these attractions will continue to deteriorate. Policies pertaining to travel and tourism may provide information regarding establishment of boundaries concerning private land stewardship. The responsibility for policy formulating and operational management of tourism destinations is very important to maintain the conservation of natural resources.

There is a critical need to promote self-regulation in the private sector with limited governmental intervention or with the right mix of environmental initiatives that are supported by investment bankers and offices of tourism. For example, environmental impact assessments and feasibility studies could be required before granting loan approvals for new development projects. Such actions would promote the right development values and attract

environmentally friendly investors to the new destination, thereby enhancing the industry' s image. A second possibility would consist of a reinforcement program for the preservation of the culture/heritage of local communities at a satisfactory level to the expectations of citizen/civic groups, tourists, and the private sector.

Privatization would enable incentive zoning programs, taxation to individuals who participate in these tourists' activities, an increase in community involvement in decision-making, an increased interest in biodiversity conservation, and an increase in interest in eco-tourism. With the purpose of eco-tourism being to maintain the natural and socio-cultural history of the host destination, eco-tourism is a beginning to preserving our sacred lands (Sirakaya & Sasidharan, 1999). Private sector issues need to be addressed concerning balancing development with preservation and maintenance. While we believe that a compromised approach is obtainable, there seems to be some concern by researchers as to the proper means of planning.

In the past, popular travel destinations have been able to successfully attract visitors and cater to their needs. The tourism industry has surpassed autos, steel, electronics, and agriculture. The World Tourism Organization (2002) expects it to employ one in ten people in the next decade and to generate $4.3 trillion in revenue in the upcoming year. If these trends, along with the demand for high quality resource-based destinations continue, the private landowners must join forces with public land agencies conserve their land for the public good. The nature of the private sector should contribute to the provision of quality tourism experiences that generate a profit through land conservation and protection of resources.

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Wildlife Based Recreation

THE QUABBIN CONTROLLED DEER HUNT 1991 – 2001: LIMITATIONS OF A CONTROLLED HUNT

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Abstract: The Quabbin Reservoir, built in the 1930's as a water supply for Boston, is an unfiltered source of water. The agency responsible for managing the reservoir wants it to remain unfiltered. As a result, human activity is kept to a minimum, including (until recently) a prohibition on hunting. The lack of natural predators and the ban on recreational hunting allowed the deer population to explode, which resulted in the forest being overbrowsed. Overbrowsing leads to sparse forest cover and soil erosion, thereby jeopardizing the quality of the water. Managers had to develop a politically acceptable solution to the deer overpopulation problem. After much debate, a controlled deer hunt was implemented. The controlled hunt had certain criteria including hunting in a group of two to six, hunting in assigned zones and hunting on specified days. Initial hunter interest was very high and in 1991, 7444 hunters applied for the 1020 slots. Over the past ten years the number of applicants has decreased to 993 applicants for 1055 slots in 2001. The declining trend in applicants is becoming a concern to managers as they strive to maintain the deer population at its current level so as to maintain an unfiltered water supply.

Introduction

The residents of Boston receive more than half of their drinking water from the Quabbin Reservoir, located 75 miles to the west. At 18 miles long, up to 150 feet deep and capable of holding 412 billion gallons of water, the Quabbin Reservoir is one of the largest bodies of fresh water in New England. The forest surrounding the reservoir filters precipitation before it reaches the reservoir. Therefore, the water that is sent to customers does not need to be filtered. The agency responsible for managing the reservoir, the Metropolitan District Commission (MDC), wants it to remain unfiltered because the installation of a filtration facility would be a very costly prospect. In order to ensure a healthy watershed, and as a result an unfiltered source of water, the MDC strives to minimize human activity within the reservation. Until recently, this included a prohibition on hunting.

Before 1991, the lack of natural predation and a ban on hunting allowed the deer population to grow immensely. The extraordinarily large deer population began to overbrowse the forest. An overbrowsed forest, because it is less efficient at filtering and buffering precipitation, would endanger the water supply and force the MDC to ultimately install a multi-million dollar filtration system. This would be costly to those who receive their drinking water from the Quabbin as well as to Massachusetts state taxpayers.

In the late 1980's the MDC realized the deer herd needed to be thinned and discussed various options amongst themselves,. with the Massachusetts Division of Fish and Wildlife, and with various stakeholder groups at several public meetings. In the end, it was decided that the most practical, fiscally responsible and politically acceptable option was a controlled deer hunt. The first annual controlled deer hunt was held at the Quabbin in 1991, after more than 50 years without hunting.

People interested in participating in the hunt had to fill out an application. Then, participants were chosen by lottery. Initial interest in hunting the Quabbin was extremely high and more hunters applied than were needed. Over the years, however, hunter interest has declined. Most recently, the number of hunters who applied is less than that needed to keep the deer population in check. The MDC is concerned with this trend because if the deer population were not controlled the surrounding forest would be in danger of again being overbrowsed, which would negatively impact the quality of the water in the reservoir. This paper will examine the history of the Quabbin controlled deer hunt and why it was the chosen method for culling the deer herd. Furthermore, the limitations of the current design of the hunt as well as potential designs for future deer management efforts at the Quabbin will be discussed.

Public Perceptions

Some recreation activities, such as hiking, biking, bird watching and fishing, are allowed at the Quabbin. However, many others are prohibited. For example, visitors are not allowed to walk dogs in the reservation, off-road bicycle, cross-country ski, snowmobile, swim or until 1991, hunt.

The combination of minimal human activity and the huge expanse of undeveloped land, in the populated state of Massachusetts, led many to view the Quabbin reservation as an untouched, pristine wilderness. Here was a place they could go to really connect with nature, stroll through the woods and leave their cares behind, take the kids for a picnic, observe rabbits and blue jays and deer and even, if they were lucky enough, the first pair of breeding eagles in the state of Massachusetts in over 80 years. Many people also placed a high symbolic value on the forest and wildlife of the Quabbin. For them, it was a symbol of nature the way nature is supposed to be. That is, nature in perfect balance and harmony without interference from people.

The MDC was more than happy to promote this view of the Quabbin as an accidental wilderness as it bolstered their reasoning behind limiting many recreational activities. They would explain to children on class trips that the Quabbin is a "haven" for wildlife. The friendly rangers would spend at least fifteen minutes chatting with visitors

about where they spotted moose or eagles and the best time of day to go to try to spot them.

People seemed to quickly forget that the expanse of woods and water had existed only since the 1930's. That men had come and removed all of the original trees, bushes, shrubs and man-made structures for the sole purpose of creating a drinking water supply. Strolling through the woods or gazing upon the seemingly endless expanse of water it was hard for people to entertain the thought that something was amiss. Thus, when the MDC was left with no choice but to control the deer herd by lethal means it was a hard sell.

History of the Deer Problem

After more than 50 years without being preyed upon by either natural predators or hunters, the deer population inside the Quabbin reservation was estimated to be between 20 and 50 deer per square mile for an approximate total of 1500 to 3000 deer. The Massachusetts statewide average was 8 to 10 deer per square mile (MDC, 1989). The costs associated with an overabundance of deer are high. Not only is a high density of deer correlated with a high incidence of Lyme disease but also with an unhealthy forest. When there are too many deer, they eat young hardwood trees before the trees can become established, thereby preventing forest regeneration. This alters and reduces the variety, distribution, and abundance of plant species and of the animal species that are dependent on those plants and endangers the water supply by reducing filtration effects of the forest.

If left unchecked, the end result of the deer alterations would be an 80-year-old, even-aged forest with sparse cover and much soil erosion. This type of forest is unacceptable for a drinking water supply. Even-aged forests are more prone to natural disasters, such as hurricanes, disease, pests and air pollution. If all of the mature trees are destroyed, as occurred in 1938 due to a hurricane, there would be no new growth to replace them. Furthermore, trees are a vital part of maintaining the quality of the water in the reservoir.

> Tree roots are deep and form an interlocking network across the slope. These anchor the soil and stabilize stream banks [by] reducing erosion. They increase infiltration and water storage capacity within the root zone. Standing trees and large debris in riparian zones hinder water flow during stream flood stage . . . Forest vegetation can deter rapid melt and runoff of the snow pack and reduce soil freezing and frost heaving, which maintains high infiltration rates (Carlton, 1990).

Trees also absorb nutrients from the soil, thereby preventing the water from becoming eutrophic (MDC, 1989).

By 1989, parts of the forest surrounding the Quabbin reservoir were in danger of succumbing to the deer alterations. Of the 81,000 acres of the Quabbin watershed owned by the MDC, 36,500 were in a heavily browsed zone and approximately 12,000 of those acres were in need of immediate regeneration (MDC, 1989). MDC managers knew that the costs of doing nothing were too high. They felt that in order to allow the heavily browsed species to regenerate, deer density had to be reduced to fewer than 10 deer per square mile.

Deer Management Options

MDC wildlife managers began to examine their options for managing the deer herd. Both lethal and non-lethal alternatives were considered. There were many facets of each option to be looked at including the pros and cons, cost, effectiveness and social acceptability. The pros, cons, cost and effectiveness can be obtained from the professional literature, on-site studies or from other natural resource managers who have used various methods to control deer populations. The level of social acceptability, which is neither static nor always applicable from one area to another, is more difficult to obtain. It depends on the stakeholders and their values. Stakeholders of the Quabbin reservoir include former residents and their descendants, members of a group called Friends of Quabbin, residents of towns bordering the reservoir, MDC employees, the Massachusetts Division of Fisheries and Wildlife, people who receive their water from the Quabbin, people who recreate at the reservoir, those who value the reservoir without using it, hunters, animal rights activists, and future generations. All of these stakeholders value the Quabbin differently and all base their desires for the various management options on their values.

Non-lethal Options

Most likely, the spraying of a chemical repellant, onto the plants and applying extra fertilizer to the plants to speed up their growth would not have raised much public outcry. However, there was a danger of contaminating the water supply as any chemicals applied within the watershed would eventually find their way into the reservoir. Also, the total cost of these methods would have ranged from $1.4 to $6 million dollars (MDC, 1989).

Placing plastic shelters, called tree tubes, around young trees until the leaves of the trees are beyond the reach of deer creates a microclimatic condition beneficial to the seedling which stimulates growth. However, drawbacks included the large amounts of plastic that would have been introduced into the ecosystem, human interference with the process of natural selection as managers would have decided which trees would be protected and which would be browsed and the possibility of vandalism, natural disasters, deer impacts and/or decomposition of the tubes. The total cost for this method would have been $12 million to $26.4 million (MDC, 1989).

Fencing, because it is seemingly non-lethal, does not conjure up a lot of protest. On the other hand, it was possible that extensive fencing of areas that had been highly browsed would cause deer to overbrowse adjacent medium browsed areas, thereby turning those areas into highly overbrowsed pockets. Also, as with tree tubes, there was concern about unnaturally altering the genetic diversity of the forest, vandalism and sever weather. The amount of

time for which the fences needed to remain erected was another challenging aspect. If managers wanted to create an uneven-aged forest, the number of fenced-in areas and the length of time the fences would have had to remain up would have been between 15 and 20 years. Maintaining miles and miles of fence for 15 to 20 years against vandalism, severe weather and the impact of deer pressure was a daunting prospect. Furthermore, the estimated cost was $600,000 - $4.8 million (not including the cost of maintenance and deer driving) (MDC, 1989).

Another method examined was chemosterilization (also called reproductive intervention or birth control). This method, which consists of trapping does and injecting them with a chemical sterilent was highly appealing to many members of the general public. There were, however, major drawbacks to this method. First, although effective drugs were available, a delivery system that was adequate in administering the drug to a large enough percentage of the Quabbin deer herd was not available. Second, because the Quabbin is a public water supply, there were concerns and liabilities involved with using drugs that inhibit reproduction. This method was costly as well, at an estimated cost of $1,000 per doe (MDC, 1989).

The capturing and translocation of deer involves live-trapping deer in the Quabbin and releasing them in other parts of the state. The barriers to this method included the probable inability to capture enough deer to reduce the herd, the lack of suitable release sites in the state and the high amount of stress placed on the deer which results in high mortality of relocated deer. The total cost of this method was estimated to be $60 million to $198 million (MDC, 1989). In addition to being costly, none of the aforementioned methods had been proven effective at controlling a deer herd as dense as that of the Quabbin or on an area as large as that of the Quabbin.

Stakeholders who were in favor of these non-lethal options included a faction of Friends of Quabbin, some residents of the surrounding towns and animal rights activists. Those who supported these options did so based on the intrinsic value they held for the deer. They believed deer, because they are living creatures, were born with inherent value just as are humans. For them, the deer had this value in and of themselves and this value would have existed even if humans were not around to value them. They strongly believed the deer had a right to live, or alternatively, that people didn't have a right to kill them.

Lethal Management Options

The only lethal method for managing the deer herd, considered by the MDC, was hunting. The fact that effective hunting programs on areas as large as the Quabbin had been well documented was beneficial to the process of instituting this method of control. Still, hunting was perhaps the least well received and most controversial of the management options considered by the MDC. There existed (and still does) a wide spread anti-hunting sentiment that pervades modern urban and suburban life. In modern times, "most people without struggle or bloodshed procure meat nestled on a styrofoam plate and wrapped in clear plastic. The role of the hunter is being challenged, and wild animals are regarded by many as having legal rights similar to those of humans" (Bolen, 1999). The idea that wild animals have these rights is based on the intrinsic value assigned to the animals by those who hold this view. Furthermore, those who held symbolic values for the wildlife and the forest were opposed to the hunt. Nonetheless, hunting appears to be, from the professional literature and experience of other managers, the most efficient and cost effective method for managing an overabundance of deer.

Three types of hunting programs were considered: hiring sharpshooters, a recreational hunt, and a controlled hunt. Sharpshooting would have involved about 8 to 10 experienced marksmen covering specific areas in a systematic, drive-like manner. On the plus side, this method would have minimized the number of people on the watershed and the MDC would have been able to closely supervise and regulate the sharpshooters (MDC, 1989). Also, this method would have potentially provided greater selectivity of the deer taken. This was important because in order to reduce deer populations it is essential to reduce the number of females.

However, as author Jan Dizard points out, there were three main problems with this method. First, sharpshooters are trained to hit targets, not live animals moving through the woods. Second, deer become wary of bait or salt licks after the shooting begins. After the initial shooting, "killing deer becomes a matter of *hunting* as opposed to shooting" (Dizard, 1999). A knowledge of terrain and the habits of deer, in addition to the ability to shoot accurately, are necessary for successful hunting. The third, and perhaps most insurmountable obstacle to hiring sharpshooters was the Massachusetts Division of Fisheries and Wildlife. By law, the deer of the Quabbin are under the jurisdiction of the Division, and they were adamantly opposed to sharpshooting. The opposition stemmed mainly from the high cost involved, the fact that by hiring sharpshooters the public would be denied access to a public resource and that this method was tried on Crane's Beach, Massachusetts and failed (Dizard, 1999).

The cost of this method was estimated to be $31,200, with costs increasing as deer density decreased (MDC, 1989). The effectiveness was highly doubtful because, as already mentioned, once deer become aware of what is going on, they avoid bait or licks. They must then be hunted, which sharpshooters are not trained to do.

A recreational hunt was also considered. One benefit of this method was that there would be much interest on the part of hunters to hunt the Quabbin as it had not been hunted in over 50 years. Nonetheless, there were major obstacles. First, this method would have allowed unlimited public access and afforded the MDC very little control. In striving to maintain the reservoir as an unfiltered source of water it is necessary for the MDC to maintain control over areas that are accessed. Furthermore, this would have allowed for public access to the Prescott Peninsula, which

had been off limits to all but those with special research permits and MDC laborers. The MDC feared that opening the Peninsula to recreational hunters would motivate other special interest groups to petition for access to the Peninsula as well (MDC, 1989). Lastly, and perhaps most importantly, for various reasons, this was the most controversial of the lethal options and it would have been extremely difficult to garner public support. The idea of hunters "killing for fun" in the Quabbin, of all places, was unthinkable to many. Even many of those who accepted that the deer herd needed to be culled were against recreational hunting. Paul Lyons, an MDC biologist, said "we should be doing what we feel is needed here in the most efficient way possible, without adding this recreation or fun or sport aspect to it" (Dizard, 1999).

Adding to the unacceptability of this option was the fairly wide-spread anti-hunter sentiment. Hunters, as a group, are not held in the highest regard by non-hunters. As Jan Dizard explains, whether it is fair or not, many non-hunters perceive hunters as unkempt, armed men who look like roughnecks and renegades and lack common sense and common decency (Dizard, 1999).

This led the MDC to consider a more politically acceptable option, a controlled hunt. This method would have involved Massachusetts licensed hunters being given a permit to hunt the Quabbin. The positive aspects of this method were many. Such hunts have been held in many areas of the country for large-scale deer population reductions with a high rate of success. Furthermore, stringent control measures could be placed on the hunters. This would serve to lessen the effects of opening the area to increased public usage and make this option more acceptable by distinguishing it from a recreational hunt. Such control measures would include limiting the number of people selected to participate in the hunt, assigning the hunters to certain zones, keeping certain areas such as shorelines and unique wildlife habitat areas off-limits, and requiring that hunters hunt in groups of two to six so as to lessen traffic. Also, those hunters selected would be required to attend an orientation at which they would be told the goals and objectives of the hunt, given an overview of the area, hear a review of safety issues and receive their area assignments. Only after attendance at an orientation session would a hunter receive his or her Quabbin hunting permit.

An added plus to this method was that a program fee could be charged so as to help defray the costs of the hunt and help with conservation efforts. Some of the revenue from this fee would be used to fund measures which prevent degradation of the watershed (MDC, 1989). Lastly, the Division of Fisheries and Wildlife was amenable to "adjusting its management zones and distribution of doe permits to accommodate a controlled hunt at Quabbin" (MDC, 1989). This type of hunt also gave the MDC leverage in denying special interest groups access to the Prescott Peninsula because they could argue that the hunters were there for management purposes only, not recreation.

Controlled hunts have proven to be effective at reducing the density of deer populations over large areas of land. Additionally, this was a practical option because it would allow the MDC to closely monitor and minimize the impacts of the activities of the hunters. Also, it was fiscally responsible because it would be the lowest cost option in the long run and revenue would be generated from the permit fee to offset the cost. The estimated total cost of the initial controlled hunt was $43,200, including the value of staff time necessary for administration, supervision and research, and the cost of necessary supplies (MDC, 1989).

After much consideration and debate, the MDC decided to implement a controlled deer hunt. Stakeholders who favored this method of control included the Massachusetts Division of Fisheries and Wildlife and a large majority of hunters. The MDC would have preferred to use sharpshooters because that option was more acceptable to the Friends of Quabbin and they didn't particularly enjoy the idea of using hunters, given their reputation, fair or unfair (MDC, 1989).

Hunter Ethos

Perhaps as much as the MDC did not relish the idea of using hunters as "tools of management," many of the hunters themselves did not love the implications of being tools of management. The MDC wanted managers, people who shared their goal of reducing the deer herd in as timely a manner as possible. Sport hunters are after more than simply killing a deer. "To be tools of management meant that the Quabbin hunters had to become preoccupied with the kill, something they had come to believe was almost an afterthought, not the point of the whole endeavor. Many were uncomfortable with the role of 'deer killer' as opposed to 'deer hunter'" (Dizard, 1999).

Today, many hunters strive to maintain the "sportsman ideal." Included in this ideal is a certain level of "etiquette and respect for game laws, a thirst for knowledge about nature, an identification with the prey and a commitment to utilize the bounty in ways that honored the wildness and uniqueness of the quarry" (Dizard, 1999). From the beginning, many hunters felt that by hunting the Quabbin, they would not be allowed to live up to the "sportsman ideal."

Nonetheless, those hunters who saw themselves as vanguards of nature and true environmentalists, were willing to hunt the Quabbin so that deer could once again exist in their natural condition. According to many hunters, the natural condition that predation keeps deer in is one of dignity, shyness, elusiveness, and the wherewithal to disappear into the landscape at the slightest hint of danger (Dizard, 1999). Other hunters wanted to hunt the Quabbin because it was an area their fathers or grandfathers had hunted and they too wanted to hunt there. Some applied because they were interested in hunting this area which hadn't seen hunters in over 50 years. Whatever their reasons, in the early years of the hunt, hunters applied in large numbers.

The Quabbin Controlled Deer Hunt

1991 was the first year the hunt was held, and it has been held every year since. The first year 7,444 hunters applied for the 1,020 spots and 575 deer were taken. While some stakeholder groups protested the hunts, no major problems arose within the hunted areas. The water quality was not affected, the portable toilets were well used, no erosion was spotted around the roads and no automobile or hunting accidents occurred (MDC, 2000). In fact there have been no major negative consequences to the Quabbin because of the hunts, only positive results. Deer population densities have been reduced, the population is beginning to have a more balanced sex ratio and is becoming composed of more animals in younger age classes. Most importantly, the impacts of the deer on the forest have been reduced to a level that "allows and promotes the development of a healthy, resilient, diverse forest that can adequately and continuously protect water quality" (MDC, 2000).

The hunt was divided into two phases: deer reduction and deer maintenance. The deer reduction phase was aimed at reducing the total number of deer at the Quabbin. During this phase, intense hunting pressure was placed on the herd each year in order to achieve the reductions. The pressure consisted of three 3-day hunting segments in each block. A block is one of 5 areas into which the Quabbin was divided for hunting purposes. This phase ran from 1991 to 1994, at which time the herd was reduced to a level that would allow forest regeneration to begin. The number of deer taken, during this phase, ranged from 474/year to 673/year (MDC, 2001).

In 1995, the MDC began to shift from the reduction phase to the current maintenance phase. The goal of this phase was (and still is) to maintain the number of deer at a relatively stable population using low-intensity hunting pressure, which consisted of one 2-day segment per block. Between 1995 and 2000, the number of deer taken was between 106/year and 293/year (MDC, 2001).

Maintenance of the Herd

Maintenance is an ongoing process because deer have the ability to reproduce and are therefore a renewable resource. Reproduction leads to the growth of a population. It is this growth that must be harvested in order to maintain the deer population at a steady state. Upon shifting to the maintenance phase, the MDC had to make sure that the growth of the species was being harvested. If less than the growth were to be harvested, the population would increase, thereby jeopardizing the regrowth. If more than the growth were to be harvested, the population would eventually get too low.

From the MDC's perspective, it is important for the maintenance phase of the hunt to continue. Although the area is beginning to regenerate, there is a lack of diversity of species. Specifically, white pine and black birch are the main species regenerating while oaks, hemlock, and ash still need to regenerate in larger numbers. Species diversity is important in maintaining the quality of the water and in protecting the forest from natural disasters, disease, and pests. Forests that lack diversity of species are more prone to being wiped out by such things. One such example occurred in 2000 and 2001 when the entire forests on Mts. Pomeroy and Curtis, which were composed of a single species of tree, was completely wiped out by gypsy moths.

The deer population can only be kept in check if there are enough hunters who want to hunt the Quabbin. However, there is evidence that interest in hunting the Quabbin is declining. Initial hunter interest was very high and 1991, over 7,000 hunters applied for just over 1,000 slots. Over the past ten years the number of applicants has decreased and, as can be seen in Table 1, 62 slots remained unfilled in the 2001 hunt.

The MDC is aware of the necessity of the hunters and their decreasing interest in hunting the Quabbin. In recent years (2000 – 2001) they instituted various measures in the hopes of keeping hunters interested. First, the deer hunt application became available online for printing to make applying easier. Previously, applicants had to send a self-addressed stamped envelope to the MDC Quabbin office to receive an application. Second, in response to the difficulty in scouting the large areas where the hunts were held, a 1-day vehicle scout was offered. Third, a new check-in/check-out procedure was implemented. In previous years hunters had to give their access permits to the check station attendant in the morning and collect it in the afternoon as they checked out. The new procedure used numbered, perforated cards which the hunters were able to tear off and hand to the attendant thereby avoiding the lengthy delays and traffic problems encountered with the other method. Fourth, through an agreement with MassWildlife, hunters were allowed to exclude anterless deer taken at the Quabbin from their bag limit. This meant that an anterless deer taken at the Quabbin did not count toward a hunter's 2-deer bag limit. The MDC reported that the response to the new procedures, from the hunters who participated in the hunt, was "overwhelmingly positive" and hoped the long-term results would be "greater hunter satisfaction and increased long-term hunter interest" (MDC, 2001). Although these measures were well received by those who participated in the hunt in recent years they did not attract an abundance of hunters. Thus, it would behoove the MDC to examine the motivations and expectations of hunters as neither of these is apparently being met by the controlled hunt offered by the MDC.

Table 1 Number of Hunters and Number of Deer Taken from 1991 - 2001

Year	Applicants	Elected	Hunters	Surplus/ Shortage	Deer Taken
1991	7,444	1,020	1,020	6,424	575
1992	9,503	2,089	2,089	7,414	724
1993	7,052	2,303	2,303	4,749	474
1994	3,418	2,348	2,348	1,070	673
1995	4,846	1,702	1,702	3,144	284
1996	2,742	1,503	1,503	1,239	129
1997	1,790	1,525	1,525	265	293
1998	2,086	1,338	1,338	748	123
1999	1,522	1,311	1,311	211	112
2000	1,143	1,020	1,020	123	106
2001	993	993	1,055	(62)	101

Declining Interest

Contrary to the belief of many non-hunters, the taking of an animal contributes to overall hunter satisfaction, but it is not the only facet. The large majority of hunters do not bag an animal on any one trip and some do not bag an animal at all during the hunting season. As a result, "the satisfactions associated with other wildlife-related elements are likely to increase in importance" (Vaske, 1986). These other elements include being outdoors, the feeling of being one with nature, enjoying a change of pace from the daily routine, escaping, social companionship, experiencing new things and the challenge and skill involved in the hunt (Vaske, 1986).

While hunters at the Quabbin still get to be outdoors, one must wonder how much of an escape it is when there are so many constraints placed on the hunters. To reiterate, a limited number of hunters are chosen, they must hunt in groups of 2 – 6, they are told where they must hunt, and they must attend an orientation session (once every five years). Furthermore, the deer density at the Quabbin is much lower than it was initially. Many hunters, regardless of whether or not they are successful, are more satisfied with the hunting experience if they believe they have a fairly good chance of bagging an animal. The amount of game seen and the number of shots taken indicate, to hunters, their chance for success (Vaske, 1986).

Another element that affects hunter satisfaction is hunter density, which can either add or take away from hunter satisfaction. While other hunters flush out deer thereby increasing the chances of success for everyone, they also increase competition and may result in perceived crowding. While it is known that during the 2000 hunt, hunter density was approximately 17 hunters per square mile, it is not known whether or not the hunters were satisfied with that number. Finally, it may be that overall interest in hunting is declining. As one study indicated, the number of male U.S. hunters declined between 1980 – 1990 (Heberlein, 1996).

Discussion

If the MDC wishes to continue using hunters as "tools of management," it must find a way to increase hunter satisfaction. A number of steps have been taken to accomplish this, including making the application more readily available, offering a 1-day vehicle scout, easing traffic during check-out and offering a "bonus deer." Nonetheless, Quabbin managers may be forced to reconsider the deer herd management plan.

In the end, the other options for managing the herd may have to be revisited. One such option is the recreational hunt. It is unlikely that a full recreational hunt could be implemented for a variety of reasons. First, this option would be unacceptable to many of the stakeholder including Friends of Quabbin, animal rights activists and even some MDC employees. Second, the MDC may have to give up control over the zones that are hunted as they may not be able to tell hunters where to hunt. This is a potential problem because in order to ensure regeneration in certain areas, the deer in that area need to be hunted.

Next, if the Quabbin were to be open for recreational hunting, other recreation groups such as cross-country skiers and snowmobilers would demand access as they would view it unfair that recreational hunters can hunt but they cannot do what they want. The MDC cannot allow uncontrolled access to the reservation as this increases the risk of disease causing biological borne agents contaminating the water supply. Additionally, an increase

in automobile traffic could destroy the roads and lead to soil erosion.

Perhaps the MDC can continue to use a controlled hunt, but ease certain restrictions so as to make it more like a recreational hunt. For example, no longer requiring hunters to hunt in groups may make the hunt more attractive to those who like to hunt alone. Second, the zones could be increased so hunters have more freedom of choice as to where they will hunt. Also, the number of applicants may increase if the Quabbin hunting season is extended. Finally, if it is possible to allow deer density to increase slightly, without endangering the regrowth, hunter satisfaction may increase.

Clearly MDC-Quabbin employees must find an option for managing the deer herd which is acceptable to both themselves, the hunters on whom they rely as "tools of management" and various stakeholder groups. In order to facilitate their task, they could survey current and previous hunters of the Quabbin and different stakeholder groups. This would allow them to figure out what has or has not kept hunters interested in hunting the Quabbin and how stakeholder groups would react to alternative management options. The results of the survey would allow the MDC to design the best possible management plan that controls the deer herd and meets the current needs of various interested parties.

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THE EFFICACY OF A PANEL STUDY FOR ASSESSING THE TEMPORAL STABILITY OF HUNTING PARTICIPATION AND CONSTRAINTS

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Abstract: The intent of this study of Virginia hunters/non-hunters was to test the efficacy of panel research for assessing the temporal stability of hunting participation and constraints. Findings suggest that participation/non-participation patterns were stable across time periods for the population, yet dynamic at the individual level. Although the structure of perceived constraints appeared stable, the intensity varied significantly over time and distinguished among participation groups. Given that most constraint research is psychologically grounded, it appears more efficacious to employ research designs that allow individual-level analyses.

Introduction

Leisure constraints are "factors that inhibit people's ability to participate in leisure activities, to spend more time doing so, to take advantage of leisure services or to achieve a desired level of satisfaction" (Jackson, 1988, p. 203), and the evolution of this line of research is well documented. Efforts have been primarily directed at empirically identifying and analyzing constraints to leisure engagement and goal attainment. Specifically, researchers have identified barriers, examined the effect of these barriers on leisure preferences and patterns over time and across activity domains, and analyzed the effect of these barriers on leisure choices and experiences of different populations. An implicit assumption in the early constraints literature was the inverse relationship between constraints and participation. One major problem with this approach is that the complete absence of constraints does not necessarily lead to participation; rather, constraints may mediate the degree to which individuals feel they can participate in leisure activities. Research suggests that constraints influence participation either by reducing or eliminating the desire to participate or by removing or impeding perceived opportunities. In most research focusing on the general nature of activity participation, constraints appear dynamic – changing with social, personal or activity-based conditions. To more fully understand the nature of participation and constraints, there is a need for further, more controlled research investigating constraints to participation of both participants and non-participants in a particular activity over time. For purposes of this study, the activity of interest is hunting.

A large body of research has been conducted on outdoor recreation participation in general and hunting in particular. Early studies focused on describing hunters, their motivations to hunt and factors influencing satisfaction. As participation in sport hunting continues to decline in the United, research has been conducted to identify factors (e.g., increased urbanization, changing demographics, increased anti-hunting sentiments, lack of available opportunities, competition with other leisure activities and changing interests) that impact participation. This decline in participation may be problematic for individuals, communities and resource management agencies that will no longer experience the social, economic, and cultural benefits of hunting. Leisure constraints is an area of research with tremendous potential for examining the dynamics of hunting participation/non-participation.

Only a few research efforts have investigated the temporal stability of leisure factors. Allen, Donnelly and Warder (1984) found that certain recreation activity participation factors were stable across seasons. Jackson and Witt (1994) assessed the change and stability of leisure constraints among Canadians over a four-year period (1988-1992) using identical instrumentation and survey administration procedures. The authors found little temporal change in aspects of measured constraints with respect to the unfulfilled desire to start a new activity. The fact that limited research exists investigating constraint stability, in particular, indicates the need for further investigation. Additionally, leisure behavior research in general, and more specifically, leisure constraints research has remained largely cross-sectional in nature. Longitudinal studies are designed to permit observation over an extended period. Whereas trend studies track changes within some general population, and cohort studies examine more specific sub-population changes, panel design studies—the most powerful of longitudinal designs—incorporate analysis of the same sample of respondents over time. The intent of this study was to test the efficacy of panel research for assessing the temporal stability of hunting participation/non-participation and perceived constraints. This investigation was not approached from the perspective of cause and effect, but rather as an initial effort to isolate and explore temporal variation.

Methods

In 1989, a random sample of 3,000 Virginia residents was drawn; half from each of two sampling frames. The first frame consisted of those individuals who had purchased a Virginia state hunting license. To ensure that a sufficient number of persons exhibiting a variety of participation patterns were selected for this study, the second frame consisted of all Virginia residents listed in telephone directories. A modified version of the methods described by Dillman (1978) was employed to collect the data for both phases of the study. After eliminating undeliverable or unusable returns, a total of 1,666 usable responses were received— an overall effective response rate of 66.2

percent. A test of non-response bias was conducted using a telephone interview with a five-percent sample of non-respondents. No significant differences between respondents and non-respondents were found regarding participation/non-participation variables, demographic and lifestyle characteristics, and the initial sampling frame from which they were drawn.

The 1,229 residents who participated in the initial study phase and indicated a willingness to participate in future studies were contacted to participate in the second phase. Identical mail survey methods were employed in 1992. Unfortunately, slightly over 21 percent of those who were contacted in the second phase had moved, were deceased, or returned unusable questionnaires. A total of 594 completed questionnaires were returned, generating an effective response rate of 61.4 percent. Of these, missing values assigned to key variables further reduced the comparative study population to 497 respondents. Respondent mortality is always a concern in paneled research and it certainly influenced the number of respondents utilized in this study. Basing subsequent phases on those most willing to assist is an accepted and common practice in panel research – the attrition is minimized, although a potential for bias remains (Watson, 1998). In this study, for example, hunting may have been a more salient topic to those indicating a willingness to participate in both phases of the study; those who had never hunted in 1989 may therefore have been more likely to begin hunting prior to 1992. However, while attrition reduced the number of participants, the distribution of respondents among participation/ non-participation groups in fact remained surprisingly proportionate: 40 percent of the respondents were categorized as non-hunters; the remaining 60 percent of respondents were distributed across three participation levels.

The survey instruments used in 1989 and 1992 were designed to collect a broad range of data on different aspects of wildlife-associated recreation. Common to both instruments, and serving as the comparative database for this study, were questions about respondents' hunting participation/non-participation and their perceptions of constraints to participation. Participation was assessed using a hierarchical set of three questions: respondents were asked whether they had hunted in the past; whether they had hunted during the most recent hunting season; and, if so, how frequently they had hunted. The second set of questions solicited respondents' level of agreement with statements depicting perceived constraints to hunting participation. Using the three participation questions, each respondent was grouped into one of five participation/non-participation categories for each time period: Non-Hunters – persons who had never hunted; Former Hunters – persons who had hunted previously, but not during the most recent hunting season; Infrequent Hunters – persons who hunted less than 7 days during the most recent hunting season; Moderate Hunters – persons who hunted between 7 and 20 days during the most recent hunting season; and Frequent Hunters – persons who hunted more than 20 days during the most recent hunting season. Changes in participation/non-participation were initially examined by computing and comparing the aggregate percentage of respondents assigned to each of the participation categories in each of the two time periods. Secondly, intra-individual change in participation/non-participation behavior was assessed by pairing the 1989 and 1992 data and partitioning each respondent into one of three participation change groups – "Stable" (i.e., respondents reporting no change in level of participation between 1989 and 1992), "Increasers" (i.e., respondents who began hunting, resumed hunting after a hiatus, or increased the frequency of their participation), and "Decreasers" (i.e., respondents reporting decreased frequency of participation, or no hunting during the most recent season).

The temporal stability of both perceived constraint structure and intensity was assessed. Constraint factor structure stability was determined using statistics generated by the two Principal Component Analyses (with oblique rotation) and Cronbach's alpha test of scale reliability; specifically, (1) the number of factors retained; (2) the strength of factor loadings and order in which individual items loaded into each factor; (3) the amount of variance explained overall; (4) the amount of variance explained by each factor; and (5) the reliability coefficients of each factor were compared. The items retained in each factor were subsequently formed into summated scales, used in turn to determine the intensity of respondents' perceived constraints for each time period. Mean scores on each scale were computed for all respondents and the aggregate differences between time periods calculated. Paired t-Tests (repeated measures) were used to determine temporal stability of perceived constraint intensity. While this aggregate approach allowed the assessment of changes in the intensity of constraints as a population, a disaggregate approach – unique to a repeated measures design – allows for the examination of intra-individual differences. A disaggregate approach to investigating constraint intensity is particularly interesting when data are paired with individual participation/non-participation data. One-way Analyses of Variance with post hoc Scheffé range tests were performed to assess differences between respondents who increased, decreased or remained stable in their level of participation, with regard to the intra-individual change in intensity of perceived constraints.

Results and Discussion

Stability of Participation Patterns – Aggregate Analyses

Review of the aggregate distribution of respondents across participation/non-participation categories for each time period indicated that minor changes had occurred (Table 1). Of all participation categories, the greatest change was seen among "Infrequent" hunters — an overall decrease of 2.6 percent. Smaller percentage changes were found among "Moderate" (+1.2%) and "Frequent" (-0.9%) participants. While the overall number of persons actively hunting decreased by 3.7 percent between 1989 and 1992, a more significant shift in membership was observed between non-participant categories. The group of respondents indicating they had "Never" hunted in 1989 (23.7% of the study population) decreased to 13.5 percent in 1992. Conversely,

a 12.5 percent increase was observed among "Former" hunters. While it is reasonable to assume that the decrease in the proportion of those "Never" hunting and the comparable increase in "Former" participants were more than coincidental, the aggregate nature of this particular analysis limited the ability to draw more specific conclusions about the exact dynamics of hunting participation.

Table 1 Aggregate distribution of respondents among participation/non-participation categories, 1989 and 1992

	Non-Participation		Participation		
	Never	Former	Infrequent	Moderate	Frequent
1989	23.7%	16.3%	13.1%	21.5%	25.4%
1992	13.5%	28.8%	10.5%	22.7%	24.5%
1989-1992 Change	-10.2%	+12.5%	- 2.6%	1.2%	-0.9%

N = 497

Stability of Participation Patterns – Disaggregate Analyses

In order to more fully examine the temporal stability of hunting participation, respondents' participation/non-participation behaviors from each time period were paired to determine the exact nature of the dynamic (Table 2). Overall, slightly less than 60 percent of the 497 respondents remained in the same participation/non-participation category at the end of the three-year period. Of those who had never hunted in 1989 ($\underline{n}$ = 118), for example, 67 remained in that category in 1992. The majority of respondents who began hunting after 1989 ($\underline{n}$ = 118) did not hunt in 1992 ($\underline{n}$ = 46). While some decrease in the ranks of the "Never" category was expected, the large shift in respondents previously categorized as "Never" to the "Former" category was surprising. This finding may represent an anomaly in the data, perhaps attributable to some previously unknown measurement error influenced by interpretation of questions assigning respondents to categories. These respondents were eliminated from subsequent analyses. Respondents who reported being "Former" hunters in 1989 were much more likely to remain in that category in 1992 (84%) than to have resumed some level of participation. Moreover, 20 percent of the "Infrequent" hunters, 11 percent of the "Moderate" hunters and three percent of the "Frequent" hunters in 1989 did not hunt in 1992. As might be expected, those reporting they hunted less than six days per year in 1989 ("Infrequent") were the most tenuous in their activity. Only 37 percent of these "Infrequent" hunters continued to participate at that level in 1992. However, an almost equal number of respondents had increased their participation to the "Moderate" level and a few had even increased to a "Frequent" level. It would appear that "Moderate" and "Frequent" hunters were the most stable in their level of hunting activity, although those hunting between seven and 20 days per year in 1989 ("Moderate") were more likely to decrease their activity than those hunting more frequently. Eleven percent of the "Moderate" hunters had decreased their level of participation in 1992 and an equal number did not hunt at all. Almost 30 percent of these respondents increased their frequency of participation, however, to more than 20 days per year. Again, those hunting most frequently in 1989 were the most temporally stable in their participation (67% continuing at the same level) and demonstrated the lowest propensity not to hunt in 1992 (3%). It is interesting to note that the number of respondents who decreased their participation from "Frequent" to "Moderate" was comparable to the number increasing participation from "Moderate" to "Frequent," suggesting the fluidity of participation among hunters who participate in the activity with greater frequency. Therefore, in contrast to the participation/non-participation stability suggested by the aggregate data (see Table 1), the paired data (see Table 2) suggests that participation/non-participation was much more dynamic.

Stability of Constraint Factor Structure – Aggregate Analyses

Principal Component Analyses performed separately on the 1989 and 1992 data sets each produced factor solutions retaining six factors with Eigen values in excess of 1.0. The first factor, depicting respondents' *Antihunting Attitude and Preference* (or lack thereof) for hunting as a leisure activity, was composed of seven items in 1989 and 1992 (Table 3). Items loading on this factor were remarkably similar between the time periods. This first factor represents both the positive-negative continuum of attitudes toward hunting and the relative priority assigned to hunting as a leisure activity. The second factor in each time period reflected respondents' perceptions associated with the *Costs* of hunting and the third factor described a lack of *Access and Opportunity* to hunt. The only major difference found between the two factor structures (1989 and 1992) was the transposition of the fourth and fifth factors. In the initial phase, concerns over *Family and Work Commitments* produced a larger Eigen value than concerns over the perceptions that hunting on *Public Lands* is

"crowded" and "dangerous." In the second phase, respondents' concerns over *Public Lands* produced a greater Eigen value and explained more variance than their views that *Family and Work Commitments* left little time for hunting. Be that as it may, the strength and direction of the loadings for items assigned to each factor were remarkably stable between time periods. Statements that respondents perceived no barriers to their hunting, or that they were unable to hunt "due to physical disabilities" comprised the final factor in both time periods. This factor, *Physical Effect and No Barriers*, was neither as discernable nor as intuitive as the five previous factors, even though the same items loaded on this factor consistently in both time periods. The amount of variance explained by each model differed slightly between the two time periods; 67 percent of the total variance was explained by the 1989 model, slightly less (62.5%) in 1992. The variance explained by the factors in each time period indicated that most of the loss of explanatory power in the 1992 model was lost in the first factor, *Antihunting Attitude and Preference*. This factor explained almost five percent (4.8%) less variance in 1992 than in 1989. The final factor, *Physical Effect and No Barriers*, showed a 0.2 percent increase between 1989 and 1992. The reliability coefficients reported for each factor were similarly stable. Five of the six factors in each model produced highly reliable alpha statistics (> .70). Moreover, these statistics were consistent across time periods with the largest difference in Cronbach's alpha (.09) found for the third factor. The sixth factor was not deemed reliable in either time period (α = .14 and -.12, respectively). A decision was therefore made to eliminate this factor from additional analyses. With this exception, the factor structure of constraints to hunting was temporally stable in terms of the number of factors, composition, amount of variance explained (overall and by individual factors), and reliability.

Table 2 Disaggregate Distribution of Respondents among Participation/Non-participation Categories, 1989 and 1992 (N = 497)

				1992				
				Non-participation		Participation		
				Never (n = 67)	Former (n = 143)	Infrequent (n = 52)	Moderate (n = 113)	Frequent (n = 122)
1989	Non-participation	Never	(n = 118)	57%	39%	2%	1%	1%
		Former	(n = 81)	0%	84%	7%	7%	2%
	Participation	Infrequent	(n = 65)	0%	20%	37%	38%	5%
		Moderate	(n = 107)	0%	11%	11%	48%	30%
		Frequent	(n = 126)	0%	3%	6%	24%	67%

Note: Values along the diagonal represent "Stable" participation change group members. Values below the diagonal represent "Decreasers" and those above the diagonal, "Increasers".

Table 3 Results of a Principal Components Analysis of Perceived Constraint Factors, 1989 and 1992

Perceived Constraint Factors and Items	Factor Rank	Variance	Eigen value	Cronbach's alpha	Factor Loadings
		1989/1992			
Antihunting Attitude and Preference	1	28.39/23.57	5.94/4.94	.84/.84	
Prefer other leisure					.646/.603
Prefer free time at home					.604/.581
Hunting kills defenseless animals					.908/.900
Embarrassed to tell					.856/.781
No longer need to hunt for food					.899/.883
Game populations too low					.611/623
Require too much effort					.544/.527
Costs	2	12.47/12.20	2.61/2.57	.77/.70	
Equipment costs					.822/.717
License costs					.824/.747
Travel costs					.764/.779
Laws too confusing					.609/.600
Access and Opportunity	3	7.97/7.90	1.671.67/	.81/.72	
No access to private land					-.837/-.788
Do not know where to go					-.831/-.779
No opportunities near home					-.765/-.698
No one to hunt with					-.699/-.652
Family and Work Commitments	4	6.90/6.20	1.44/1.29	.70/.71	
Family commitments					-.844/-.850
Work commitments					-.827/-.787
Public Lands	5	6.40/7.40	1.34/1.54	.77/.77	
Public lands too crowded					.885/.886
Public lands too dangerous					.899/.892
Physical Effect and No Barriers	6	5.10/5.30	1.08/1.11	.14/-.12	
No Barriers					.727/.741
Physical Disability					.569/-.467
Total Variance Explained (%)		67.00/62.50			

Table 4 Aggregate Results of a Paired t-Test of Individual Differences in the Intensity of Perceived Constraints[1], 1989-1992

Perceived Constraints Scale	1989	1992	1989-1992 Change	t	p
Antihunting Attitude and Preference	4.057	3.837	-.201	7.804	.001
Costs	3.445	3.380	-.065	1.611	.108
Access and Opportunity	3.853	3.773	-.080	2.627	.009
Family and Work Commitments	3.207	3.067	-.140	2.983	.003
Public Lands	2.489	2.709	.220	-4.548	.001

[1] Table values represent mean scores for a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree.

Stability of Constraint Intensity – Aggregate Analyses

Whereas constraint factor structure was temporally stable, intensity of perceived constraints was dynamic. Based on a paired t-Test (repeated measures), differences between 1989 and 1992 were assessed for each summated constraint scale (Table 4). Significant differences were found between the two phases for the *Antihunting Attitude and Preference, Access and Opportunity, Family and Work Commitments* and *Public Lands* constraint scales. Respondents reported that perceived *Antihunting Attitude and Preference, Access and Opportunity, Family and Work Commitments* constraints decreased between 1989 and 1992. Conversely, perceptions that *Public Lands* were "crowded" and "dangerous" had increased. No significant differences between phases were reported for the *Costs* constraint scale.

Relationship of Participation/Non-Participation and Constraint Intensity

One-way Analyses of Variance with *post hoc* Scheffé range tests were used to assess differences between participation change groups (i.e., "Stable", "Increasers", "Decreasers") with respect to change in intensity of perceived constraints. Significant differences were found between groups for three of the five constraint scales (Table 5). With regard to intensity of the *Antihunting Attitude and Preference* constraints scale, there was a significant difference between participation change groups. Specifically, those respondents that remained stable or experienced a decrease in participation between the two study phases reported an increase in antihunting attitude and a low preference for hunting as a leisure activity, and differed significantly from "Increasers" who experienced a slight decline in the intensity of this constraint. Similarly, there was a significant difference between participation change groups with regard to intensity of the *Costs* constraint scale. "Increasers", differing from those that remained "Stable", perceived the intensity of cost constraints to have lessened over the three-year period. Although all three participation change groups perceived an increased intensity in the *Access and Opportunity* constraints scale, those whose participation decreased over the study period differed significantly from and reported greater constraint intensity than did either those whose participation increased or remained stable. There were no significant differences found between groups with regard to the *Family and Work Commitments* or *Public Lands* constraint scales.

Table 5 Changes in the Intensity of Perceived Constraints to Hunting Participation (1989-1992) between Participation Change Groups

	Participation Change Group				
Perceived Constraints Scale	Increasers"	Stable"	"Decreasers	*F*	p
Antihunting Attitude and Preference	-.038[a]	.184[b]	.302[b]	9.905	.001
Costs	-.131[a]	.141[b]	113[ab]	3.942	.020
Access and Opportunity	.020[a]	.028[a]	.278[b]	4.365	.013
Family and Work Commitments	.000	.163	.215	1.007	.366
Public Lands	-.259	-.200	-.227	0.120	.887

Note: Mean scores (representing change in the intensity of perceived constraints on a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree) with different superscripts differ significantly at $p \leq .05$ based on Scheffé range test comparisons.

Conclusions

The purpose of this study was to test the efficacy of a panel study for assessing the temporal stability of perceived constraints and hunting participation/non-participation. Five conclusions can be drawn from this study that further enhance our understanding of methodological implications, hunting participation, constraints, and their interrelationship.

Participation/non-participation patterns were stable for the population, yet dynamic at the individual-level. It can be concluded that to gain a better understanding of the individual nature of recreation and leisure behavior, efforts must be taken to conduct panel research. In this study, the nature of individual participation/non-participation would have mistakenly appeared stable (as was the case for the aggregate, population-level data), had it not been for the study design utilizing identical respondents and allowing individual-level analysis. These data indicate that participation rates were fairly stable at the population-level of analysis. Yet, when data are disaggregated and assessed at the individual level, a dynamic picture of participation/non-participation behavior is gained. This dynamic was masked in aggregate analyses due to mitigating effects of recruitment and desertion among categories.

The factor structure of perceived constraints to hunting participation in Virginia appeared to be stable, but the intensity of perceived constraints varied significantly

between time periods. Constraint factor structures from each time period were remarkably similar in terms of the number of factors, their composition, variance explained and scale reliability. Antihunting *Attitude and Preference* to participate in other activities explained the greatest amount of variance to hunting participation in both time periods. In addition, *Costs* associated with hunting, *Access and Opportunity* to hunt, *Work and Family Commitments*, and perceptions about hunting on *Public Lands* were viewed consistently as constraints by respondents. Whereas constraint factor structure was temporally stable, intensity of perceived constraints was dynamic. Significant differences were found for the *Antihunting Attitude and Preference*, *Access and Opportunity*, *Family and Work Commitments* and *Public Lands* constraint scales. Specifically, constraints decreased between 1989 and 1992 for all constraint scales except *Public Lands*, for which the intensity of constraints had increased. No significant differences between phases were reported for the *Costs* constraint scale.

Intensity of Antihunting Attitude and Preference, Costs, and Access and Opportunity constraints distinguished those who increased, decreased, and remained stable in their participation. "Decreasers" and "Stable" respondents, reporting increased intensity of the *Antihunting Attitude and Preference* constraint scale, were significantly different from "Increasers," who reported a slight decrease in intensity. Decreased intensity of *Costs* among "Increasers" was significantly different from comparable increases in intensity reported by respondents categorized as "Stable." No significant differences were found between either those that increased or remained stable in their participation/non-participation and those who experienced a decrease. This particular constraint appears to have more relevance to those who continue to participate than those who do not. In contrast, increases in the intensity of the *Access and Opportunity* constraint differentiated those who decreased their participation from all others.

Given that most constraint research is psychologically grounded, it appears more appropriate to employ research designs (panel, repeated measures) that allow individual-level analyses. To illustrate this point, consider the *Antihunting Attitude and Preference* constraint that was shown to decrease in intensity at the population-level. When data were analyzed at the individual level, respondents who remained stable or experienced a decrease in participation actually reported an increase in antihunting attitude and low preference for hunting as a leisure activity, differing significantly from "Increasers" who reported a slight decrease in the intensity of this constraint. This disparity in population- and individual-level analyses results suggests that cross-sectional designs may be less suitable for constraints research and that findings of aggregate analyses may be misleading.

The Antihunting Attitude and Preference constraint appears key to understanding behavioral response, but the nature of this constraint deserves a more in-depth examination, focusing on the interrelationships among attitude toward, interest in, and preference for hunting as a leisure activity. Within each of the analyses conducted in this study, the importance of the *Antihunting Attitude and Preference* constraint was consistently demonstrated. A significant decrease in the intensity of this perceived constraint was found when comparing data for 1989 and 1992. Moreover, this constraints scale distinguished between "Increasers" and those who remained "Stable" or decreased their participation These findings also illustrate the duality of the *Antihunting Attitude and Preference* construct and the need for future research.

A fertile area for research is, therefore, an exploration of the interrelationships among attitudes toward, interest in, and preference for hunting as a leisure activity. The ability to isolate, measure and model these constructs (within the context of a leisure activity), in terms of their antecedents, strengths and sustainability, would be invaluable in explaining why people choose to adopt one activity over another, why they continue or discontinue participation, and further explain how each mitigates a person's ability to negotiate constraints.

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THE INFLUENCES OF GENDER ON FISHING PARTICIPATION IN NEW YORK'S EASTERN LAKE ONTARIO COUNTIES

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Abstract: Recreational fishing generates millions of dollars in visitor expenditures every year in New York's Great Lakes Region. While projected total participation in recreational fishing statewide is anticipated to increase between 1996 and 2005, the number of anglers in the 18- to 44-year-old age class is expected to decrease by an estimated 7.9% or 32,049 anglers. In order to identify factors that influence fishing participation in the 18- to 44-year-old age class, NY Sea Grant and the SUNY College of Environmental Science and Forestry conducted a mail survey of 1050 anglers (525 males and 525 females) in three eastern Lake Ontario Counties in 2001. Of the qualified sample of 957 anglers, 279 anglers (136 males and 143 females) returned surveys for a response rate of 29.2%. Anglers were asked to identify their level of fishing participation during their childhood, adolescence, and adult years, and to quantify their level of agreement/disagreement with statements concerning social and psychological factors that may have influenced their fishing participation. Descriptive statistics are used to identify significant differences in responses between genders. Results indicate that fishing participation by males and females is reliant on the social linkages related to fishing developed by anglers as well as the development of intrinsic values for fishing.

Introduction

As fisheries managers and promoters seek strategies for increasing angler participation, information concerning how males and females are initiated into fishing and the factors that influence their continued participation become more important. In New York State, the projected total participation in recreational fishing statewide is anticipated to increase between 1996 and 2005, while the number of anglers in the 18- to 44-year-old age class is expected to decrease by an estimated 7.9% or 32,049 anglers (Connelly et al. 1999). Although this projected decline is mainly due to changes in the population structure of New York State, identifying new market groups, such as female anglers, can be useful in offsetting future declines. Female anglers comprise only 12.3% of anglers fishing in New York State (Connelly et al. 1997), generating further questions about why relatively fewer females than males become involved in fishing.

In order to identify the social and psychological factors that influence fishing participation, this study examines fishing involvement during the major stages of development in the lives of female and male anglers (i.e., childhood, adolescence, and adulthood). The hypotheses being tested are:

1. Significant differences exist between how females and males are initiated into fishing.
2. Significant differences exist between the mean levels of fishing participation for males and females during childhood, adolescence, and adulthood.
3. Significant differences exist between males and females concerning fish species sought, location of fishing activity, and individuals with whom anglers fished during childhood, adolescence, and adulthood.
4. Significant differences exist between males and females concerning the social and psychological factors that influence fishing participation during childhood, adolescence, and adulthood.

Background

The participation of adults in fishing has been linked to their childhood participation in fishing (Siemer et al. 1989). Other studies indicate that children who experience recreational activities with their parents are more likely to participate in these same activities as adults (Sofranko and Nolan 1972; Yoesting and Burkhead 1973; Siemer et al. 1989). Mannell and Kleiber (1997) discuss "socialization into leisure" as the process by which children "acquire the motives, attitudes, values, and skills that affect their leisure choices, behavior, and experiences throughout their lives." Duda and others (1999) state that "fishing is best understood as an aspect of family life given the fact that most anglers are initiated within the context of the family." Participation in recreational activities that involve a high skill level (e.g., fishing) may be more dependent on the process of leisure socialization than outdoor recreation activities involving a relatively low skill level (e.g., hiking). In addition, Kane (1990) suggests that the leisure socialization process of children is likely influenced by gender roles. While the leisure socialization of male children often focuses on "competence, mastery, and independence," female leisure socialization fosters dependency, restrictive exploration, and limited physical play" (Block 1982, as in Kane 1990).

Adolescence may be a crucial time in determining if individuals who fished as children continue to participate in fishing. According to Erikson (1963), adolescence is the developmental stage during which people develop a sense of identity through both identification with others and individuation (i.e., defining themselves as unique from others). In identifying themselves with others, adolescents may choose to continue participating in an activity that they did with their parents, but with individuals other than their parents. In defining themselves as different from others, adolescents may also begin to participate in recreational activities different from those in which their parents participate. Thus, adolescents may stop participating in activities, such as fishing, that they did as children with their parents, or they may try different types of related activities (e.g., a child taught to fish from the shoreline of a lake with his or her parents may switch to fishing from a motorboat). Shaw et al. (1995) notes that adolescents spent the highest proportion of their time (14.9% of total time) in social activities with friends. If fishing is not linked with

social activities during adolescence, fishing may not provide adequate interest to keep teens involved. If teens do not remain involved in fishing during adolescence, the likelihood that they will participate in fishing as adults may decrease.

As individuals mature into adults, the social and intrinsic values they develop related to fishing during adolescence may determine whether they continue to fish or not. Duda et al. (1999) found that many women are not fully initiated into fishing until adulthood. This late initiation may make it more difficult for females to develop an intrinsic value for the sport, causing them to either drop-out of fishing or fish less often than males.

Methods

In November, 2000, a random sample of the fishing license stubs of 1050 anglers (525 females and 525 males) was collected from the New York State Department of Environmental Conservation for anglers who purchased their licenses in 1999 in three eastern Lake Ontario counties of New York (i.e., Wayne, Oswego, and Jefferson Counties). The sample was constrained to anglers residing in New York State at the time of their license purchase, and who ranged in age from 18 to 44 during the year 2000. In order to obtain comparison data between males and females, the sample consisted of half females and half males.

Using the factors identified in a model explaining the social-psychological process of initiation and continued participation in wildlife recreation (Decker et al. 1987), psychological (internal) and social (external) factors identified as influencing fishing participation were identified. These factors included motivations for participation (i.e., opportunity, support from friends and relatives, expectations of friends and relatives, commitment to fishing, perceived fishing ability, value of fishing to the angler, and importance of fishing as a custom or tradition) and anglers' goals for fishing (i.e., affiliation, appreciation of natural resources, and achievement). Using these factors, a mail survey was designed to obtain information about the involvement of anglers in fishing during their childhood, adolescence, and adulthood.

Survey questions were short answer, and similar questions were used for each life stage to enable comparisons between life stages. Anglers were asked to check responses concerning their fishing initiation, as well as where, how, and with whom they fished as children, adolescents, and adults. Participation questions included for these life stages were based on three angler participation categories identified by Duda and others (1999): infrequent anglers (i.e., those who fished at least once in one to two of the past five years); sporadic anglers (i.e., those who fished at least once in three to four of the past five years); and avid anglers (i.e., those who fished at least once a year). Because the survey involved recall of childhood and adolescent experiences, survey questions concerning participation were modified to reflect these stages of development. Based on the frequency distributions of avid (i.e., annual) anglers, four levels of annual anglers were created. To account for life stages during which respondents did not fish, a "no participation" category was created. Thus, seven levels of participation were identified: 0 – no participation; 1 –infrequent (i.e., respondents fished every other year or less); 2 – sporadic (i.e., respondents fished almost every year); 3 – annual-low (i.e., respondents fished on average between 1 and 5 times per year); 4 – annual-medium (respondents fished on average between 5.1 and 10 times per year); 5 – annual-high (i.e., respondents fished on average between 10.1 and 20 times per years); and 6 – annual-highest (i.e., respondents fished on average over 20 times per year).

Data concerning the goal of affiliation and the motivations influencing fishing participation were collected using questions based on a Likert-like scale ranging from –3 (strongly disagree) to 0 (neutral) to 3 (strongly agree). Questions on angler achievement and resource appreciation used a similar scale that ranged from –3 (highly unspecialized) to 0 (neutral) to 3 (highly specialized). Variables related to achievement and resource appreciation were identified from literature on fishing specialization (Bryan 1977; Chipman and Helfrich 1988; Fisher 1997). Variables were combined into factors representing the goals and motivations, and the mean value for each factor was calculated.

In January, 2001, the surveys were mailed to anglers. A modified Total Design Method (Dillman 1978) was used to increase the response rate of anglers to the survey. The first mailing of the survey was followed by a postcard reminder, an additional mailing of the survey, and finally an additional reminder postcard. Data from the completed surveys were entered into SPSS. Proportions of males and females selecting each categorical answer on the survey were compared using two-independent-sample z-tests. In addition, the mean ages of initiation and mean levels of participation for males and females during each life stage were compared using two-independent-sample t-tests. The means of the factors representing goals and motivations were compared for males and females having a participation level greater than 0 during each life stage with two-independent-sample t-tests.

The existence of nonresponse bias was checked by attempting to contact 50 nonrespondents. A short mail survey comprised of five questions about fishing participation during childhood, adolescence, and adulthood was sent to nonrespondents by certified mail. Follow-up telephone calls were used to contact those who did not respond to this short survey. Mean levels of participation during each life stage were compared between respondents and nonrespondents using two-independent-sample t-tests.

Limitations

The sampling and research methods used in this study involve the following four limitations.

1. The actual proportion of females involved in freshwater fishing in New York State (12.3% in 1996) is much lower than the proportion of males (87.7% in 1996; Connelly et al. 1997). Since equal numbers of males and females are sampled for this study, the sample of female anglers may

be more representative of the population of female anglers than is the sample of male anglers of the population of male anglers.
2. The sample includes only anglers who purchased their licenses in the eastern New York counties along Lake Ontario in New York State. It is likely that respondents participate in Great Lakes fishing more frequently than anglers who purchase their fishing licenses elsewhere.
3. Anglers who fish in the counties along eastern Lake Ontario but who purchased their licenses outside of this area will not be included in the sample. It is assumed that the majority of anglers who fish in the counties bordering eastern Lake Ontario will have purchased their licenses in these counties.
4. The results of this study may be subject to recall biases since anglers are asked to recall their fishing participation during childhood and adolescence.

Results and Discussion

A total of 1050 surveys were mailed to anglers. Following the removal of undeliverable surveys from the sample, a qualified sample of 477 female and 480 male anglers was identified from the original sample of 525 female and 525 male anglers. From this qualified sample, 143 female and 136 male anglers returned completed surveys for a response rate of 30.0% (females) and 28.3% (males). The total response rate for females and males combined was 29.2%.

Contact with 25 nonrespondents was made. Two-independent-sample t-test comparisons between survey respondents and nonrespondents revealed a significant difference ($p \leq 0.05$) between the adult mean levels of participation for respondents (3.90) and nonrespondents (2.88). These data indicate that participation levels for the population of anglers residing within the eastern Lake Ontario counties sampled may be lower than shown in this study.

Demographics

The sample was comprised of 51% females and 49% males. Ages of respondents ranged from 18 to 44, with an average age of 33. The average respondent had 13.7 years of schooling. Thirty-four percent of respondents did not have children, while 66% did. The majority of respondents lived with their spouse/significant other and with or without children (78%), while 8% lived with their parent(s) or other relatives, 7% lived alone, 4% were single parents living with or without children, and 3% of lived with friends or in college dorms. While the majority of respondents were Caucasian (91%), 1% of the respondents were African American, 6% were Native American, and 2% were of other racial or ethnic backgrounds. With regard to residence location, 61% of respondents lived in rural areas or villages (under 5,000 in population), 22% in small cities or suburbs (between 5,000 and 24,999), 12% in medium cities (between 25,000 and 99,999), and 5% in large cities (over 100,000). The analysis of demographic variables indicates that the sample is largely representative of married Caucasian anglers residing in rural areas and small cities.

Initiation

The mean initiation age for all female respondents (n = 130) was 9.8 years of age and was significantly different from the mean initiation age of 6.8 years for all males (n = 129; $p \leq 0.05$). However, there was no significant difference between the mean initiation age of females (6.1 years) and males (6.2 years) who began fishing as children (n = 101 and n = 125, respectively). A larger proportion of female respondents overall began fishing as adolescents (6% of all female respondents) and adults (14%) compared to male respondents (1% of all male respondents began fishing as adolescents and 2% began as adults). Females who begin fishing later in life may not develop the same social and intrinsic linkages with fishing as males.

The individuals responsible for initiating anglers into fishing (i.e., initiators) were identified. Most responding anglers were initiated into fishing by their fathers (Table 1), with no significant difference existing between males and females for this initiator category. Significant differences were identified between the proportions of female (13%) and male anglers (31%) initiated into fishing by relatives other than their parents (Table 1). These data indicate that socialization into fishing during childhood within the immediate family may differ from that with relatives outside of the immediate family. Significant differences were also noted between the proportions of males and females initiated into fishing by their spouse or significant other, and by themselves.

Survey respondents were also asked to identify the factors that influenced their initial fishing participation (Table 2). Success at catching fish and the skills of the initiators were the most influential factors. While no significant difference exists between the proportions of females and males influenced by the skills of their initiator, a significant difference did exist concerning those influenced by success at catching fish. The lower proportion of females influenced by success indicates that females may be more interested in aspects of the fishing experience other that catching fish (e.g., socializing).

Table 1 A comparison of the proportions of female and male anglers according to the individual who initiated them to fishing.

Initiator	Proportion	
	Females[a]	Males[b]
Father	0.63	0.74
Mother	0.18	0.12
Spouse/Sig. other	**0.22**	**0.00**
Sibling	0.14	0.10
Relative	**0.13**	**0.31**
Organization leader	0.03	0.05
Friends (clarify)	0.08	0.12
Self	**0.04**	**0.10**
Other adults	0.02	0.02

[a] $N_{females} = 142$
[b] $N_{males} = 135$
* Significant differences identified through a two-independent-sample z-test (p-value ≤ 0.05) are in bold.

Table 2 A comparison of the proportions of male and female respondents identifying characteristics that influenced their initial fishing participation.

Factor	Proportion*	
	Females[a]	Males[b]
Watching fishing shows on TV	0.15	0.23
Visiting fish hatcheries	0.15	0.21
Initiator's knowledge and skills	0.52	0.50
Learning about fish in school	0.01	0.05
Reading fishing publications	**0.05**	**0.23**
Seeing fish/fishing exhibits	0.08	0.14
Success at catching fish	**0.61**	**0.82**
No factors influenced initiation	**0.06**	**0.01**
Other	**0.13**	**0.05**

[a] $N_{females} = 142$
[b] $N_{males} = 135$
* Significant differences identified through a two-independent-sample z-test (p-value ≤ 0.05) are in bold.

Angler participation

Analysis of the proportions of male and female respondents who fished during childhood and adolescence reveal significant differences (p-values ≤ 0.05) during both childhood and adolescence. While 97% of males who currently fish as adults fished as children, a lower percentage of female respondents (80%) fished as children. Likewise, while 95% of current male respondents fished as adolescents, 77% of female respondents fished during that life stage.

Mean levels of fishing participation differed significantly between female and male respondents during childhood, adolescence, and adulthood as well. For all respondents (including those who did not fish during childhood and/or adolescence; Table 3), significant differences occurred between males and females during childhood, adolescence, and adulthood. When the participation levels of only those male and female respondents who did fish during each life stage were compared, significant differences continued to exist at each life stage. For both respondent groups, the mean level of participation for female respondents was lower than the mean level for male respondents. In addition, while the mean level of participation for males increased from childhood to adolescence, it decreased for females during this same transition in life stage.

Table 3 Mean participation levels for males and females. "All respondents" includes those who did not fish during childhood and/or adolescence.

Respondent groups	Life stage	Mean*	
		Females	Males
All respondents	Childhood[a]	**2.85**	**4.29**
	Adolescence[b]	**2.67**	**4.39**
	Adulthood[c]	**3.41**	**4.40**
Respondents who fished during life stage only	Childhood[d]	**3.59**	**4.42**
	Adolescence[e]	**3.48**	**4.63**
	Adulthood[c]	**3.41**	**4.40**

[a] $N_{females} = 136$ and $N_{males} = 136$
[b] $N_{females} = 141$ and $N_{males} = 134$
[c] $N_{females} = 139$ and $N_{males} = 136$
[d] $N_{females} = 108$ and $N_{males} = 132$
[e] $N_{females} = 108$ and $N_{males} = 127$
* Significant differences identified through a two-independent-sample z-test (p-value ≤ 0.05) are in bold.

Characteristics of fishing activity

The diversity of fish species sought by anglers also differed significantly between life stages for male and female respondents. During childhood, male respondents fished for an average of 4.6 different species of fish while females fished for an average of 3.4 species (significant at p-value $\leq$ 0.05). Similar significant differences existed for respondents during adolescence (females fished for 3.8 species on average and males fished for 5.3 species) and adulthood (females fished for 4.2 species on average and males fished for 5.5 species). During each life stage, over 50% of female respondents fished for bass, bullhead, and perch, while over 50% of male respondents sought these species as well as other species.

Respondents generally fished in a diversity of waterbodies during childhood, adolescence, and adulthood. Ponds and small creeks were commonly chosen during childhood. In adolescence, creeks and small lakes were commonly chosen. Waterbody size tended to increase during adulthood, when most respondents fished in the Great Lakes. For all waterbodies, the proportion of males fishing each type of waterbody is greater than the proportion of females.

The fishing location most commonly chosen by respondents during all life stages is "from shore" (Table 4). Fishing from motorized and nonmotorized boats was also common for respondents. Significant differences in fishing from motorized and nonmotorized boats are shown for male and female respondents during adolescence and adulthood. In addition, a significant difference during all life stages exists for wading in streams, and for wading in lakes during adolescence and adulthood. The socialization of females into fishing may involve fishing experiences that are less exploratory than those experienced by males.

The individual(s) with whom respondents fished varies by life stage (Table 5). During childhood, large proportions of male and female respondents fished with their parent(s). During adolescence, the proportions of respondents who fished with parent(s) declined while the proportions fishing

with friends increased. In adulthood, responding anglers fished the most with either their spouse or friends. Significant differences were noted between male and female respondents at all life stages for fishing with friends and alone, and during adulthood for respondents fishing with their spouse or significant other.

Table 4 A comparison of proportions of female and male respondents for the locations from which they fished.

Location	Proportion*					
	Childhood[a]		Adolescence[b]		Adulthood[c]	
	Females	Males	Females	Males	Females	Males
From a motorboat	0.41	0.51	**0.53**	**0.67**	**0.62**	**0.85**
From a non-motorized boat	0.32	0.39	**0.27**	**0.50**	**0.35**	**0.51**
From shore	0.97	0.96	0.94	0.97	0.85	0.88
Wading in lakes	0.18	0.26	**0.22**	**0.44**	**0.16**	**0.39**
Wading in streams	**0.17**	**0.35**	**0.21**	**0.53**	**0.28**	**0.50**
Other	0.03	0.01	0.06	0.05	0.07	0.11

[a] $N_{females}=107$ and $N_{males}=130$
[b] $N_{females}=109$ and $N_{males}=126$
[c] $N_{females}=134$ and $N_{males}=132$
* Significant differences identified through a two-independent-sample z-test (p-value ≤ 0.05) are in bold.

Table 5 A comparison of the proportions of females and males according to the individuals with whom respondents fished.

Individual	Proportion*					
	Childhood[a]		Adolescence[b]		Adulthood[c]	
	Females	Males	Females	Males	Females	Males
Parent(s)	0.84	0.80	0.68	0.62	0.26	0.23
Spouse/Significant other	na	na	na	na	**0.81**	**0.41**
Angler's children	na	na	na	na	0.50	0.49
Sibling(s)[d]	0.62	0.52	0.54	0.54	--	--
Relative(s)	0.45	0.51	0.34	0.44	0.29	0.39
Other adult(s)	**0.24**	**0.38**	0.28	0.36	na	na
Friend(s)	**0.29**	**0.58**	**0.52**	**0.81**	**0.43**	**0.81**
Self	**0.27**	**0.48**	**0.36**	**0.73**	**0.25**	**0.65**
Club members	**0.03**	**0.09**	0.06	0.04	0.01	0.04

[a] $N_{females}=107$ and $N_{males}=130$
[b] $N_{females}=108$ and $N_{males}=126$
[c] $N_{females}=135$ and $N_{males}=132$
[d] "Sibling(s)" were grouped with "Relative(s)" in the adulthood category.
*Significant differences identified through a two-independent-sample z-test (p-value ≤ 0.05) are in bold.

Social and psychological factors influencing fishing participation

The three goals identified by Decker and others (1987) for individuals involved in wildlife-related recreation are affiliation, appreciation of natural resources, and achievement. While significant differences were identified between male and female respondents during all life stages for affiliation and achievement, no significant differences were identified for resource appreciation (Table 6).

Results for comparisons between male and female anglers for the seven motivational factors chosen for comparison (Decker et al. 1987) reveal important differences between males and females during all life stages (Table 6). The perceived opportunity of anglers is higher for male respondents than females at all life stages, although a significant difference occurs during adolescence only. The support and expectations of family and friends perceived by male respondents during all life stages were greater than those perceived by females. Custom (i.e., the traditional importance of fishing to respondents) was found to be significantly different for male and female respondents during adulthood. Perceived ability and commitment to fishing were higher for male respondents than for females, with significant differences occurring at all life stages. The value of fishing to respondents was moderately high during all life stages, but only significantly different between males and females during adulthood.

Conclusion

Both similarities and differences were identified between male and female respondents for initiation, participation, fishing characteristics, and the social and psychological factors influencing participation. While only differences between males and females were hypothesized concerning initiation, both differences and similarities were identified. Twenty percent of female respondents began fishing either during adolescence or adulthood. This "late start" could be linked to the lower proportion of females initiated by relatives outside of their immediate family as children (i.e.,

females may have fewer potential initiators) or by themselves. Initiation for both males and females is influenced by the initiator's skills and the angler's success. If anglers are not successful at catching fish or do not improve their fishing skills, they may lose interest in the sport over time and fish less.

Significant differences were hypothesized for the levels of fishing participation for males and females, and were noted during childhood, adolescence, and adulthood. It is likely that the levels of participation of anglers influences their skill development, and, consequently, their development of an intrinsic value for the sport of fishing. In addition, a slight decline in the mean participation level occurred for females during adolescence, a time when the mean participation level for males increased. It is likely that participation is strongly linked to social interaction during this life stage. Males may more easily link fishing with social interaction during adolescence than females because they may be more likely to have friends that fish.

Both similarities and differences were identified for the fishing characteristics of male and female respondents, though only significant differences were hypothesized. Female respondents sought a lower diversity of fish and used less exploratory methods of fishing. While similarities for fishing partners exist within the immediate family of respondents during childhood, lower proportions of females fished with relatives outside the immediate family and by themselves. The fishing experiences of females may not be as effective at stimulating an interest in the sport as those of males, and may be limited by fewer fishing partners.

The final hypothesis examined by this study is that significant differences exist between males and females concerning the social and psychological factors thought to influence fishing participation during all life stages. Female respondents, with lower levels of perceived ability, achievement, and commitment, may not be adequately developing an intrinsic value for fishing. Male respondents, in contrast, may have a stronger intrinsic value for fishing, contributing to their higher level of participation during adulthood. The development of an intrinsic value for fishing is likely linked to anglers' level of participation during childhood and adolescence. Thus females, who participate less in fishing than males during childhood and adolescence, may be developing weaker intrinsic values for fishing than male respondents.

In conclusion, significant differences were noted for participation, initiation, fishing characteristics, and social and psychological factors influencing fishing participation. Similarities, however, were also noted. While similarities are more common between male and female respondents during childhood, fewer are noted during adolescence when social linkages strongly influence fishing participation. It is likely that continued fishing participation during adulthood is reliant on the development of social linkages related to fishing and of an intrinsic value for fishing.

Table 6 Social and psychological factors influencing participation for male and female respondents during childhood, adolescence, and adulthood.

Factor	Mean*					
	Childhood[a]		Adolescence[b]		Adulthood[c]	
	Females	**Males**	**Females**	**Males**	**Females**	**Males**
Affiliation[e]	**0.50**	**1.38**	**0.27**	**1.47**	**0.88**	**1.74**
Resource appreciation[d]	-1.08	-1.04	-0.66	-0.44	-0.35	-0.04
Achievement[e]	**-1.83**	**-1.46**	**-1.38**	**-0.48**	**-0.88**	**0.06**
Opportunity[e]	**1.68**	**2.05**	**1.35**	**1.92**	**2.25**	**2.46**
Support[e]	**0.84**	**1.65**	**0.72**	**1.57**	0.63	0.83
Expectations[e]	**-1.08**	**0.08**	**-0.28**	**0.52**	**0.56**	**1.86**
Custom[e]	0.78	0.47	0.25	0.25	**0.82**	**1.33**
Perceived ability[e]	**0.94**	**1.52**	**1.33**	**2.04**	**1.52**	**2.30**
Commitment[e]	**-1.34**	**-0.48**	**-1.06**	**-0.15**	**-0.90**	**-0.24**
Value of fishing [e]	2.34	2.25	2.14	2.24	**2.21**	**2.44**

[a] $N_{females} = 106$ and $N_{males} = 130$
[b] $N_{females} = 109$ and $N_{males} = 128$
[c] $N_{females} = 134$ and $N_{males} = 134$
[d] rated on a scale of –3 (highly unspecialized) to 0 (neutral) to 3 (highly specialized)
[e] rated on a scale of –3 (strongly disagree) to 0 (neutral) to 3 (strongly agree)
*Significant differences identified through a two-independent-sample t-test ($p \leq 0.05$) shown in bold

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Resource Quality Indicators and Standards

INDICATORS AND STANDARDS OF QUALITY FOR THE SCHOODIC PENINSULA SECTION OF ACADIA NATIONAL PARK, MAINE

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Abstract: A multi-year research initiative was undertaken to inform park planning and management efforts at the Schoodic Peninsula Section of Acadia National Park, Maine. This research focused on developing information that will enable formulation of indicators and standards of quality. The first phase of research in the summer of 2000 obtained descriptive information on visitor use and users through an initial visitor survey and identified several potential indicators of quality for park resources and the visitor experience. The second phase of research in the summer of 2001 obtained descriptive information through a second visitor survey and gathered data on normative standards of quality for selected indicator variables. Indicators and standards of quality addressed in this study span both park resources and the visitor experience and include the number of cars on the park loop road, the number of visitors at selected park attractions, and resource impacts on hiking trails. Results indicate that visitors are able to provide information necessary to help determine indicators of quality pertinent to their experience at the Schoodic Peninsula. Further, visitors are able to make normative judgments about a variety of evaluative dimensions across a diversity of indicator variables. Research findings and their management implications are presented.

Introduction

A portion of the Schoodic Peninsula is contained within Acadia National Park. The Schoodic Peninsula includes lands owned and managed by the U. S. Navy, including lands at Schoodic Point (Big Moose Island) within the boundaries of Acadia National Park. The Navy Base at Schoodic Point is scheduled to close in 2002. The base property at Schoodic Point, including its infrastructure, will be transferred to the National Park Service as a result of the closure. Closure of the base, a major employer and contributor to the economy and community life, will have a significant impact on the region. State and local interest in and concern about the future of the base facilities and their use is high. The National Park Service, through Acadia National Park, has a great interest in the future of the property as well, considering its mission of preserving resources and providing high quality visitor experiences. The park General Management Plan (GMP) states that opportunities for low-density recreation should be retained on Schoodic Point. It says that Schoodic Point should not be promoted and the park should not provide additional facilities there. The National Park Service has begun to plan for the future of the base property and the entire Schoodic Point section of the park. An amendment to the GMP will be prepared that encompasses both of these issues.

A two-year research initiative was undertaken in order to inform park planning and management efforts. Study objectives were: 1) gather baseline information about current visitors including demographic and socioeconomic characteristics, and recreation activities and use patterns, 2) measure recreation use levels at selected sites, 3) determine indicators and standards of quality for the recreation experience, and 4) measure the attitudes of park visitors and Navy Base personnel concerning the future of the Navy Base property. This paper focuses on the determination and evaluation of indicators and standards of quality for the Schoodic Peninsula section of Acadia National Park.

Indicators and Standards of Quality

Contemporary park and outdoor recreation planning frameworks, such as Limits of Acceptable Change (Stankey et al. 1985) and Visitor Experience and Resource Protection (National Park Service 1997) rely on baseline information about park users and formulation of indicators and standards of quality of the visitor experience. Indicators of quality are measurable, manageable variables that help define the quality of the visitor experience. Standards of quality define the minimum acceptable condition of indicator variables.

Normative theory and empirical techniques have been applied to determine standards of quality and this approach is described by Shelby and Heberlein (1986), Vaske et al. (1986), and Manning (1999). These applications have built upon the work of Jackson (1965) who developed a

methodology to measure norms. Using these methods, the personal norms of individuals can be aggregated to derive social or societal norms. Normative research in outdoor recreation has focused largely on the issue of crowding (e.g., Vaske et al. 1986; Shelby 1981; Heberlein et al. 1986; Patterson and Hammitt 1990; Williams et al. 1991; Whittaker and Shelby 1988), but has also been expanded to include other potential indicators of quality, including ecological impacts to wilderness campsites (Shelby et al. 1988), wildlife management practices (Vaske and Donnelly 1988), and minimum stream flows (Shelby and Whittaker 1990).

As noted above, standards of quality define the minimum acceptable condition of indicator variables. Research on visitor-based standards of quality has increasingly focused on personal and social norms. Developed in the fields of sociology and social psychology, norms have attracted considerable attention as an organizing concept in outdoor recreation research and management. In particular, normative theory and techniques have special application to setting standards of quality for the recreation experience. Norms are generally defined as standards that individuals and groups use for evaluating behavior and social and environmental conditions (Vaske et al. 1986; Donnelly et al. 1992; Shelby and Vaske 1991). If visitors have normative standards concerning relevant aspects of recreation experiences, then such norms can be studied and used as a basis for formulating standards of quality.

Traditionally, norms have been measured through a numerical approach. For example, respondents are asked to evaluate the acceptability of alternative use levels, such as 0, 5, or 10 encounters with other groups per day along trails. Resulting data are aggregated to derive social norms. More recently, visual approaches to measuring norms have been developed (Hof et al. 1994; Manning et al 1995; Manning et al. 1996a; Manning et al. 1996b; Manning et al. 1999). In the technique, computer software is used to manipulate photographs to depict alternative use levels and/or alternative levels of visitor-caused impact. This study used the visual approach to measuring crowding norms at three study sites (Schoodic Point, Frazer Point, and the park's scenic drive) and norms for visitor-caused environmental impacts to hiking trails.

Methods

An initial visitor survey was conducted in the summer of 2000. The purpose of this survey was to gather baseline information on demographic and socioeconomic characteristics of visitors to the Schoodic Peninsula section of Acadia National Park, recreation activities and use patterns, indicators of the quality of the recreation experience at the Schoodic Peninsula section of the park, and visitor attitudes toward future use of Navy Base property. The survey was administered on ten randomly selected days in July and August. Trained surveyors were stationed at an automobile pullout near the park exit. At the beginning of each sampling day, an interviewer pulled over the first vehicle to exit the park and asked the occupants if they would be willing to participate in the survey. Respondents were given a copy of the self-administered questionnaire and asked to complete it before leaving the park. At the completion of this process, the next vehicle was pulled over and this process continued throughout the sampling day. Over the ten sampling days, 740 vehicles were pulled over and asked to participate in the survey. A 79% response rate was attained yielding 581 completed questionnaires.

A second visitor survey was administered in the summer of 2001. The purpose of this survey was to measure standards of quality for selected indicator variables identified in the initial visitor survey. The survey was administered on ten randomly selected days in July and August, 2001. The same sampling procedures were used as described for the initial visitor survey in 2000. Over the ten sampling days, 918 vehicles were pulled over and asked to participate in the survey. A 70% response rate was attained yielding 640 completed questionnaires.

Study Findings

Indicators of Quality

Respondents were asked several questions in order to determine potential indicators of quality of the recreation experience at the Schoodic Peninsula section of the park. Questions addressed issues such as what visitors enjoyed most/least; the most important or desirable qualities of Schoodic; perceived resource and social impacts of visitor use; and evaluation of problems or issues at Schoodic. Upon completion of this research, four indicator variables were identified. These were, 1) number of cars at one time along the park loop road, 2) number of people at one time at Schoodic Point, 3) number of people at one time at Frazer Point, and 4) level of ecological impacts on hiking trails.

Standards of Quality

As outlined above, the second phase of research focused primarily on establishing standards of quality for these indicator variables. For each of these indicator variables, a series of five computer-generated photographs were prepared showing a range of use levels or resource impact. Study photographs are shown in Figure 1.

Figure 1 Study Photographs

Park Loop Road

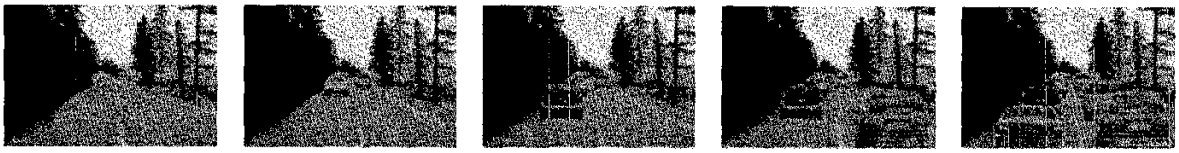


Photo 1 (0 cars) *Photo 2 (4 cars)* *Photo 3 (8 cars)* *Photo 4 (12 cars)* *Photo 5 (16 cars)*

Schoodic Point

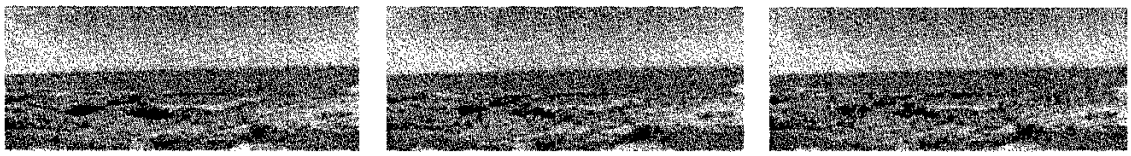


Photo 1 (0 people) *Photo 2 (33 people)* *Photo 3 (66 people)*

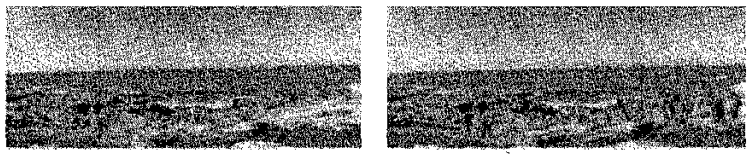


Photo 4 (99 people) *Photo 5 (132 people)*

Frazer Point



Photo 1 (0 people) *Photo 2 (41 people)* *Photo 3 (81 people)*

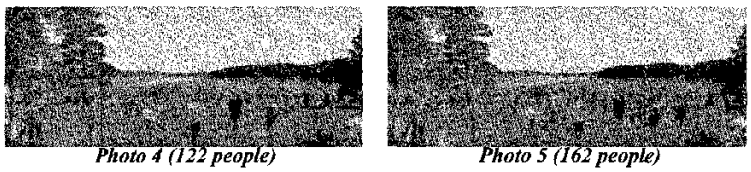


Photo 4 (122 people) *Photo 5 (162 people)*

Hiking Trails



Photo 1 (Least Impact) *Photo 5 (Most Impact)*

For each series of photographs, respondents were asked a standard battery of evaluative questions. First, respondents were asked if they had visited the sites in question. If respondents had visited the site in question, then the remaining questions were administered. In the case of the park loop road, it was assumed that all respondents had used this facility since it is the primary form of access to the park. The second question asked respondents to evaluate the acceptability of the five photographs showing increasing levels of visitor use or resource impacts at that particular site. Acceptability was measured using a nine-point Likert-type scale ranging from -4 ("Very Unacceptable") to 4 ("Very Acceptable"). The third question in the series asked respondents to indicate the photograph that showed the condition they would prefer to see. A fourth question asked visitors to indicate which photograph showed the condition that would be so unacceptable that they would not longer visit the Schoodic Peninsula section of Acadia National Park. Respondents were given the opportunity to indicate that, "none of the photographs are so unacceptable that I would no longer visit this area." The fifth question asked visitors to select the photograph representing the highest level of visitor use/resource impact they thought the National Park Service should allow, or the point at which visitor use should be restricted. Respondents were given the opportunity to indicate that none of the photographs showed a high enough level of visitor use/resource impact to restrict use or that use should not be restricted at all. The sixth and seventh questions referred to existing conditions and visitor expectations. Respondents were asked to indicate the photograph that most represented the condition they "typically saw today". The last question asked respondents to indicate the photograph that looked most like the conditions they expected to see. If they did not know what to expect, they were given the opportunity to indicate that. Findings from this series of questions are presented below for each of the four indicator variables.

Park Loop Road

A summary of visitor responses to the battery of questions referring to the number of cars along a generic section of the park loop road is shown in Table 1. Results indicate that mean acceptability declines as the number of cars increases. This is presented graphically by the norm curve shown in Figure 2. Respondents reported that an average of 7.5 cars at one time is the maximum acceptable condition for traffic along the park loop road. However, visitors reported that they prefer to see an average of 2.5 cars at one time. Displacement or absolute tolerance levels were reported at an average of 12.7 cars. Visitors felt the NPS should allow no more than an average of 8.5 cars before limiting automobile use. Respondents reported seeing an average of 2.8 cars on the day they were contacted for this study, but indicated that they expected to see an average of 4.1 cars. Finally, perceived crowding along the park loop road was measured on a Likert-type scale ranging from 1 ("Not at all crowded") to 9 ("Extremely crowded"). Visitors reported an average crowding rating of 2.5. In other words, crowding levels appear quite low while driving the park loop road.

Table 1 Study findings for the number of cars at one time along park loop road.

Evaluative Dimension	N	Mean (cars)
Acceptability	606 – 619[1]	7.5
Preference	608	2.5
Displacement/ tolerance	563	12.7
Management action	551	8.5
Typically seen	576	2.8
Expectation	478	4.1
Perceived crowding	594[2]	2.0

[1] Based on line represented by multiple data points each having different N values

[2] Scale: 1 = Not at all crowded; 9 = Extremely crowded

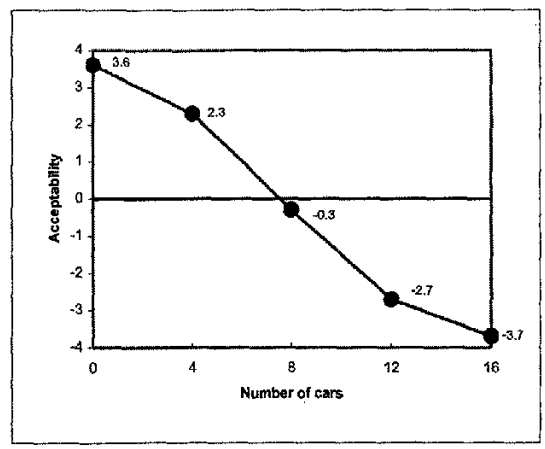


Figure 2 Park Loop Road Norm Curve

Schoodic Point

Table 2 presents a summary of findings at Schoodic Point. Again, results indicate that mean acceptability declines as the number of people at one time at Schoodic Point increases. This relationship is exhibited by the norm curve in Figure 3. Respondents reported an average maximum acceptable condition of 70.1 people at one time. Visitors prefer to see an average of 22.6 people, while their absolute tolerance is an average of 102 people. Respondents reported that the NPS should allow an average of 71.2 people to visit Schoodic Point at one time before use should be restricted. Respondents indicated that they typically saw an average of 30.2 people, while they expected to see an average of 38.1 people. Perceived crowding at Schoodic Point averaged 2.5 on the 9-point crowding scale.

Frazer Point

Findings from Frazer point are shown in Table 3. The same relationship exists here as in the previous indicator variables and is shown in the norm curve in Figure 4. As the number of people to Frazer point increases, the level of acceptability decreases. Visitor responses indicate that the level of use falls into the unacceptable range at 85.0 people. Visitors to Frazer Point prefer to see an average of 35.3

people at one time; have an average absolute tolerance of 120.8 people; feel the NPS should manage for an average of 89.0 people before restricting use; typically saw an average of 34.7 people; and expected to see an average of 38.1 people at one time. Respondents were not asked to rate their level of perceived crowding at Frazer Point.

Table 2 Study findings for the number of people at one time at Schoodic Point

Evaluative Dimension	N	Mean (people)
Acceptability	544 - 557[1]	70.1
Preference	575	22.6
Displacement/ tolerance	450	102.0
Management action	439	71.2
Typically seen	555	30.2
Expectation	436	38.1
Perceived crowding	565[2]	2.5

[1] Based on line represented by multiple data points each having different N values
[2] Scale: 1 = Not at all crowded; 9 = Extremely crowded

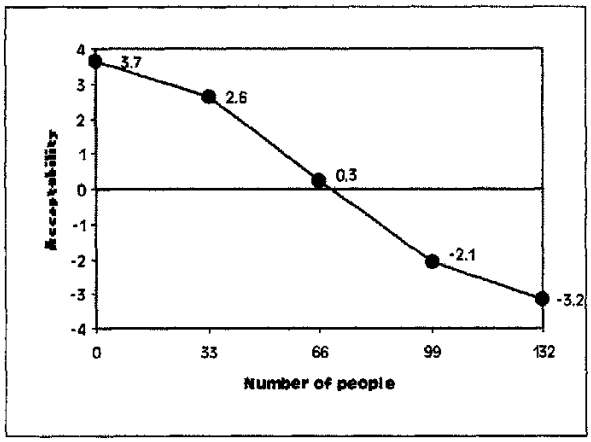


Figure 3 Schoodic Point Norm Curve

Table 3 Study findings for the number of people at one time at Frazer Point

Evaluative Dimension	N	Mean (people)
Acceptability	221 - 227[1]	85.0
Preference	227	35.3
Displacement/ tolerance	188	120.8
Management action	192	89.0
Typically seen	220	34.7
Expectation	171	46.5
Perceived crowding[2]	-	-

[1] Based on line represented by multiple data points each having different N values
[2] Scale: 1 = Not at all crowded; 9 = Extremely crowded

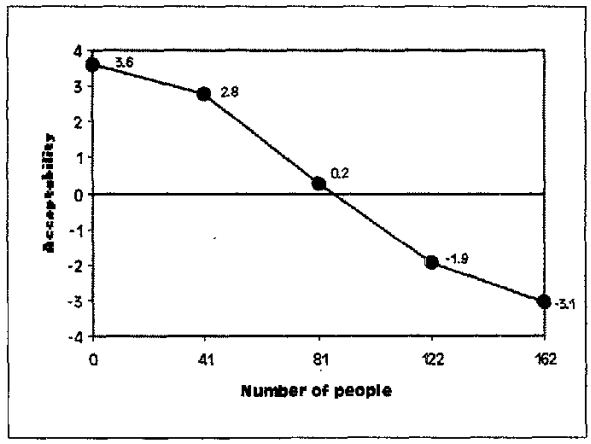


Figure 4 Frazer Point Norm Curve

Hiking Trails

The last indicator variable addressed ecological impacts on a generic section of hiking trail. A summary of findings is presented in Table 4 and the norm curve for trail impacts is shown in Figure 5. Again, as the level of impacts increase, the level of acceptability decreases. Visitors reported that the level of trail impacts falls into the unacceptable range at approximately the conditions represented by photo 4. Visitors prefer to see conditions as represented by approximately photo 1. Absolute tolerance was reported at approximately photo 4. Respondents felt that the NPS should manage for conditions represented by photo 3 before limiting use of the trails. Existing conditions were, on average, most like the conditions shown in approximately photo 2. Visitors expected to see conditions such as those shown approximately in photo 2 as well. Finally, perceived crowding along hiking trails at Schoodic is low with an average of 1.6 on the 9-point crowding scale.

Table 4 Study findings for ecological impacts on hiking trails

Evaluative Dimension	N	Mean (photo number)
Acceptability	117 - 124[1]	3.6
Preference	132	1.3
Displacement/ tolerance	104	3.7
Management action	113	2.7
Typically seen	87	1.8
Expectation	93	1.7
Perceived crowding	139[2]	1.6

[1] Based on line represented by multiple data points each having different N values
[2] Scale: 1 = Not at all crowded; 9 = Extremely crowded

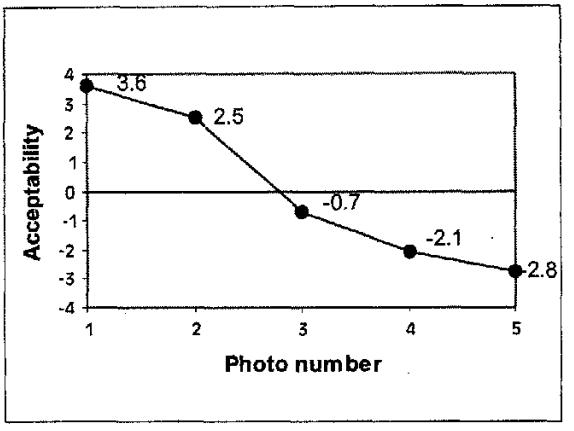


Figure 5 Trail Impact Norm Curve

Conclusions and Implications

Findings reported in this paper suggest that visitors are receiving a relatively high quality of recreation experience at the Schoodic Peninsula Section of Acadia National Park. In general, visitors are encountering social and resource conditions that are much lower than their minimum acceptable condition and their absolute tolerance for such conditions. Moreover, in most cases the conditions encountered are very close to those they would prefer to see and often less than what they expected to see.

In addition, this research provides empirical evidence to suggest that visitors are able to provide information necessary to determine indicators of quality pertinent to the experiences provided at the Schoodic Peninsula section of Acadia National Park. Further, visitors are able to make normative judgments about a variety of evaluative dimensions across a diversity of indicator variables. This research provides planners and managers with a rich set of indicators and standards that are useful in defining the quality of the visitor experience at the Schoodic Peninsula section of Acadia National Park. This information will be used to help planners and managers make more informed decisions about the future of this portion of the park.

This study focused on helping to develop standards of quality across a diversity of indicator variables and incorporated several evaluative dimensions of standards of quality. As has been found elsewhere, our findings indicate that standards vary across evaluative context. Standards appear to be relatively consistent and organized in a hierarchical manner across evaluative dimensions such that preferences exhibit the highest standards (lowest level of impact) and absolute tolerance exhibits the lowest standards (highest level of impact), with expectations and management-related standards falling in the middle of the range. This study suggests that this hierarchical organization holds true across different types of indicator variables, including the number of cars at one time on the tour road, the number of people at one time at park attraction sites, and the level of ecological impact on hiking trails.

Finally, in this study data on standards of quality were collected using a visual approach where photographs represented quantifiable variables such as the number of cars or the number of people. However, ecological impact photos did not have quantifiable units associated with them (e.g., percent vegetation loss), although this approach is in keeping with "impact class" assessment procedures often used in ecological monitoring and management (Brewer and Berrier 1984; Cole 1989). Resulting data represent mean photo numbers and therefore, may seem somewhat ambiguous and potentially less useful in a management context. Future research may improve upon this study by developing photographs based on quantifiable ecological data.

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ASSESSING RIVER RECREATION USE AND PERCEPTIONS OF ENVIRONMENTAL QUALITY TRENDS ON MICHIGAN'S UPPER MANISTEE RIVER

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Abstract: Through vehicle counts and windshield surveys at 43 public access points and a mail questionnaire to shoreline property owners, Michigan State University researchers estimated the recreation effort on a 55-mile stretch of Michigan's upper Manistee River from April 28 - September 3, 2001. In addition, public access point user satisfaction, perceived trends in the river environment, local spending by visitors originating outside the 3 counties adjacent to the river and the condition of public access points were assessed. Public access point visitors and property owners and their guests logged more than 1.2 million user hours. Key activities were non-motorized watercraft use (e.g., canoeing, kayaking and tubing), fishing, and nature observation. Eighty-eight percent of public access point visitors were satisfied with their experience, 5% were neutral and 6% were dissatisfied. Satisfaction was primarily attributed to the rustic nature of the river, fishing and access site maintenance. Despite high levels of use on the river, public access point users were most likely to perceive that the overall environmental quality of the river had remained the same or improved over the years they had visited the river. The river's many visitors were a boon to the local economy, spending nearly 3.5 million dollars in local businesses. Finally, by on-site inspection after the spring - summer study period, researchers judged that most public access points were safe, well maintained, and had minimal negative environmental impact from erosion.

Introduction

Understanding the type and intensity of recreation on landscapes and facilities is a benefit to natural resource managers. Access to baseline recreation data and follow-up monitoring helps managers identify changes in use patterns and determine recreation's effect on environmental quality and social harmony.

A consortium known as the Manistee River Access Committee (MRAC) contracted with Michigan State University to better understand recreational use and access site use and maintenance on a 55-mile stretch of Michigan's upper Manistee River. The specific objectives were to: A.) estimate peak season (April 28 - September 3, 2001) river recreational use from selected public and private-business-owned river access sites and private shoreline property, B.) assess recreation experience satisfaction, perception of environmental trends with the river and local spending of visitors originating outside the three counties contiguous to the river C.) identify and make recommendations to remedy management concerns about selected access sites. The MRAC includes representatives from area canoe liveries, fishing guides, private landowner associations, and the Michigan Department of Natural Resources' (MDNR) Forestry, Minerals and Fire Management Division (the study area's lead land manager), Fisheries Bureau, Parks and Recreation Bureau, and Law Enforcement Divison. MDNR provided the bulk of funding necessary to complete this study, with supplementary funds provided by the Michigan Agricultural Experiment Station.

The study area of the Manistee River winds through three counties (Otsego, Crawford and Kalkaska) in Michigan's northern lower peninsula with the upstream limit at Mancelona Road in Otsego County and the downstream limit at state highway M66 in Kalkaska County (Figure 1). The river is one of northern Lower Michigan's most important watercourses because it provides significant habitat for stream trout and forest/wetland associated wildlife and plants, and recreation opportunities for fishing (labeled a blue ribbon trout stream with "flies only" tackle restrictions for a third of the study area), rustic camping, nature study, and non-motorized watercraft recreation, such as canoeing, kayaking, rafting and tubing.

Methods

On-site use survey. Two field researchers counted vehicles at 43 access points (39 public and four private canoe liveries) on selected sample days and times (8AM to 8PM) during April 28 - September 3, 2001 (opening day of trout season through Labor Day). Researchers left a self-administered mail-back postcard survey on each vehicle for the driver to determine the type and duration of activities by those from the vehicle while parked at the site and to identify recreators' social dimension concerns (e.g., experience satisfaction and perceived trend in the river' environmental quality). Private business owners gave researchers permission to sample their customers prior to the start of the study.

A mean estimate of people hours/vehicle was computed from survey data and extrapolated by the car counts across all access sites for all days during the study period. This is a conservative extrapolation approach because it does not account for early morning (prior to 8AM) and nighttime use (after 8PM). Sampled persons were divided into two categories: campers and non-campers because campers reported longer stays and involvement in a wider range of activities than non-campers. A maximum value of 15 hours of use per day per individual in the vehicle was allowed, which is roughly equivalent to the average amount of daylight during the study period. This methodology is similar to that used on another Michigan river, the Pere Marquette (Johnson and Nelson 1999).

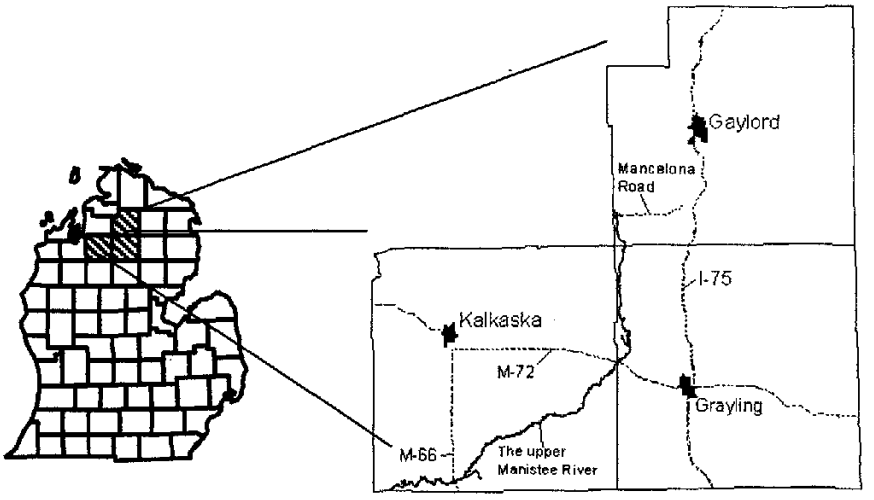


Figure 1. Michigan counties surrounding the upper Manistee River

Private shoreline use. Researchers estimated the recreational use generated from private shorelines using a self-administered, mail-back survey sent to the 627 distinct property owners (individuals, groups, and corporations) identified from the assessment records of Crawford, Kalkaska, and Otsego counties. Owners reported their recreational activities and the amount recreational use from their property by themselves and their guests during the study period. This methodology is also similar to that used on the Pere Marquette River (Nelson and Johnson 1998).

Access site analysis. Researchers visited each study access site in the fall of 2001 (October and November), so the full effect of a season of recreational use could be clearly discerned. From these visits and a photographic record, each site was evaluated vis-à-vis its public use opportunity, environmental concerns, public safety concerns, visible conflict with adjacent property owners, and state of maintenance.

Results

Response rate. Field researchers left windshield surveys on 4,867 vehicles of the 5,272 vehicles counted. Of the counted vehicles, 405 were departing vehicles or campers surveyed the previous day that declined to complete another survey. Of the surveys distributed, 1,080 (22%) were completed and returned. After two mailing attempts, 16 of the 627 shoreline owners had invalid addresses according the US Postal Service. Of the remaining 611 owners, 396 (65%) completed and returned the survey.

Recreation hours. Field researchers counted 5,272 vehicles parked at the 43 access points, which extrapolates to 39,447 vehicles for all access sites over the study period. Of this estimate, 60% of the use occurred on Saturday and Sunday and 40% during the week. Access site visitors engaged in more than a million hours (1,027,957) of daylight recreation, over half of which was generated from the study area's five campgrounds (four state forest campgrounds and one commercial campground).

Of shoreline ownerships, 24% were principal homes, 56% were second homes, 9% were vacant land with temporary housing such as a trailer and 11% were vacant land with no housing. The mean shoreline ownership generated 325 hours of river recreational use during the study period. This amounts to 203,725 hours from the shoreline ownerships. The estimate is conservative because it does not count time spent observing the river from indoors or upland activities on the owner's property where the river plays a role but is not physically entered (e.g., a picnic or sitting on the porch in the evening). Each ownership provided access to an average of 16.3 people, for a total of 10,220 distinct people accessing the river from non-commercial private ownerships.

Overall, researchers estimate 1,231,682 hours of daylight recreation occurred during the study period. Of this, public access points (including commercial canoe liveries) facilitated 83% of those hours, while private, non-commercial shoreline ownerships facilitated the remaining 17%.

Recreation activities. Non-motorized watercraft use (e.g., canoeing, kayaking, tubing, fishing boat), fishing, and nature observation were the three most common activities among campers and day visitors on the day they were sampled and shoreline owners over the study period (Table 1). Camping was the most common main activity for campers, which often included a bundle of experiences such as outdoor cooking, fishing, swimming, etc. For day visitors, fishing was the most frequent main activity, with watercraft use a near second. For shoreline owners, nature observation was a most important activity for one in five, while fishing was most commonly mentioned as most important.

Table 1. Participation and classification of selected activities as most important for Manistee River recreationists in 2001.

Activity	Campers Participated	Campers Most imp.	Day-users Participated	Day-users Most imp.	Shoreline owners Participated	Shoreline owners Most imp.
Non-motorized watercraft use	72%	31%	61%	43%	82%	27%
Fishing	52	28	56	50	76	40
Nature observation	65	<1	36	<1	77	20
Camping	100	36	0	0	17	3
All others	NA	4	NA	6	NA	10
Total	NA	100	NA	100	NA	100

Social dimensions. An overwhelming percentage (89%) of access site users were satisfied with their experience. The scenic and rustic nature of their experience, easy river access, good access point and campground maintenance, quality fishing regulations (e.g., "flies only" rule), and fish habitat improvements were commonly cited as factors contributing to a satisfactory experience. Poor fishing, poorly maintained toilets and dumpsters, and too much noise, crowding, littler, and development (i.e., homes) adjacent to the river were typically cited as factors contributing to neutral (5%) or unsatisfactory experiences (6%) of respondents.

When asked if they detected a change in the overall quality of the river environment during the year(s) they had used the river, from their first visit until the one on which they were sampled, 52% of campers and 40% of day visitors detected no change. Of those detecting a change, the majority of both groups were likely to detect a positive change. In 1989, an influential group of upper Manistee River shoreline property owners known as the Upper Manistee River Association (UMRA) in cooperation with the MDNR began significant river restoration efforts to reduce erosion. This was done by stabilizing the river's shoreline with vegetation and rock riprap, to redesigning foot and watercraft access to make them more environmentally benign, improving fish habitat by providing woody cover and reducing sand bed load and encouraging the MDNR to provide vehicle parking at public access points 100 or more feet from the river. Those efforts help contextualize the perceptions of respondents who did detect a change in the overall river environment (Table 2).

Campers and day visitors who had used the river prior to 1989 were most likely to note a change. This is logical since considerable visible effort was placed on improving the quality of the river environment after 1989, especially in and near the four designated state forest campgrounds. However, regardless of when users first visited the river or what group they belonged to (campers or non-campers), if a respondent noticed a change, it was more likely that change was positive than negative. UMRA's work becomes more relevant when four of the common reasons given for a perceived environmental quality improvement are noted: erosion control, improved access, better fishing success, and fish habitat improvements.

Table 2. Public access point user assessment of overall environmental quality change in the upper Manistee River since their initial visit.

User segment	Saw a change	Positive change	Negative change
Campers, unsegmented	47.7%	64.7%	34.7%
Campers, 1st visit prior to 1989	64.0	61.5	38.5
Campers, 1st visit 1989 or after	32.9	70.4	29.6
Non-campers unsegmented	59.8	59.8	40.2
Non-campers, 1st visit prior to 1989	73.5	59.1	40.9
Non-campers, 1st visit 1989 or after	39.4	61.5	38.5

Local spending. The river attracts a large percentage of access point visitors from outside the three counties encompassing the study area (93.3% of campers and 85.9% of non-campers were non-local). These visitors contributed an estimated $3,492,720 to the local economy during the study period. Of those visitors, 91% of campers and 80% of day visitors reported they spent something in the local area (within 20 miles of where they were surveyed) during the 24 hours of their experience prior to being surveyed. On average, campers per vehicle spent $102.99 in the 24 hours prior to sampling in the local area and day visitors per vehicle spent $94.20. Groceries were the most common item purchased by both groups, followed by lodging (e.g., camping fees for campers), vehicle related expenses (e.g., gasoline), and meals and drinks from restaurants and bars. The rental of watercraft and guide services is especially important to the local economy and 34% of campers and 23% of day visitors spent something in this sector.

Access point assessment. Overall, the primary author judged the access points to provide reasonable environmental protections and safe, appropriate public

access. Key environmental and access considerations included keeping parked vehicles more than 100 feet from the river and providing canoe slides, well maintained wooden stairs, and functional but not obtrusive erosion control and nearby fish habitat structures.

Certain access points needed significant improvement. One point near the southern end of the study area was judged unsafe because vehicles trailering boats must back across a paved county road with a 55 mile per hour speed limit on a curve with limited sight lines. This site is especially popular with fishing guides who had long drift boats requiring substantial trailers and with canoe liveries for group canoe pickup. It also has minimal parking and the parking lot was too close to the river. Closure of the existing access site and construction of a new site to meet identified needs at a nearby location with adequate launching and parking off the main county road is recommended. A small number of access sites, one of which is a campground, have roads paralleling the river, often within 20 feet of it. This situation is an environmental and safety hazard. These roads should be closed and erosion control measures around them redoubled. A third concern was a group of access sites far upstream designed to provide walk-in fishing opportunities. These sites had no name or directional signage on the main road, substandard access roads, poorly signed parking areas and rusty guardrails to channel vehicles and visitors. This lack of professionalism is inconsistent with the MDNR's management philosophy and with the provision of a high quality stream environment. Improved signs of plastic or metal should replace the existing tattered paper ones, guard rails should be painted and gradually replaced with natural vegetation, and access to these sites should be well maintained and clearly marked on the main road.

Of three additional concerns, one was the only state forest horse trail campground (Goose Creek Trail Camp) near the river. This presents some unique challenges. During heavy use, more than 60 horses are tethered within 150 feet of the river. The designated horse trail crosses the river, with horses riding through the river. In addition, non-horse related campers, to avoid mingling with equestrian campers have begun to camp directly on the riverbank, including parking their cars within 10 feet of the river. It is recommended that all camping and roads be more than 100 feet from the river and that an alternative, non-water crossing for horses be developed. At the closed Smithville State Forest Campground (at the downstream, southern end of the study area) illegal ORV use (not on a designated ORV trail or route) is visible, causing erosion on slopes near the river. ORV laws need to be clearly enforced, the slopes stabilized and the vegetation restored. Finally, the King Road pull-offs (in the middle of the study area), where significant efforts have been made to minimize erosion, still have a challenge with parking generally within 10 feet of the river. A larger, underlying problem is that King Road is a major sandy county road that parallels the river for more than a mile, often at a distance of less than 20 feet. This will cause continued erosion that is difficult to remedy. A shift of that road back away from the river would be an environmentally sound, though initially expensive decision.

Discussion

The upper Manistee River is a busy recreational river with over 1.2 million hours of daylight use from the traditional opening of stream trout season through Labor Day in 2001. Visitors to the 43 public and private-business-owned access points accounted for 83% of that use, with almost forty thousand vehicle days. Those visitors generated almost $3.5 million for Crawford, Kalkaska and Otsego county businesses, with a small portion of the lodging spent for state forest campground camping permits. Restaurants, grocery stores, convenience stores, guides, canoe liveries, gasoline stations, motels, and sporting goods retailers all benefited from this spending.

Visitors were generally highly satisfied with their upper Manistee River experience. Positives included good fishing, approval of resource protection and habitat restoration and enhancement efforts, well-maintained campgrounds and minimal litter. For the small percentage that was neutral or negative about their experience, overcrowding, noisy people, poor fishing and maintenance and litter concerns were the major barriers to satisfaction.

Recreational use of the river by public access site visitors is primarily focused on angling and watercraft use. For shoreline owners, angling, watercraft use and nature observation are most important. The challenge of melding these uses and populations together while maintaining environmental and experiential quality is daunting. However, visitors have noted environmental change, and most of that positive during their experience with the river environment. The steps that have been taken to reduce the negative environmental impact of public access points, to restore and enhance the environment for stream trout and associated aquatic life and restrictive limits on fish harvest and gear have been well received. A second study of the perceptions of environmental change by shoreline owners is currently in progress and results should shed light on their preferences regarding future corridor management actions.

Of the visitor user hours, half are generated from the four state forest campgrounds and the one commercial campground. This level of use suggests that additional steps may be necessary to further harden these heavily used sites and protect the quality of the environment at these locations and downstream. Of these campground sites, the horse campground appears to have the most significant potential and current erosion and nutrient pollution problems, as well as inappropriately providing vehicle parking within 10 feet of the water which increases the likelihood of gasoline and oil entering the river. On all public campsites, vehicle parking should be 100 or more feet from the water and unnecessary roads closer than that to the river should be eliminated. Day use parking should be clearly designated to reduce conflicts with campers and to set a reasonable physical capacity for use. This may

require the cooperation of counties who manage nearby roads to limit streamside parking.

At the non-campground access points, use varies considerably. The canoe liveries and a few other sites generate most of the use, while many other sites only account for a small fraction. It is important to note that only the canoe liveries, the state forest campgrounds, the Smithville commercial campground and the Park and Recreation Bureau administered sites downstream are well marked and obviously access points to the river. Most other sites have little or no marking/signage, along with little visible parking or public use facilities such as bathrooms and visible canoe access. This model may be appropriate to keep these sites lightly used, but it may also be funneling more use to the few clearly designated sites, especially the public campgrounds.

Unlike the state forest campgrounds, the commercial campground, and the canoe liveries, safety is a major concern at some non-campground access points. Main road related access points (e.g., roadside pull-offs and adjacent to bridges) are a concern because fast vehicle traffic (55mph) and steeper slopes (at bridges which are likely to be in steep valleys) increase speeds and limit visibility. The use of such sites should be minimized and off-road sites developed. Again, the cooperation of counties in limiting parking, reducing speeds and enforcing laws is critical.

The upper Manistee River is a major environmental and recreational asset of northern Lower Michigan. Appropriate access, management of recreationists and their activities and safeguarding of the environment will be critical to maintain this status. This report provides guidance to meet this challenge and a methodology to assess progress. Similar research procedures should be replicated at regular intervals, such as every five years to provide longitudinal data to accurately assess trends and better predict and be proactive about future needs and concerns. This social monitoring needs to be coupled with physical and biological monitoring of key indicators of environmental quality and health such as water quality, fish populations, erosion, etc.

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AN EXPLORATION OF MOTIVATIONS AMONG SCUBA DIVERS IN NORTH CENTRAL FLORIDA

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Introduction

There has been a boom in the adventure travel market as 98 million adults had taken an adventure vacation between 1992 and 1997, which includes soft adventure vacations (e.g., camping, hiking, biking, bird-or-animal-watching, horseback riding, sailing, skiing), and hard adventure vacations (e.g., mountain biking, whitewater rafting/kayaking, scuba diving, rock climbing, snowboarding, skydiving) (Travel Industry Association, 1998). Approximately 46% of the population took soft adventures, 16% took hard adventures and 13% took both (Research Alert, 1998). Hard adventure activities have been referred to as "risk recreation activities" which differs from traditional soft adventure activities because of the presence of significant components of risk (may be life-threatening), danger and uncertainty, which could be either perceived or real (Ewert, 1994). Additionally, risk recreation activities includes the following characteristics: 1) involvement with a natural environment, 2) elements of risk and danger, 3) uncertain outcome, and 4) influenced by the participant or circumstance (Ewert, 2001)

However, given the nature of the risks involved, the obvious question is what motivates people to engage in risk recreation activities? Participation in risk recreation is a goal-driven behavior in which stimulation is sought for increasing arousal and/or to satisfy various other goals (Ewert, 1994). Participants usually have multiple motives that differ in importance and are dependent upon their individual goals (Ewert, 1994; Mannell & Kleiber, 1997). For example, rock climbers indicated their motives for participation was to seek general sensation; thrill and adventure and experience (Levenson, 1990), while McIntyre (1992) identified six factors: Recognition, Creativity, Physical Setting, Challenge, Escape, and Control. Similarly, climbers at Mt. Rainer (Washington) were motivated to climb due to challenge, catharsis, recognition, creative opportunities, locus of control, and the physical setting (Ewert, 1985); while climbers at Mt. McKinley (Alaska) noted five factors: Exhilaration/Excitement, Social Aspects, Image, Aspects of Climbing, and Catharsis/Escape (Ewert, 1994).

While motivational factors have predominantly been used to predict the reason people participate in risk recreation (Mannell & Kleiber, 1997), non-motivational factors that include past experience & skill level (Ewert, 1985; 1993; 1994; Schuett, 1993; Todd, Graefe & Mann, 2002), group type (Ewert, 1993) and enduring involvement (Ewert & Hollenhorst, 1989; Mannell & Kleiber, 1997; McIntyre, 1992; Robinson, 1992; Schuett, 1993) have also been examined as these variables are associated with influencing motivations to participate. For example, among mountaineers, those who had high skills were more likely to seek intrinsic motivation (challenge, personal testing, or decision making), while those with low skills sought extrinsic rewards (recognition or to show others), which implies that as participants develop their skill level, their motivations change simultaneously (Ewert, 1985; 1994). Recently, Todd et al. (2002) examined SCUBA divers' (State of New York residents) level of development (i.e., beginners through experts) in relationship to their motivations to dive, whereby, six motivational factors were identified: adventure, learning, escape, social interaction, stature & personal challenge. Although divers with higher levels of development were highly motivated by adventure, learning, stature, and escape, not all motivations differed by level of skill development. In fact, irrespective of level of development, all divers rated many individual motives similarly in importance.

Based on a brief review of the literature, it is evident that motivations vary among participants involved in the same activity as well as different risk recreation activities. Also, non-motivational factors are associated to influence motivations among participants. However, empirical research has only focused on certain risk recreation activities, namely rock climbing and mountaineering, hence there is a paucity of research in further understanding motivations among other activities that have demonstrated growth, such as SCUBA diving. Although a recent study has been conducted with respect to lake divers (see Todd et al., 2002), there is a need to further examine divers largely due to the varying types of divers (based on the settings: lake diving, open water diving, cave diving, etc.).

SCUBA diving (open water) is one of the fastest growing activities in participation, and has experienced an increase of 10% in 2001 with 2.1 million participants (National Sporting Goods Association, 2002). Based on annual survey of participation in 65 sports, fitness and recreation activities, overall, SCUBA diving (open water) showed the fourth largest increase in participation in 2001 with a 10% change (National Sporting Goods Association, 2002). The sport still consists of more male participation, in which 31% were representative of females in 2001; however, female participation has steadily increased over the years (National Sporting Goods Association, 2002).

Based on Todd et al.'s (2002) research, the purpose of this study was to replicate and further explore the dimensionality, stability, and importance of motives among SCUBA divers at a different location, North Central Florida. Furthermore, gender was chosen as an exploratory independent variable as there has been a recent divergence in the rate participation between males and females.

For the purpose of this study, four research questions were formulated.

1) Are there differences in the frequencies and distributions of individual motivation items between Todd et al.'s (2001) study and the present study?
2) Are there distinct motivational domains held by scuba divers?
3) Are the differences between Todd et al.'s (2001) motivational domains and the domains found in this study?
4) Is there a difference in motivational statements for one distinct demographic characteristic: gender?

Methods

Data were collected at a major university located in north central Florida between summer 2001 and spring of 2002. Respondents were students and instructors from 4 scuba classes, three introductory open water classes and one advanced class. All those in attendance on the days the data were collected agreed to participate, and the time required to complete the survey was approximately 5-10 minutes. Based on Todd et al. (2002), motivation was operationalized employing 24 items juxtaposed on a five-point Likert type scale ranging from 1 (not important) to 5 (extremely important). Besides demographic information, related variables such as involvement with diving, level of experience, skill level, and number of completed dives were also collected.

For the first research question, descriptive analysis using frequencies and distributions to illustrate any differences among the individual motivation items were conducted. For the second and third research question, the items were subjected to a principal component analysis using varimax rotation to determine the presence of distinct motivational domains. Finally, for the fourth research questions, an independent sample t-test was used to investigate any differences in motivation between males and females.

Results

From the four classes, a sample of 243 subjects was obtained in which, 64% of were representative of males and 36% females, which is comparable to the current male to female ratio of scuba divers. Since the data were collected at a university setting, the average age was 22 years, with 11% noted to have a postgraduate degree. About 86% were Caucasian, 8% Asian American, and 4% were Hispanic. Majority of the respondents (81%) had been involved with diving for less than one year and were still in the process of becoming certified, while almost 12% had been involved for 4 years or more. Therefore, it was not surprising to find that 50% had completed less than 3 dives, 28% had completed between 4–5 dives while 22% reported more than 6 dives.

Based on frequency analysis of the individual items, the first four important motivations to dive were identified as: 1) to look at underwater animal and plant life; 2) because it is stimulating and exciting; 3) to explore things, and 4) for the adventure of it (see Table 1). However, upon comparison

Table 1 Differences in the Frequencies and Distributions of Individual Motivation Items

	Current Study (2002)		Todd et. al (2002)		
Motives	Mean	Sd	Mean	Sd	Sig
To look at underwater animal and plant life	4.3	0.80	4.2	0.90	n.s.
Because it is stimulating and exciting	4.1	0.91	3.8	1.04	0.05
To explore things	4.0	0.85	4.1	0.80	0.05
For the adventure of it	4.0	0.91	3.9	0.96	0.05
To develop my diving skills and abilities	3.7	0.97	3.6	1.02	0.05
To learn more about the underwater environment	3.6	1.01	3.7	1.07	n.s.
To gain an experience I can look back on	3.6	1.01	3.3	1.21	n.s.
For a change from every day life	3.6	1.11	3.4	1.16	0.01
For relaxation	3.5	1.06	3.6	1.17	n.s.
To experience peace and tranquility	3.4	1.19	3.4	1.24	n.s.
So I could do things with my friends and/or family	3.4	1.10	3.0	1.29	0.05
To do something creative, such as take pictures or videos	2.9	1.32	2.7	1.33	0.01
Because I thought it would be a challenge	2.9	1.24	3.0	1.14	n.s.
To see historically significant shipwrecks	2.9	1.08	3.2	1.35	n.s.
To give me a feeling of confidence in myself	2.8	1.29	2.8	1.25	n.s.
To prove to myself that I could do it	2.8	1.27	2.7	1.33	n.s.
To help keep me physically fit	2.8	1.20	2.8	1.21	n.s.
To meet new people	2.8	1.19	2.8	1.20	n.s.
It's sort of an impressive thing to do	2.7	1.18	2.1	1.12	0.01
To share my skill and knowledge with others	2.7	1.20	2.7	1.25	n.s.
To study underwater geological formations	2.5	1.25	2.6	1.26	0.01
To use my equipment	2.2	1.25	2.6	1.25	n.s.
Because of the risk	2.1	1.21	1.7	1.03	0.05
To collect interesting artifacts	1.9	1.12	2.4	1.28	0.01

Table 2 Factor Loadings for Motivations Among SCUBA Divers

	Factor						
Motives	1	2	3	4	6	7	8
For a change from everyday life	0.754						
To gain an experience I can look back on	0.678						
For the adventure of it	0.655						
Because it is stimulating and exciting	0.651				0.458		
So I could do things with my friends and family							
To see historically significant shipwrecks		0.738					
To collect interesting artifacts		0.717					
To use my equipment		0.617					
Because of the risk		0.540	0.424				
Because I thought it would be a challenge			0.767				
To prove to myself that I could do it			0.759				
It's sort of an impressive thing to do		0.400	0.504				
To study underwater geological formations				0.755			
To give me a feeling of confidence in myself			0.518	0.590			
To learn more about the underwater environment				0.550	0.495		
To do something creative, such as take pictures or videos				0.508			
To meet new people	0.426			0.471		0.428	
To look at underwater animal and plant life					0.787		
To explore things					0.704		
To develop my diving skills and abilities						0.732	
To help keep me physically fit						0.611	
To share my skill and knowledge with others						0.491	
To experience peace and tranquility							0.817
For relaxation							0.802

with Todd et al.'s (2002) study, six motivational items were significantly different at the 0.05 level and five items were significant at the .01 level (see Table 1).

Following the factor analysis of the 24 items, 7 factors emerged with 6 items loading on more than one factor (cross-loaded). Removal of the cross-loadings would yield 4 factors comprised of 2 items, 2 factors with 3 items, and 1 factor with 4 items, which would constitute an unstable factor structure. There were differences between Todd et al.'s (2002) motivational domains and those found in this study. Todd et al. (2002) identified 6 factors that explained 60% of the variance and had acceptable reliability analysis. Although the factor structures identified in this study were conceptually close, they were not statistically confirmatory of Todd et al.'s study (2002). (see Table 2)

Independent sample T–tests were used to examine any motivational differences between males and females. Of the 24 motivational items, only nine were statistically different at the established level of significance. The items that were more important for males were: 1) because of the risk; 2) to use my equipment; 3) to see historically significant shipwrecks, and 4) to collect interesting artifacts. Conversely, those items that were more important for females were: 1) to prove to myself that I could do it; 2) to give me a feeling of confidence in myself; 3) to do something creative, such as take pictures or videos; 4) to learn more about the underwater environment, and 5) because I thought it would be a challenge (see Table 3).

Conclusions

There were differences in the frequencies and distributions of individual motivation items between Todd et al.'s (2002) study and this study. Furthermore, there were significant differences between males and females. Females were more intrinsically motivated, while males were more extrinsically motivated. Females may have been trying to prove to themselves and to their male counterparts that they can participate in a male dominated sport. The examination of exploratory factors found similar conceptual domains but a weak factor structure implied that there are no distinct motivational domains for this specific sample. Both of these findings can partially be explained by the nature of the sample; a student population is at a very distinct stage in the lifespan and not very generalizable. Moreover, as the majority of the students were still in the process of becoming certified, differences in importance placed on motivational statements could be due to their level of specialization within

the sport. There has been a paucity of research with respect to SCUBA divers' motivations and current research is still in the exploratory stages based on quantitative empirical research, some qualitative work may be warranted in order to tap into more underlying motivations. Future research on more generalizable populations is essential, and it may be recommendable to cluster the cases in order to look for similarities within the sample.

Table 3 Comparison of Motivations between Males and Females

	Mean (Females)	Mean (Males)	f
Because of the risk	1.76	2.29	9.22***
To prove to myself that I could do it	3.15	2.59	0.02***
To give me a feeling of confidence in myself	3.11	2.61	1.18***
To do something creative, such as take pictures or videos	3.27	2.78	1.29**
To use my equipment	1.19	2.28	0.48*
To see historically significant shipwrecks	2.70	3.03	0.17*
To collect interesting artifacts	1.67	2.03	0.6*
To learn more about the underwater environment	3.80	3.46	0.01*
Because I thought it would be a challenge	3.08	2.78	0.6*

* significant at .05 level
** significant at .01 level
*** significant at .001 level

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Index of Authors

Author	Page(s)
Absher, James	41
Achana, Francis	65
Anderson, Dale	125
Anderson, Lynn	125
Avgoustis, Sotiris	65
Backman, Kenneth	264
Bacon, Jim	279
Blake, Andrew	87
Budruk, Megha	216
Burns, Robert	41, 47
Byrne, Edward F., II	90
Carlsen, Erika	147
Chang, Tzu-Ching	133
Choi, Kye-Young	94
Cindrity, Stan	208
Cohen, Beth	257
Damin, Amy	59
Dawson, Chad P.	94, 222
Dennis, Donald F.	163
Dwyer, John	28, 159
Drogin Rodgers, Ellen B.	90, 109, 264
Ellis, Christopher	52
Flood, Joseph P.	165
Gibson, Heather	179
Gomez, Edwin	33
Graefe, Alan R.	41, 47, 152
Hafner, Jennifer	147
Hammitt, W. E.	119
Hansen, Bruce	163
Holdnak, Andrew	190
Holeck, Dan	184
Houghton, John	102
Kim, Mi-Kyung	133, 140
Kim, Seung Hyun	133, 140
Kuehn, Diane	271
Lane, Charles	190
LaPage, Wilbur	2
Laven, Daniel	279
Lawson, Steve	279
Lee, Bryung-Kyu	2
Lisco, John	240
Longsdorf, Eric L.	104
Loomis, David	257
Lueck, Diane	102
Lynch, Joel	247
Makopondo, Richard	201
Manning, Robert	216, 234, 279
Marans, Robert	72
Marsinko, Al	28
Meyer, Louisa	292
Morais, Duarte	152
More, Thomas A. E.	8
Moufakkir-Van Der Woud, Afke	247
Moufakkir, Omar	184
Murdy, James	179
Nelson, Charles	247, 286
Nyaupane, Gyan	152
O'Connor, Amanda Rae	79
Palmer, James F.	59, 79
Pawlawski, Kim	22
Pennington-Gray, Lori	190, 292
Pfaffenback, Becky J.	222
Ramthun, Roy	87
Rechlin, Michael A.	163
Ricciardo, Jerry L.	104
Riedl, Rebecca	253
Robertson, Robert	15, 22, 147
Savoe, Ryan	240
Schaffer, Terry	113
Schnell, Michael	102
Schuster, Rudolph M.	119
Strother, Jason A.	229
Thapa, Brijesh	292
Thomas, Christine	102
Todd, Sharon	125
Twery, Mark J.	163
Valentine, Brian	286
Valliere, William	234, 279
Vander Stoep, Gail	113
Vinning, Joanne	173
Vogelsong, Hans	52, 194, 229, 253
Vogt, Christine	72, 208, 247
Wickman, Thomas	47
Wiggins, Brenda P.	109
Wiles, Craig	113
Wright, Brett	264
Xiang, (Robert) Li	194
Yiannakis, Andrew	179
Young, Anderson	125
Zinn, Harry C.	222

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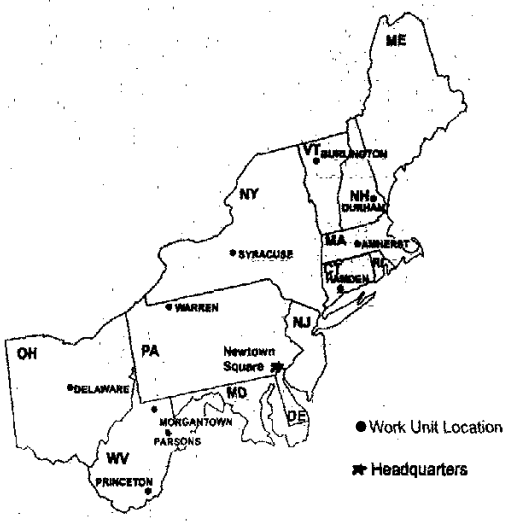
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